ESTUDIO DE AJUSTE DE PROTECCIONES

INFORME EAP Nº 63/2015

Gerencia Transelec Zona Centro Sur

S/E ANCOA

TRANSFORMADOR N° 1 DE 500/220 kV Y 750 MVA

AJUSTES DE NUEVAS PROTECCIONES MiCOM P645

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INFORME TÉCNICO

S/E ANCOA

RENOVACIÓN DE PROTECCIONES POR NTS&CS

ESTUDIO DE AJUSTE Y COORDINACIÓN DE PROTECCIONES

SCH-REL-ANC-INF-004-REV.2-DOC

FECHA	DETALLE	VERSIÓN	EJECUTÓ	REVISÓ
17/03/2015	EMITIDO PARA REVISIÓN INTERNA	A	KVA	RSS
18/03/2015	EMITIDO PARA OBSERVACIONES	B	KVA	RSS
05/05/2015	CORRECCIÓN DE COMENTARIOS Y EMITIDO PARA OBSERVACIONES	C	KVA	NUR
02/06/2015	CORRECCIÓN DE COMENTARIOS Y EMITIDO PARA OBSERVACIONES DE TRANSELEC	0	KVA	NUR
01/07/2015	CORRECCIÓN DE COMENTARIOS EMITIDO POR TRANSELEC	1	FRS	NUR
04/08/15	CORRECCIÓN DE COMENTARIOS EMITIDO POR TRANSELEC	2	FRS	NUR
20/08/15	CORRECCIÓN DE COMENTARIOS EMITIDO POR TRANSELEC	3	FRS	NUR

RESUMEN EJECUTIVO

Conforme a lo solicitado a RELIABLE ENERGY INGENIERÍA LTDA por la empresa de transmisión TRANSELEC S.A. Se realiza un estudio de coordinación y ajuste de protecciones para equipamiento perteneciente a las instalaciones de TRANSELEC S.A.

Principalmente, el presente documento indica los ajustes de la protección MiCOM P645 que se implementará en los paños KT1 y JT1 del Banco de Autotransformadores N°1 de 750 MVA, 525/230 kV de las instalaciones de TRANSELEC S.A. en S/E Ancoa. Actualmente el equipo transformador se encuentra fuera de servicio, por lo que para el presente estudio se debe considerar la verificación de coordinación de protecciones con las instalaciones de SS/EE que poseen directa conexión a S/E Ancoa, es decir, todas las protecciones de S/E Ancoa tanto en 500 kV como en 220 kV y también las protecciones ubicadas en las SSEE Alto Jahuel, Charrúa, Canal Melado y Pehuenche que miran a S/E Ancoa.

El sistema de protecciones estará compuesto dos equipos de marca Schneider Electric, modelo MiCOM P645 como sistema 1 y 2.

El Estudio de Ajuste y Coordinación de Protecciones tiene como finalidad demostrar, en base a cálculos y simulaciones, el correcto ajuste de las nuevas funciones de protección a implementar en S/E Ancoa, de modo de brindar sensibilidad y confiabilidad de operación frente ante fallas en el SI.

En este caso, y debido a la gran variedad de funciones que se ajustarán en el relé MiCOM P645, fue necesario realizar un estudio de cortocircuitos en las inmediaciones de SS/EE de influencia y principalmente en los puntos de conexión del Banco de Autotransformadores, con el objetivo de identificar las mínimas corrientes de arranque de las funciones de sobrecorriente que circularán por los equipos de medida de los nuevos relés. Para dicho análisis, se utilizó la siguiente metodología para la determinación de las mínimas variables que darán arranque a nuevo equipo de protección.

La determinación de la mínima corriente de falla entre fases para el ajuste de la función Diferencial para los paño KT1 y JT1, fue a través de la simulación de cortocircuitos en la zona de 525 kV y 230 kV; obteniendo la mínima corriente de circulación por cada paño durante una falla en cada zona de Alta Tensión del Autotransformador protegido.

Estas simulaciones fueron realizadas en la base de datos en formato DIgSILENT Power Factor versión 15.2 emitida en Marzo 2015 por el CDEC-SIC y actualizada a Diciembre 2015. Esta base ya contiene incorporados los parámetros de líneas, transformadores y generadores existentes en el SIC, así como la topología actual del sistema de transmisión.

Los cálculos realizados para la obtención de las máximas corrientes operacionales, permitió determinar un correcto ajuste de la función diferencial considerando diferentes escenarios operacionales que provocan diversas transferencias de potencia en el transformador protegido, agregando confiabilidad en los ajustes propuestos y proveer de seguridad de no operar de forma errónea durante situaciones normales y además exigentes por parte del transformador.

Se han propuesto ajustes para las funciones sobrecorriente de fase y residual en la zona de 500 kV, las cuales fueron referidas desde al lado de 220 kV. Esto permite visualizar correctamente fallas aumentando la seguridad al momento de contingencias cercanas al autotransformador.

Finalmente se informa que se han contemplado los criterios y exigencias de ajustes emitidos por TRANSELEC S.A., permitiendo aumentar la confiabilidad en la operación de la protección configurada, debido principalmente a la posibilidad de chequear estados del interruptor protegido, manteniendo siempre una condicionante en la operación de apertura de los equipos asociados.

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1. INTRODUCCIÓN

Con motivo de la incorporación de los Sistemas 1 y 2 de protecciones en el Banco de Autotransformadores de 750 MVA, 525/230 kV de S/E Ancoa, instalación ubicada en la Región del Maule, la empresa SCHNEIDER ELECTRIC a cargo de este proyecto ha encomendado a RELIABLE ENERGY INGENIERÍA la confección del presente Estudio de Ajuste y Coordinación de Protecciones en los Paños KT1 – JT1, propiedad de la empresa de transmisión TRANSELEC S.A.

En la actualidad, el Banco de Autotransformadores N°1 se encuentra fuera de servicio, por lo que para el presente estudio se debe considerar la verificación de coordinación de protecciones con las instalaciones de SS/EE que poseen directa conexión a S/E Ancoa, es decir, todas las protecciones de S/E Ancoa tanto en 500 kV como en 220 kV y también las protecciones ubicadas en las SS/EE Alto Jahuel, Charrúa, Canal Melado, Pehuenche, Colbún e Itahue que miran a S/E Ancoa.

Para el desarrollo de este Estudio, se ha utilizado la base de datos del SIC en formato del software DIgSILENT Power Factory emitida en Marzo de 2015 y actualizada a Diciembre 2015, con la finalidad de obtener los antecedentes de niveles de cortocircuito en la instalación analizada.

Para efectos de simulación y verificación de coordinación, se deben considerar escenarios que representen diferentes condiciones de operación que sean relevantes para la zona de estudio, considerando:

- Demanda Alta – Hidrología Húmeda
- Demanda Alta – Hidrología Seca

Incluyendo contingencias, tales como:

- Línea 220 kV Pehuenche – Ancoa aterrizada en sus dos extremos.
- Línea 220 kV Ancoa – Colbún Fuera de Servicio.

El Equipo que se ubicará en los paños KT1 – JT1 estará protegido con dos equipos marca Scheneider – Electric, modelo MiCOM P645, como Sistema 1 y Sistema 2. Los sistemas a incorporar contienen funciones diferencial, sobrecorriente de fase y residual, permitiendo brindar seguridad y sensibilidad ante fallas tanto dentro del equipo como fuera de este.

2. OBJETIVOS Y ALCANCES

El presente documento técnico, tiene como objetivo ajustar y coordinar las funciones de la tabla N°1, a través de lo indicado en el documento NEIT 013-2015, para el Banco de Autotransformadores N°1 a implementar en los Paños KT1 y JT1 propiedad de TRANSELEC S.A., debido al proyecto de recambio de los relés de protección actuales.

En resumen, se desea ajustar las siguientes protecciones:

TABLA 1: PROTECCIONES ACTUALES Y NUEVAS A IMPLEMENTAR EN LA SS/EE CHARRÚA

Paño	Descripción	Protección Actual	Funciones Actuales	Protección Nueva	Sistema de Protección	Funciones a Ajustar
KT1 – JT1	Banco de Autotransformadores S/E Ancoa	-	-	MICOM P645	1 y 2	87T
KT1 – JT1	Banco de Autotransformadores S/E Ancoa	-	-	MICOM P645	1 y 2	51
KT1 – JT1	Banco de Autotransformadores S/E Ancoa	-	-	MICOM P645	1 y 2	51N

Por último, el estudio considera la entrega de tablas de ajustes propuestos y gráficas necesarias para demostrar el funcionamiento de los esquemas utilizados.

3. ANTECEDENTES

3.1. INFORMACIÓN CONSIDERADA

Para la realización del estudio, fue considerada la siguiente información:

- Base de datos en formato DIgSILENT del Sistema Interconectado Central (SIC), emitida por el CDEC-SIC emitida en diciembre de 2014 y actualizada a diciembre de 2015. Esta base ya contiene incorporados los parámetros de líneas, transformadores y generadores existentes en el SIC, así como la topología actual del sistema de transmisión.
- Norma Técnica de Calidad y Seguridad de Servicio (NTS&CS) para el Sistema Interconectado del Norte Grande y Sistema Interconectado Central. Noviembre 2014.
- Manual Técnico *MiCOM P64x (P642, P643 & P645) Tranformer Protection Relay, P64x/EN M/A62.*
- Documentos de ajustes de protecciones de las protecciones de los paños aledaños los de estudio, ubicados en S/E Ancoa propiedad de TRANSELEC S.A.
- Documento *NEIT 013/2015* entregado por TRANSELEC S.A., el cual indica antecedentes y los criterios generales mínimos de la nueva protección a implementar.
- Diagramas unilineales en formato DWG de la S/E Ancoa.
- Documento guía técnica "*IEEE Guide for Protective Relay Applications to Power Transformers*" confeccionada por la IEEE como *Standard Document*, correlative IEEE Std C37.91-2000.
- Plano A028-54e-100, Unilineal AC de la S/E Ancoa entregado por TRANSELEC S.A.
- Diagrama Unilineal del Sistema Interconectado Central, con fecha 31-12-2014, entregado por TRANSELEC S.A.

3.2. DIAGRAMA UNILINEAL SIMPLIFICADO DE LA S/E ANCOA

A continuación la Figura 1 muestra el diagrama unilineal entregado como antecedente para el desarrollo del proyecto de renovación de protecciones.

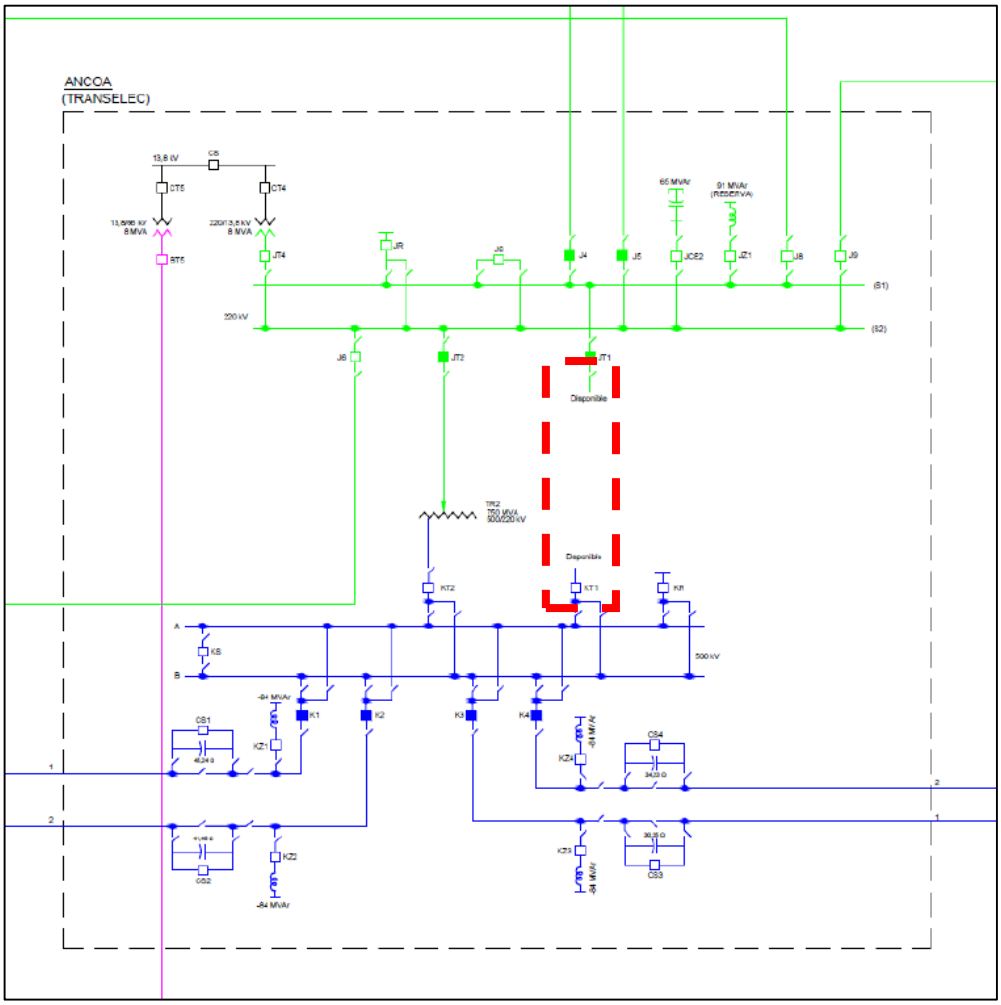

FIGURA 1: DIAGRAMA UNILINEAL CON DETALLE AUTRANSFORMADOR S/E ANCOA

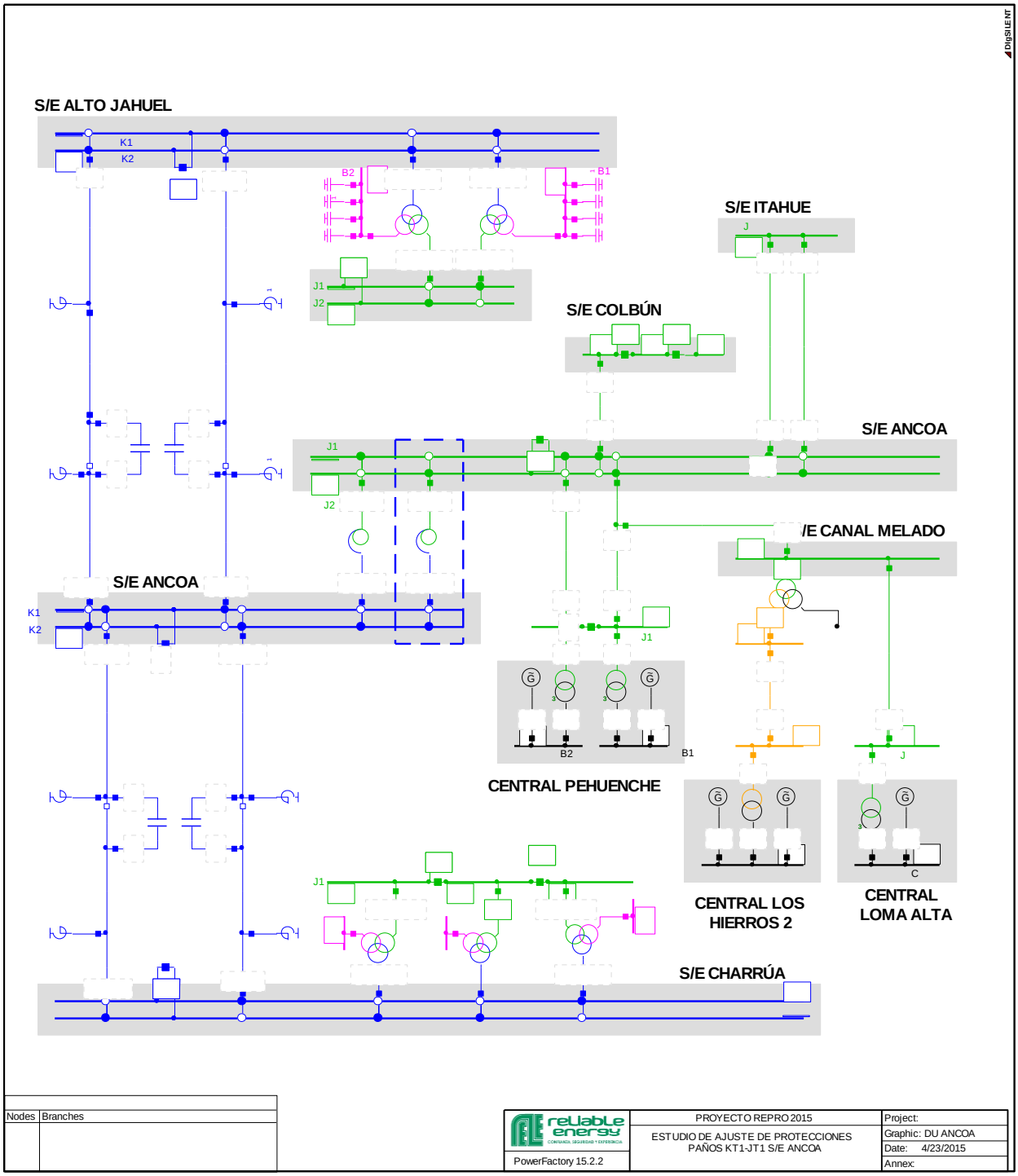

FIGURA 2: DIAGRAMA UNILINEAL DIGSILENT POWER FACTORY PARA ZONA DE ESTUDIO

3.3. PARÁMETROS ELÉCTRICOS DE INSTALACIONES EXISTENTES

A continuación se indican los parámetros eléctricos de las instalaciones existentes (línea, transformadores y generadores) relevantes para los propósitos del presente estudio. Estos valores han sido obtenidos de la página Web del CDEC-SIC y la base de datos del Sistema Interconectado Central en formato DIgSILENT Power Factory.

TABLA 2: PARÁMETROS ELÉCTRICOS DE LAS LÍNEAS DE TRANSMISIÓN EXISTENTES

Nombre del Trazado	Largo (km)	Corriente Nominal (kA)	R1 (20°C) (Ohm)	X1 (Ohm)	R0 (Ohm)	X0 (Ohm)
Línea Alto Jahuel - Buin 220kV	0,230	1,088	0,000	0,097	0,048	0,339
Línea Alto Jahuel - Los Almendros 220kV - L1	40,700	0,720	2,422	16,891	19,117	82,523
Línea Alto Jahuel - Los Almendros 220kV - L2	40,700	0,720	2,422	16,891	19,117	82,523
Línea Alto Jahuel - Reactor 500 kV C1	0,005	1,783	0,000	0,002	0,001	0,005
Línea Alto Jahuel - Reactor 500 kV C2	0,005	2,082	0,000	0,001	0,001	0,005
Línea Ancoa - Alto Jahuel 500 kV C1	241,229	1,783	6,972	80,811	58,977	250,979
Línea Ancoa - Alto Jahuel 500 kV C2	257,349	2,082	6,228	71,620	64,747	261,239
Línea Ancoa - Charrua 500kV L2	196,500	2,062	4,942	65,040	49,715	210,059
Línea Ancoa - Colbún 220 kV	0,170	1,575	0,002	0,041	0,001	0,010
Línea Ancoa - Itahue 220 kV L1	65,000	1,238	3,221	24,962	19,297	78,338
Línea Ancoa - Itahue 220 kV L2	65,000	1,238	3,221	24,962	19,291	78,338
Línea Ancoa - Pehuenche 220 kV - L2	24,500	1,358	1,066	9,874	7,938	51,497
Línea Ancoa - Reactor 500 kV L1	0,005	2,039	0,000	0,002	0,001	0,005
Línea Ancoa - Reactor 500 kV L2	0,005	2,062	0,000	0,002	0,001	0,005
Línea Ancoa - Reactor A.Jahuel 500 kV C1	0,005	1,783	0,000	0,002	0,001	0,005
Línea Ancoa - Reactor A.Jahuel 500 kV C2	0,005	2,082	0,000	0,001	0,001	0,005
Línea Canal Melado - Los Hierros 110 kV	17,000	0,520	0,183	6,640	5,413	18,763
Línea Charrúa - Ancoa 500kV L1	182,840	2,039	5,269	61,041	46,811	195,895
Línea Charrúa - Reactor 500 kV L1	0,005	2,039	0,000	0,002	0,001	0,005
Línea Charrúa - Reactor 500 kV L2	0,005	2,062	0,000	0,002	0,001	0,005
Línea Loma Alta - Canal Melado 220 kV	13,000	0,518	0,273	5,472	3,076	16,415
Línea Pehuenche - Tap. Loma Alta 220 kV L1	0,500	1,358	0,022	0,202	0,162	1,051
Línea Puente CCEE Ancoa - Charrua 500 kV L1	0,001	2,039	0,000	0,000	0,000	0,001
Línea Puente CCEE Ancoa - Charrua 500 kV L2	0,001	2,062	0,000	0,000	0,000	0,001
Línea Puente CCSS Ancoa 500 kV C1	0,001	1,783	0,000	0,000	0,000	0,001
Línea Puente CCSS Ancoa 500 kV C2	0,001	2,082	0,000	0,000	0,000	0,001
Línea Tap Loma Alta - Ancoa 220 kV L1	24,000	1,358	1,044	9,672	7,776	50,446
Línea Tap Loma Alta - Canal Melado 220 kV	10,000	0,518	0,210	4,209	2,366	12,627

TABLA 3: PARÁMETROS ELÉCTRICOS DE TRANSFORMADORES DOS ENROLLADOS EXISTENTES

Transformador Asociado a	Potencia Nominal (MVA)	Conexión	HV - MV Sec + (%)	HV - MV Sec 0 (%)	X1 HV - MV (pu)	R1 HV - MV (pu)
Transformador Ancoa T2 525/220kV_750 MVA	750	YNyn0	14,75	10,08	0,15	0,00
Transformador LAlta 220/13.8kV_42MVA	42	YNd1	10,02	9,16	0,10	0,00
Transformador Los Hierros 110/6.6kV_30MVA	30	YNd1	8,00	8,00	0,08	0,00
Transformador Pehuenche 220/13.8kV_290MVA_1	290	YNd1	12,65	12,53	0,13	0,00
Transformador Pehuenche 220/13.8kV_290MVA_2	290	YNd1	12,65	12,53	0,13	0,00

TABLA 4: PARÁMETROS ELÉCTRICOS DE TRANSFORMADORES TRES ENROLLADOS EXISTENTES

Nombre del Transformador	Potencia Nominal HV (MVA)	Potencia Nominal LV (MVA)	Conexión	HV - MV Sec + (%)	MV - LV Sec + (%)	LV - HV Sec + (%)	HV - MV Sec - (%)	MV - LV Sec - (%)	LV - HV Sec - (%)
Transformador A.Jahuel 500/220/66kV-750 MVA T4	750	750	YN0yn0d1	14,72	7,27	11,39	10,17	2,77	6,81
Transformador A.Jahuel 500/220/66kV-750 MVA T5	750	750	YN0yn0d1	14,74	7,29	11,43	10,17	2,77	6,81
Transformador Alto Jahuel 220/154kV-300MVA	300	300	YN0yn0d1	9,65	14,31	17,88	10,17	2,34	5,73
Transformador Canal Melado 220/110/13.8kV - 70MVA	70	70	YN0yn0d1	12,36	0,84	3,21	11,24	0,86	3,11
Transformador Charrua 500/220/66kV-750 MVA T5	750	750	YN0yn0d1	13,68	4,50	8,36	14,00	27,73	46,01
Transformador Charrua 500/220/66kV-750 MVA T6	750	750	YN0yn0d1	13,68	4,50	8,36	14,00	27,73	46,01
Transformador Charrua 500/220/66kV-750 MVA T8	750	750	YN0yn0d1	13,03	16,43	16,65	13,03	16,43	16,65

TABLA 5: PARÁMETROS ELÉCTRICOS DE GENERADORES EXISTENTES

Nombre del Generador	Potencia Nominal HV (MVA)	X2 (pu)	R2 (pu)	X0 (pu)	R0 (pu)
Generador Loma Alta	40,00	0,25	0,00	0,11	0,00
Generador Los Hierros U1	13,51	0,20	0,00	0,10	0,00
Generador Los Hierros U2	13,51	0,20	0,00	0,10	0,00
Generador Pehuenche U1	290,00	0,23	0,00	0,11	0,00
Generador Pehuenche U2	290,00	0,23	0,00	0,11	0,00

TABLA 6: PARÁMETROS ELÉCTRICOS DEL BANCO DE AUTOTRANSFORMADORES A PROTEGER

Parámetro	Valor	Unidad
PARÁMETROS GENERALES		
Capacidad Nominal	510	[MVA]
Capacidad Nominal CON Refrigeración Forzada	630	[MVA]
Tipo de Refrigeración	ONAN-ONAF	-----
Capacidad Máxima con Refrigeración Forzada (Sig. Etapas)	750	[MVA]
Capacidad Máxima con Refrigeración Forzada (Sig. Etapas)	-	[MVA]
Tensiones Nominales AT	525	[kV]
Tensiones Nominales BT	230	[kV]
Tipo de Conexión [Y, Δ ó YN]	YN0yn0	-----
IMPEDANCIA DE SECUENCIA POSITIVA		
Impedancia de Secuencia positiva Tap Mín Z	9,7	[%]
Impedancia de Secuencia positiva Tap Central Z	10,1	[%]
Impedancia de Secuencia positiva Tap Máx Z	10,57	[%]
IMPEDANCIA DE SECUENCIA CERO		
Impedancia de Secuencia cero	10.08	[%]
PÉRDIDAS EN EL COBRE DE LA PRUEBA DE CORTOCIRCUITO		
Pérdidas en el Cobre Tap Central	1349,74	[kW]
TIPO DE CAMBIADOR DE TAP		
Tipo de Cambiador ubicación	BT	-----
Tipo de Cambiador [V: en vacio, C: con carga]	C	-----
RANGO DE REGULACIÓN		
Rango de Regulación min (pasos)	1	-----
Rango de Regulación max (pasos)	17	-----
Tap Central	13	-----
Relación Voltajes/Tap	1,25	[%]
PERDIDAS EN VACIO		
Pérdidas en Vacío sec(+) Xm	-	[%]
Pérdidas en Vacío sec(+) Pfe	200,09	[kW]
Pérdidas en Vacío sec(0) X0m	-	[%]

3.4. TRANSFORMADORES DE CORRIENTE DE LA S/E ANCOA

Las características de los transformadores de corriente asociado al sistema de protección a reemplazar de S/E Ancoa, específicamente las asociadas al banco de autotransformadores 525/230 kV conectado a los paños KT1 – JT1:

TABLA 7: PARÁMETROS ELÉCTRICOS TRANSFORMADORES DE CORRIENTE

Transformador asociado	Lado (kV)	Relación de Transformación (A)	Clase y precisión	Error (%)	Índice satura-ción
Banco de Autotransformadores 750 MVA 525/230kV	525	1600/1 (Y)	TPZ/10P20	10	20
Banco de Autotransformadores 750 MVA 525/230kV	230	2000/1 (Y)	TPZ/10P20	10	20

4. PRINCIPIO DE OPERACIÓN DE LA PROTECCIÓN MICOM P645

El MICOM P645 es un equipo de protección destinado a transformadores, generadores y reactores, ofreciendo funciones específicas para este propósito de manera de aislar rápidamente fallas dentro del elemento protegido.

A continuación se muestra en la Figura 3 el esquema funcional de la protección MiCOM P64x (diagrama similar para las series P642, P643 y P645), mostrando las funciones principales del equipo de protección de la empresa Schneider – Electric:

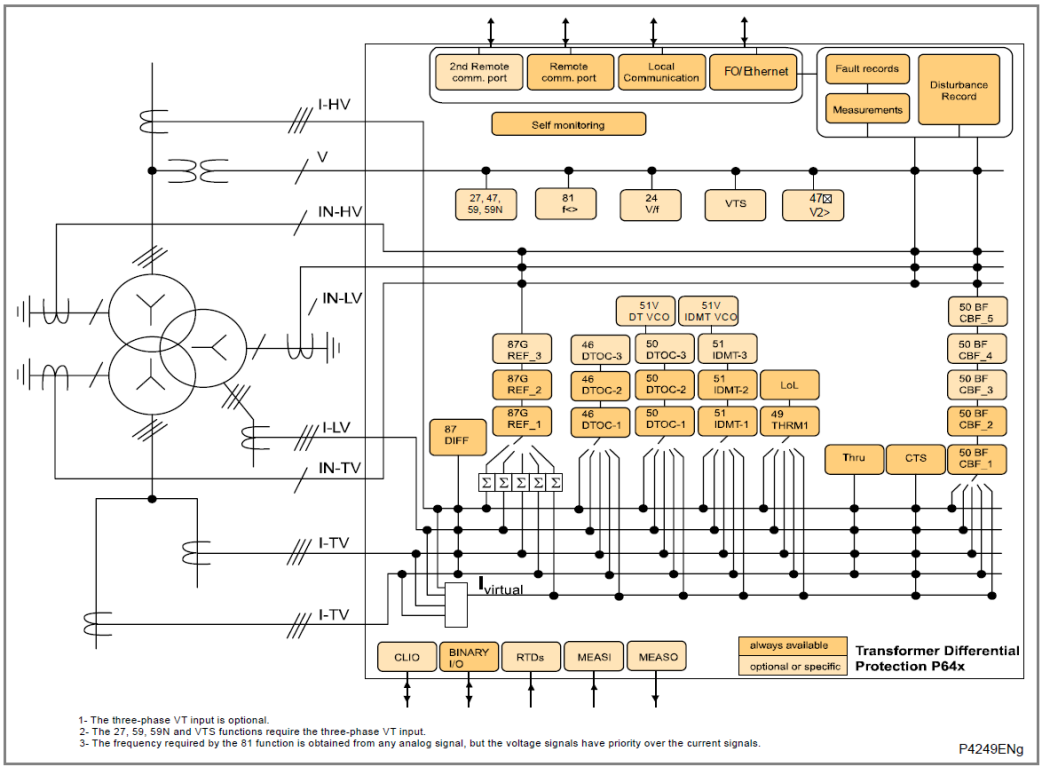

FIGURA 3: ESQUEMA GENERAL DE PROTECCIONES DEL RELÉ MICOM P645

En este caso, solo se requiere la habilitación de las funciones de protección 87T / 51 / 51N con la finalidad del reemplazo de los equipos existentes.

4.1. PRINCIPIO DE DIFERENCIAL DE TRANSFORMADOR (87T)

La Figura 4 muestra el diagrama lógico completo de la operación de la función diferencial del relé MiCOM P645, indicando los bloques de bloqueos de armónicos, las funciones de supervisión de los TCs y todas las componentes que complementan la operación segura y eficaz de la protección a implementar.

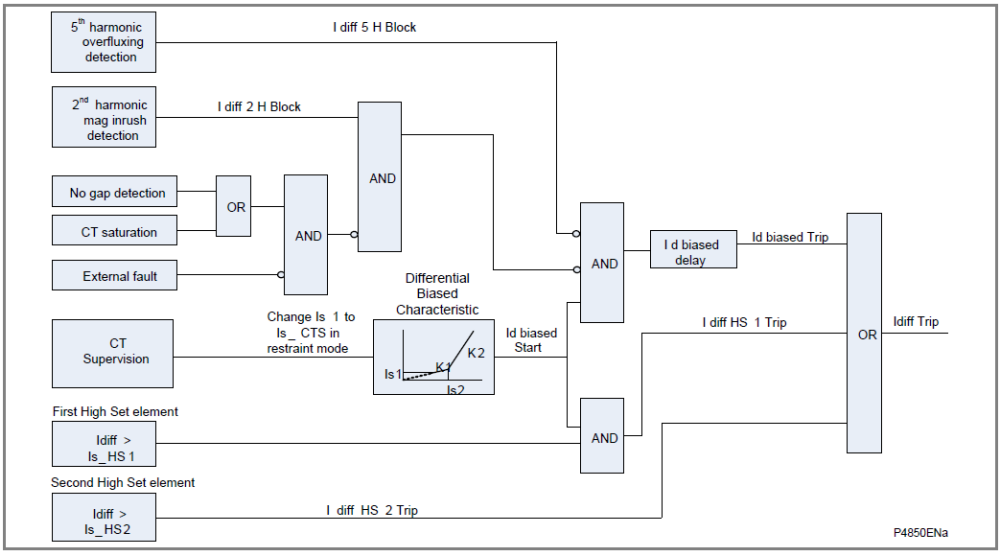

FIGURA 4: DIAGRAMA LÓGICO DE LA FUNCIÓN DIFERENCIAL DE PORCENTAJE

4.1.1 CORRECCIÓN DE RELACIÓN DE LOS TCs

La serie MiCOM P64x calcula automáticamente el factor de corrección de la relación para cada devanado. El relé calcula los factores de corrección de relación sobre la base de la potencia de referencia, bobinado tensión nominal, y las corrientes nominales primarias de los transformadores de corriente. Para esto, el equipo verifica que los denominados “factores de coincidencia” estén dentro de los rangos permisibles. Los factores de compensación son calculados de la siguiente manera:

$$I_{ref,n} = \frac{S_{ref}}{\sqrt{3}V_{nom,n}} \qquad K_{amp,n} = \frac{I_{nom,n}}{\frac{S_{ref}}{\sqrt{3}V_{nom,n}}}$$

S_{ref} : referencia común de potencia para todos los terminales.
n : denominación para cada entrada de los TC (CT1, CT2, etc.).
$I_{ref,n}$: referencia de corriente para cada entrada del TC.
$K_{amp,n}$: factor de coincidencia de la amplitud para cada entrada del TC.
$I_{nom,n}$: corriente primaria nominal para cada entrada de TC.
$V_{nom,n}$: voltaje nominal para cada entrada de TC.

Para que el relé realice la lógica de operación, el factor $K_{amp,n}$ deberá encontrarse siempre entre:

$$0{,}05 \leq K_{amp,n} \leq 20$$

Finalmente, el relé MiCOM P643 calcula las corrientes por cada lado según el siguiente criterio:

$$I_{amp,HV,C} = K_{amp,HV} \times I_{HV,C}$$
$$I_{amp,LV,C} = K_{amp,LV} \times I_{LV,C}$$

4.1.2 CORRECCIÓN PARA LA COINCIDENCIA DEL GRUPO VECTORIAL

Además de la corrección y verificación de coincidencia de las amplitudes de corriente medidas, el relé MiCOM serie P64x realiza también la misma función para la configuración del grupo vectorial del transformador protegido. En este caso, la lógica modifica la conexión entrada de los TC para establecer la coincidencia del grupo vectorial con la finalidad de calcular la corriente diferencial y de restricción bajo el mismo ángulo de corriente.

4.1.3 CARACTERÍSTICA DE DISPARO DE LA FUNCIÓN DIFERENCIAL

Las corrientes diferenciales y de polarización para cada fase son calculadas a partir de las corrientes luego de realizar la verificar de coincidencia del grupo vectorial y de la amplitudes de medidas por el relé.

$$I_{diff,y} = \left| \overrightarrow{I_{s,y,CT1}} + \overrightarrow{I_{s,y,CT2}} + \overrightarrow{I_{s,y,CT3}} + \overrightarrow{I_{s,y,CT4}} + \overrightarrow{I_{s,y,CT5}} \right|$$

$$I_{bias,y} = 0.5 \cdot \left[\left| \overrightarrow{I_{s,y,CT1}} \right| + \left| \overrightarrow{I_{s,y,CT2}} \right| + \left| \overrightarrow{I_{s,y,CT3}} \right| + \left| \overrightarrow{I_{s,y,CT4}} \right| + \left| \overrightarrow{I_{s,y,CT5}} \right| \right]$$

y : indica la medición de las fases A, B o C.
s : es la corriente luego de verificar la coincidencia de la amplitudes y grupo vectorial de cada fase.

La corriente de polarización usada en la característica de la función diferencial del tipo porcentual, es calculada determinando la máxima “corriente de polarización retardada”, la cual corresponde al valor de corriente de restricción calculada en un ciclo anterior, de modo de mantener el nivel de polarización luego del despeje de fallas externas, aumentando su estabilidad en la medida.

La característica del disparo de la función diferencial porcentual se muestra en la Figura 5 siguiente:

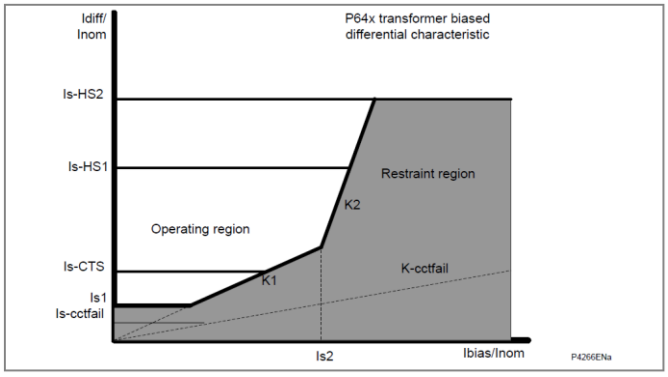

FIGURA 5: CARACTERÍSTICA DE DISPARO DE LA FUNCIÓN DIFERENCIAL

La Figura muestra la operación de la función diferencial mediante 2 puntos de quiebres. El primer punto de quiebre es dependiente de la configuración de Is1 y K1. El segundo punto de quiebre de la característica de disparo se define por el ajuste de Is2. La pendiente inferior proporciona sensibilidad para fallas internas mientras que la pendiente superior proporciona estabilidad bajo condiciones de falla externas que pasen a través del transformador, generando posibles corrientes diferenciales transitorias debido a la saturación de los transformadores de corriente.

4.1.4 POLARIZACIÓN TRANSIENTE

La serie MiCOM P64x introduce un valor adicional de polarización para el cálculo de la polarización al momento de la existencia del aumento de la medida media de dicho valor. Ese valor, llamado polarización transitoria, decae exponencialmente. La polarización transitoria se restablece a cero una vez que el relé dispara, o si el valor medio medido de polarización es inferior al ajuste Is1. La polarización transitoria se utiliza para hacer la protección estable frente a fallas externas y permite un tiempo de retardo de la saturación de CT causado por pequeñas corrientes de falla externa y altas relaciones X / R. En el caso de la visualización por solo un extremo o una falla por doble alimentación, la corriente diferencial es predominante y la polarización transitoria no tiene ningún efecto.

4.1.5 HIGH-SET DE LA FUNCIÓN DE PROTECCIÓN DIFERENCIAL

El algoritmo para el ajuste de la característica HIGH-SET 1 utiliza el método de detección de valores máximos para lograr rápidos tiempos de funcionamiento. El valor *peak* es el índice absoluto más alto en las últimas 24 muestras del relé (último ciclo). Dado que el HIGH-SET 1 utiliza la detección de los máximos valores, es necesario que el ajuste de Is-HS1 sea por encima del *peak* más alto que la máxima corriente de magnetización estimada, de modo mantener la seguridad frente a condiciones de energización. Para la operación mediante el HIGH-SET 1, deberá cumplir la siguiente condición:

- El valor *peak* de la corriente diferencial ser mayor al ajuste Is-HS 1.
- La característica de polarización debe estar en la zona de operación.

Si se cumplen las condiciones indicadas, el MiCOM P645 realizará Trip sin considerar los bloqueos de segunda armónica o sobre flujo.

Si la corriente diferencial supera el umbral ajustable Is-HS2, la corriente de polarización, el bloque de armónico y de sobre flujo no son considerados, emitiendo la señal de disparo independientemente del bloqueo de armónicos o la corriente de polarización.

4.1.6 LOW-SET DE LA FUNCIÓN DE PROTECCIÓN DIFERENCIAL

Luego de calcular las corrientes diferenciales y de polarización, el relé realiza una serie de comparaciones para obtener la operación de la función de protección. En este caso, el equipo compara:

- Zona plana:

$$I_{bias,\max} \le \frac{I_{s1}}{K_1}$$

$$I_{diff} \ge I_{s1}$$

- K1 Slope:

$$\frac{I_{s1}}{K_1} \ge I_{bias,\max} \le I_{s2}$$

$$I_{diff} \ge K_1 \cdot I_{bias.\max} + Transient \quad Bias$$

- K2 Slope:

$$I_{s2} \le I_{bias,\max}$$

$$I_{diff} \ge K_1 \cdot I_{s2} + K_2 \cdot (I_{bias.\max} - I_{s2}) + Transient \quad Bias$$

La polarización transiente es adicionada al cálculo de la polarización con la finalidad de aumentar la estabilidad cuando existan fallas a través de la zona protegida; sin embargo, la nueva polarización adicionada no modifica los ajustes de puntos K1 y K2.

4.1.7 BLOQUEO DE CORRIENTE DE MAGNETIZACIÓN

En condiciones normales, la corriente de magnetización asociada al flujo en operación es relativamente pequeño (2-5% de la corriente a plena carga); sin embargo, si un devanado del transformador es energizado desde una tensión cero, sin flujo remanente, el nivel de flujo durante el primer ciclo de tensión (2 x máx. flujo normal) dará lugar a la saturación del núcleo y en una alta corriente magnetización, la cual será de forma no sinusoidal. Esta corriente se denomina *Inrush* puede mantenerse durante varios ciclos. La corriente de *Inrush* inicial-máxima puede ser tan alta como 8-30 veces la corriente a plena carga.

El relé MiCOM serie P64x contiene la característica de bloqueo de la función diferencial debido a la visualización de la corriente de magnetización de energización (*Inrush*), en el momento en que transformador sea puesto en servicio. El equipo filtra la corriente diferencial medida en componentes de la frecuencia fundamental (fn), determinando las corrientes de segunda armónica que son predominantes en la energización de un transformador. Las componentes de segunda armónicas son bloqueadas y no son contempladas en el cálculo final de la corriente diferencial. Luego en el caso que el cálculo $I_{diff}(2*fn)/I_{diff}(fn)$ sea mayor al umbral ajustado en el relé, este bloquea la señal de disparo de las siguientes formas:

- En todas las fases.
- Selectivamente en una fase.

4.1.8 RESTRICCIÓN POR SOBRE EXITACIÓN

Si un transformador está siendo alimentado con una tensión mayor a la nominal, se producen efectos de saturación. Sin estabilización, estos efectos podrían provocar corrientes diferenciales capaces de realizar un disparo erróneo. Por otro lado, la sobresaturación también genera la circulación de una alta proporción de corrientes de quinta armónica la cual es identificada por el relé MiCOM P645.

El relé filtra la corriente diferencial, determina la componente fundamental (fn) y las que corresponden al quinto armónico I_{diff} (5*fn). Si la relación I_{diff}(5*fn)/I_{diff}(fn) supera al valor ajustado Ih (5)%> en al menos una fase en dos cálculos consecutivos, y si además la corriente diferencial es mayor que 0,1 en p.u. (ajuste mínimo de Is1), el disparo se bloquea de forma selectiva para una fase.

4.2. PRINCIPIO DE SOBRECORRIENTE DE FASE (51/50)

El relé MiCOM P645 provee un elemento de protección de 4 etapas para la función de sobrecorriente, la cual pueden ser direccionadas según sea necesario. Los elementos de sobrecorriente operan dependiendo de la medición de cada TC asociado a un enrollado en particular.

Su facilidad de ajuste permite que el equipo pueda configurarse según diversas necesidades de operación, incluyendo además la posibilidad de ajuste de los retardos de tiempos bajo curvas universales IEC, UK, IEEE y US; o en tiempos definidos.

A continuación se muestra el diagrama lógico de operación de la función de sobrecorriente de fase no direccional:

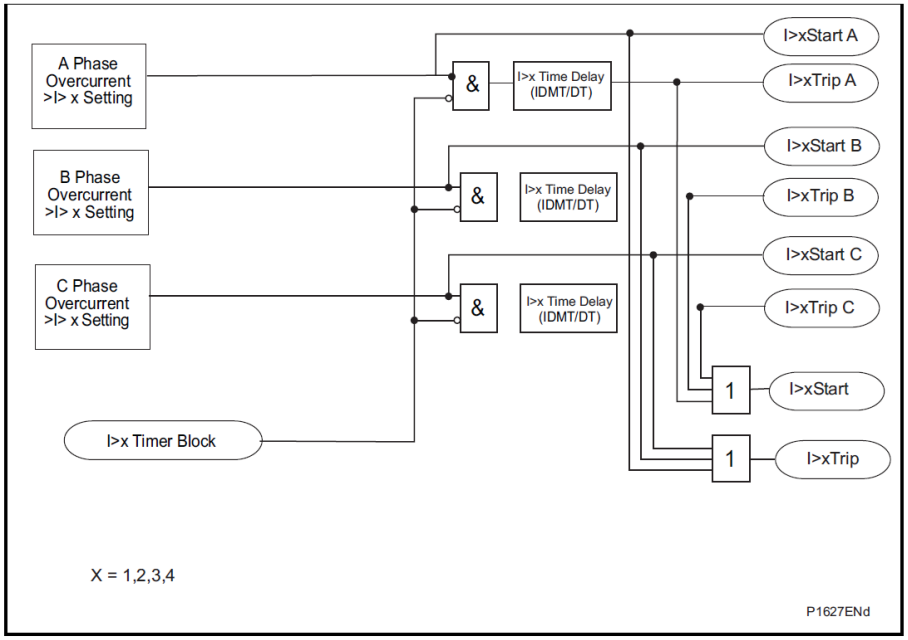

FIGURA 6: DIAGRAMA LÓGICO DE LA FUNCIÓN DE SOBRECORRIENTE DE FASE NO DIRECCIONAL

4.3. PRINCIPIO DE SOBRECORRIENTE RESIDUAL (51N/50N)

El elemento de falla a tierra se basa en el cálculo de corriente de neutro por cada bobinado. El relé tiene la capacidad de seleccionar la medición de corriente de neutro y derivado de la corriente de neutro calculado en las fases.

Cada bobinado tiene un elemento de protección de fallo a tierra en cuatro etapas. Cada etapa se puede seleccionar como no direccional o direccional.

Su facilidad de ajuste permite que el equipo pueda configurarse según diversas necesidades de operación, incluyendo además la posibilidad de ajuste de los retardos de tiempos bajo curvas universales IEC, UK, IEEE y US; o en tiempos definidos.

A continuación se muestra el diagrama lógico de operación de la función de sobrecorriente residual no direccional:

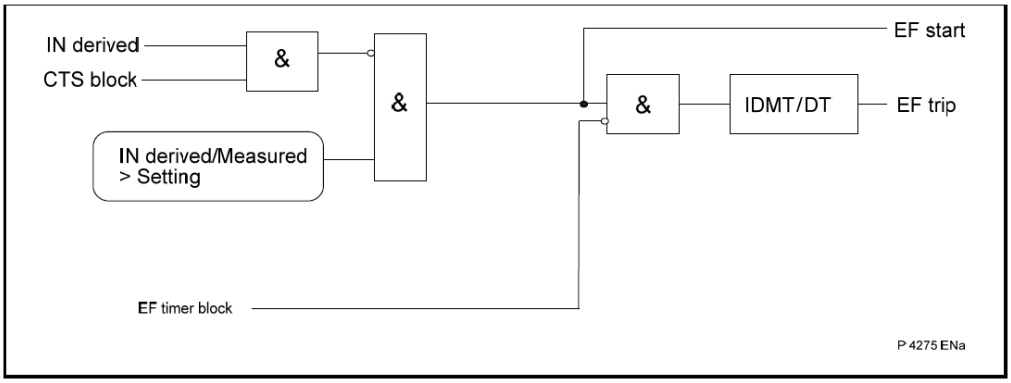

FIGURA 7: DIAGRAMA LÓGICO DE LA FUNCIÓN DE SOBRECORRIENTE RESIDUAL NO DIRECCIONAL

5. CRITERIOS DE AJUSTE DE LA PROTECCIÓN MICOM P645

Los ajustes de los nuevos relés MiCOM P645, asociados al banco de autotransformadores vinculado a los paños KT1 y JT1 ubicado en S/E Ancoa, consideran las siguientes funciones:

- Diferencial de porcentaje (87T)
- Sobrecorriente de fases (51)
- Sobrecorriente residual (51N)
- Registrador oscilográfico

5.1. PROTECCIÓN DIFERENCIAL DE PORCENTAJE (87T)

Para la especificación de los ajustes de esta función del relé MiCOM P645, se utilizaron los criterios detallados en el documento *"MiCOM P64x (P642, P643 & P645) Tranformer Protection Relay, P64x/EN M/A62"* de Schneider - Electric, teniendo en consideración que la función 87T es inherentemente unitaria y selectiva, por lo no necesita coordinar con las protecciones del resto de las instalaciones del sistema. De esta forma los criterios de ajustes para esta función serán:

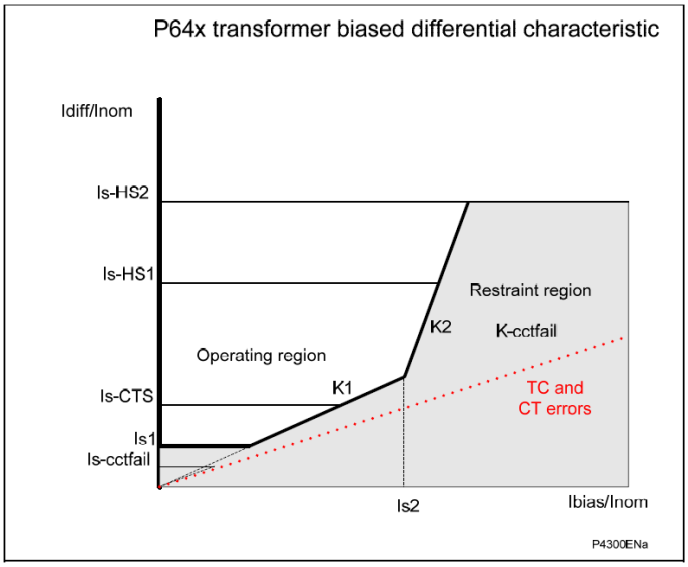

FIGURA 8: ESQUEMA DE LA FUNCIÓN DIFERENCIAL INCLUYENDO ERRORES DE TC Y TAP

En este caso, es necesario considerar los 2 enrollados del banco de autotransformadores a proteger, lo que implica considerar los máximos errores posibles para cada combinación de medida en cada punta.

AJUSTE K1

En condiciones normales de funcionamiento la corriente de magnetización provocan condiciones desequilibradas provocando generar corrientes diferenciales, por lo que según el fabricante la pendiente inicial, *K1*, se puede ajustar en 30 %. Esto garantiza una sensibilidad a fallas internas permitiendo inclusive los errores de relación de los CTs. Sin embargo, es necesario calcular el máximo valor de error de ajuste debido principalmente que el banco de autotransformadores 525/230 kV de S/E Ancoa contiene cambiador de TAP bajo carga, con un rango amplio de posiciones, de modo de que el ajuste *K1* esté sobre el máximo valor de error obtenido.

AJUSTE K2

En condiciones de altas corrientes, por ejemplo en una falla externa, pueden incurrir que los TCs alcances sus zonas de saturación por lo que agregan errores adicionales en la medición de las corrientes diferenciales, por lo tanto, la pendiente *K2* puede ser ajustado a 80 % para proporcionar estabilidad frente a fallas externas que pasen por el equipo protegido.

AJUSTE Is1

El ajuste de Pick up, *Is1*, depende de la instalación protegida y también por la cantidad de corriente diferencial que podrían ser visualizados durante las condiciones normales de funcionamiento. El fabricante recomienda un valor de 0,2 p.u. para el equipo MiCOM P645 en proteger un transformador.

AJUSTE Is2

El segundo punto de inflexión, *Is2*, debe establecerse de acuerdo a la corriente máxima de funcionamiento. Las zonas de restricción más allá del punto *Is2* se suelen considerar como fallas externas que pasan por el equipo protegido. En este caso, se utilizará el ajuste igual a la corriente nominal del transformador.

AJUSTE Is-HS1 Y Is-HS2

Los ajustes *Is-HS1* y *Is-HS2* se utilizan para complementar la función diferencial frente a fallas internas de alta corriente, ofreciendo un despeje más rápido debido principalmente a que tienen un menor grado de restricción. En este caso, se habilitará el parámetro *Is-HS1* con un valor máximo correspondiente a la mínima corriente de saturación de los TCs asociados. Este valor se recomienda que sea mayor a la corriente *Inrush* del equipo.

El ajuste *Is-HS2* no está restringido por la característica de polarización, por lo que el MiCOM P645 se disparará independientemente de la intensidad de restricción. En este caso, como valor típico se utiliza un ajuste correspondiente a 0,8 veces la mínima corriente de falla en los *bushings* del Banco de autotransformadores en la zona de 525 kV (Paño KT1) de S/E Ancoa. Sin embargo, este valor obtenido (mostrado en el ANEXO B y en la Tabla 9 es menor que la máxima saturación estimada de cada uno de los TCs asociados, determinando que no será necesario dicho ajuste.

AJUSTE 2nd HARM BLOCKED

Para evitar operaciones erróneas durante las energizaciones de los transformadores, es que resulta recomendable utilizar la inhibición de la función diferencial en presencia de componente de segundo armónico sobre corriente de fundamental. El ajuste de nivel de porcentaje de corriente de segunda armónica respecto de la fundamental se ajustara de acuerdo a los niveles típicamente ajustados (20%) y se utilizará el

modo *Crossblock* para el bloqueo de las tres fases de la función diferencial al momento de la existencia de componente de segunda armónica mayor al umbral seteado.

AJUSTE 5nd HARM BLOCKED

Para evitar operaciones erróneas durante sobre-excitaciones del transformador, se resulta habilitará la función de bloqueo de la función diferencial cuando exista presencia de componente de quinto armónico sobre corriente de fundamental. El ajuste de nivel de porcentaje de corriente de quinta armónica respecto de la fundamental se ajustara de acuerdo a los niveles típicamente ajustados (35%).

5.2. PROTECCIÓN SOBRECORRIENTE DE FASE (51)

Los ajustes de la función de sobrecorriente de fase serán configurados de tal manera de coordinar con todas las protecciones de sobrecorriente de la S/E Ancoa, de modo de aislar posibles contingencias de forma selectiva, rápida y confiable ocurridas en las cercanías del área de influencia.

El criterio de sensibilidad de visualización de fallas por parte del MiCOM P645 estará dado por 125% la máxima corriente nominal de operación del equipo protegido, con un ajuste de tiempo de tal forma de coordinar de manera selectiva con los demás paños de la S/E Ancoa.

$$125\ \% \times\ I_{Máx\ Nominal}\ \geq (I > 1\ Current\ Set)$$

$(I > 1\ TMS)$ > Para coordinación con Paños S/E Ancoa.

5.3. PROTECCIÓN SOBRECORRIENTE RESIDUAL DE TIERRA (51N)

Se propondrán ajustes para la función de sobrecorriente residual para el autotransformador 525/230 kV ubicado en los paños KT1 y JT1 de S/E Ancoa. El criterio de sensibilidad de visualización de fallas por parte del MiCOM P645 estará dado por el 20% de la máxima corriente nominal de operación del equipo protegido, con un tiempo de ajuste que coordine de forma selectiva con los paños de S/E Ancoa.

$$20\ \% \times\ I_{Máx\ Nominal}\ \geq (IN > 1\ Current\ Set)$$

$(IN > 1\ TMS)$ > Para coordinación con Paños S/E Ancoa

5.4. REGISTRADOR OSCILOGRÁFICO

El registro oscilográfico (*"Disturbance recorder"*) permitirá guardar los datos de operación de cualquier función de protección y/o variable medida en el relé MiCOM P645. La duración de la oscilografía será de 2 seg., mientras que la posición del Trip en la oscilografía ("*Trigger Position*") se deberá ajustar en 50% en "*Trigger Mode*" en configuración "*Extended*".

6. MEMORIA DE CÁLCULO AJUSTES DE LA PROTECCIÓN MICOM P645

6.1. PROTECCIÓN DIFERENCIAL DE TRANSFORMADOR (87T)

La característica diferencial para el banco de autotransformadores 525/230 kV de 750 MVA de S/E Ancoa es determinada por los siguientes ajustes:

CORRECCIÓN DE RELACIONES DE LOS TCs

El relé MiCOM P645 necesita el valor de corrección de los transformadores de corrientes que están asociados a las entradas del transformador protegido. En cálculo de dicho índice se realiza de la siguiente manera:

$$T_{1-TC} = \frac{1600}{1}, Lado\ 525\ kV, Paño\ KT1$$

$$T_{2-TC} = \frac{2000}{1}, Lado\ 230\ kV, Paño\ JT1$$

$$K_{\text{amp},T1-TC} = \frac{I_{nom,T1-TC}}{\frac{S_{ref}}{\sqrt{3} \times V_{nom\ lado\ HV}}} = \frac{1600}{\frac{750 \times 10^6}{\sqrt{3} \times 525 \times 10^3}} = 1{,}9398$$

$$K_{\text{amp},T2-TC} = \frac{I_{nom,T2-TC}}{\frac{S_{ref}}{\sqrt{3} \times V_{nom\ lado\ LV}}} = \frac{2000}{\frac{750 \times 10^6}{\sqrt{3} \times 230 \times 10^3}} = 1{,}0623$$

AJUSTE Is1 y K1

Los ajustes de operación y la primera pendiente de la función diferencial deben ser definidos considerando los máximos valores de error debido a los cambiadores de Tap bajo carga del banco de autotransformadores. A continuación se muestran los cálculos para la obtención del máximo error de medición de los equipos a proteger.

Debido la capacidad de cambiadores de Tap bajo carga, las máximas y mínimas corrientes por el lado de los paños KT1 y JT1 serán:

$$I_{Nom\ Lado\ KT1} = \frac{S_{ref}}{\sqrt{3} \times V_{nom\ lado\ KT1}}$$

$$I_{Nom\ Lado\ KT1} = \frac{750 \times 10^6}{\sqrt{3} \times 525 \times 10^3} = 824{,}7861\ A - prim$$

$$I_{Nom\ Lado\ KT1} = \frac{824{,}7861}{1600} = 0{,}5155\ p.u.$$

$$I_{Nom\ Lado\ JT1\ (Tap=17)} = \frac{S_{ref}}{\sqrt{3} \times V_{nom\ lado\ JT1\ (T=17)}}$$

$$I_{Nom\ Lado\ JT1\ (Tap=17)} = \frac{750 \times 10^6}{\sqrt{3} \times (230 + 1{,}25\% \times 230 \times 4) \times 10^3} = 1793{,}0132\ A - prim$$

$$I_{Nom\ Lado\ JT1\ (Tap=17)} = \frac{1793{,}0132}{2000} = 0{,}8965\ p.u.$$

$$I_{Nom\ Lado\ JT1\ (Tap=1)} = \frac{S_{ref}}{\sqrt{3} \times V_{nom\ lado\ JT1\ (T=1)}}$$

$$I_{Nom\ Lado\ JT1\ (Tap=1)} = \frac{750 \times 10^6}{\sqrt{3} \times (230 - 1{,}25\% \times 230 \times 12) \times 10^3} = 2214{,}8987\ A - prim$$

$$I_{Nom\ Lado\ JT1\ (Tap=1)} = \frac{2214{,}8987}{2000} = 1{,}1074\ p.u.$$

Agregando además el posible error de magnitud de los TCs asociados a cada enrollado, el cual tiene un estimado de 5 % por lado, se calcula la máxima corriente diferencial entre los lados KT1 y JT1. Considerando -5 % en el paño KT1 y ∓5 % en el paño JT1, se obtiene lo siguiente:

$$I_{Nom\ Lado\ KT1} = 0{,}5155 \times 0{,}95 = 0{,}4897\ p.u.$$

$$I_{Nom\ Lado\ JT1\ (Tap=17)} = 0{,}8965 \times 0{,}95 = 0{,}8517\ p.u.$$

$$I_{Nom\ Lado\ JT1(Tap=1)} = 1{,}1074 \times 1{,}05 = 1{,}1628\ p.u.$$

Aplicando la corrección de razón de TCs:

$$I_{Nom\ Lado\ KT1\ _Corregido} = 0{,}4897 \times 1{,}9398 = 0{,}9499\ p.u.$$

$$I_{Nom\ Lado\ JT1\ (Tap=17)_Corregido} = 0{,}8965 \times 1{,}0623 = 0{,}9524\ p.u.$$

$$I_{Nom\ Lado\ JT1_(Tap=1)_Corregido} = 1{,}1628 \times 1{,}0623 = 1{,}2352\ p.u.$$

Finalmente, se obtiene la máxima corriente diferencial aplicando los errores identificados para los transformadores en estudio:

$$I_{Diff\ 1} = \left| I_{Lado\ KT1_Corregido} - I_{Lado\ JT1\ (Tap=17)_{Corregido}} \right| = 0{,}0025\ p.u.$$

$$I_{Diff\ 2} = \left| I_{Lado\ KT1_{Corregido}} - I_{Lado\ JT1_{(Tap=1)_{Corregido}}} \right| = 0{,}2853\ p.u.$$

Se elige el valor $I_{Diff\,2}$ para el ajuste de *Is1* dado que es el índice mayor, incluyendo además un margen de seguridad de 0,05 p.u.; determinando un valor final de 0,3353 p.u. Luego, este deberá ser configurado a la sensibilidad de la MiCOM P645.

$I_{S1} = 340.0\ e-3PU$

La operación de la función diferencial en la zona plana, el ajuste de *K1* estará dado por:

$I_{op} = I_{S1} = K1 \times I_{bias\ máx}$, siendo $I_{bias\ máx}$ = 1,0926p.u.

$K1 = \frac{0{,}340}{1{,}0794} \times 100 = 31{,}12\%$, agregando un índice de seguridad de 2%, se obtiene que el ajuste *K1* será 33,12%, lo cual es cercano a lo indicado por el fabricante. Luego este valor deberá ser ajustado a la sensibilidad del relé.

$K1 = 33\%$

AJUSTE Is2 y K2

Según recomendación de fabricante, el segundo punto de quiebre y su pendiente característica será:

$I_{S2} = Máxima\ corriente\ del\ equipo$

$I_{S2} = I_{Nom\ Lado\ JT1\ (Tap=1)} + 10\%\ error = 1{,}1074 \times 1{,}1 = 1{,}2181\ p.u.$

$I_{S2} = 1{,}20\ p.u.$, se adecua a la sensibilidad del relé implementado.

La pendiente *K2* debe ser ajustada con el suficiente margen con la finalidad de proporcionar estabilidad frente a fallas externas que pasen por el equipo protegido. En este caso, se utilizará una pendiente de 80 % indicada según fabricante.

Is-HS1 y Is-HS2

Con la finalidad de realizar despejes más veloces durante fallas al interior del transformador, se ajustará los parámetros HIGH SET de la siguiente manera:

$$Is - HS1 = Mínima\ corriente\ de\ saturación\ de\ los\ TCs\ asociados$$

$$Is - HS2 = 0{,}8 \times Menor\ corriente\ de\ cortocircuito\ en\ el\ terminal\ del\ transformador$$

Obtenida la clase de los TCs estimado asociados a cada lado del transformador elevador (10P20 ambos), el ajuste *Is-HS1* será:

$$Is - HS1 = 20\ p.u.$$

Por otro lado, determinada la mínima corriente de falla calculada en el Anexo B mediante el Estudio de Cortocircuito en la zona de S/E Ancoa y mostrada en resumen en la Tabla 9.

TABLA 8: RESUMEN MÍNIMAS CORRIENTES DE CORTOCIRCUITOS OBTENIDAS PARA CADA PAÑO

Paño	Descripción	Mínima Corriente de Falla Entre Fases en Bushings	Mínima Corriente de Falla Entre Fases Circulante (Falla Paño Contrario)
		Ik" (kA)	Ik" (kA)
KT1	Banco de Autotransformadores 750 MVA 525/230kV	1,209	1,968
JT1	Banco de Autotransformadores 750 MVA 525/230kV	4,493	2.759

$$I_{CC\ entre\ fases\ mínimo\ en\ zona\ 500\ kV} = 1{,}209\ kA, obtenido\ en\ la\ falla\ trifásica$$

$$Is - HS2 = 0{,}8\ \times I_{CC\ mínimo}$$

$$Is - HS2 = 967{,}2\ A - prim$$

$$Is - HS2 = \frac{967{,}2}{1600} = 0{,}6045\ \ p.u.$$

Dado el valor obtenido, el cual es menor al ajustado para el parámetro *Is - HS1*, se propone no habilitar la función HIGH SET 2.

6.2. PROTECCIÓN SOBRECORRIENTE DE FASE (51)

Se propone ajustar la función de sobrecorriente de fase de tiempo inverso al 125% de la máxima corriente del Autotransformador, con un tiempo de operación que coordine con las protecciones de los paños aledaños de S/E Ancoa.

También se define un segundo escalón de tiempo definido con un pick up del 90% de la corriente de cortocircuito trifásica vista por el paño JT1 ante una falla en la barra de 220 kV de S/E Ancoa (tabla 10 Anexo B) y un tiempo de operación de 3,6 segundos.

AJUSTE TIEMPO INVERSO LADO 220 KV

$$I_{Máx\ Lado\ JT1\ (Tap=1)} = 2214{,}8987\ A - prim$$

Dicho lo anterior, la función sobrecorriente de fase será:

$$125\ \% \times\ I_{Máx\ Lado\ JT1\ (Tap=1)}\ = 2768{,}62\ A - prim$$

$$TC_{\ 230\ kV} = \frac{2000}{1} A$$

$$Pick\ Up\ función\ 51\ (220\ kV) = \frac{2768{,}62\ A - prim}{2000} = 1{,}38431\ A - sec$$

Luego este parámetro debe ser ajustado de acuerdo a la sensibilidad de la MiCOM P645, es decir:

$$Pick\ Up\ función\ 51\ (220\ kV) = = 1{,}38\ A - sec$$

AJUSTE DE TIEMPO DEFINIDO LADO 220 KV

$$I_{CC\ 3F\ BARRA\ 220\ KV\ VISTA\ POR\ EL\ PAÑO\ JT1} = 4688\ A - prim$$

$$90\ \% \times\ I_{CC\ 3F\ BARRA\ 220\ KV\ VISTA\ POR\ EL\ PAÑO\ JT1}\ = 0{,}9\ \times 4688\ A - prim$$

$$90\ \% \times\ I_{CC\ 3F\ BARRA\ 220\ KV\ VISTA\ POR\ EL\ PAÑO\ JT1}\ = 4219{,}2\ A - prim$$

$$Pick\ Up\ función\ 50\ (220\ kV) = \frac{4219{,}2\ A - prim}{2000} = 2{,}1096 A - sec$$

La Figura 9 muestra la modelación de la curva de operación para la función de sobrecorriente de fase del relé MiCOM P645 versus las protecciones de los paños aledaños de la S/E Ancoa.

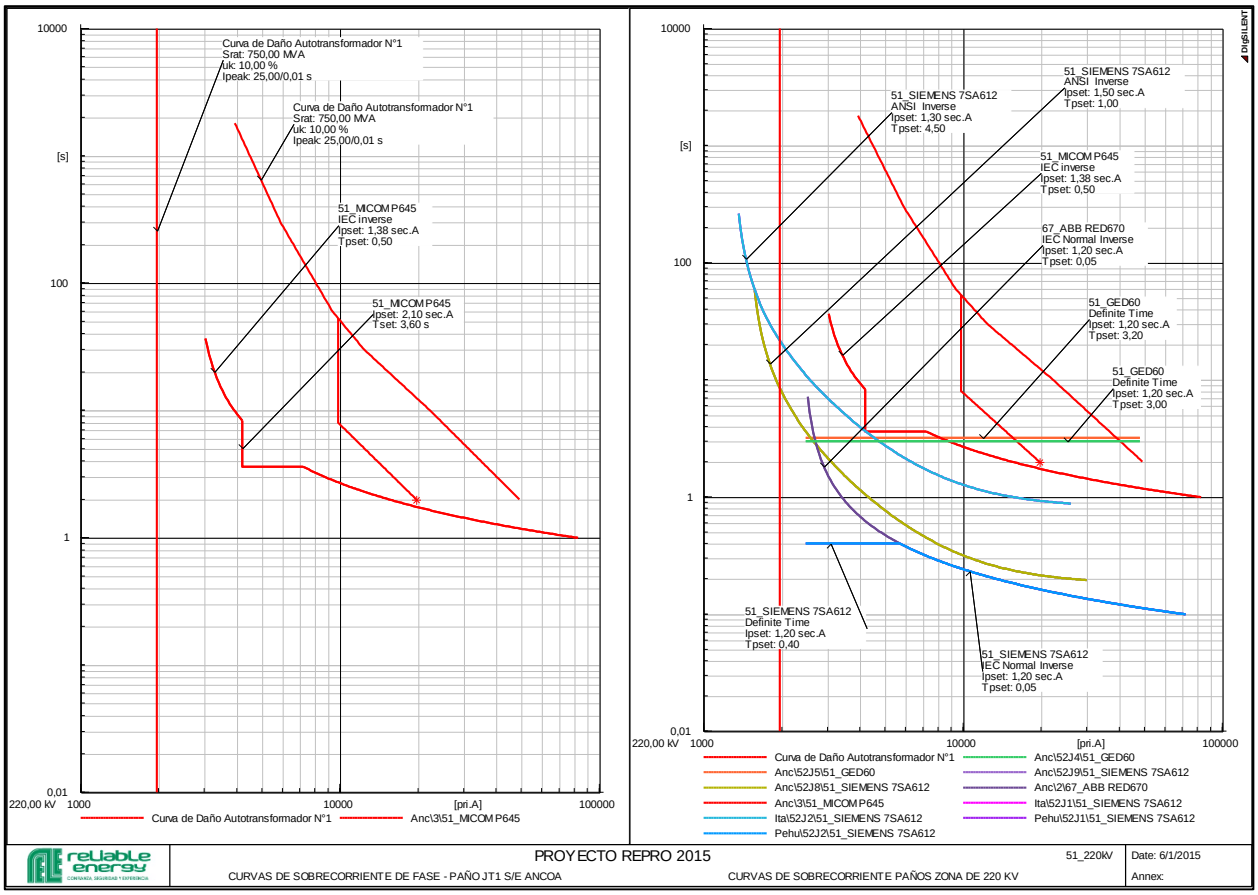

FIGURA 9: CURVA DE SOBRECORRIENTE DE FASE, PAÑO JT1 MICOM P645/CURVAS DE SOBRECO-RRIENTE ZONA DE INFLUENCIA

Se escoge una curva *IEC S Inverse* y un TMS de 0,50 s con el objeto de brindar coordinación con las protecciones de los paños aledaños de S/E Ancoa. Los valores ajustados son los siguientes:

$Overcurrent2 = Enabled\ (T5)$

$I > 1\ Char = IEC\ S\ Inverse$

$I > 1\ Current\ Set = 1{,}380\ A - sec$

$I > 1\ TMS = 500.0\ e - 3$

$I > 3\ Char = DT$

$I > 3\ Current\ Set = 2.100\ A - sec$

$I > 3\ Time\ Delay = 3.600\ s$

AJUSTE DE TIEMPO INVERSO LADO 500 KV

Luego de obtenida la curva de sobrecorriente de fase en la zona de 220 kV, se refieren los parámetros determinados a la zona de 500 kV Teniendo los siguientes parámetros:

$I > 1\ Char = IEC\ S\ Inverse$

$I > 1\ Current\ Set = 1{,}380\ A - sec$

$I > 1\ TMS = 500.0\ e - 3$

La corriente *Pick Up* ajustada en A-prim, de acuerdo a la sensibilidad de la MiCOM P645 corresponde a 2760 A-prim. Luego, este valor será referido a la zona de 500 kV de la siguiente forma:

$$Razón\ del\ Autotransformador\ N°\ 1 = \frac{220}{500} = 0{,}44$$

$$Razón\ de\ transformación\ TC\ zona\ 500\ kV = \frac{1600}{1} = 1600$$

$$Pick\ Up\ función\ 51\ (500\ kV) = \frac{2760 \times 0{,}44}{1600} = 0{,}759\ A - sec$$

La corriente Pickup se debe ajustar de acuerdo a la sensibilidad de la MiCOM P645, es decir:

$$Pick\ Up\ función\ 51\ (500\ kV) = 0{,}76\ A - sec$$

AJUSTE DE TIEMPO DEFINIDO LADO 500 KV

Se define un segundo escalón de tiempo definido con un pick up del 90% de la corriente de cortocircuito trifásica vista por el paño KT1 ante una falla en la barra de 500 kV de S/E Ancoa (tabla 10 Anexo B) y un tiempo de operación de 3,6 segundos.

$$I_{CC\ 3F\ BARRA\ 500\ KV\ VISTA\ POR\ EL\ PAÑO\ kT1} = 752\ A - prim$$

$$I_{Nom\ 525\ kv} = \frac{750\ MVA}{\sqrt{3} \times 525\ kV} = 824{,}7861\ A - prim$$

Se observa que la corriente trifásica vista por el paño KT1 al realizar la el cortocircuito trifásico en la barra de 500 kV es menor que la corriente nominal del lado de 525 kV, por lo que para evitar una operación ante corrientes de carga se ajustará la función de tiempo definido con un 20% de sobrecarga de la corriente nominal por el lado de 525 kV, manteniendo el tiempo de operación de 3,6 segundos.

$$120\ \% \times\ I_{Máx\ Lado\ KT1}\ = 1{,}2\ \times 824{,}781\ A - prim$$

$120\ \% \times\ I_{Máx\ Lado\ KT1}\ = 989{,}7433\ A - prim$

$$Pick\ Up\ función\ 50\ (500\ kV) = \frac{989{,}7433}{1600} = 0{,}6185\ A - sec.$$

De acuerdo a la sensibilidad de la MiCOM, que cuenta con pasos de 0,05, la función de tiempo definido es ajustada:

$Pick\ Up\ función\ 50\ (500\ kV)$ =0,65 $A - sec$

La Figura 10 muestra la curva de sobrecorriente obtenida para el lado de 500 kV.

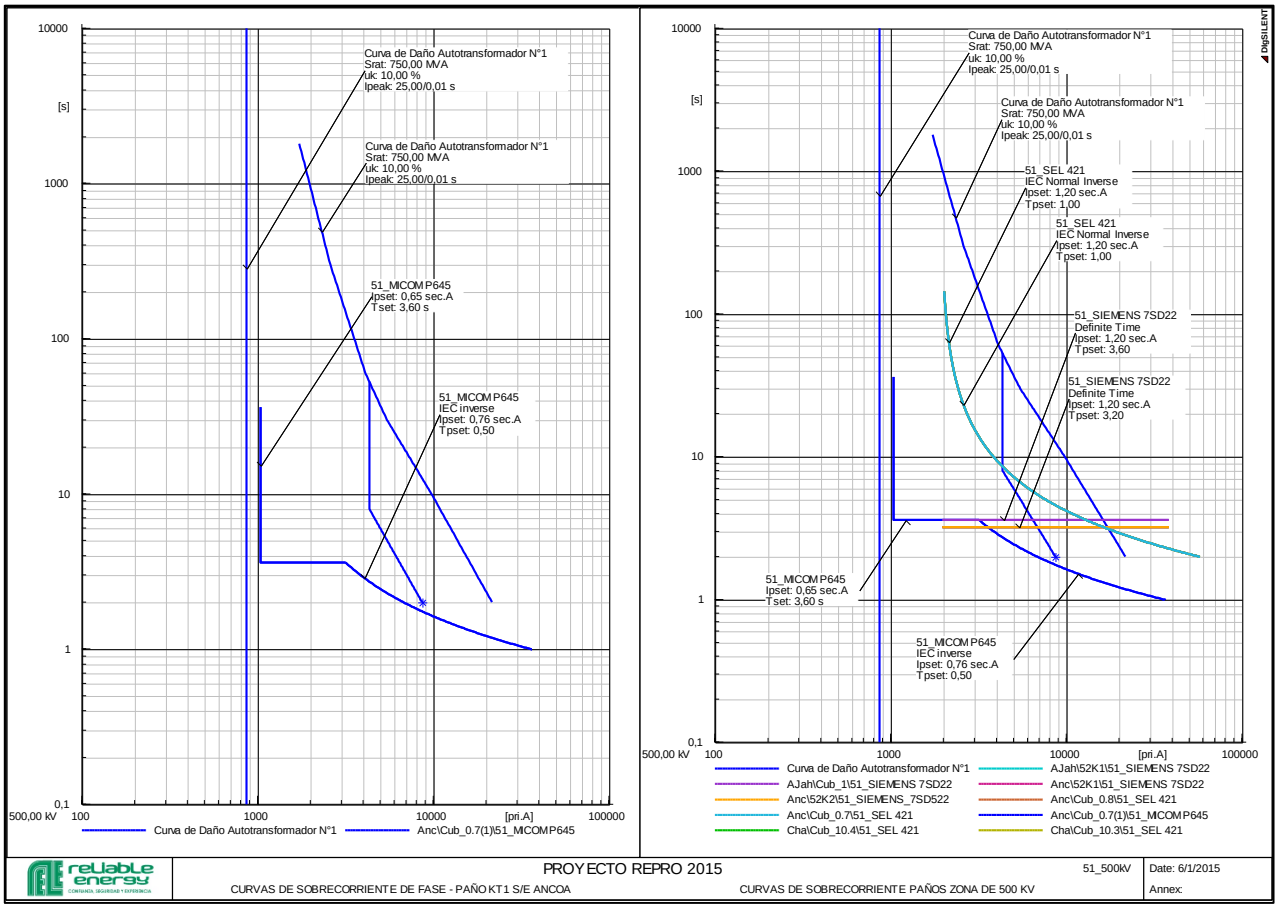

FIGURA 10: CURVA DE SOBRECORRIENTE DE FASE, PAÑO KT1 MICOM P645/CURVAS DE SOBRECO-RRIENTE ZONA DE INFLUENCIA

Los valores ajustados son los siguientes:

$Overcurrent1 = Enabled\ (T1)$

$I > 1\ Char = IEC\ S\ Inverse$

$I > 1\ Current\ Set = 0{,}76\ A - sec$

$I > 1\ TMS = 500.0\ e - 3$

$I > 3\ Char = DT$

$I > 3\ Current\ Set = 0{,}65\ A - sec$

$I > 3\ Time\ Delay = 3.600\ s$

6.3. PROTECCIÓN SOBRECORRIENTE RESIDUAL (51N)

Se propone ajustar la función de sobrecorriente residual al 20% de la máxima corriente del Autotransformador, con un tiempo de operación que coordine con las protecciones de los paños aledaños de S/E Ancoa.

Se define un segundo escalón de tiempo definido con un pick up del 90% de la corriente de cortocircuito monofásica con 40 Ω vista por el paño JT1 ante una falla en la barra de 220 kV de S/E Ancoa (tabla 10 Anexo B) y un tiempo de operación de 3,6 segundos.

AJUSTE TIEMPO INVERSO LADO 220 KV

$$I_{Máx\ Lado\ JT1\ (Tap=1)} = 2214{,}8987\ A - prim$$

Dicho lo anterior, la función de sobrecorriente residual será:

$$20\ \% \times\ I_{Máx\ Lado\ JT1\ (Tap=1)}\ = 442{,}979\ A - prim$$

$$TC_{\ 230\ kV} = \frac{2000}{1} A$$

$$Pick\ Up\ función\ 51N\ (220\ kV) = \frac{442{,}979\ A - prim}{2000} = 0{,}2214\ A - sec$$

Luego este parámetro debe ser ajustado de acuerdo a la sensibilidad de la MiCOM P645, es decir:

$$Pick\ Up\ función\ 51N\ (220\ kV) =\ 0{,}22\ A - sec$$

AJUSTE DEFINIDO LADO 220 KV

$$I_{CC\ 1F-40\ \Omega\ BARRA\ 220\ KV\ VISTA\ POR\ EL\ PAÑO\ JT1} = 410\ A - prim$$

$$90\ \% \times\ I_{CC\ 1F-40\ \Omega\ BARRA\ 220\ KV\ VISTA\ POR\ EL\ PAÑO\ JT1}\ = 0{,}9\ \times 410A - prim$$

$$90\ \% \times\ I_{CC\ 1F-40\ \Omega\ BARRA\ 220\ KV\ VISTA\ POR\ EL\ PAÑO\ JT1}\ = 369\ A - prim$$

$$Pick\ Up\ función\ 50N\ (220\ kV) = \frac{369\ A - prim}{2000} = 0{,}185\ A - sec$$

Luego este parámetro debe ser ajustado de acuerdo a la sensibilidad de la MiCOM P645, es decir:

$$Pick\ Up\ función\ 50N\ (220\ kV) =\ 0{,}185\ A - sec$$

La Figura 12 muestra la modelación de la curva de operación para la función de sobrecorriente residual del lado de 220 kV para el relé MiCOM P645 versus las protecciones de los paños aledaños de la S/E Ancoa.

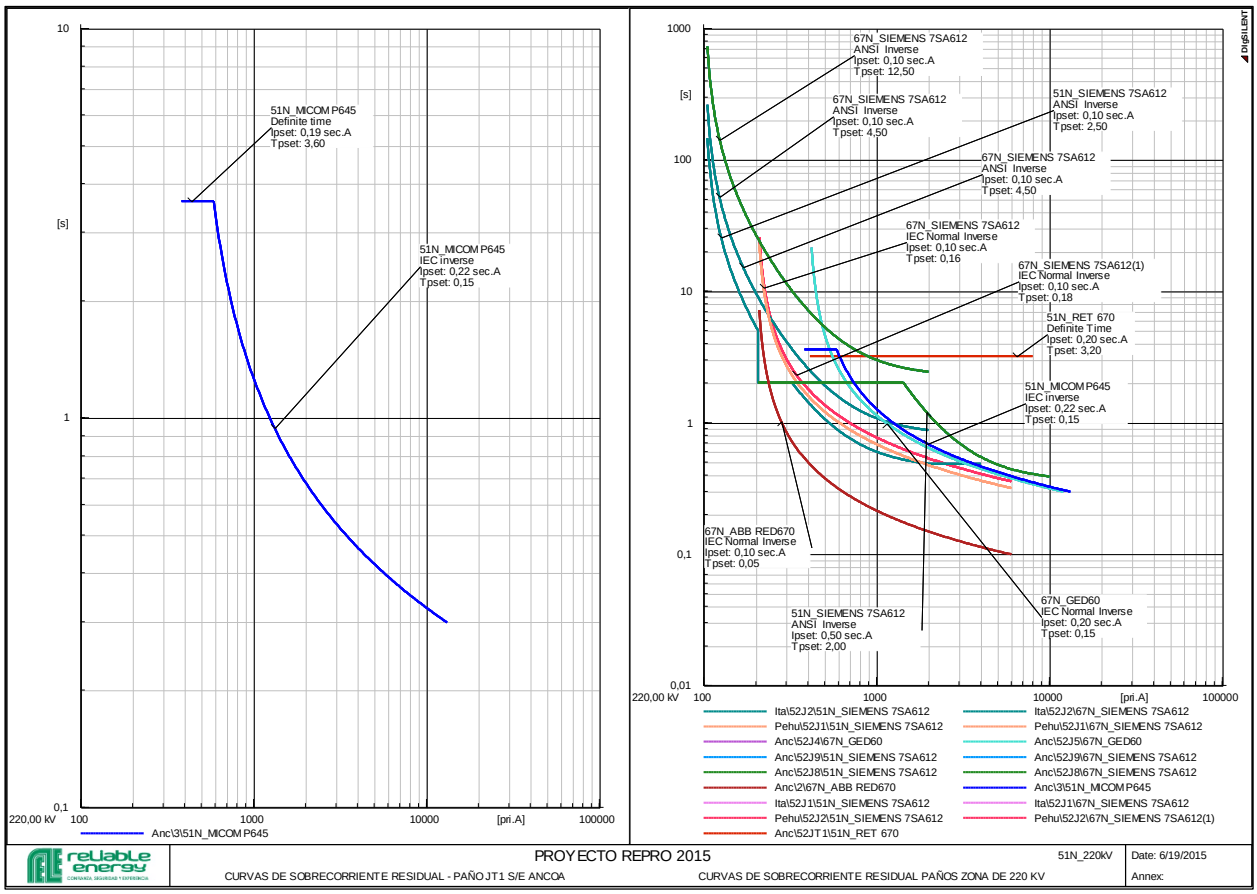

FIGURA 11: CURVA DE SOBRECORRIENTE RESIDUAL, PAÑO JT1 MICOM P645/CURVAS DE SOBRECO-RRIENTE ZONA DE INFLUENCIA

Se escoge una curva *IEC S Inverse* y un TMS de 0,15 s con el objeto de brindar coordinación con las protecciones de los paños aledaños de S/E Ancoa. Los valores ajustados son los siguientes:

$Earth\ Fault\ 2 = Enabled\ (T5)$

$IN > 1\ Char = IEC\ S\ Inverse$

$IN > 1\ Current\ Set = 220.0\ mA - sec$

$IN > 1\ TMS = 150.0\ e - 3$

$IN > 3\ Char = DT$

$IN > 3\ Current\ Set = 190.0\ mA - sec$

$IN > 3\ Time\ Delay = 3.600\ s$

AJUSTE DE TIEMPO INVERSO LADO 500 KV

Luego de obtenida la curva de sobrecorriente de fase en la zona de 220 kV, se refieren los parámetros determinados a la zona de 500 kV Teniendo los siguientes parámetros:

$Earth\ Fault\ 2 = Enabled\ (T5)$

$IN > 1\ Char = IEC\ S\ Inverse$

$IN > 1\ Current\ Set = 220.0\ mA - sec$

$IN > 1\ TMS = 150.0\ e - 3$

$IN > 3\ Char = DT$

$IN > 3\ Current\ Set = 190.0\ mA - sec$

$IN > 3\ Time\ Delay = 3.600\ s$

La corriente *Pick Up de la función de sobrecorriente de tiempo inverso* ajustada en A-prim, de acuerdo a la sensibilidad de la MiCOM P645 corresponde a 440 A-prim. Luego, este valor será referido a la zona de 500 kV de la siguiente forma:

$$Razón\ del\ Autotransformador\ N°\ 1 = \frac{220}{500} = 0{,}44$$

$$Razón\ de\ transformación\ TC\ zona\ 500\ kV = \frac{1600}{1} = 1600$$

$$Pick\ Up\ función\ 51N\ (500\ kV) = \frac{440 \times 0{,}44}{1600} = 0.121\ A - sec.$$

La corriente Pickup se debe ajustar de acuerdo a la sensibilidad de la MiCOM P645, es decir:

$$Pick\ Up\ función\ 51N\ (500\ kV) = 0{,}12\ A - sec$$

La Figura 13 muestra la curva de sobrecorriente residual para el lado de 500 kV.

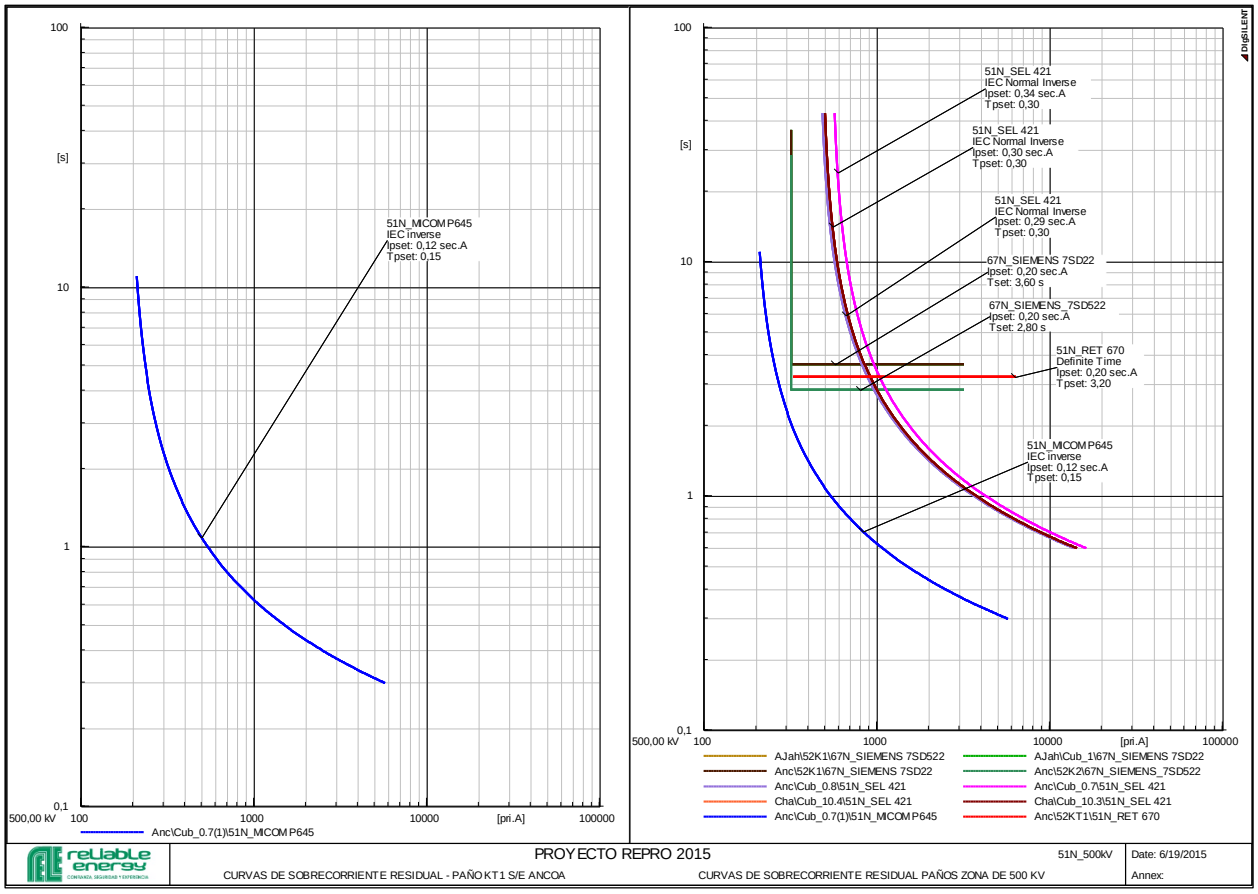

FIGURA 12: CURVA DE SOBRECORRIENTE RESIDUAL, PAÑO JT1 VS PAÑO KT1 MICOM P645

Los parámetros ajustados son los siguientes:

$Earth\ Fault\ 1 = Enabled\ (T1)$

$IN > 1\ Char = IEC\ S\ Inverse$

$IN > 1\ Current\ Set = 120.0\ mA - sec$

$IN > 1\ TMS = 150.0\ e - 3$

$IN > 3\ Char = DT$

$IN > 3\ Current\ Set = 850.0\ mA - sec$

$IN > 3\ Time\ Delay = 3.600\ s$

7. RESUMEN DE AJUSTES

A continuación se presentan tablas donde se resumen los ajustes principales de las protecciones consideradas en el presente informe.

7.1. RAZÓN DE TRANSFORMACIÓN TT/CCs

TABLA 9: CT RATIOS

Parámetro	T1 CT	T5 CT
Polarity	Standard	Standard
Primary	1600 A	2000 A
Secundary	1 A	1 A

TABLA 10: VT RATIOS

Parámetro	HV
VT Primary	525 kV
VT Secundary	115 V

7.2. REGISTRADOR OSCILOGRÁFICO

TABLA 11: DISTURB RECORDER

Parámetro	Valor
Duration	2,00 s
Trigger Position	50 %
Trigger Mode	Extended

7.3. CONFIGURACIÓN DEL SISTEMA

TABLA 12: AJUSTES PROPUESTOS GROUP 1 SYSTEM CONFIG

Parámetro	Valor
Winding Config	HV+LV
Winding Type	Conventional
HV CT Terminals	00001
LV CT Terminals	10000
Ref Power S	750.0 MVA
HV Connection	Y-Wye
HV Grounding	Grounded
HV Nominal	525.0 kV
HV Rating	750.0 MVA
% Reactance	5%
LV Vector Group	0
LV Connection	Y-Wye
LV Grounding	Grounded
LV Nominal	230.0 kV
LV Rating	750.0 MVA
Match Factor CT1	1.939
Match Factor CT5	1.062
Phase Sequence	Standard ABC
VT Reversal	No Swap
CT1 Reversal	No Swap
CT2 Reversal	No Swap
CT3 Reversal	No Swap
CT4 Reversal	No Swap
CT5 Reversal	No Swap

7.4. PROTECCIÓN DIFERENCIAL DE TRANSFORMADOR (87T)

TABLA 13: AJUSTES PROPUESTOS GROUP 1 DIFF PROTECTION

Parámetro	Valor
Trans Diff	Enabled
Set Mode	Advance
Is1	340.0e-3 PU
K1	33.00 %
Is2	1.200 PU
K2	80.00 %
tDIFF LS	0 s
Is-CTS	1.500 PU
Is-HS1	20.00 PU
HS2 Status	Disabled
Zero seq filt HV	Enabled
Zero seq filt LV	Enabled
2nd harm blocked	Enabled
Ih(2)%>	20.00 %
Cross blocking	Enabled
CTSat and NoGap	Enabled
5th harm blocked	Enabled
Ih(5)%>	35.00 %
Circuitry Fail	Disabled

7.5. PROTECCIÓN SOBRECORRIENTE DE FASE (51)

TABLA 14: AJUSTES PROPUESTOS GROUP 1 OVERCURRENT

Parámetro	Valor
OVERCURRENT1	T1
I>1 Status	Enabled
I>1 Char	IEC S Inverse
I>1 Direction	Non-Directional
I>1 Current Set	760.0 mA
I>1 TMS	500.0 e-3
I>1 tRESET	0 s
I>2 Status	Disabled
I>3 Status	Enabled
I>3 Direction	Non-Directional
I>3 Current Set	650.0 mA
I>3 Time Delay	3.600 s
I>4 Status	Disabled
I>Char Angle	30.00 deg
I> Function Link	1111
OVERCURRENT2	T5
I>1 Status	Enabled
I>1 Char	IEC S Inverse
I>1 Current Set	1,380 A
I>1 TMS	500.0 e-3
I>1 tRESET	0 s
I>2 Status	Disabled
I>3 Status	Enabled
I>3 Direction	Non-Directional
I>3 Current Set	2.100 A
I>3 Time Delay	3.600 s
I>4 Status	Disabled

7.6. PROTECCIÓN SOBRECORRIENTE RESIDUAL (51N)

TABLA 15: AJUSTES PROPUESTOS GROUP 1 EARTH FAULT

Parámetro	Valor
Earth Fault 1	Enabled
EF 1 Input	Derived
EF 1 Derived	T1
IN>1 Status	Enabled
IN>1 Char	IEC S Inverse
IN>1 Direction	Non-Directional
IN>1 Current	120.0 mA
IN>1 TMS	150.0 e-3
IN>1 tRESET	0 s
IN>2 Status	Disabled
IN>3 Status	Enabled
IN>3 Direction	Non-Directional
IN>3 Current Set	850.0 mA
IN>3 Time Delay	3.600 s
IN>4 Status	Disabled
IN> Func Link	1111
IN> DIRECTIONAL	
IN> Char Angle	-60.00 deg
IN> Pol	Zero Sequence
IN> VNpol Set	4.998 V
Earth Fault 2	Enabled
EF 2 Input	Derived
EF 2 Derived	T5
IN>1 Status	Enabled
IN>1 Char	IEC S Inverse
IN>1 Current	220.0 mA
IN>1 Time Delay	150.0 e-3
IN>1 tRESET	0 s
IN>2 Status	Disabled
IN>3 Status	Enabled
IN>3 Direction	Non-Directional
IN>3 Current Set	190.0 mA
IN>3 Time Delay	3.600 s
IN>4 Status	Disabled

8. CONCLUSIONES Y RECOMENDACIONES

Los relés Schneider – Electric brindarán confiabilidad, selectividad y coordinación con los equipos de protección de paños aledaños, a través de la configuración de las funciones parametrizadas en el presente documento.

Dado lo observado en los cálculos de los ajustes de las funciones diferencial, sobrecorriente de fase y residual, es posible indicar lo siguiente:

- Las nuevas funciones habilitadas en los relés MiCOM P645 brindarán una mayor seguridad en la protección del Banco de Autotransformadores N°1 de S/E Ancoa, debido principalmente al registro de actividad y de operación de las funciones configuradas. La función *Disturb Recorder* permitirá grabar e identificar las variables eléctricas, como lo son las corrientes de fase, tensiones, *Trip,* etc; al momento de cualquier arranque del relé identificando mediante el historial lo ocurrido frente a una contingencia.

- Los ajustes de las funciones de sobrecorriente de fase/residual en el relé de protección MiCOM P645, fueron propuestos en base a la máxima corriente del autotransformador al 125% y 20% respectivamente en el devanado de alta tensión (220kV) y referidos al lado de 500 kV. Con el objeto de verificar la coordinación de los ajustes propuesto se realizaron fallas en diferentes puntos aledaños a los paños protegidos.

- El ajuste de la función diferencial fue realizado con el propósito de brindar seguridad y sensibilidad en la operación durante fallas al interior del equipo como la no operación no dando *Trip* erróneos durante operaciones exigentes del Banco de Autotransformadores al momento de fallas externas.

- Otro sobresaliente respecto al equipo de protecciones a implementar, es la posibilidad de ajustar diversas sensibilidades incluyendo la creación de esquemas lógicos con la finalidad de chequear condiciones para el correcto funcionamiento del relé, minimizando así el riesgo de operación errónea, aumentando el nivel de estabilidad del SI como frente a los potenciales daños a instalaciones del sistema de trasmisión.

Descrito todo lo anterior, los criterios de ajustes para las funciones habilitadas tienen pleno cumplimiento con los criterios y exigencias de TRANSLEC S.A., permitiendo brindar sensibilidad y confiabilidad en la operación de la protección configurada, debido principalmente a la posibilidad de chequear estados del interruptor protegido.

ANEXO A

PRINT-OUT MICOM P645
PAÑOS: KT1 Y JT1

1. AJUSTES PROPUESTOS

A continuación se muestran el PRINT – OUT de la protección MiCOM P645 a implementar en los paños KT1 y JT1 de S/E Ancoa; como la nueva protección con funciones Diferencial y Sobrecorrientes de Fase/Residual. Este fue obtenido del software MiCOM S1 Studio V5.0.0. adquirido de la página web de Schneider – Electric.

Informe de archivo de configuración
Subestación: ANCOA
Archivo: 000.set
Número del modelo: P645?2AG8?0A08K

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- SYSTEM DATA
  - 00.01: Language: English
  - 00.02: Password: ****
  - 00.03: Sys Fn Links: 0
  - 00.04: Description: 87T S/E ANCOA
  - 00.05: Plant Reference: PAÑOS KT1-JT1
  - 00.06: Model Number: P645?2AG8?0A08K
  - 00.08: Serial Number: 123456A
  - 00.09: Frequency: 50 Hz
  - 00.0A: Comms Level: 2
  - 00.0B: Relay Address: 1
  - 00.0C: Plant Status: 0101010101
  - 00.0D: Control Status: 0000000000000000
  - 00.0E: Active Group: 1
  - 00.11: Software Ref. 1: P645____1S_A00_A
  - 00.30: Opto I/P Status: 00000000000000000011010
  - 00.40: Rly O/P Status: 00000000000000000000000
  - 00.50: Alarm Status 1: 00000000000000000000000000000000
  - 00.51: Alarm Status 2: 00000000000000000000000000000000
  - 00.52: Alarm Status 3: 00000000000000000000000000000000
  - 00.53: Usr Alarm Status: 00000000000000000000000000000000
  - 00.D0: Access Level: 2
  - 00.D1: Password Control: 2
  - 00.D2: Password Level 1: ****
  - 00.D3: Password Level 2: ****
- DATE AND TIME
  - 08.01: Date/Time: 2014-01-14 17:32:45.341
  - 08.06: Battery Status: Healthy
  - 08.07: Battery Alarm: Enabled
  - 08.20: LocalTime Enable: Disabled
- CONFIGURATION
  - 09.01: Restore Defaults: No Operation
  - 09.02: Setting Group: Select via Menu
  - 09.03: Active Settings: Group 1
  - 09.04: Save Changes: No Operation
  - 09.05: Copy From: Group 1
  - 09.06: Copy To: No Operation
  - 09.07: Setting Group 1: Enabled
  - 09.08: Setting Group 2: Disabled
  - 09.09: Setting Group 3: Disabled
  - 09.0A: Setting Group 4: Disabled
  - 09.0C: Diff Protection: Enabled
  - 09.0E: REF Protection: Disabled
  - 09.10: Overcurrent: Enabled
  - 09.11: NPS OverCurrent: Disabled
  - 09.12: Thermal Overload: Disabled
  - 09.13: Earth Fault: Enabled
  - 09.16: Residual O/V NVD: Disabled
  - 09.18: Overfluxing: Disabled
  - 09.1B: Through Fault: Disabled
  - 09.1D: Volt Protection: Disabled
  - 09.1E: Freq Protection: Disabled
  - 09.1F: RTD Inputs: Enabled
  - 09.20: CB Fail: Disabled
  - 09.21: Supervision: Enabled
  - 09.25: Input Labels: Visible
  - 09.26: Output Labels: Visible
  - 09.27: RTD Labels: Invisible
  - 09.28: CT & VT Ratios: Visible
  - 09.29: Record Control: Visible
  - 09.2A: Disturb Recorder: Visible
  - 09.2B: Measure't Setup: Visible
  - 09.2C: Comms Settings: Visible
  - 09.2D: Commission Tests: Visible
  - 09.2E: Setting Values: Secondary

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09.2F: Control Inputs: Visible
09.35: Ctrl I/P Config: Visible
09.36: Ctrl I/P Labels: Visible
09.39: Direct Access: Enabled
09.50: Function Key: Visible
09.FF: LCD Contrast: 11

CT AND VT RATIOS

0A.01: Main VT Location: HV
0A.03: Main VT Primary: 525.0 kV
0A.04: Main VT Sec'y: 115.0 V
0A.07: Aux' VT Primary: 525.0 kV
0A.08: Aux' VT Sec'y: 115.0 V
0A.10: T1 CT:
0A.11: Polarity: Standard
0A.12: Primary: 1600 A
0A.13: Secondary: 1.000 A
0A.14: T2 CT:
0A.15: Polarity: Standard
0A.16: Primary: 300.0 A
0A.17: Secondary: 1.000 A
0A.18: T3 CT:
0A.19: Polarity: Standard
0A.1A: Primary: 300.0 A
0A.1B: Secondary: 1.000 A
0A.1C: T4 CT:
0A.1D: Polarity: Standard
0A.1E: Primary: 300.0 A
0A.1F: Secondary: 1.000 A
0A.20: T5 CT:
0A.21: Polarity: Standard
0A.22: Primary: 2000 A
0A.23: Secondary: 1.000 A
0A.58: TN1 CT:
0A.59: Polarity: Standard
0A.5A: Primary: 300.0 A
0A.5B: Secondary: 1.000 A
0A.5D: TN2 CT:
0A.5E: Polarity: Standard
0A.5F: Primary: 300.0 A
0A.60: Secondary: 1.000 A
0A.62: TN3 CT:
0A.63: Polarity: Standard
0A.64: Primary: 300.0 A
0A.65: Secondary: 1.000 A

RECORD CONTROL

0B.01: Clear Events: No
0B.02: Clear Faults: No
0B.03: Clear Maint: No
0B.04: Alarm Event: Enabled
0B.05: Relay O/P Event: Enabled
0B.06: Opto Input Event: Enabled
0B.07: General Event: Enabled
0B.08: Fault Rec Event: Enabled
0B.09: Maint Rec Event: Enabled
0B.0A: Protection Event: Enabled
0B.30: Clear Dist Recs: No
0B.40: DDB 31 - 0: 11111111111111111111111111111111
0B.41: DDB 63 - 32: 11111111111111111111111111111111
0B.42: DDB 95 - 64: 11111111111111111111111111111111
0B.43: DDB 127 - 96: 11111111111111111111111111111111
0B.44: DDB 159 - 128: 11111111111111111111111111111111
0B.45: DDB 191 - 160: 11111111111111111111111111111111
0B.46: DDB 223 - 192: 11111111111111111111111111111111
0B.47: DDB 255 - 224: 11111111111111111111111111111111
0B.48: DDB 287 - 256: 11111111111111111111111111111111

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- 0B.49: DDB 319 - 288: 11111111111111111111111111111111
- 0B.4A: DDB 351 - 320: 11111111111111111111111111111111
- 0B.4B: DDB 383 - 352: 11111111111111111111111111111111
- 0B.4C: DDB 415 - 384: 11111111111111111111111111111111
- 0B.4D: DDB 447 - 416: 11111111111111111111111111111111
- 0B.4E: DDB 479 - 448: 11111111111111111111111111111111
- 0B.4F: DDB 511 - 480: 11111111111111111111111111111111
- 0B.50: DDB 543 - 512: 11111111111111111111111111111111
- 0B.51: DDB 575 - 544: 11111111111111111111111111111111
- 0B.52: DDB 607 - 576: 11111111111111111111111111111111
- 0B.53: DDB 639 - 608: 11111111111111111111111111111111
- 0B.54: DDB 671 - 640: 11111111111111111111111111111111
- 0B.55: DDB 703 - 672: 11111111111111111111111111111111
- 0B.56: DDB 735 - 704: 11111111111111111111111111111111
- 0B.57: DDB 767 - 736: 11111111111111111111111111111111
- 0B.58: DDB 799 - 768: 11111111111111111111111111111111
- 0B.59: DDB 831 - 800: 11111111111111111111111111111111
- 0B.5A: DDB 863 - 832: 11111111111111111111111111111111
- 0B.5B: DDB 895 - 864: 11111111111111111111111111111111
- 0B.5C: DDB 927 - 896: 11111111111111111111111111111111
- 0B.5D: DDB 959 - 928: 11111111111111111111111111111111
- 0B.5E: DDB 991 - 960: 11111111111111111111111111111111
- 0B.5F: DDB 1023 - 992: 11111111111111111111111111111111
- 0B.60: DDB 1055 - 1024: 11111111111111111111111111111111
- 0B.61: DDB 1087 - 1056: 11111111111111111111111111111111
- 0B.62: DDB 1119 - 1088: 11111111111111111111111111111111
- 0B.63: DDB 1151 - 1120: 11111111111111111111111111111111
- 0B.64: DDB 1183 - 1152: 11111111111111111111111111111111
- 0B.65: DDB 1215 - 1184: 11111111111111111111111111111111
- 0B.66: DDB 1247 - 1216: 11111111111111111111111111111111
- 0B.67: DDB 1279 - 1248: 11111111111111111111111111111111
- 0B.68: DDB 1311 - 1280: 11111111111111111111111111111111
- 0B.69: DDB 1343 - 1312: 11111111111111111111111111111111
- 0B.6A: DDB 1375 - 1344: 11111111111111111111111111111111
- 0B.6B: DDB 1407 - 1376: 11111111111111111111111111111111
- 0B.6C: DDB 1439 - 1408: 11111111111111111111111111111111
- 0B.6D: DDB 1471 - 1440: 11111111111111111111111111111111
- 0B.6E: DDB 1503 - 1472: 11111111111111111111111111111111
- 0B.6F: DDB 1535 - 1504: 11111111111111111111111111111111
- 0B.70: DDB 1567 - 1536: 11111111111111111111111111111111
- 0B.71: DDB 1599 - 1568: 11111111111111111111111111111111
- 0B.72: DDB 1631 - 1600: 11111111111111111111111111111111
- 0B.73: DDB 1663 - 1632: 11111111111111111111111111111111
- 0B.74: DDB 1695 - 1664: 11111111111111111111111111111111
- 0B.75: DDB 1727 - 1696: 11111111111111111111111111111111
- 0B.76: DDB 1759 - 1728: 11111111111111111111111111111111
- 0B.77: DDB 1791 - 1760: 11111111111111111111111111111111
- 0B.78: DDB 1823 - 1792: 11111111111111111111111111111111
- 0B.79: DDB 1855 - 1824: 11111111111111111111111111111111
- 0B.7A: DDB 1887 - 1856: 11111111111111111111111111111111
- 0B.7B: DDB 1919 - 1888: 11111111111111111111111111111111
- 0B.7C: DDB 1951 - 1920: 11111111111111111111111111111111
- 0B.7D: DDB 1983 - 1952: 11111111111111111111111111111111
- 0B.7E: DDB 2015 - 1984: 11111111111111111111111111111111
- 0B.7F: DDB 2047 - 2016: 11111111111111111111111111111111

DISTURB RECORDER

- 0C.52: Duration: 2.000 s
- 0C.54: Trigger Position: 50.00 %
- 0C.56: Trigger Mode: Extended
- 0C.58: Analog Channel 1: IA-1
- 0C.59: Analog Channel 2: IB-1
- 0C.5A: Analog Channel 3: IC-1
- 0C.5B: Analog Channel 4: IN-1
- 0C.5C: Analog Channel 5: IA-2
- 0C.5D: Analog Channel 6: IB-2

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0C.5E: Analog Channel 7: IC-2
0C.5F: Analog Channel 8: IN-2
0C.60: Analog Channel 9: IA-3
0C.61: AnalogChannel 10: IB-3
0C.62: AnalogChannel 11: IC-3
0C.63: AnalogChannel 12: IN-3
0C.64: AnalogChannel 13: IA-4
0C.65: AnalogChannel 14: IB-4
0C.66: AnalogChannel 15: IC-4
0C.67: AnalogChannel 16: IA-5
0C.68: AnalogChannel 17: IB-5
0C.69: AnalogChannel 18: IC-5
0C.6A: AnalogChannel 19: IA-DIFF
0C.6B: AnalogChannel 20: IB-DIFF
0C.6C: AnalogChannel 21: IC-DIFF
0C.6D: AnalogChannel 22: IA-BIAS
0C.6E: AnalogChannel 23: IB-BIAS
0C.6F: AnalogChannel 24: IC-BIAS
0C.70: AnalogChannel 25: LoZREF-DIFF-HV
0C.71: AnalogChannel 26: LoZREF-BIAS-HV
0C.72: AnalogChannel 27: LoZREF-DIFF-LV
0C.73: AnalogChannel 28: LoZREF-BIAS-LV
0C.74: AnalogChannel 29: LoZREF-DIFF-TV
0C.75: AnalogChannel 30: LoZREF-BIAS-TV
0C.80: Digital Input 1: Output R1
0C.81: Input 1 Trigger: No Trigger
0C.82: Digital Input 2: Output R2
0C.83: Input 2 Trigger: No Trigger
0C.84: Digital Input 3: Output R3
0C.85: Input 3 Trigger: Trigger L/H
0C.86: Digital Input 4: Output R4
0C.87: Input 4 Trigger: No Trigger
0C.88: Digital Input 5: Output R5
0C.89: Input 5 Trigger: No Trigger
0C.8A: Digital Input 6: Output R6
0C.8B: Input 6 Trigger: No Trigger
0C.8C: Digital Input 7: Output R7
0C.8D: Input 7 Trigger: No Trigger
0C.8E: Digital Input 8: Output R8
0C.8F: Input 8 Trigger: No Trigger
0C.90: Digital Input 9: Output R9
0C.91: Input 9 Trigger: No Trigger
0C.92: Digital Input 10: Output R10
0C.93: Input 10 Trigger: No Trigger
0C.94: Digital Input 11: Output R11
0C.95: Input 11 Trigger: No Trigger
0C.96: Digital Input 12: Output R12
0C.97: Input 12 Trigger: No Trigger
0C.98: Digital Input 13: Output R13
0C.99: Input 13 Trigger: No Trigger
0C.9A: Digital Input 14: Output R14
0C.9B: Input 14 Trigger: No Trigger
0C.9C: Digital Input 15: Input L1
0C.9D: Input 15 Trigger: No Trigger
0C.9E: Digital Input 16: Input L2
0C.9F: Input 16 Trigger: No Trigger
0C.A0: Digital Input 17: Input L3
0C.A1: Input 17 Trigger: No Trigger
0C.A2: Digital Input 18: Input L4
0C.A3: Input 18 Trigger: No Trigger
0C.A4: Digital Input 19: Input L5
0C.A5: Input 19 Trigger: No Trigger
0C.A6: Digital Input 20: Input L6
0C.A7: Input 20 Trigger: No Trigger
0C.A8: Digital Input 21: Input L7

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Número del modelo: P645?2AG8?0A08K

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- 0C.A9: Input 21 Trigger: No Trigger
- 0C.AA: Digital Input 22: Input L8
- 0C.AB: Input 22 Trigger: No Trigger
- 0C.AC: Digital Input 23: Input L9
- 0C.AD: Input 23 Trigger: No Trigger
- 0C.AE: Digital Input 24: Input L10
- 0C.AF: Input 24 Trigger: No Trigger
- 0C.B0: Digital Input 25: Input L11
- 0C.B1: Input 25 Trigger: No Trigger
- 0C.B2: Digital Input 26: Input L12
- 0C.B3: Input 26 Trigger: No Trigger
- 0C.B4: Digital Input 27: Input L13
- 0C.B5: Input 27 Trigger: No Trigger
- 0C.B6: Digital Input 28: Input L14
- 0C.B7: Input 28 Trigger: No Trigger
- 0C.B8: Digital Input 29: Input L15
- 0C.B9: Input 29 Trigger: No Trigger
- 0C.BA: Digital Input 30: Input L16
- 0C.BB: Input 30 Trigger: No Trigger
- 0C.BC: Digital Input 31: Unused
- 0C.BD: Input 31 Trigger: No Trigger
- 0C.BE: Digital Input 32: Function Key 10
- 0C.BF: Input 32 Trigger: Trigger L/H

MEASURE'T SETUP

- 0D.01: Default Display: Description
- 0D.02: Local Values: Primary
- 0D.03: Remote Values: Primary
- 0D.04: Measurement Ref: Vx
- 0D.05: Measurement Mode: 0

COMMUNICATIONS

- 0E.01: RP1 Protocol: Courier
- 0E.02: RP1 Address: 255
- 0E.03: RP1 InactivTimer: 15.00 min
- 0E.0B: RP1 Card Status: K-Bus OK
- 0E.0C: RP1 Port Config: K-Bus
- 0E.0D: RP1 Comms Mode: IEC60870 FT1.2
- 0E.0E: RP1 Baud Rate: 19200
- 0E.80: REAR PORT2 (RP2):
- 0E.81: RP2 Protocol: Courier
- 0E.84: RP2 Card Status: Unsupported
- 0E.88: RP2 Port Config: EIA232 (RS232)
- 0E.8A: RP2 Comms Mode: IEC60870 FT1.2
- 0E.90: RP2 Address: 255
- 0E.92: RP2 InactivTimer: 15.00 min
- 0E.94: RP2 Baud Rate: 19200

COMMISSION TESTS

- 0F.01: Opto I/P Status: 00000000000000000011010
- 0F.03: Rly O/P Status: 00000000000000000000000
- 0F.05: Test Port Status: 00011010
- 0F.07: Monitor Bit 1: 64
- 0F.08: Monitor Bit 2: 65
- 0F.09: Monitor Bit 3: 66
- 0F.0A: Monitor Bit 4: 67
- 0F.0B: Monitor Bit 5: 68
- 0F.0C: Monitor Bit 6: 69
- 0F.0D: Monitor Bit 7: 70
- 0F.0E: Monitor Bit 8: 71
- 0F.0F: Test Mode: Disabled
- 0F.10: Test Pattern: 000000000000000000000000
- 0F.11: Contact Test: No Operation
- 0F.12: Test LEDs: No Operation
- 0F.15: Red LED Status: 000000000000000000
- 0F.16: Green LED Status: 000000000000000000
- 0F.20: DDB 31 - 0: 00000000000000000000000000000000
- 0F.21: DDB 63 - 32: 00000000000000000000000000000000

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- 0F.22: DDB 95 - 64: 00000000000000000000000000011010
- 0F.23: DDB 127 - 96: 00000000000000000000000000000000
- 0F.24: DDB 159 - 128: 00000000000000000000000000000000
- 0F.25: DDB 191 - 160: 00000000000000000000000000000000
- 0F.26: DDB 223 - 192: 00000000000000000000000000000000
- 0F.27: DDB 255 - 224: 00000000000000000000000000000000
- 0F.28: DDB 287 - 256: 00000000000000000000000000000000
- 0F.29: DDB 319 - 288: 00000000000000000000000000000000
- 0F.2A: DDB 351 - 320: 00000000000000000000000000000000
- 0F.2B: DDB 383 - 352: 00000000000000000000000000000000
- 0F.2C: DDB 415 - 384: 00000000000000000000000000000000
- 0F.2D: DDB 447 - 416: 00000000000000000000000000000000
- 0F.2E: DDB 479 - 448: 00000000000000000000000000000000
- 0F.2F: DDB 511 - 480: 00000000000000000000000000000000
- 0F.30: DDB 543 - 512: 00000000000000000000000000000000
- 0F.31: DDB 575 - 544: 00000000000000000000000000000000
- 0F.32: DDB 607 - 576: 00000000000000000000000000000000
- 0F.33: DDB 639 - 608: 00000000000000000000000000000000
- 0F.34: DDB 671 - 640: 00000000000000000000000000000000
- 0F.35: DDB 703 - 672: 00000000000000000000000000000000
- 0F.36: DDB 735 - 704: 00000000000000000000000000000000
- 0F.37: DDB 767 - 736: 00000000000000000000000000000000
- 0F.38: DDB 799 - 768: 00000000000000000000000000000000
- 0F.39: DDB 831 - 800: 00000000000000000000000000000000
- 0F.3A: DDB 863 - 832: 00000000000000000000000000000000
- 0F.3B: DDB 895 - 864: 00000000010000001010000000011010
- 0F.3C: DDB 927 - 896: 00000000000000000000000000000000
- 0F.3D: DDB 959 - 928: 00000000000000000000000000000000
- 0F.3E: DDB 991 - 960: 00000000000000000000000000000000
- 0F.3F: DDB 1023 - 992: 00000000000000000000000000000000
- 0F.40: DDB 1055 - 1024: 00000000000000000000000000000000
- 0F.41: DDB 1087 - 1056: 00000000000000000000000000000000
- 0F.42: DDB 1119 - 1088: 00000000000000000000000000000000
- 0F.43: DDB 1151 - 1120: 00000000000000000000000000000000
- 0F.44: DDB 1183 - 1152: 00000000000000000000000000000000
- 0F.45: DDB 1215 - 1184: 00000000000000000000000000000000
- 0F.46: DDB 1247 - 1216: 00000000000000000000000000000000
- 0F.47: DDB 1279 - 1248: 00000000000000000000010000000000
- 0F.48: DDB 1311 - 1280: 00000000000000000000000000000000
- 0F.49: DDB 1343 - 1312: 00000000000000000000000000000000
- 0F.4A: DDB 1375 - 1344: 00000000000000000000000000000000
- 0F.4B: DDB 1407 - 1376: 00000000000000000000000000000000
- 0F.4C: DDB 1439 - 1408: 00000000000000000000000000000000
- 0F.4D: DDB 1471 - 1440: 00000000000000000000000000000000
- 0F.4E: DDB 1503 - 1472: 00000000000000000000000000000000
- 0F.4F: DDB 1535 - 1504: 00000000000000000000000000000000
- 0F.50: DDB 1567 - 1536: 00000000000000000000000000000000
- 0F.51: DDB 1599 - 1568: 00000000000000000000000000000000
- 0F.52: DDB 1631 - 1600: 00000000000000000000000000000000
- 0F.53: DDB 1663 - 1632: 00000000000000000000000000000000
- 0F.54: DDB 1695 - 1664: 11111111111111111111111000000000
- 0F.55: DDB 1727 - 1696: 00000000000011111111111111111111
- 0F.56: DDB 1759 - 1728: 00000010000000000000000000000000
- 0F.57: DDB 1791 - 1760: 00000000000000011111000000000000
- 0F.58: DDB 1823 - 1792: 00000000000000000000000000000000
- 0F.59: DDB 1855 - 1824: 00000000000000000000000000000000
- 0F.5A: DDB 1887 - 1856: 00000000000000000000000000000000
- 0F.5B: DDB 1919 - 1888: 00000000000000000000000000000000
- 0F.5C: DDB 1951 - 1920: 00000000000000000000000000011111
- 0F.5D: DDB 1983 - 1952: 00000000000000000000000000000000
- 0F.5E: DDB 2015 - 1984: 00000000000000000000000000000000
- 0F.5F: DDB 2047 - 2016: 00000000000000000000000000000000

OPTO CONFIG

- 11.01: Global Nominal V: 48/54V
- 11.50: Opto Filter Ctrl: 111111111111111111111

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- 11.80: Characteristic: Standard 60%-80%
- CONTROL INPUTS
  - 12.01: Ctrl I/P Status: 00000000000000000000000000000000
  - 12.02: Control Input 1: No Operation
  - 12.03: Control Input 2: No Operation
  - 12.04: Control Input 3: No Operation
  - 12.05: Control Input 4: No Operation
  - 12.06: Control Input 5: No Operation
  - 12.07: Control Input 6: No Operation
  - 12.08: Control Input 7: No Operation
  - 12.09: Control Input 8: No Operation
  - 12.0A: Control Input 9: No Operation
  - 12.0B: Control Input 10: No Operation
  - 12.0C: Control Input 11: No Operation
  - 12.0D: Control Input 12: No Operation
  - 12.0E: Control Input 13: No Operation
  - 12.0F: Control Input 14: No Operation
  - 12.10: Control Input 15: No Operation
  - 12.11: Control Input 16: No Operation
  - 12.12: Control Input 17: No Operation
  - 12.13: Control Input 18: No Operation
  - 12.14: Control Input 19: No Operation
  - 12.15: Control Input 20: No Operation
  - 12.16: Control Input 21: No Operation
  - 12.17: Control Input 22: No Operation
  - 12.18: Control Input 23: No Operation
  - 12.19: Control Input 24: No Operation
  - 12.1A: Control Input 25: No Operation
  - 12.1B: Control Input 26: No Operation
  - 12.1C: Control Input 27: No Operation
  - 12.1D: Control Input 28: No Operation
  - 12.1E: Control Input 29: No Operation
  - 12.1F: Control Input 30: No Operation
  - 12.20: Control Input 31: No Operation
  - 12.21: Control Input 32: No Operation
- CTRL I/P CONFIG
  - 13.01: Hotkey Enabled: 11111111111111111111111111111111
  - 13.10: Control Input 1: Latched
  - 13.11: Ctrl Command 1: SET/RESET
  - 13.14: Control Input 2: Latched
  - 13.15: Ctrl Command 2: SET/RESET
  - 13.18: Control Input 3: Latched
  - 13.19: Ctrl Command 3: SET/RESET
  - 13.1C: Control Input 4: Latched
  - 13.1D: Ctrl Command 4: SET/RESET
  - 13.20: Control Input 5: Latched
  - 13.21: Ctrl Command 5: SET/RESET
  - 13.24: Control Input 6: Latched
  - 13.25: Ctrl Command 6: SET/RESET
  - 13.28: Control Input 7: Latched
  - 13.29: Ctrl Command 7: SET/RESET
  - 13.2C: Control Input 8: Latched
  - 13.2D: Ctrl Command 8: SET/RESET
  - 13.30: Control Input 9: Latched
  - 13.31: Ctrl Command 9: SET/RESET
  - 13.34: Control Input 10: Latched
  - 13.35: Ctrl Command 10: SET/RESET
  - 13.38: Control Input 11: Latched
  - 13.39: Ctrl Command 11: SET/RESET
  - 13.3C: Control Input 12: Latched
  - 13.3D: Ctrl Command 12: SET/RESET
  - 13.40: Control Input 13: Latched
  - 13.41: Ctrl Command 13: SET/RESET
  - 13.44: Control Input 14: Latched
  - 13.45: Ctrl Command 14: SET/RESET

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13.48: Control Input 15: Latched
13.49: Ctrl Command 15: SET/RESET
13.4C: Control Input 16: Latched
13.4D: Ctrl Command 16: SET/RESET
13.50: Control Input 17: Latched
13.51: Ctrl Command 17: SET/RESET
13.54: Control Input 18: Latched
13.55: Ctrl Command 18: SET/RESET
13.58: Control Input 19: Latched
13.59: Ctrl Command 19: SET/RESET
13.5C: Control Input 20: Latched
13.5D: Ctrl Command 20: SET/RESET
13.60: Control Input 21: Latched
13.61: Ctrl Command 21: SET/RESET
13.64: Control Input 22: Latched
13.65: Ctrl Command 22: SET/RESET
13.68: Control Input 23: Latched
13.69: Ctrl Command 23: SET/RESET
13.6C: Control Input 24: Latched
13.6D: Ctrl Command 24: SET/RESET
13.70: Control Input 25: Latched
13.71: Ctrl Command 25: SET/RESET
13.74: Control Input 26: Latched
13.75: Ctrl Command 26: SET/RESET
13.78: Control Input 27: Latched
13.79: Ctrl Command 27: SET/RESET
13.7C: Control Input 28: Latched
13.7D: Ctrl Command 28: SET/RESET
13.80: Control Input 29: Latched
13.81: Ctrl Command 29: SET/RESET
13.84: Control Input 30: Latched
13.85: Ctrl Command 30: SET/RESET
13.88: Control Input 31: Latched
13.89: Ctrl Command 31: SET/RESET
13.8C: Control Input 32: Latched
13.8D: Ctrl Command 32: SET/RESET

FUNCTION KEYS

17.01: Fn Key Status: 0000000000
17.02: Fn Key 1: Unlocked
17.03: Fn Key 1 Mode: Normal
17.04: Fn Key 1 Label: Function Key 1
17.05: Fn Key 2: Unlocked
17.06: Fn Key 2 Mode: Normal
17.07: Fn Key 2 Label: Function Key 2
17.08: Fn Key 3: Unlocked
17.09: Fn Key 3 Mode: Normal
17.0A: Fn Key 3 Label: Function Key 3
17.0B: Fn Key 4: Unlocked
17.0C: Fn Key 4 Mode: Normal
17.0D: Fn Key 4 Label: Function Key 4
17.0E: Fn Key 5: Unlocked
17.0F: Fn Key 5 Mode: Normal
17.10: Fn Key 5 Label: Function Key 5
17.11: Fn Key 6: Unlocked
17.12: Fn Key 6 Mode: Normal
17.13: Fn Key 6 Label: Function Key 6
17.14: Fn Key 7: Unlocked
17.15: Fn Key 7 Mode: Normal
17.16: Fn Key 7 Label: Function Key 7
17.17: Fn Key 8: Locked
17.19: Fn Key 8 Label: Function Key 8
17.1A: Fn Key 9: Unlocked
17.1B: Fn Key 9 Mode: Normal
17.1C: Fn Key 9 Label: Function Key 9
17.1D: Fn Key 10: Unlocked

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- 17.1E: Fn Key 10 Mode: Normal
- 17.1F: Fn Key 10 Label: Function Key 10

USER ALARMS

- 28.01: Manual Reset: 00000000000000000000000000000000
- 28.10: Labels:
- 28.11: User Alarm 1: User Alarm 1
- 28.12: User Alarm 2: User Alarm 2
- 28.13: User Alarm 3: User Alarm 3
- 28.14: User Alarm 4: User Alarm 4
- 28.15: User Alarm 5: User Alarm 5
- 28.16: User Alarm 6: User Alarm 6
- 28.17: User Alarm 7: User Alarm 7
- 28.18: User Alarm 8: User Alarm 8
- 28.19: User Alarm 9: User Alarm 9
- 28.1A: User Alarm 10: User Alarm 10
- 28.1B: User Alarm 11: User Alarm 11
- 28.1C: User Alarm 12: User Alarm 12
- 28.1D: User Alarm 13: User Alarm 13
- 28.1E: User Alarm 14: User Alarm 14
- 28.1F: User Alarm 15: User Alarm 15
- 28.20: User Alarm 16: User Alarm 16
- 28.21: User Alarm 17: User Alarm 17
- 28.22: User Alarm 18: User Alarm 18
- 28.23: User Alarm 19: User Alarm 19
- 28.24: User Alarm 20: User Alarm 20
- 28.25: User Alarm 21: User Alarm 21
- 28.26: User Alarm 22: User Alarm 22
- 28.27: User Alarm 23: User Alarm 23
- 28.28: User Alarm 24: User Alarm 24
- 28.29: User Alarm 25: User Alarm 25
- 28.2A: User Alarm 26: User Alarm 26
- 28.2B: User Alarm 27: User Alarm 27
- 28.2C: User Alarm 28: User Alarm 28
- 28.2D: User Alarm 29: User Alarm 29
- 28.2E: User Alarm 30: User Alarm 30
- 28.2F: User Alarm 31: User Alarm 31
- 28.30: User Alarm 32: User Alarm 32

CTRL I/P LABELS

- 29.01: Control Input 1: Control Input 1
- 29.02: Control Input 2: Control Input 2
- 29.03: Control Input 3: Control Input 3
- 29.04: Control Input 4: Control Input 4
- 29.05: Control Input 5: Control Input 5
- 29.06: Control Input 6: Control Input 6
- 29.07: Control Input 7: Control Input 7
- 29.08: Control Input 8: Control Input 8
- 29.09: Control Input 9: Control Input 9
- 29.0A: Control Input 10: Control Input 10
- 29.0B: Control Input 11: Control Input 11
- 29.0C: Control Input 12: Control Input 12
- 29.0D: Control Input 13: Control Input 13
- 29.0E: Control Input 14: Control Input 14
- 29.0F: Control Input 15: Control Input 15
- 29.10: Control Input 16: Control Input 16
- 29.11: Control Input 17: Control Input 17
- 29.12: Control Input 18: Control Input 18
- 29.13: Control Input 19: Control Input 19
- 29.14: Control Input 20: Control Input 20
- 29.15: Control Input 21: Control Input 21
- 29.16: Control Input 22: Control Input 22
- 29.17: Control Input 23: Control Input 23
- 29.18: Control Input 24: Control Input 24
- 29.19: Control Input 25: Control Input 25
- 29.1A: Control Input 26: Control Input 26
- 29.1B: Control Input 27: Control Input 27

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- 29.1C: Control Input 28: Control Input 28
- 29.1D: Control Input 29: Control Input 29
- 29.1E: Control Input 30: Control Input 30
- 29.1F: Control Input 31: Control Input 31
- 29.20: Control Input 32: Control Input 32

Group 1

GROUP 1 SYSTEM CONFIG

- 30.01: Winding Config: HV+LV
- 30.02: Winding Type: Conventional
- 30.03: HV CT Terminals: 00001
- 30.04: LV CT Terminals: 10000
- 30.07: Ref Power S: 750.0 MVA
- 30.08: HV Connection: Y-Wye
- 30.09: HV Grounding: Grounded
- 30.0A: HV Nominal: 525.0 kV
- 30.0B: HV Rating: 750.0 MVA
- 30.0C: % Reactance: 5.000 %
- 30.0D: LV Vector Group: 0
- 30.0E: LV Connection: Y-Wye
- 30.0F: LV Grounding: Grounded
- 30.10: LV Nominal: 230.0 kV
- 30.11: LV Rating:750.0 MVA
- 30.20: Match Factor CT1: 1.939
- 30.24: Match Factor CT5: 1.062
- 30.25: MatchFac REF HV: 5.333
- 30.26: MatchFac REF LV: 6.666
- 30.5E: Phase Sequence: Standard ABC
- 30.5F: VT Reversal: No Swap
- 30.60: CT1 Reversal: No Swap
- 30.61: CT2 Reversal: No Swap
- 30.62: CT3 Reversal: No Swap
- 30.63: CT4 Reversal: No Swap
- 30.64: CT5 Reversal: No Swap

GROUP 1 DIFF PROTECTION

- 31.01: Trans Diff: Enabled
- 31.02: Set Mode: Advance
- 31.03: Is1: 340.0e-3 PU
- 31.04: K1: 33.00 %
- 31.05: Is2: 1.200 PU
- 31.06: K2: 80.00 %
- 31.07: tDIFF LS: 0 s
- 31.08: Is-CTS: 1.500 PU
- 31.10: Is-HS1: 20.00 PU
- 31.11: HS2 Status: Disabled
- 31.20: Zero seq filt HV: Enabled
- 31.21: Zero seq filt LV: Enabled
- 31.28: 2nd harm blocked: Enabled
- 31.29: Ih(2)%>: 20.00 %
- 31.2A: Cross blocking: Enabled
- 31.2B: CTSat and NoGap: Enabled
- 31.33: 5th harm blocked: Enabled
- 31.34: Ih(5)%>: 35.00 %
- 31.40: Circuitry Fail: Disabled

GROUP 1 OVERCURRENT

- 35.01: OVERCURRENT1: T1
- 35.02: I>1 Status: Enabled
- 35.03: I>1 Char: IEC S Inverse
- 35.04: I>1 Direction: Non-Directional
- 35.05: I>1 Current Set: 760.0 mA
- 35.07: I>1 TMS: 500.0e-3
- 35.0B: I>1 tRESET: 0 s
- 35.12: I>2 Status: Disabled
- 35.21: I>3 Status: Enabled
- 35.22: I>3 Direction: Non-Directional
- 35.23: I>3 Current Set: 650.0 mA

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- 35.24: I>3 Time Delay: 3.600 s
- 35.27: I>4 Status: Disabled
- 35.2D: I> Char Angle: 30.00 deg
- 35.2E: I> Function Link: 1111
- 35.31: OVERCURRENT2: T5
- 35.32: I>1 Status: Enabled
- 35.33: I>1 Char: IEC S Inverse
- 35.35: I>1 Current Set: 1.380 A
- 35.37: I>1 TMS: 500.0e-3
- 35.3B: I>1 tRESET: 0 s
- 35.42: I>2 Status: Disabled
- 35.51: I>3 Status: Enabled
- 35.53: I>3 Current Set: 2.100 A
- 35.54: I>3 Time Delay: 3.600 s
- 35.57: I>4 Status: Disabled
- 35.61: OVERCURRENT3: T3
- 35.62: I>1 Status: Disabled
- 35.72: I>2 Status: Disabled
- 35.81: I>3 Status: Disabled
- 35.87: I>4 Status: Disabled
- 35.91: V CONTROLED O/C:
- 35.92: VCO>1: Disabled
- 35.A2: VCO>2: Disabled

GROUP 1 EARTH FAULT

- 38.01: Earth Fault 1: Enabled
- 38.02: EF 1 Input: Derived
- 38.03: EF 1 Derived: T1
- 38.05: IN>1 Status: Enabled
- 38.06: IN>1 Char: IEC S Inverse
- 38.07: IN>1 Direction: Non-Directional
- 38.08: IN>1 Current: 120.0 mA
- 38.0B: IN>1 TMS: 150.0e-3
- 38.10: IN>1 tRESET: 0 s
- 38.15: IN>2 Status: Disabled
- 38.25: IN>3 Status: Enabled
- 38.26: IN>3 Direction: Non-Directional
- 38.27: IN>3 Current: 850.0 mA
- 38.28: IN>3 Time Delay: 3.600 s
- 38.2C: IN>4 Status: Disabled
- 38.33: IN> Func Link: 1111
- 38.34: IN> DIRECTIONAL:
- 38.35: IN> Char Angle: -60.00 deg
- 38.36: IN> Pol: Zero Sequence
- 38.37: IN> VNpol Set: 4.998 V
- 38.41: Earth Fault 2: Enabled
- 38.42: EF 2 Input: Derived
- 38.43: EF 2 Derived: T5
- 38.45: IN>1 Status: Enabled
- 38.46: IN>1 Char: IEC S Inverse
- 38.48: IN>1 Current: 220.0 mA
- 38.4B: IN>1 TMS: 150.0e-3
- 38.50: IN>1 tRESET: 0 s
- 38.55: IN>2 Status: Disabled
- 38.65: IN>3 Status: Enabled
- 38.67: IN>3 Current: 190.0 mA
- 38.68: IN>3 Time Delay: 3.600 s
- 38.6C: IN>4 Status: Disabled
- 38.81: Earth Fault 3: Disabled

GROUP 1 RTD PROTECTION

- 44.01: Select RTD: 0000000000

GROUP 1 SUPERVISION

- 46.01: VT SUPERVISION:
- 46.02: VTS Status: Blocking
- 46.03: VTS Reset Mode: Manual
- 46.04: VTS Time Delay: 5.000 s

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- 46.05: VTS I> Inhibit: 10.00 PU
- 46.06: VTS I2> Inhibit: 50.00e-3 PU
- 46.20: CT SUPERVISION:
- 46.21: Diff CTS: Enabled
- 46.22: CTS Status: Restrain
- 46.23: CTS Time Delay: 2.000 s
- 46.24: CTS I1: 10.00 %
- 46.25: CTS I2/I1>1: 5.000 %
- 46.26: CTS I2/I1>2: 40.00 %

GROUP 1 INPUT LABELS

- 4A.01: Opto Input 1: Input L1
- 4A.02: Opto Input 2: Input L2
- 4A.03: Opto Input 3: Input L3
- 4A.04: Opto Input 4: Input L4
- 4A.05: Opto Input 5: Input L5
- 4A.06: Opto Input 6: Input L6
- 4A.07: Opto Input 7: Input L7
- 4A.08: Opto Input 8: Input L8
- 4A.09: Opto Input 9: Input L9
- 4A.0A: Opto Input 10: Input L10
- 4A.0B: Opto Input 11: Input L11
- 4A.0C: Opto Input 12: Input L12
- 4A.0D: Opto Input 13: Input L13
- 4A.0E: Opto Input 14: Input L14
- 4A.0F: Opto Input 15: Input L15
- 4A.10: Opto Input 16: Input L16
- 4A.11: Opto Input 17: Input L17
- 4A.12: Opto Input 18: Input L18
- 4A.13: Opto Input 19: Input L19
- 4A.14: Opto Input 20: Input L20
- 4A.15: Opto Input 21: Input L21
- 4A.16: Opto Input 22: Input L22
- 4A.17: Opto Input 23: Input L23
- 4A.18: Opto Input 24: Input L24

GROUP 1 OUTPUT LABELS

- 4B.01: Relay 1: Output R1
- 4B.02: Relay 2: Output R2
- 4B.03: Relay 3: Output R3
- 4B.04: Relay 4: Output R4
- 4B.05: Relay 5: Output R5
- 4B.06: Relay 6: Output R6
- 4B.07: Relay 7: Output R7
- 4B.08: Relay 8: Output R8
- 4B.09: Relay 9: Output R9
- 4B.0A: Relay 10: Output R10
- 4B.0B: Relay 11: Output R11
- 4B.0C: Relay 12: Output R12
- 4B.0D: Relay 13: Output R13
- 4B.0E: Relay 14: Output R14
- 4B.0F: Relay 15: Output R15
- 4B.10: Relay 16: Output R16
- 4B.11: Relay 17: Output R17
- 4B.12: Relay 18: Output R18
- 4B.13: Relay 19: Output R19
- 4B.14: Relay 20: Output R20
- 4B.15: Relay 21: Output R21
- 4B.16: Relay 22: Output R22
- 4B.17: Relay 23: Output R23
- 4B.18: Relay 24: Output R24

Group 2
Group 3
Group 4

ANEXO B

ESTUDIO DE CORTOCIRCUITOS

1. OBJETIVOS Y ALCANCES

El presente documento presenta los resultados del estudio de cortocircuito realizado con el objetivo de identificar las mínimas corrientes de falla que circulan por cada paño de las instalaciones de la S/E Ancoa, determinando así los niveles de falla a considerar en los ajustes de las nuevas protecciones a implementar.

2. METODOLOGÍA DEL ESTUDIO DE CORTOCIRCUITOS

El cálculo de las corrientes de cortocircuitos se realiza mediante el "método completo" de la simulación de DIgSILENT. Esta metodología permite calcular la corriente de cortocircuito a partir del comportamiento real del sistema de potencia, con la cual es posible determinar si los equipos de protección operan o no correctamente ante fallas en la subestaciones analizadas.

Los resultados se presentan mediante diagramas unilineales que contienen, para cada falla, el valor de la corriente simétrica inicial de cortocircuito Ik'', la cual es el valor r.m.s. de la componente simétrica de la corriente de cortocircuito esperada y que aparece en el instante de la falla, si la impedancia permanece en el valor que tiene en el tiempo cero. También se entrega la potencia aparente inicial simétrica Sk''. Para la interpretación de los resultados se deben tener en cuenta la simbología y la descripción de los valores de cortocircuito presentados en la Tabla 1.

TABLA 1: SIMBOLOGÍA Y DESCRIPCIÓN DE LOS VALORES DE CORTOCIRCUITO

Escenario	Descripción	Concepto
Ik"	Corriente inicial simétrica de cortocircuito	Es el valor eficaz de la corriente simétrica de cortocircuito en el instante en que e se produce la falla
Sk"	Potencia inicial simétrica de cortocircuito	Es el valor de potencia asociada a la corriente inicial simétrica de cortocircuito
Ip	corriente pico de cortocircuito	Es el máximo valor posible de la corriente simétrica de cortocircuito
Ib	Corriente de interrupción de cortocircuito (100 ms)	Es el valor eficaz de la corriente simétrica de cortocircuito que circula por el interruptor en el instante en que ese inicia la separación de los contactos. En este caso a los 100 ms (breaker time) después de iniciado la falla
Sb	Potencia de interrupción de cortocircuito (100 ms)	Es el valor de la potencia asociada a la corriente de interrupción de cortocircuito
Ik	Corriente de cortocircuito de estado estable	Es el valor eficaz de la corriente simétrica de cortocircuito que perdura una vez terminados los fenómenos transitorios

En la Figura 1 se pueden apreciar gráficamente las componentes de corrientes de cortocircuito.

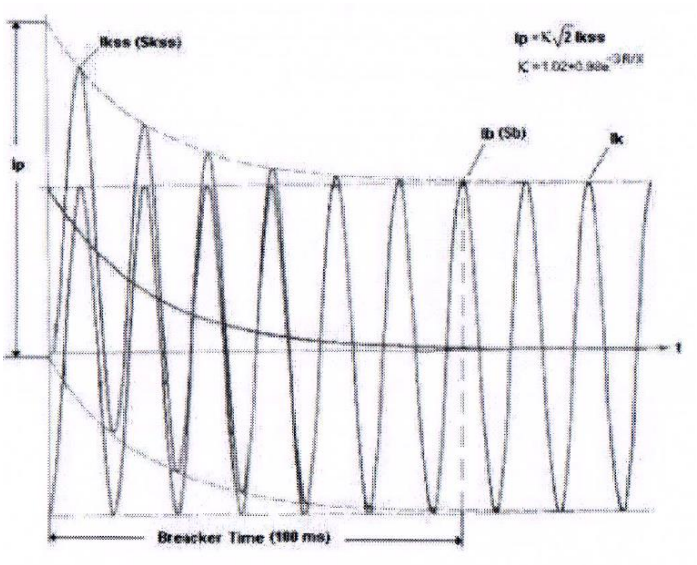

FIGURA 1: DESCRIPCIÓN DE LAS COMPONENTES DE LA CORRIENTES DE CORTOCIRCUITO

3. BASE DE DATOS CONSIDERADA EN EL ESTUDIO

El presente Estudio de Cortocircuitos ha considerado la base de datos en formato DIgSILENT del Sistema Interconectado Central (SIC), emitida en Marzo de 2015 por el CDEC-SIC. Esta base ya contiene incorporados los parámetros de líneas, transformadores y generadores existentes en el SIC, así como la topología actual del sistema de transmisión.

4. CASOS DE ESTUDIO

Con objetivo de determinar la mínima corriente de cortocircuito se han simulado las fallas bajo la condición de menor aporte por parte del Sistema Interconectado Central (SIC), es decir en el escenario de demanda baja de un día domingo.

A continuación la Tabla 2 muestra el resumen de simulaciones realizadas para la determinación de cada componente de cortocircuito.

TABLA 2: ESCENARIOS DE OPERACIÓN PARA ESTUDIO DE CORTOCIRCUITOS

Escenario	Descripción	Tipo de Falla	Resultados	
			Tabla	Figura
A	Mínimo aportes de corrientes de cortocircuitos	Trifásica	Tabla 3	Figura 2
		Bifásica aislada	Tabla 4	Figura 3
		Bifásica a Tierra	Tabla 5	Figura 4
		Monofásica	Tabla 6	Figura 5
		Bifásica a Tierra (40 Ohm)	Tabla 7	Figura 6
		Monofásica (40 Ohm)	Tabla 8	Figura 7

Por otro lado, las mínimas corrientes de cortocircuito visualizadas en cada paño se muestran en resumen en la Tabla 9 y Figuras 8, 9, 10 y 11.

5. RESULTADOS

A continuación se presentan los resultados de las simulaciones de cortocircuitos realizadas para el área de influencia de S/E Ancoa

TABLA 3: CORTOCIRCUITO MÍNIMO TRIFÁSICO

Subestación	Sk" (MVA)	Ik" (kA)	ip (kA)
S/E Canal Melado 220 kV	564,61	2,96	7,93
S/E Canal Melado 110 kV	2346,32	6,16	15,71
S/E Itahue 220 kV J	3096,29	8,13	20,26
S/E Loma Alta 220 kV J	1908,00	5,01	12,87
S/E Alto Jahuel 220 kV J1	7091,21	18,61	47,30
S/E Pehuenche 220 kV J1	2847,00	7,47	18,89
S/E Charrúa 220 kV J1	8214,86	21,56	56,47
S/E Ancoa 220 kV J1	5696,75	14,95	39,02
S/E La Candelaria 220 kV J1	4504,74	11,82	29,47
S/E Pehuenche 220 kV J2	2847,00	7,47	18,89
S/E Charrúa 220 kV J2	8214,86	21,56	56,47
S/E Alto Jahuel 220 kV J2	7091,21	18,61	47,30
S/E Ancoa 220 kV J2	5696,75	14,95	39,02
S/E La Candelaria 220 kV J2	4504,74	11,82	29,47
S/E Charrúa 220 kV J3	8214,86	21,56	56,47
S/E Charrúa 500 kV K1	7656,67	8,84	23,24
S/E Alto Jahuel 500 kV K1	7899,72	9,12	23,67
S/E Ancoa 500 kV K1	7707,55	8,90	23,05
S/E Charrúa 500 kV K2	7656,67	8,84	23,24
S/E Alto Jahuel 500 kV K2	7899,72	9,12	23,67
S/E Ancoa 500 kV K2	7707,55	8,90	23,05
S/E Los Hierros 110 kV	476,79	2,50	6,73
S/E Los Hierros II 110 kV	487,31	2,56	6,86
T_HV_ATR1	7707,55	8,90	23,05
T_LV_ATR1	5696,75	14,95	39,02
Tap Loma Alta	2818,82	7,40	18,70
Tap Los Hierros II	490,57	2,57	6,92

TABLA 4: CORTOCIRCUITO MÍNIMO BIFÁSICO AISLADO

Subestación	Sk" A (MVA)	Ik" A (kA)	ip A (kA)	Sk" B (MVA)	Ik" B (kA)	ip B (kA)	Sk" C (MVA)	Ik" C (kA)	ip C (kA)
S/E Canal Melado 220 kV	0,00	0,00	0,00	164,11	2,58	6,91	164,11	2,58	6,91
S/E Canal Melado 110 kV	0,00	0,00	0,00	690,48	5,44	13,87	690,48	5,44	13,87
S/E Itahue 220 kV J	0,00	0,00	0,00	886,55	6,98	17,40	886,55	6,98	17,40
S/E Loma Alta 220 kV J	0,00	0,00	0,00	559,23	4,40	11,32	559,23	4,40	11,32
S/E Alto Jahuel 220 kV J1	0,00	0,00	0,00	2035,93	16,03	40,74	2035,93	16,03	40,74
S/E Pehuenche 220 kV J1	0,00	0,00	0,00	841,76	6,63	16,76	841,76	6,63	16,76
S/E Charrúa 220 kV J1	0,00	0,00	0,00	2373,65	18,69	48,95	2373,65	18,69	48,95
S/E Ancoa 220 kV J1	0,00	0,00	0,00	1640,73	12,92	33,72	1640,73	12,92	33,72
S/E La Candelaria 220 kV J1	0,00	0,00	0,00	1296,55	10,21	25,44	1296,55	10,21	25,44
S/E Pehuenche 220 kV J2	0,00	0,00	0,00	841,76	6,63	16,76	841,76	6,63	16,76
S/E Charrúa 220 kV J2	0,00	0,00	0,00	2373,65	18,69	48,95	2373,65	18,69	48,95
S/E Alto Jahuel 220 kV J2	0,00	0,00	0,00	2035,93	16,03	40,74	2035,93	16,03	40,74
S/E Ancoa 220 kV J2	0,00	0,00	0,00	1640,73	12,92	33,72	1640,73	12,92	33,72
S/E La Candelaria 220 kV J2	0,00	0,00	0,00	1296,55	10,21	25,44	1296,55	10,21	25,44
S/E Charrúa 220 kV J3	0,00	0,00	0,00	2373,65	18,69	48,95	2373,65	18,69	48,95
S/E Charrúa 500 kV K1	0,00	0,00	0,00	2209,05	7,65	20,11	2209,05	7,65	20,11
S/E Alto Jahuel 500 kV K1	0,00	0,00	0,00	2273,12	7,87	20,44	2273,12	7,87	20,44
S/E Ancoa 500 kV K1	0,00	0,00	0,00	2220,33	7,69	19,92	2220,33	7,69	19,92
S/E Charrúa 500 kV K2	0,00	0,00	0,00	2209,05	7,65	20,11	2209,05	7,65	20,11
S/E Alto Jahuel 500 kV K2	0,00	0,00	0,00	2273,12	7,87	20,44	2273,12	7,87	20,44
S/E Ancoa 500 kV K2	0,00	0,00	0,00	2220,33	7,69	19,92	2220,33	7,69	19,92
S/E Los Hierros 110 kV	0,00	0,00	0,00	138,66	2,18	5,87	138,66	2,18	5,87
S/E Los Hierros II 110 kV	0,00	0,00	0,00	141,68	2,23	5,98	141,68	2,23	5,98
T_HV_ATR1	0,00	0,00	0,00	2220,33	7,69	19,92	2220,33	7,69	19,92
T_LV_ATR1	0,00	0,00	0,00	1640,73	12,92	33,72	1640,73	12,92	33,72
Tap Loma Alta	0,00	0,00	0,00	833,21	6,56	16,58	833,21	6,56	16,58
Tap Los Hierros II	0,00	0,00	0,00	142,63	2,25	6,04	142,63	2,25	6,04

TABLA 5: CORTOCIRCUITO MÍNIMO BIFÁSICO A TIERRA

Subestación	Sk" A (MVA)	Ik" A (kA)	ip A (kA)	Sk" B (MVA)	Ik" B (kA)	ip B (kA)	Sk" C (MVA)	Ik" C (kA)	ip C (kA)
S/E Canal Melado 220 kV	0,00	0,00	0,00	252,31	3,97	10,63	253,52	3,99	10,68
S/E Canal Melado 110 kV	0,00	0,00	0,00	827,64	6,52	16,62	824,64	6,49	16,56
S/E Itahue 220 kV J	0,00	0,00	0,00	1140,59	8,98	22,39	1222,14	9,62	23,99
S/E Loma Alta 220 kV J	0,00	0,00	0,00	642,91	5,06	13,01	633,40	4,99	12,82
S/E Alto Jahuel 220 kV J1	0,00	0,00	0,00	2881,73	22,69	57,66	3139,78	24,72	62,83
S/E Pehuenche 220 kV J1	0,00	0,00	0,00	1106,58	8,71	22,03	1131,43	8,91	22,52
S/E Charrúa 220 kV J1	0,00	0,00	0,00	3042,48	23,95	62,75	3125,55	24,61	64,46
S/E Ancoa 220 kV J1	0,00	0,00	0,00	2047,51	16,12	42,07	2128,02	16,75	43,73
S/E La Candelaria 220 kV J1	0,00	0,00	0,00	1426,72	11,23	28,00	1552,23	12,22	30,46
S/E Pehuenche 220 kV J2	0,00	0,00	0,00	1106,58	8,71	22,03	1131,43	8,91	22,52
S/E Charrúa 220 kV J2	0,00	0,00	0,00	3042,48	23,95	62,75	3125,55	24,61	64,46
S/E Alto Jahuel 220 kV J2	0,00	0,00	0,00	2881,73	22,69	57,66	3139,78	24,72	62,83
S/E Ancoa 220 kV J2	0,00	0,00	0,00	2047,51	16,12	42,07	2128,02	16,75	43,73
S/E La Candelaria 220 kV J2	0,00	0,00	0,00	1426,72	11,23	28,00	1552,23	12,22	30,46
S/E Charrúa 220 kV J3	0,00	0,00	0,00	3042,48	23,95	62,75	3125,55	24,61	64,46
S/E Charrúa 500 kV K1	0,00	0,00	0,00	2557,04	8,86	23,28	2662,18	9,22	24,24
S/E Alto Jahuel 500 kV K1	0,00	0,00	0,00	2636,60	9,13	23,70	2860,06	9,91	25,71
S/E Ancoa 500 kV K1	0,00	0,00	0,00	2532,26	8,77	22,72	2638,66	9,14	23,67
S/E Charrúa 500 kV K2	0,00	0,00	0,00	2557,04	8,86	23,28	2662,18	9,22	24,24
S/E Alto Jahuel 500 kV K2	0,00	0,00	0,00	2636,60	9,13	23,70	2860,06	9,91	25,71
S/E Ancoa 500 kV K2	0,00	0,00	0,00	2532,26	8,77	22,72	2638,66	9,14	23,67
S/E Los Hierros 110 kV	0,00	0,00	0,00	183,85	2,89	7,79	176,12	2,77	7,46
S/E Los Hierros II 110 kV	0,00	0,00	0,00	189,18	2,98	7,99	180,13	2,84	7,61
T_HV_ATR1	0,00	0,00	0,00	2532,26	8,77	22,72	2638,66	9,14	23,67
T_LV_ATR1	0,00	0,00	0,00	2047,51	16,12	42,07	2128,02	16,75	43,73
Tap Loma Alta	0,00	0,00	0,00	1077,37	8,48	21,44	1098,57	8,65	21,86
Tap Los Hierros II	0,00	0,00	0,00	191,33	3,01	8,10	182,48	2,87	7,72

TABLA 6: CORTOCIRCUITO MÁXIMO MONOFÁSICO

Subestación	Sk" A (MVA)	Ik" A (kA)	ip A (kA)	Sk" B (MVA)	Ik" B (kA)	ip B (kA)	Sk" C (MVA)	Ik" C (kA)	ip C (kA)
S/E Canal Melado 220 kV	253,46	3,99	10,68	0,00	0,00	0,00	0,00	0,00	0,00
S/E Canal Melado 110 kV	835,41	6,58	16,78	0,00	0,00	0,00	0,00	0,00	0,00
S/E Itahue 220 kV J	1231,36	9,69	24,17	0,00	0,00	0,00	0,00	0,00	0,00
S/E Loma Alta 220 kV J	622,31	4,90	12,59	0,00	0,00	0,00	0,00	0,00	0,00
S/E Alto Jahuel 220 kV J1	3068,51	24,16	61,40	0,00	0,00	0,00	0,00	0,00	0,00
S/E Pehuenche 220 kV J1	1148,12	9,04	22,85	0,00	0,00	0,00	0,00	0,00	0,00
S/E Charrúa 220 kV J1	3234,79	25,47	66,71	0,00	0,00	0,00	0,00	0,00	0,00
S/E Ancoa 220 kV J1	2183,18	17,19	44,86	0,00	0,00	0,00	0,00	0,00	0,00
S/E La Candelaria 220 kV J1	1481,42	11,66	29,07	0,00	0,00	0,00	0,00	0,00	0,00
S/E Pehuenche 220 kV J2	1148,12	9,04	22,85	0,00	0,00	0,00	0,00	0,00	0,00
S/E Charrúa 220 kV J2	3234,79	25,47	66,71	0,00	0,00	0,00	0,00	0,00	0,00
S/E Alto Jahuel 220 kV J2	3068,51	24,16	61,40	0,00	0,00	0,00	0,00	0,00	0,00
S/E Ancoa 220 kV J2	2183,18	17,19	44,86	0,00	0,00	0,00	0,00	0,00	0,00
S/E La Candelaria 220 kV J2	1481,42	11,66	29,07	0,00	0,00	0,00	0,00	0,00	0,00
S/E Charrúa 220 kV J3	3234,79	25,47	66,71	0,00	0,00	0,00	0,00	0,00	0,00
S/E Charrúa 500 kV K1	2659,96	9,21	24,22	0,00	0,00	0,00	0,00	0,00	0,00
S/E Alto Jahuel 500 kV K1	2836,37	9,83	25,50	0,00	0,00	0,00	0,00	0,00	0,00
S/E Ancoa 500 kV K1	2602,66	9,02	23,35	0,00	0,00	0,00	0,00	0,00	0,00
S/E Charrúa 500 kV K2	2659,96	9,21	24,22	0,00	0,00	0,00	0,00	0,00	0,00
S/E Alto Jahuel 500 kV K2	2836,37	9,83	25,50	0,00	0,00	0,00	0,00	0,00	0,00
S/E Ancoa 500 kV K2	2602,66	9,02	23,35	0,00	0,00	0,00	0,00	0,00	0,00
S/E Los Hierros 110 kV	188,87	2,97	8,00	0,00	0,00	0,00	0,00	0,00	0,00
S/E Los Hierros II 110 kV	193,72	3,05	8,18	0,00	0,00	0,00	0,00	0,00	0,00
T_HV_ATR1	2602,66	9,02	23,35	0,00	0,00	0,00	0,00	0,00	0,00
T_LV_ATR1	2183,18	17,19	44,86	0,00	0,00	0,00	0,00	0,00	0,00
Tap Loma Alta	1117,71	8,80	22,24	0,00	0,00	0,00	0,00	0,00	0,00
Tap Los Hierros II	196,04	3,09	8,30	0,00	0,00	0,00	0,00	0,00	0,00

TABLA 7: CORTOCIRCUITO MÍNIMO BIFÁSICO A TIERRA CON 40 Ω

Subestación	Sk" A (MVA)	Ik" A (kA)	ip A (kA)	Sk" B (MVA)	Ik" B (kA)	ip B (kA)	Sk" C (MVA)	Ik" C (kA)	ip C (kA)
S/E Canal Melado 220 kV	0,00	0,00	0,00	101,72	1,60	4,29	82,29	1,30	3,47
S/E Canal Melado 110 kV	0,00	0,00	0,00	361,68	2,85	7,26	347,18	2,73	6,97
S/E Itahue 220 kV J	0,00	0,00	0,00	386,97	3,05	7,59	352,37	2,77	6,92
S/E Loma Alta 220 kV J	0,00	0,00	0,00	330,19	2,60	6,68	334,66	2,63	6,77
S/E Alto Jahuel 220 kV J1	0,00	0,00	0,00	410,41	3,23	8,21	385,57	3,04	7,71
S/E Pehuenche 220 kV J1	0,00	0,00	0,00	389,40	3,07	7,75	350,99	2,76	6,99
S/E Charrúa 220 kV J1	0,00	0,00	0,00	420,35	3,31	8,67	404,73	3,19	8,35
S/E Ancoa 220 kV J1	0,00	0,00	0,00	401,76	3,16	8,26	384,63	3,03	7,90
S/E La Candelaria 220 kV J1	0,00	0,00	0,00	377,40	2,97	7,41	382,80	3,01	7,51
S/E Pehuenche 220 kV J2	0,00	0,00	0,00	389,40	3,07	7,75	350,99	2,76	6,99
S/E Charrúa 220 kV J2	0,00	0,00	0,00	420,35	3,31	8,67	404,73	3,19	8,35
S/E Alto Jahuel 220 kV J2	0,00	0,00	0,00	410,41	3,23	8,21	385,57	3,04	7,71
S/E Ancoa 220 kV J2	0,00	0,00	0,00	401,76	3,16	8,26	384,63	3,03	7,90
S/E La Candelaria 220 kV J2	0,00	0,00	0,00	377,40	2,97	7,41	382,80	3,01	7,51
S/E Charrúa 220 kV J3	0,00	0,00	0,00	420,35	3,31	8,67	404,73	3,19	8,35
S/E Charrúa 500 kV K1	0,00	0,00	0,00	1549,17	5,37	14,10	1524,78	5,28	13,88
S/E Alto Jahuel 500 kV K1	0,00	0,00	0,00	1549,54	5,37	13,93	1505,85	5,22	13,54
S/E Ancoa 500 kV K1	0,00	0,00	0,00	1514,54	5,25	13,59	1524,17	5,28	13,67
S/E Charrúa 500 kV K2	0,00	0,00	0,00	1549,17	5,37	14,10	1524,78	5,28	13,88
S/E Alto Jahuel 500 kV K2	0,00	0,00	0,00	1549,54	5,37	13,93	1505,85	5,22	13,54
S/E Ancoa 500 kV K2	0,00	0,00	0,00	1514,54	5,25	13,59	1524,17	5,28	13,67
S/E Los Hierros 110 kV	0,00	0,00	0,00	93,67	1,47	3,97	81,42	1,28	3,45
S/E Los Hierros II 110 kV	0,00	0,00	0,00	94,17	1,48	3,98	81,71	1,29	3,45
T_HV_ATR1	0,00	0,00	0,00	1514,54	5,25	13,59	1524,17	5,28	13,67
T_LV_ATR1	0,00	0,00	0,00	401,76	3,16	8,26	384,63	3,03	7,90
Tap Loma Alta	0,00	0,00	0,00	386,77	3,05	7,70	351,69	2,77	7,00
Tap Los Hierros II	0,00	0,00	0,00	94,62	1,49	4,01	81,82	1,29	3,46

TABLA 8: CORTOCIRCUITO MÁXIMO MONOFÁSICO CON 40 Ω

Subestación	Sk" A (MVA)	Ik" A (kA)	ip A (kA)	Sk" B (MVA)	Ik" B (kA)	ip B (kA)	Sk" C (MVA)	Ik" C (kA)	ip C (kA)
S/E Canal Melado 220 kV	95,31	1,50	4,01	0,00	0,00	0,00	0,00	0,00	0,00
S/E Canal Melado 110 kV	356,22	2,80	7,15	0,00	0,00	0,00	0,00	0,00	0,00
S/E Itahue 220 kV J	376,37	2,96	7,39	0,00	0,00	0,00	0,00	0,00	0,00
S/E Loma Alta 220 kV J	329,79	2,60	6,67	0,00	0,00	0,00	0,00	0,00	0,00
S/E Alto Jahuel 220 kV J1	402,20	3,17	8,05	0,00	0,00	0,00	0,00	0,00	0,00
S/E Pehuenche 220 kV J1	376,06	2,96	7,49	0,00	0,00	0,00	0,00	0,00	0,00
S/E Charrúa 220 kV J1	414,35	3,26	8,55	0,00	0,00	0,00	0,00	0,00	0,00
S/E Ancoa 220 kV J1	395,78	3,12	8,13	0,00	0,00	0,00	0,00	0,00	0,00
S/E La Candelaria 220 kV J1	381,95	3,01	7,49	0,00	0,00	0,00	0,00	0,00	0,00
S/E Pehuenche 220 kV J2	376,06	2,96	7,49	0,00	0,00	0,00	0,00	0,00	0,00
S/E Charrúa 220 kV J2	414,35	3,26	8,55	0,00	0,00	0,00	0,00	0,00	0,00
S/E Alto Jahuel 220 kV J2	402,20	3,17	8,05	0,00	0,00	0,00	0,00	0,00	0,00
S/E Ancoa 220 kV J2	395,78	3,12	8,13	0,00	0,00	0,00	0,00	0,00	0,00
S/E La Candelaria 220 kV J2	381,95	3,01	7,49	0,00	0,00	0,00	0,00	0,00	0,00
S/E Charrúa 220 kV J3	414,35	3,26	8,55	0,00	0,00	0,00	0,00	0,00	0,00
S/E Charrúa 500 kV K1	1556,54	5,39	14,17	0,00	0,00	0,00	0,00	0,00	0,00
S/E Alto Jahuel 500 kV K1	1560,18	5,40	14,03	0,00	0,00	0,00	0,00	0,00	0,00
S/E Ancoa 500 kV K1	1530,84	5,30	13,73	0,00	0,00	0,00	0,00	0,00	0,00
S/E Charrúa 500 kV K2	1556,54	5,39	14,17	0,00	0,00	0,00	0,00	0,00	0,00
S/E Alto Jahuel 500 kV K2	1560,18	5,40	14,03	0,00	0,00	0,00	0,00	0,00	0,00
S/E Ancoa 500 kV K2	1530,84	5,30	13,73	0,00	0,00	0,00	0,00	0,00	0,00
S/E Los Hierros 110 kV	89,50	1,41	3,79	0,00	0,00	0,00	0,00	0,00	0,00
S/E Los Hierros II 110 kV	89,85	1,41	3,79	0,00	0,00	0,00	0,00	0,00	0,00
T_HV_ATR1	1530,84	5,30	13,73	0,00	0,00	0,00	0,00	0,00	0,00
T_LV_ATR1	395,78	3,12	8,13	0,00	0,00	0,00	0,00	0,00	0,00
Tap Loma Alta	374,57	2,95	7,45	0,00	0,00	0,00	0,00	0,00	0,00
Tap Los Hierros II	90,21	1,42	3,82	0,00	0,00	0,00	0,00	0,00	0,00

TABLA 9: RESUMEN MÍNIMAS CORRIENTES DE CORTOCIRCUITOS OBTENIDAS PARA CADA PAÑO

Paño	Descripción	Mínima Corriente de Falla Entre Fases en Bushings	Mínima Corriente de Falla Entre Fases Circulante (Falla Paño Contrario)	Mínima Corriente de Falla Residual por Neutro (Falla Paño Contrario)	Mínima Corriente de Falla Residual por Neutro (Falla en Paño)
		Ik'' (kA)	Ik'' (kA)	I0x3 (kA)	I0x3 (kA)
KT1	Banco de Autotransformadores 750 MVA 525/230kV	1,209	1,968	0,21	1,49
JT1	Banco de Autotransformadores 750 MVA 525/230kV	4,493	2.759	3.34	0,50

Estas corrientes de cortocircuito fueron obtenidas mediante simulaciones de fallas trifásicas y monofásicas con 40 Ω.

TABLA 10: RESUMEN MÍNIMAS CORRIENTES DE CORTOCIRCUITOS OBTENIDAS PARA CADA PAÑO

Paño	Descripción	Mínima Corriente de Falla Entre Fases en Barra 220 kV	Mínima Corriente de Falla Residual por Neutro (Falla en Barra 220 kV)	Mínima Corriente de Falla Entre Fases en Barra 500 kV	Mínima Corriente de Falla Residual por Neutro (Falla en Barra 500 kV)
		Ik'' (kA)	I0x3 (kA)	Ik'' (kA)	I0x3 (kA)
KT1	Banco de Autotransformadores 750 MVA 525/230kV	2,054	0,210	0,752	1,470
JT1	Banco de Autotransformadores 750 MVA 525/230kV	4,688	0,410	1,716	3,280

Estas corrientes de cortocircuito fueron obtenidas mediante simulaciones de fallas trifásicas y monofásicas con 40 Ω.

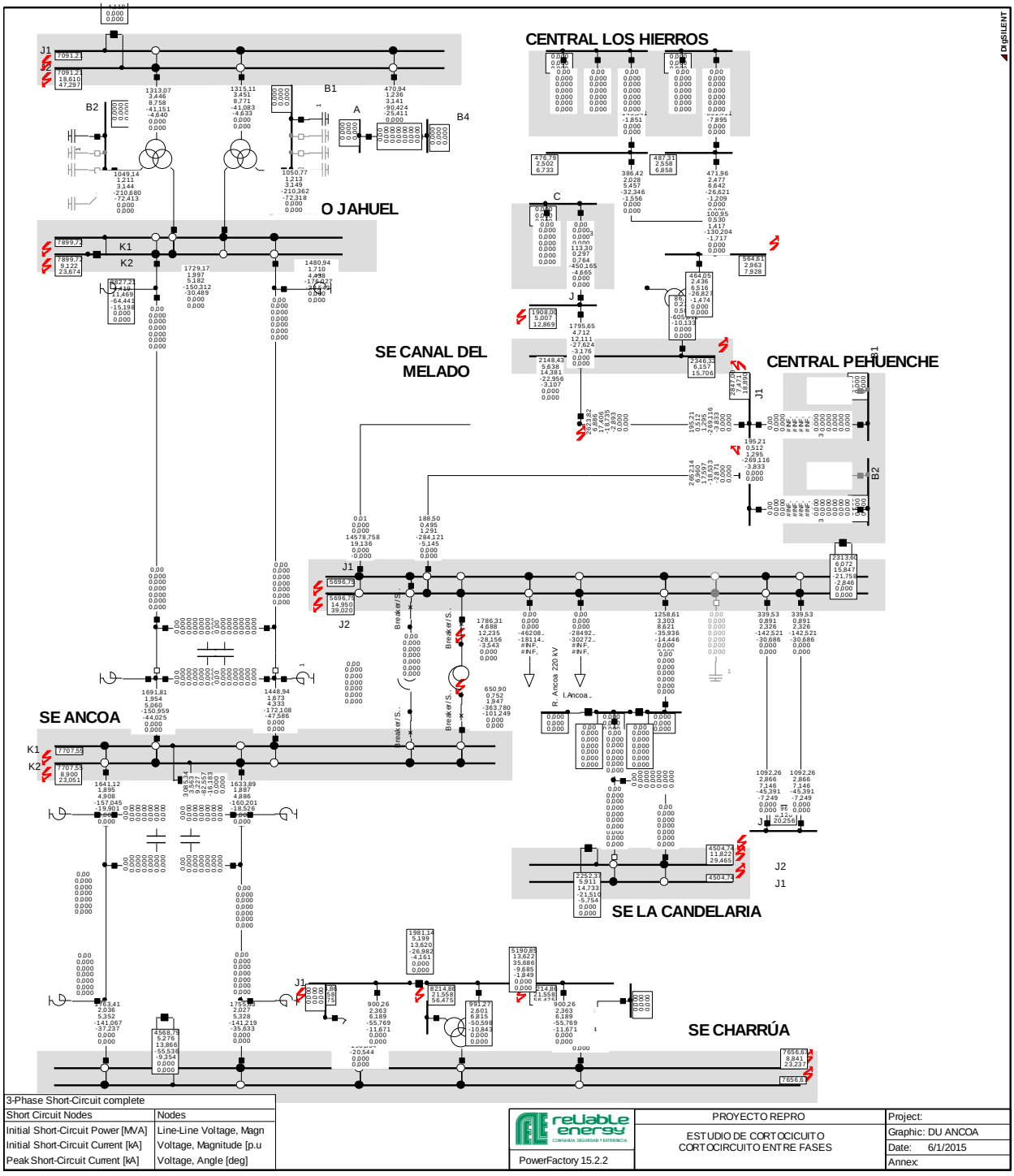

FIGURA 2: CORTOCIRCUITO TRIFÁSICO EN LA ZONA DE INFLUENCIA

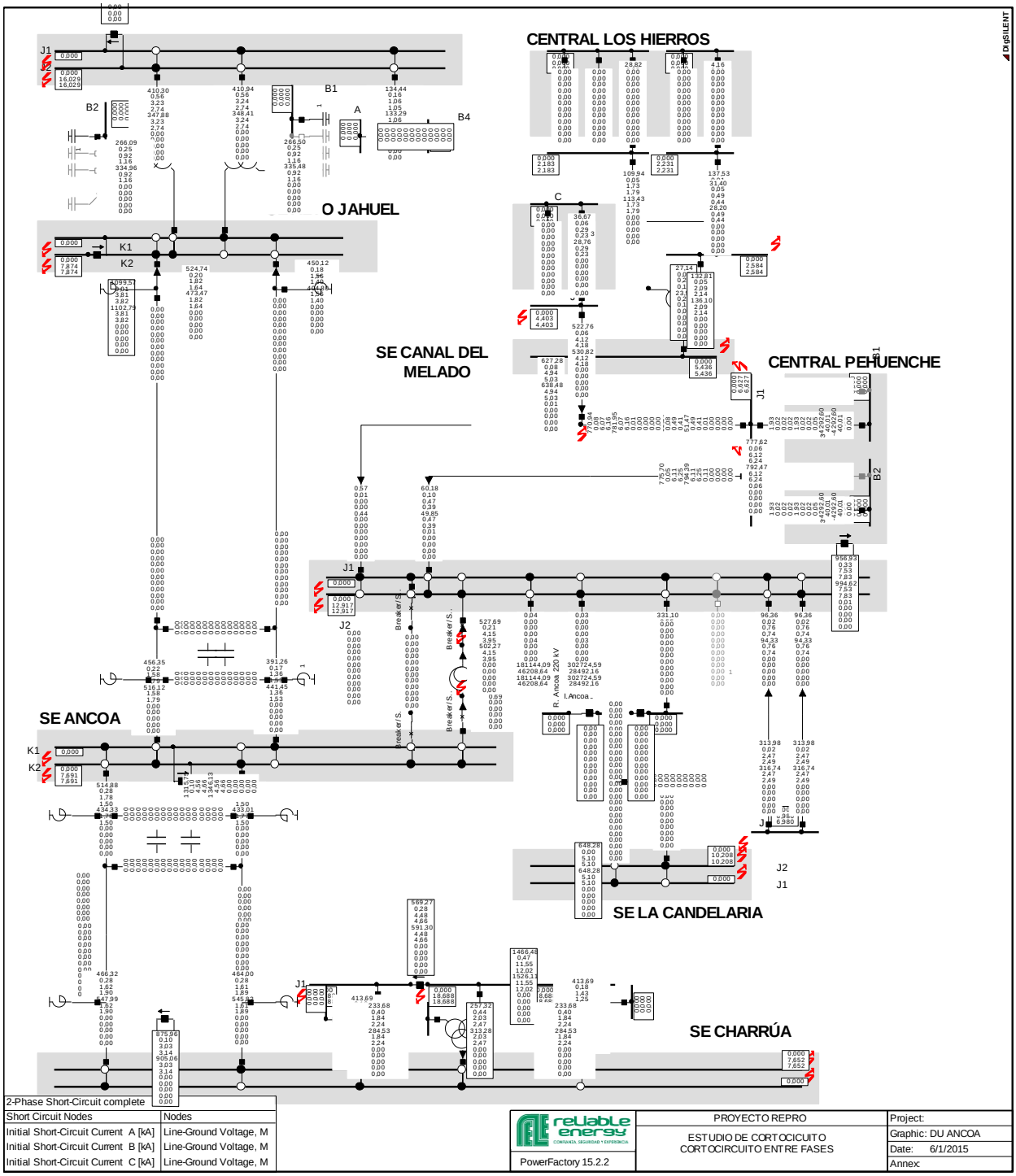

FIGURA 3: CORTOCIRCUITO BIFÁSICO AISLADO EN LA ZONA DE INFLUENCIA

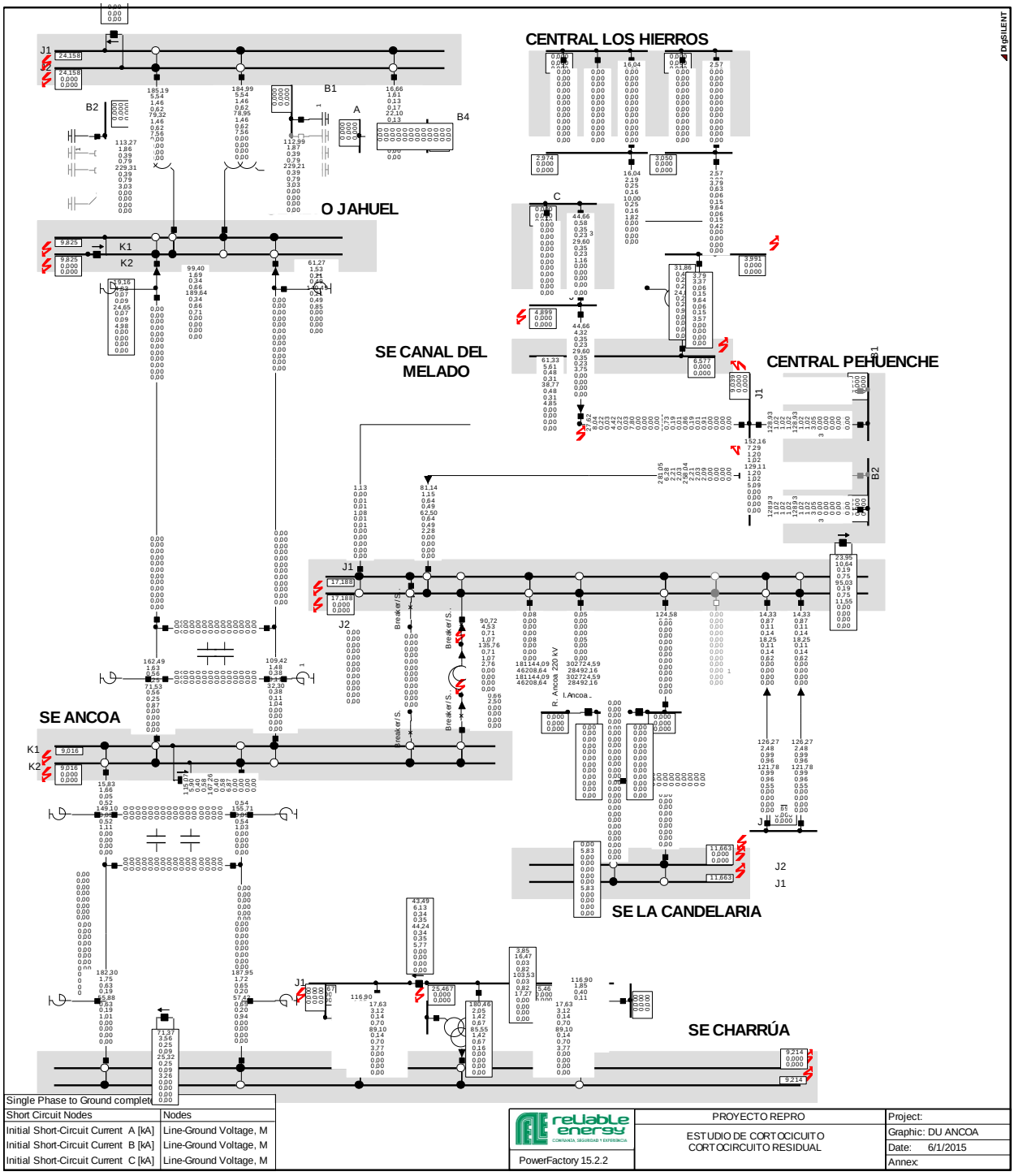

FIGURA 4: CORTOCIRCUITO BIFÁSICO A TIERRA EN LA ZONA DE INFLUENCIA

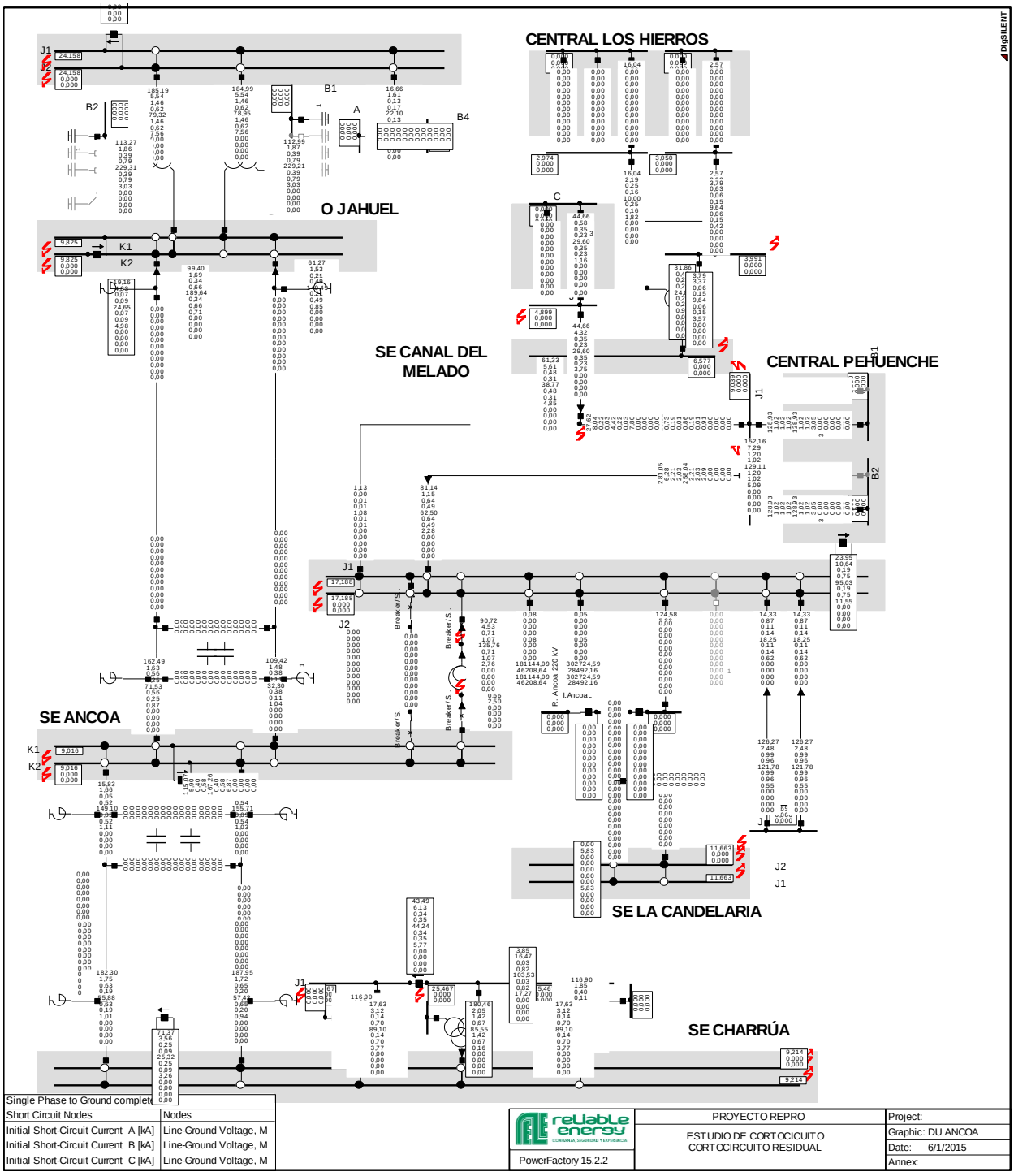

FIGURA 5: CORTOCIRCUITO MONOFÁSICO EN LA ZONA DE INFLUENCIA

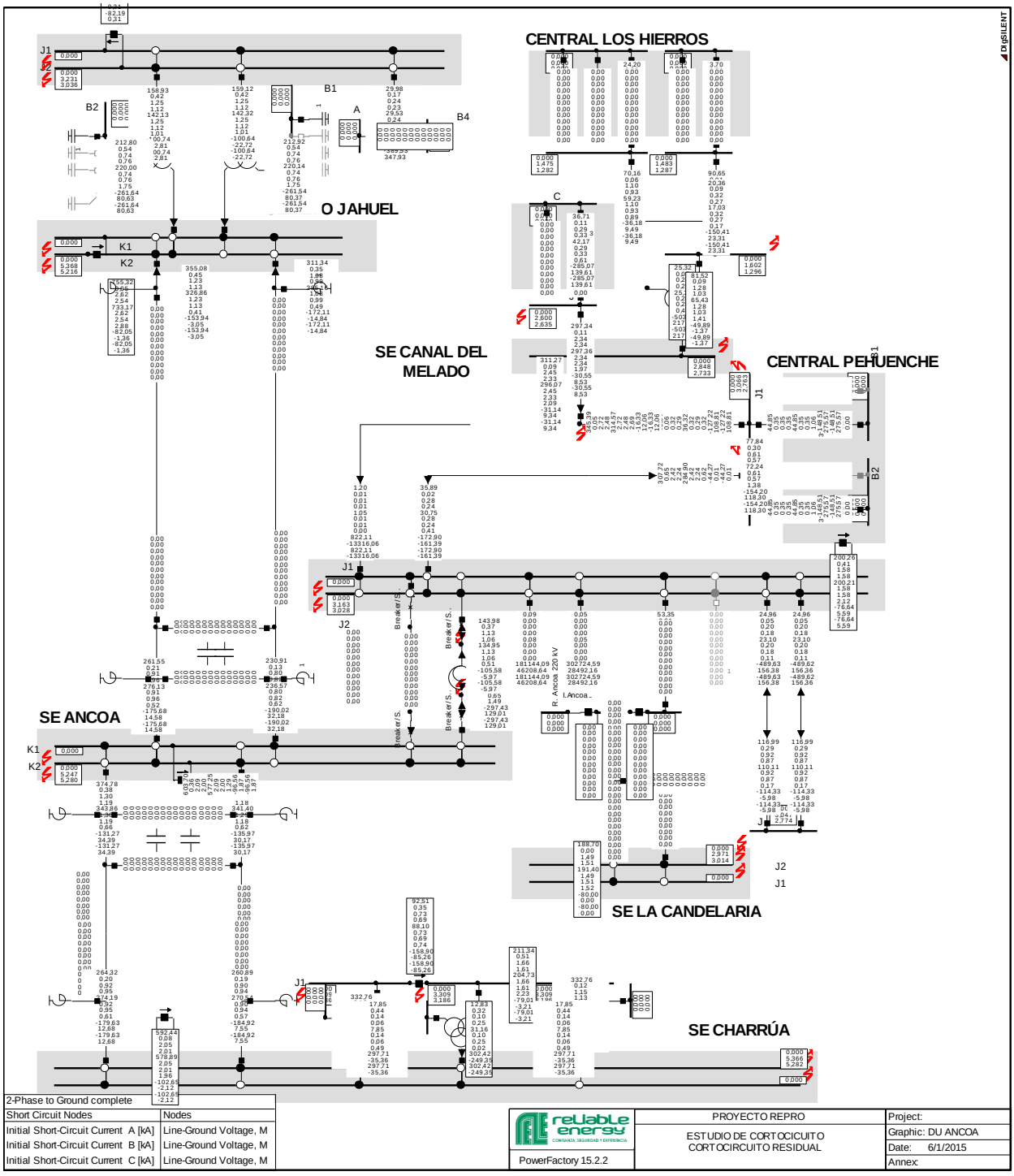

FIGURA 6: CORTOCIRCUITO BIFÁSICO A TIERRA CON 40 Ω EN LA ZONA DE INFLUENCIA

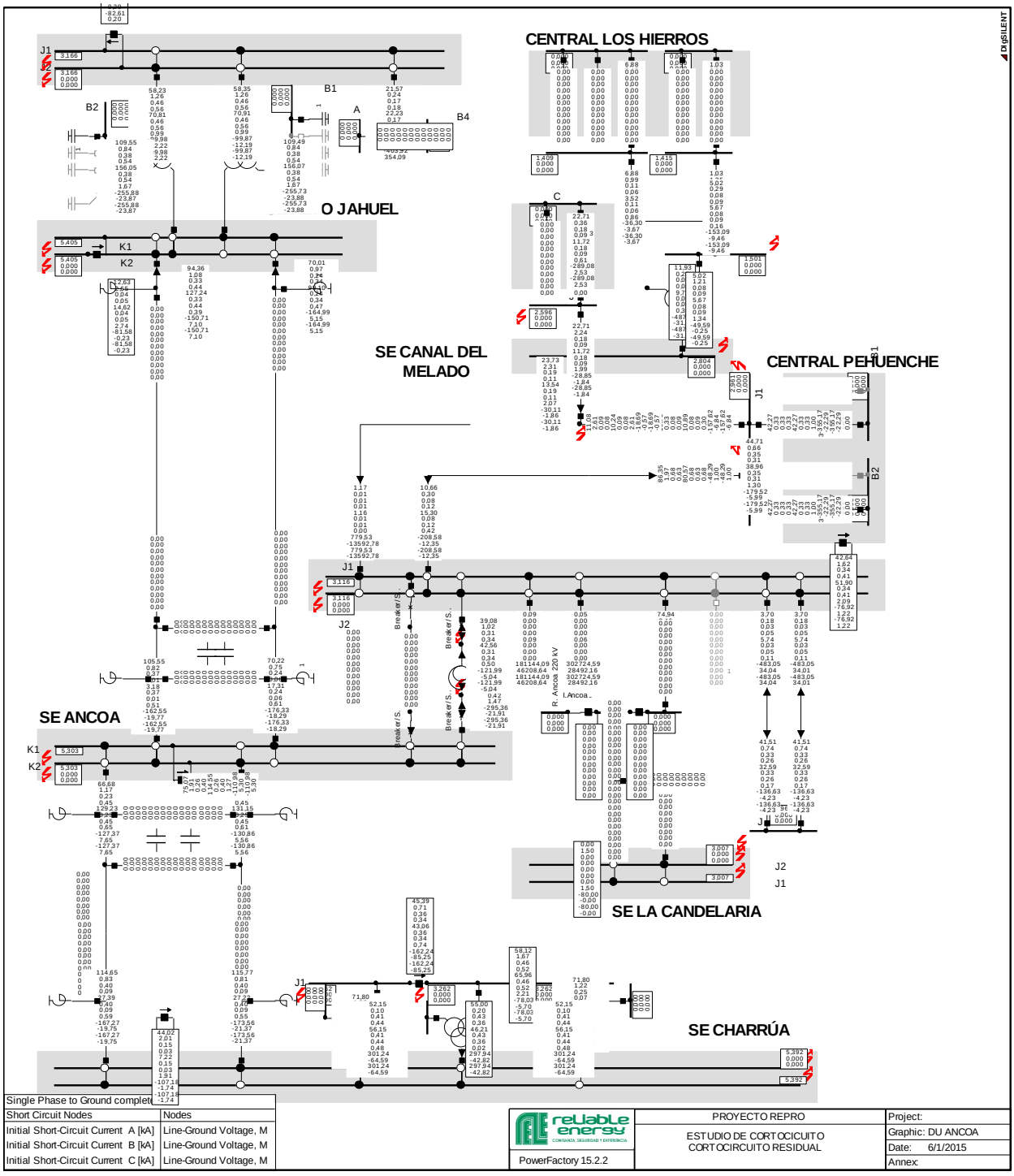

FIGURA 7: CORTOCIRCUITO MONOFÁSICO CON 40 Ω EN LA ZONA DE INFLUENCIA

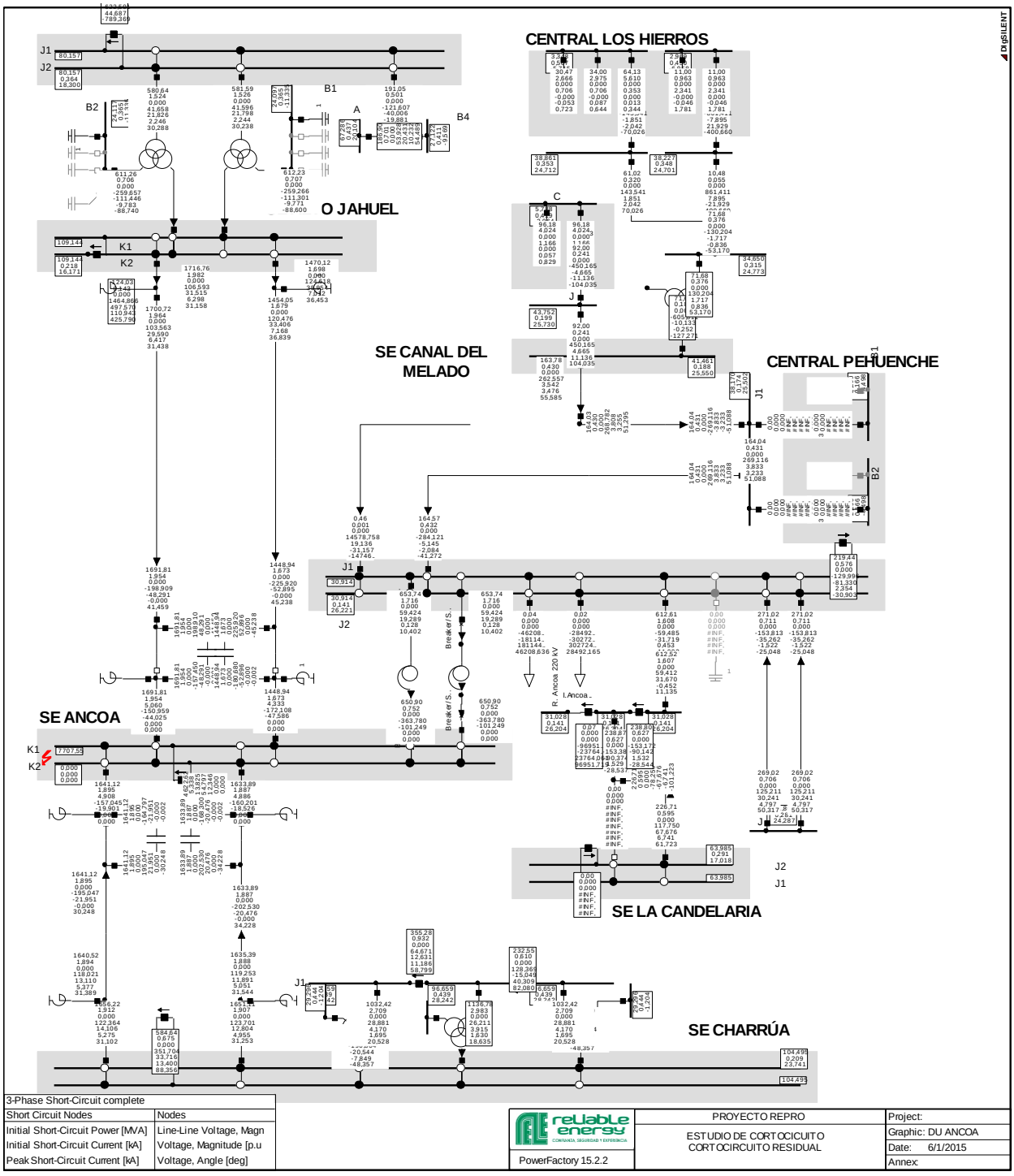

FIGURA 8: CORTOCIRCUITO TRIFÁSICO EN LA BARRA DE 500 KV SE ANCOA

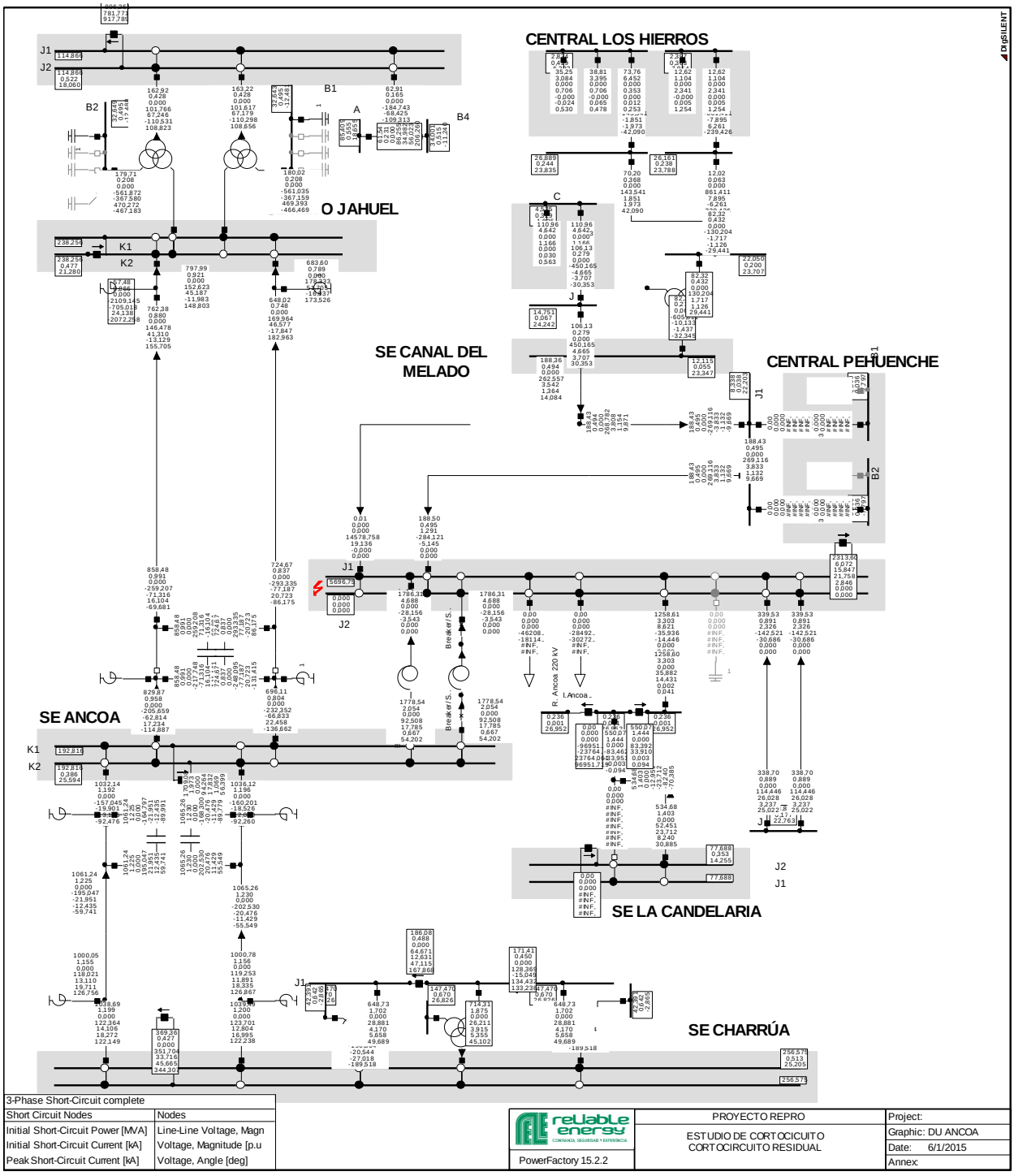

FIGURA 9: CORTOCIRCUITO TRIFÁSICO EN LA BARRA DE 220 KV SE ANCOA

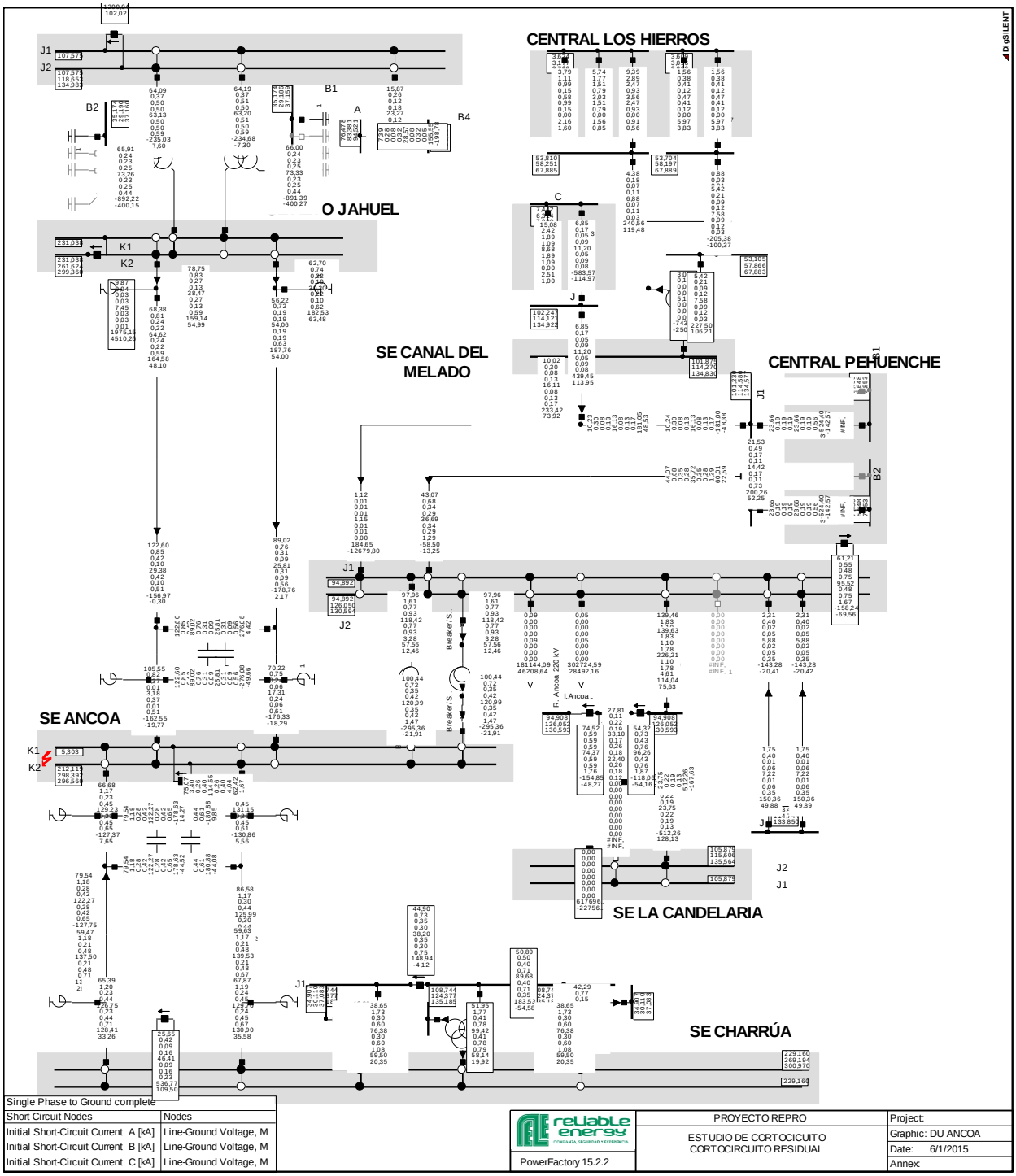

FIGURA 10: CORTOCIRCUITO MONOIFÁSICO CON 40 Ω EN LA BARRA DE 500 KV SE ANCOA

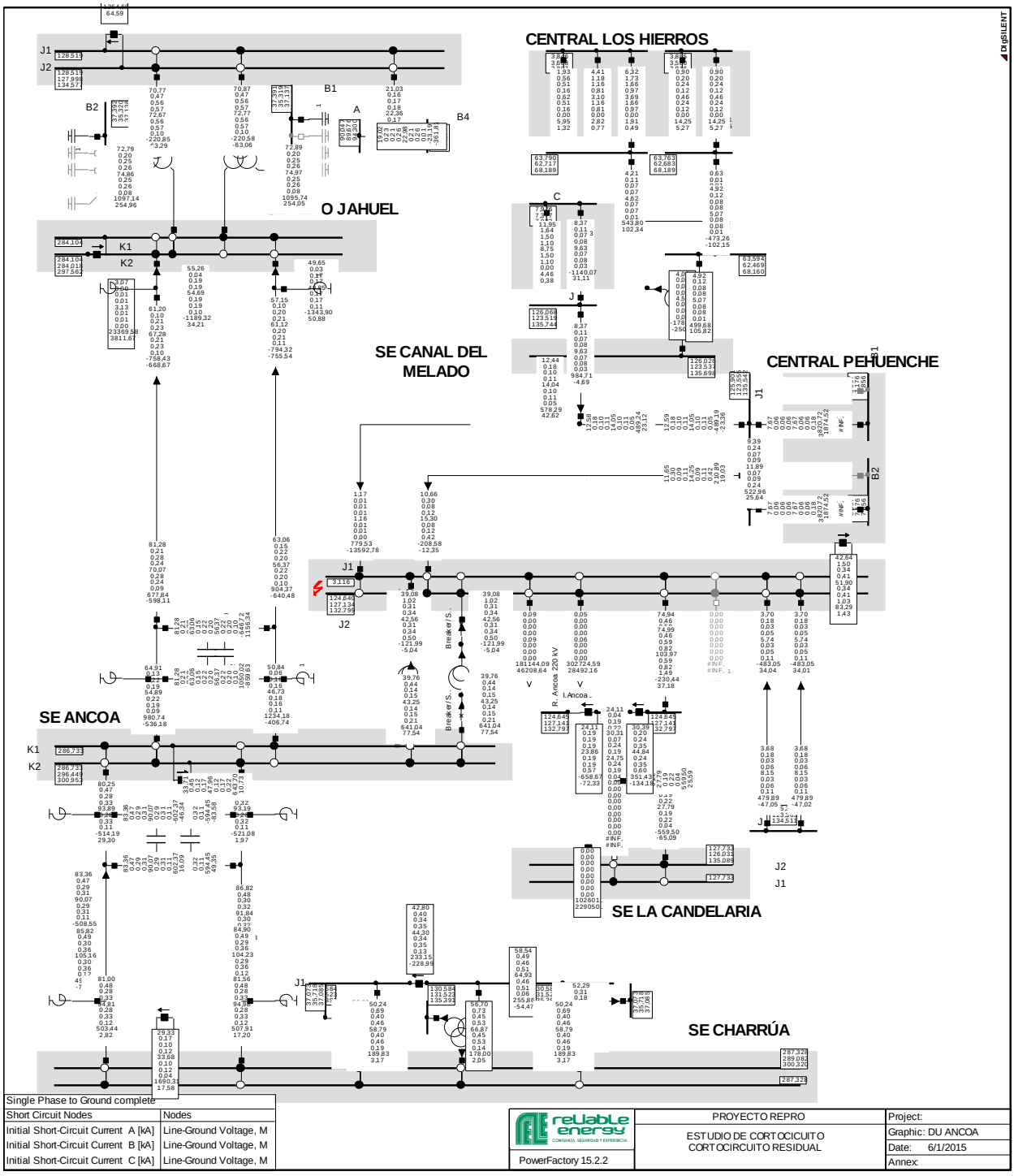

FIGURA 11: CORTOCIRCUITO MONOIFÁSICO CON 40 Ω EN LA BARRA DE 220 KV SE ANCOA

ANEXO C

ESTUDIO VERIFICACIÓN DE PROTECCIONES MEDIANTE TIEMPOS DE OPERACIÓN

1. METODOLOGÍA DEL ESTUDIO DE VERIFICACIÓN DE COORDINACIÓN

Con el objeto de verificar la coordinación de las protecciones en la zona de estudio, se realizan cortocircuitos del tipo: trifásico, bifásico aislado, bifásico a tierra y monofásico con 0 y 25 ohm de impedancia.

Se ha configurado el sistema eléctrico en demanda alta en Día Laboral con Demanda Alta - Hidrología Húmeda (DA-HH) y Demanda Alta Hidrología Seca (DA-HS), considerando en el primer caso una transferencia de 1800 MW desde S/E Charrúa a S/E Ancoa, con un aporte máximo de las centrales hidroeléctricas desde Sur a Norte. Para el segundo caso, se tiene una transferencia de 900 MW por la línea 2x500 kV Charrúa – Ancoa, disminuyendo el aporte de las centrales hidroeléctricas y aumentando el despacho de las centrales termoeléctricas aledañas a la zona de estudio.

Se realizaran fallas del tipo, trifásico, bifásico, bifásico a tierra, monofásico con 0 y 25 ohm, al 0%, 10%, 25%,50%,75% y 100% de las siguientes líneas:

- Línea Ancoa – Alto Jahuel 500 kV C1
- Línea Ancoa – Alto Jahuel 500 kV C2
- Línea Charrúa - Ancoa 500 kV L1
- Línea Charrúa - Ancoa 500 kV L2
- Línea Colbun – La Candelaria 220 kV
- Línea Pehuenche – Tap Loma Alta 220 kV L1
- Línea Tap Loma Alta – Ancoa 220 kV L1
- Línea Ancoa – Pehuenche 220 kV L2

Lo anterior descrito se indicará como escenario de Operación Normal y además se considerarán los siguientes casos:

- Línea Ancoa – Pehuenche 220 kV L2 aterrizada a ambos extremos.
- Línea Ancoa – Colbún 220 kV Fuera de servicio.

2. RESULTADOS

Los resultados se presentan en tablas resumen, las cuales muestran los tiempos de operación de las protecciones ajustadas para el nuevo relé a implementar en los paños KT1 Y JT1 DE S/E Ancoa y protecciones aledañas a la zona de estudio Según:

SIMULACIONES ESCENARIO DE OPERACIÓN NORMAL

RELE - Reliable Energy Ingeniería Limitada
TEL.: +56 2 26726279 WEB: www.rele.cl EMAIL: contacto@rele.cl

Resultados en Demanda Alta Hidrología Humeda

Falla trifásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	3,240	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,184	0,380	0,663
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---

S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	3,610	3,610	1,735	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	3,610	1,730	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	0,820	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	3,220	3,220

Falla bifásica aislada en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	3,240	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	1,021	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,198	0,451	0,926

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	1,876	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	9,926	1,870	3,610	11,654
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	2,020	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	3,220	3,220

Falla bifásica a tierra en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	3,240	---	---	0,540	---	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	3,240	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640

S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	3,515	0,015	---	3,515	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	3,515	0,015	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	2,525	0,930	1,211
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	2,723	0,956	1,255
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	---	0,421	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,219	0,640	0,302
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	0,440	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	---	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	0,440	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	2,040	---	2,040	2,040
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	1,001	1,064	1,001	0,771	0,514	0,368	0,376
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,743	0,780	0,735	0,577	0,393	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	1,749	1,963	3,383
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,754	0,793	0,746	0,584	0,397	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	8,822	1,745	1,966	3,396
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	0,820	2,020	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	0,820	2,020

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm

Ubicación de la falla medida desde: Reactor A. Jahuel C2										
Caso: DA-HH										
Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	3,240	3,240	3,240	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	3,240	---	---	0,540	0,540	0,540	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	---	---	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	3,240	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	---	---	3,515	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	---	---	3,515	0,015	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	0,015	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	5,337	1,421	0,974	1,555
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	6,298	1,482	1,002	1,628
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	1,021	1,021	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	0,780	0,336
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	1,140	0,440	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,220	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	1,140	0,440	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,220	2,040	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,994	0,945	0,830	0,626	0,407	0,368	0,424
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,738	0,701	0,620	0,475	0,314	0,298	0,327
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,220	1,988	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,750	0,711	0,628	0,480	0,316	0,298	0,329
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,226	1,991	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	2,020

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	3,240	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	17,675	2,911	2,173	2,412
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	35,661	3,176	2,318	2,591
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	2,040	0,740	2,040	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,440	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	1,397	1,190	0,975	0,725	0,538	0,487	0,506
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,000	0,862	0,718	0,545	0,411	0,374	0,387
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,021	0,878	0,729	0,552	0,415	0,377	0,391
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	10,719	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220

Falla trifásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	0,015	---	---	---

S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	1,365	0,566	0,210	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	1,986	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	18,480	3,610	1,979	3,610	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	2,020	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	0,820	3,220	---	---	---

Falla bifásica aislada en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---

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S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	1,021	1,021	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	3,381	0,746	0,229	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	2,167	3,610	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	3,610	2,159	11,362	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	2,020	3,220	---	---	---	

| S/E Ancoa 220 kV | 52JT2 | RET 670 EST/KT1 220| 51N | --- | --- | --- | --- | --- | --- | --- |
| S/E Ancoa 220 kV | 52JT2 | RET 670 EST/KT1 220| 51 | 3,220 | 3,220 | 0,820 | 3,220 | --- | --- | --- |

Falla bifásica a tierra en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	3,240	0,540	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	0,015	3,515	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	0,015	3,515	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	1,426	0,878	2,158	25,611	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	1,487	0,901	2,301	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,396	0,194	0,277	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	0,740	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	0,740	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	0,040	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	---	0,740	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	0,040	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	2,040	0,440	---	2,040	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,408	0,368	0,486	0,741	0,973	1,046	0,999
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,314	0,298	0,373	0,556	0,716	0,768	0,741
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	1,980	1,931	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,316	0,298	0,376	0,563	0,727	0,780	0,753
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	1,985	1,928	9,607	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	2,020	2,020	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	0,820	0,820	3,220	---	---	---

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	0,540	0,540	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	0,540	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	0,540	0,540	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	0,540	---	---	---	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	0,015	3,515	---	---	3,515
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	0,015	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	0,015	3,515	---	---	3,515
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	0,015	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	1,880	1,167	1,252	4,798	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	1,988	1,208	1,299	5,562	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	1,021	1,021	1,021	---	---	---

S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,443	2,286	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	0,040	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	0,040	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	0,440	0,440	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,220	0,740	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	0,740	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	0,440	0,440	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	2,040	0,220	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	2,040	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,460	0,369	0,382	0,612	0,825	0,944	0,994	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,354	0,298	0,298	0,465	0,616	0,700	0,738	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	2,547	2,765	3,610	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,356	0,298	0,298	0,470	0,624	0,710	0,750	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	2,551	2,770	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	0,820	2,020	3,220	---	---	---	

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	0,540	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	3,240	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	3,240	---	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	3,240	3,240	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	3,240	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640

S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,728	2,265	2,718	13,747	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,961	2,423	2,948	22,625	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	0,740	2,040	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	0,440	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,527	0,495	0,527	0,711	0,966	1,184	1,395
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,403	0,379	0,403	0,536	0,711	0,858	0,999
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,406	0,382	0,406	0,541	0,722	0,874	1,020
S/E Ancoa 220 kV	52JT1	MICOM P645	51	10,537	3,610	9,848	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	3,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	---	---	---	---

Falla trifásica en la línea Ancoa - Charrua 500kV L2										
Resistencia de falla: 0 Ohm										
Ubicación de la falla medida desde: Reactor Charrua L2										
Caso: DA-HH										

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	3,515	---	0,015	3,515	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,293	0,268	0,564
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	2,398	2,211	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	10,406	2,388	2,203	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	2,020	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	---	3,220	3,220	0,820	0,820	3,220

Falla bifásica aislada en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	3,515	---	---	0,015	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	---	1,021	1,021	1,021	1,021	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,340	0,296	0,734
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	2,718	2,408	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	20,325	2,705	2,399	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	3,220

Falla bifásica a tierra en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	3,515	---	---	0,015	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	3,515	---	---	0,015	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	0,015	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	0,015	---	---

S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Charrua 500 kV	52K2	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,077	4,531	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	2,226	5,613	---	---	2,828	1,022	0,774	
S/E Ancoa 500 kV	52K4	SEL 421	67N	1,981	1,611	1,320	1,005	0,722	0,607	0,607	
S/E Charrua 500 kV	52K2	SEL 421	67N	0,668	0,769	0,919	1,154	1,384	1,545	2,060	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	---	1,021	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,346	0,573	0,199	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	1,140	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,740	---	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	1,140	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	2,040	---	---	0,220	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,851	0,891	0,860	0,703	0,500	0,368	0,368	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,631	0,658	0,637	0,529	0,383	0,298	0,298	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	2,539	1,789	1,956	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,639	0,667	0,645	0,534	0,386	0,298	0,298	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	12,963	2,531	1,789	1,961	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	---	3,220	3,220	3,220	0,820	2,020	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	---	---	3,220	0,820	0,820	0,820	

Falla monofásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %

RELE - Reliable Energy Ingeniería Limitada
TEL.: +56 2 26726279 WEB: www.rele.cl EMAIL: contacto@rele.cl

S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	---	0,540	0,540	0,540	0,540	0,540	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	0,540	0,540	3,240	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	0,540	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	3,240	3,240	0,540	0,540	0,540	0,540	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	0,540	3,240	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	3,515	---	---	---	3,515	3,515	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	3,515	3,515	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	3,515	0,015	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	0,015	3,515	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	3,515	3,515	0,015	0,015	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	3,515	---	---	0,015	3,515	
S/E Ancoa 500 kV	52K3	SEL 421	67N	1,976	3,453	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	2,111	4,049	---	---	1,764	0,755	0,947	
S/E Ancoa 500 kV	52K4	SEL 421	67N	1,889	1,448	1,155	0,874	0,624	0,607	0,607	
S/E Charrua 500 kV	52K2	SEL 421	67N	0,657	0,729	0,835	0,985	1,067	1,009	3,950	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	0,421	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	0,275	0,236	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,040	0,440	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,040	0,440	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	1,140	0,440	0,040	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,740	---	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	1,140	0,440	0,040	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	2,040	0,220	---	2,040	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,822	0,809	0,745	0,599	0,424	0,368	0,368	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,611	0,602	0,558	0,455	0,327	0,298	0,298	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	---	---	3,610	3,610	1,574	2,269	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,619	0,610	0,565	0,460	0,329	0,298	0,298	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,576	2,273	

S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820

Falla monofásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	3,240	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	3,515	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	3,515	0,015	0,015	3,515
S/E Charrua 500 kV	52K2	SEL 421	21N	0,015	0,015	0,015	0,015	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	3,515	3,515	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	3,016	6,526	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	3,340	9,031	---	---	3,649	1,889	1,694
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,819	1,809	1,332	0,989	0,767	0,680	0,669
S/E Charrua 500 kV	52K2	SEL 421	67N	0,745	0,812	0,924	1,134	1,557	4,966	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,740	0,740	2,040
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,440	0,440	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	1,079	0,991	0,868	0,690	0,535	0,473	0,467
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,782	0,724	0,643	0,520	0,409	0,363	0,359
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,794	0,735	0,651	0,525	0,413	0,366	0,361
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	13,725	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220

Falla trifásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	3,515	---	0,015	0,015	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,396	0,189	0,329
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,100	1,604	2,649
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	12,983	3,084	1,600	2,637
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	0,820	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	---	3,220	3,220	2,020	0,820	0,820

Falla bifásica aislada en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	---	0,015	0,015	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	3,515	---	---	0,015	3,515	3,515	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	0,015	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	---	1,021	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,489	0,201	0,376	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	1,696	2,954	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	33,014	3,610	1,692	2,940	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	2,020	

Falla bifásica a tierra en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	---	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	3,515	---	---	0,015	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	3,515	---	---	0,015	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	0,015	0,015	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	0,015	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	1,881	1,558	1,292	0,997	0,733	0,607	0,607
S/E Charrua 500 kV	52K1	SEL 421	67N	0,669	0,764	0,906	1,130	1,360	1,586	1,795
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,197	4,853	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,391	6,357	---	---	3,308	1,199	0,651
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	---	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,447	0,273	0,149
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	1,240	---	0,040
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	0,040
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	0,440	---	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,740	---	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	0,440	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	2,040	0,220	---	0,220

Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,849	0,878	0,843	0,695	0,507	0,373	0,368
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,629	0,649	0,625	0,523	0,388	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,340	1,507	1,417
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,638	0,658	0,633	0,529	0,391	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	16,017	3,329	1,505	1,420
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	---	3,220	3,220	3,220	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	---	---	3,220	2,020	0,820	0,820

Falla monofásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	0,540	3,240	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	3,240	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	3,240	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	3,515	3,515	0,015	0,015	---
S/E Charrua 500 kV	52K1	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	3,515	---	---	---	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	3,515	---	---	---	0,015	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	0,015	3,515
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	3,515	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	1,800	1,414	1,141	0,877	0,646	0,607	0,607
S/E Charrua 500 kV	52K1	SEL 421	67N	0,658	0,727	0,828	0,979	1,091	1,066	2,973
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,087	3,689	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,262	4,500	---	---	2,075	0,875	0,762
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	---	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	0,352	0,281
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,740	---	0,740

S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,740	---	0,740
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	0,040	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,740	---	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	0,040	0,040
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,440	---	2,040
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,821	0,802	0,738	0,601	0,440	0,368	0,368
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,611	0,597	0,553	0,456	0,339	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	---	---	3,610	3,610	1,841	1,630
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,618	0,605	0,560	0,461	0,341	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,844	1,632
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820

Falla monofásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	3,515	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	3,515	0,015	0,015	3,515

S/E Charrua 500 kV	52K1	SEL 421	21N	0,015	0,015	0,015	0,015	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	3,515	3,515	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,630	1,764	1,319	0,992	0,778	0,684	0,658	
S/E Charrua 500 kV	52K1	SEL 421	67N	0,746	0,810	0,919	1,124	1,521	3,446	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	3,287	7,579	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	3,740	12,010	---	---	4,435	2,031	1,700	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,740	0,740	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,440	0,440	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	1,078	0,985	0,862	0,691	0,542	0,474	0,456	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,781	0,720	0,638	0,520	0,414	0,364	0,350	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,794	0,731	0,647	0,526	0,418	0,367	0,353	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	16,077	3,610	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220	

Falla trifásica en la línea Ancoa - Pehuenche 220 kV - L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Pehuenche
Caso: DA-HH

RELE - Reliable Energy Ingeniería Limitada
TEL.: +56 2 26726279 WEB: www.rele.cl EMAIL: contacto@rele.cl

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,440	1,140	1,140	1,140	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	---	---	---	2,040	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	0,440	0,440	0,040	0,040	0,040	0,040	0,040
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610

S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	14,255	15,119	15,052	11,651	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla bifásica aislada en la línea Ancoa - Pehuenche 220 kV - L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Pehuenche
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	0,440	1,140	1,140	1,140	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	---	---	---	2,040	0,740	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	0,440	0,440	0,040	0,040	0,040	0,040	0,040	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,440	0,440	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	32,090	36,612	36,089	21,308	10,897	3,610	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	

Falla bifásica a tierra en la línea Ancoa - Pehuenche 220 kV - L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Pehuenche
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	3,240
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	3,240	---	---	---	3,240	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	33,583	5,358	2,958	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	6,328	3,232	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	0,421	0,421	0,421	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	0,440	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	1,240	0,040	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	0,740	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	0,440	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	1,240	0,040	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	0,740	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,440	1,140	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	---	---	0,740	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	---	---	---	2,040	0,740	
S/E Ancoa 220 kV	52J5	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,440	0,440	
S/E Ancoa 220 kV	52J4	GED60	67N	0,422	0,489	0,655	3,080	1,430	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	0,415	0,410	0,395	0,360	0,315	0,308	0,308	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,368	0,368	0,368	0,368	0,392	0,406	0,412	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,737	0,813	0,895	0,871	0,708	0,576	0,488	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,715	0,787	0,864	0,841	0,688	0,563	0,479	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	16,458	18,720	19,752	14,541	8,588	3,610	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	1,220	1,220	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	

Falla monofásica en la línea Ancoa - Pehuenche 220 kV - L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Pehuenche
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	3,240	0,540	0,540

S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	---	---	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	3,515	3,515	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	3,515	3,515	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	16,330	5,383	3,411	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	30,580	6,363	3,780	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	0,421	0,421	0,421	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	1,240	0,740	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	1,240	0,740	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,440	1,140	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	---	0,740	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,440	0,440	2,040	2,040	2,040	2,040	---	
S/E Ancoa 220 kV	52J4	GED60	67N	0,449	0,502	0,643	2,463	1,312	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	0,441	0,419	0,391	0,350	0,309	0,308	0,308	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,368	0,368	0,368	0,368	0,384	0,407	0,425	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,824	0,853	0,873	0,812	0,677	0,577	0,511	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,798	0,824	0,843	0,786	0,659	0,563	0,501	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	24,442	---	---	---	17,061	3,610	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	1,220	1,220	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	

Falla monofásica en la línea Ancoa - Pehuenche 220 kV - L2
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Central Pehuenche
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	1,140	0,040	0,040	0,040	0,040

S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,440	2,040	2,040	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	1,002	1,182	2,014	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	0,962	0,806	0,667	0,548	0,478	0,447	0,431
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,415	0,429	0,454	0,511	0,611	0,738	0,900
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	5,419	3,232	2,555	2,261
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	3,600	3,600	3,600	3,600	2,861	2,317	2,073
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	3,220	3,220	3,220	3,220	3,220	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla trifásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	14,310	14,296	14,273	14,233	14,190	14,164	14,148
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla bifásica aislada en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	32,362	32,295	32,181	31,984	31,779	31,652	31,575	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	

Falla bifásica a tierra en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta

Caso: DA-HH											
Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	3,240	3,240	3,240	3,240	3,240	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,413	0,414	0,415	0,416	0,418	0,419	0,419
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	0,328	0,328	0,328	0,328	0,328	0,328	0,328
S/E Ancoa 220 kV	52J5	GED60	67N	0,426	0,425	0,424	0,422	0,419	0,418	0,417
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,738	0,738	0,738	0,737	0,736	0,736	0,735
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,717	0,717	0,716	0,716	0,715	0,714	0,714
S/E Ancoa 220 kV	52JT1	MICOM P645	51	16,674	16,642	16,585	16,486	16,379	16,313	16,271
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	1,220	1,220	1,220	1,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J5	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	2,040	2,040	2,040	2,040	2,040	2,040	2,040	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	0,436	0,437	0,438	0,441	0,444	0,446	0,447	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	0,328	0,328	0,328	0,328	0,328	0,328	0,328	
S/E Ancoa 220 kV	52J5	GED60	67N	0,450	0,450	0,449	0,447	0,446	0,445	0,444	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,817	0,818	0,820	0,823	0,825	0,827	0,828	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,791	0,792	0,793	0,796	0,798	0,800	0,801	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	25,895	25,680	25,317	24,703	24,079	23,701	23,474	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	1,220	1,220	1,220	1,220	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	

Falla monofásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	2,040	2,040	2,040	2,040	2,040
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,929	0,935	0,945	0,963	0,982	0,994	1,002
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	0,386	0,385	0,384	0,383	0,381	0,381	0,380
S/E Ancoa 220 kV	52J5	GED60	67N	0,997	0,996	0,995	0,992	0,990	0,988	0,987
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	3,600	3,600	3,600	3,600	3,600	3,600	3,600
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla trifásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	0,040	0,040	0,040	0,040	0,040	0,440	0,440	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	1,140	1,140	1,140	0,440	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,440	2,040	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	11,453	14,891	15,167	14,431	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	

| S/E Ancoa 220 kV | 52JT2 | RET 670 EST/KT1 220| 51 | 3,220 | 3,220 | 3,220 | 3,220 | 3,220 | 3,220 | 3,220 |

Falla bifásica aislada en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,040	0,040	0,040	0,040	0,040	0,440	0,440
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	1,140	1,140	1,140	0,440
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,440	2,040	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	10,737	20,663	35,182	---	32,962
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla bifásica a tierra en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	3,240	---	---	---	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	---	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,954	5,280	29,496	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	3,228	6,220	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,040	1,240	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,040	1,240	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	1,140	0,440	0,040
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	0,220	0,440	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,440	2,040	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,308	0,308	0,314	0,358	0,393	0,408	0,413
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	0,371	0,338	0,328	0,328	0,328
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	1,352	4,141	0,678	0,505	0,433
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,421	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,488	0,574	0,704	0,865	0,898	0,827	0,749
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,478	0,561	0,684	0,836	0,866	0,800	0,726
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	8,486	14,248	19,598	19,065	16,971
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	1,220	1,220	1,220	1,220	1,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	3,240	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	---	---	3,640	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	3,407	5,318	15,348	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	3,776	6,273	27,312	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,740	1,240	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,740	1,240	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,220	0,220	0,220	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	2,040	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	1,140	0,440	0,040	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	0,220	0,440	---	---	---	---	2,040	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	0,308	0,308	0,308	0,348	0,388	0,414	0,433	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	0,363	0,330	0,328	0,328	0,328	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	1,247	3,079	0,662	0,515	0,456	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,435	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,511	0,575	0,674	0,806	0,869	0,854	0,822	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,501	0,562	0,655	0,780	0,839	0,825	0,795	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	16,589	---	---	---	28,132	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	1,220	1,220	1,220	1,220	1,220	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	

Falla monofásica en la línea Tap Loma Alta - Ancoa 220 kV L1

RELE - Reliable Energy Ingeniería Limitada
TEL.: +56 2 26726279 WEB: www.rele.cl EMAIL: contacto@rele.cl

Resistencia de falla: 25 Ohm											
Ubicación de la falla medida desde: S/E Ancoa											
Caso: DA-HH											

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,440	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	0,740	0,740	0,740	0,740	0,740	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	2,040
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,431	0,446	0,477	0,544	0,655	0,779	0,909
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	0,599	0,485	0,426	0,401	0,387

S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	2,177	1,229	1,015
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,946	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	2,260	2,544	3,189	5,194	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	2,072	2,308	2,828	3,600	3,600	3,600	3,600
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla trifásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,179	0,179	0,179	0,179	0,178	0,178	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440

S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla bifásica aislada en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,193	0,193	0,193	0,192	0,192	0,192	0,192	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	

Falla bifásica a tierra en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540

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S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	3,240	3,240	3,240	3,240	3,240	3,240	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515	
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515	
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	2,793	2,792	2,790	2,788	2,785	2,784	2,783	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	3,036	3,035	3,033	3,030	3,027	3,026	3,025	
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,109	0,109	0,109	0,109	0,109	0,109	0,109	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,176	0,176	0,176	0,176	0,176	0,176	0,180	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,413	0,413	0,413	0,413	0,412	0,412	0,412	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,479	0,478	0,478	0,478	0,478	0,478	0,478	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,469	0,469	0,469	0,469	0,469	0,469	0,469	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	

S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	3,272	3,271	3,268	3,263	3,258	3,255	3,254
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	3,611	3,609	3,606	3,600	3,594	3,591	3,589
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,109	0,109	0,109	0,109	0,109	0,109	0,109
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,178	0,178	0,178	0,178	0,177	0,177	0,177
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,428	0,428	0,428	0,428	0,428	0,428	0,428
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,505	0,505	0,505	0,504	0,504	0,504	0,504
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,494	0,494	0,494	0,494	0,494	0,494	0,494
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,131	0,131	0,131	0,131	0,131	0,131	0,131
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,746	0,746	0,746	0,745	0,744	0,744	0,743
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,928	0,928	0,928	0,928	0,927	0,927	0,927
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	2,237	2,237	2,236	2,234	2,233	2,232	2,232
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	2,053	2,052	2,052	2,050	2,049	2,049	2,048
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	1,220	1,220	1,220	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Resultados en Demanda Alta Hidrología Seca

Falla trifásica en la línea Ancoa – Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540

S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	3,240	3,240	3,240	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	0,015	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	3,515	0,015	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	0,015	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	1,021	1,021	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,171	0,309	0,493	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	1,795	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	8,368	1,790	3,610	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	0,820	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	3,220	3,220	

Falla bifásica aislada en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	3,240	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	1,021	1,021	1,021	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,183	0,355	0,624
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---

S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	1,956	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	13,736	1,950	3,610	11,803
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	2,020	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	3,220	3,220

Falla bifásica a tierra en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	3,240	---	---	0,540	---	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	0,540	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	3,515	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	3,515	0,015	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	2,531	0,941	1,184
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	2,730	0,967	1,227
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	1,021	0,421	---	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,197	0,938	0,279

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	0,440	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	---	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	0,440	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	2,040	---	2,040	0,440
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,999	1,066	1,006	0,776	0,516	0,368	0,372
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,739	0,778	0,736	0,579	0,394	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	1,819	1,987	3,322
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,750	0,791	0,747	0,586	0,397	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	11,450	1,815	1,990	3,335
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	0,820	2,020	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	0,820	2,020

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	3,240	3,240	3,240	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	3,240	---	---	0,540	0,540	0,540	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	---	---	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640

S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	---	---	3,515	0,015	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	0,015	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	---	---	3,515	0,015	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	0,015	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	5,441	1,458	0,943	1,499	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	6,444	1,522	0,970	1,567	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	1,021	1,021	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	0,957	0,303	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	1,140	0,040	1,140	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	2,040	0,220	0,740	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	1,140	0,040	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,220	2,040	2,040	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,983	0,942	0,832	0,630	0,413	0,368	0,418	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,728	0,696	0,619	0,477	0,318	0,298	0,322	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,459	1,949	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,740	0,706	0,627	0,482	0,320	0,298	0,324	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,467	1,951	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	2,020	

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 25 Ohm

Ubicación de la falla medida desde: Reactor A. Jahuel C2										
Caso: DA-HS										

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	3,240	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	18,184	2,942	2,158	2,361
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	37,795	3,214	2,301	2,533
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	2,040	0,740	2,040	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	2,040	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	1,387	1,188	0,978	0,730	0,542	0,487	0,504
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,989	0,857	0,717	0,547	0,413	0,373	0,385
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,010	0,873	0,728	0,553	0,416	0,376	0,388
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	12,412	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220

Falla trifásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	1,021	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,815	0,430	0,186	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	1,982	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	20,302	3,610	1,975	9,314	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	2,020	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	0,820	3,220	---	---	---

Falla bifásica aislada en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	1,021	1,021	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	1,255	0,526	0,201	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	2,040	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	2,040	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	2,173	3,610	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	3,610	2,166	16,472	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	2,020	3,220	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	0,820	3,220	---	---	---	

Falla bifásica a tierra en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---

S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	3,240	0,540	---	0,540	0,540	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	0,540	0,540	---	3,240	0,540	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	0,015	3,515	3,515	3,515	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	0,015	3,515	3,515	3,515	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	1,398	0,877	2,166	26,667	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	1,457	0,900	2,310	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	0,421	1,021	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,361	0,187	0,229	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	0,740	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	0,740	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	0,040	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	---	0,740	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	0,040	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	2,040	0,440	---	2,040	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,405	0,368	0,488	0,746	0,977	1,048	0,996	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,312	0,298	0,374	0,558	0,716	0,767	0,737	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	1,988	1,939	3,610	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,314	0,298	0,377	0,564	0,727	0,779	0,749	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	1,993	1,935	12,627	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	2,020	2,020	3,220	---	---	---	

S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	0,820	0,820	3,220	---	---	---

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	0,540	0,540	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	0,540	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	0,540	0,540	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	0,540	---	---	---	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	0,015	3,515	---	---	3,515
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	0,015	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	0,015	3,515	---	---	3,515
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	0,015	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	1,820	1,130	1,282	4,874	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	1,921	1,169	1,331	5,665	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	1,021	0,421	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,392	5,191	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	0,040	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	0,040	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	0,040	0,440	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,220	2,040	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	0,040	0,440	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	2,040	0,220	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,456	0,368	0,388	0,617	0,827	0,941	0,983
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,349	0,298	0,299	0,467	0,615	0,695	0,728
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	2,503	2,943	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,352	0,298	0,301	0,472	0,623	0,705	0,740
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	2,508	2,949	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	0,820	2,020	3,220	---	---	---

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	0,540	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	3,240	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	3,240	---	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	3,240	3,240	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	3,240	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,666	2,241	2,738	14,010	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,887	2,395	2,972	23,345	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	0,740	2,040	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	2,040	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,525	0,494	0,530	0,715	0,968	1,182	1,385
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,400	0,378	0,404	0,537	0,711	0,853	0,988
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,404	0,381	0,407	0,543	0,721	0,869	1,009
S/E Ancoa 220 kV	52JT1	MICOM P645	51	11,031	3,610	11,184	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	---	---	---	---

Falla trifásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	3,515	---	0,015	3,515	3,515	3,515	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	0,421	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,249	0,230	0,419	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	---	3,610	3,610	2,569	2,350	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	14,334	2,558	2,341	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	0,820	3,220	

Falla bifásica aislada en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	3,515	---	---	0,015	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	0,421	1,021	1,021	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,281	0,251	0,502
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	2,935	2,587	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	2,921	2,576	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	3,220

Falla bifásica a tierra en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	3,515	---	---	0,015	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	3,515	---	---	0,015	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	0,015	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,103	4,619	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,256	5,750	---	---	2,835	1,019	0,774
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,005	1,621	1,325	1,007	0,723	0,607	0,607
S/E Charrua 500 kV	52K2	SEL 421	67N	0,671	0,771	0,921	1,157	1,386	1,536	2,068
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,288	0,658	0,192
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	1,140	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,740	---	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	1,140	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	2,040	2,040	---	0,220
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,861	0,900	0,867	0,706	0,502	0,368	0,368
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,636	0,662	0,639	0,530	0,384	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	---	3,610	3,610	2,703	1,851	1,993
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,644	0,671	0,648	0,536	0,387	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	18,709	2,695	1,851	2,000
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	2,020
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	0,820

Falla monofásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	0,540	0,540	3,240
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	3,240	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	3,515	---	---	---	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	3,515	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	0,015	3,515	---

S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	3,515	3,515	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	3,515	---	---	0,015	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,019	3,547	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,159	4,179	---	---	1,766	0,756	0,950
S/E Ancoa 500 kV	52K4	SEL 421	67N	1,928	1,464	1,161	0,876	0,624	0,607	0,607
S/E Charrua 500 kV	52K2	SEL 421	67N	0,662	0,733	0,838	0,988	1,068	1,011	4,030
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	---	---	1,021	---	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	0,305	0,223
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,040	0,440	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,040	0,440	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	1,140	0,440	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,740	---	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	1,140	0,440	0,040
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,220	---	2,040
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,837	0,820	0,752	0,603	0,426	0,368	0,368
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,620	0,608	0,562	0,457	0,327	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	1,610	2,346
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,628	0,616	0,568	0,461	0,330	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,612	2,351
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820

Falla monofásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %

RELE - Reliable Energy Ingeniería Limitada
TEL.: +56 2 26726279 WEB: www.rele.cl EMAIL: contacto@rele.cl

S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	0,540	0,540	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	3,240	3,240	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	3,240	3,240	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	3,515	0,015	0,015	0,015	0,015	0,015	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	3,515	0,015	0,015	3,515	
S/E Charrua 500 kV	52K2	SEL 421	21N	0,015	0,015	0,015	0,015	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	3,515	3,515	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	3,069	6,736	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	3,405	9,442	---	---	3,651	1,889	1,695	
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,865	1,824	1,338	0,991	0,767	0,680	0,670	
S/E Charrua 500 kV	52K2	SEL 421	67N	0,748	0,815	0,927	1,136	1,558	4,958	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	2,040	0,740	0,740	2,040	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,440	0,440	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	1,096	1,003	0,876	0,694	0,537	0,474	0,468	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,789	0,729	0,646	0,521	0,409	0,363	0,359	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,802	0,740	0,654	0,527	0,413	0,366	0,362	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	16,588	3,610	3,610	

S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220

Falla trifásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	3,515	---	0,015	0,015	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,319	0,170	0,274
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	---	3,610	3,610	3,389	1,676	2,853
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	19,679	3,370	1,671	2,840
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	2,020

Falla bifásica aislada en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	---	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	3,515	---	---	0,015	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	0,015	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,373	0,180	0,305	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	1,786	3,225	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,781	3,208	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	2,020	

Falla bifásica a tierra en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	0,540	3,240	0,540	0,540

S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	---	3,640	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Charrua 500 kV	52K1	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	---	0,015	0,015	
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	3,515	---	---	0,015	3,515	3,515	
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	3,515	---	---	0,015	3,515	3,515	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	0,015	0,015	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	0,015	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	1,903	1,569	1,297	0,999	0,734	0,607	0,607	
S/E Charrua 500 kV	52K1	SEL 421	67N	0,672	0,766	0,908	1,133	1,363	1,573	1,798	
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,226	4,957	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	2,426	6,538	---	---	3,321	1,192	0,651	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,360	0,222	0,145	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	1,240	---	0,040	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	0,040	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	1,140	---	0,040	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,740	---	0,220	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	1,140	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,440	---	0,220	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,859	0,887	0,849	0,699	0,509	0,373	0,368	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,634	0,653	0,628	0,524	0,389	0,298	0,298	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	---	3,610	3,610	3,610	1,562	1,439	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,643	0,662	0,636	0,530	0,392	0,298	0,298	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	25,485	3,606	1,561	1,442	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	0,820	

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Falla monofásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	0,540	3,240	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	3,240	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	3,240	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	3,515	3,515	0,015	0,015	---
S/E Charrua 500 kV	52K1	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	3,515	---	---	3,515	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	3,515	---	---	---	0,015	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	0,015	3,515
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	3,515	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	1,836	1,430	1,148	0,880	0,647	0,607	0,607
S/E Charrua 500 kV	52K1	SEL 421	67N	0,663	0,731	0,832	0,982	1,093	1,067	3,015
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,135	3,799	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,318	4,665	---	---	2,080	0,875	0,765
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	---	---	1,021	---	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	0,401	0,311
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,740	---	1,240
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,740	---	1,240
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	1,140	0,040	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,740	---	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	1,140	---	0,040
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,440	---	2,040

Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,836	0,813	0,745	0,604	0,442	0,368	0,368
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,619	0,603	0,557	0,458	0,339	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	1,887	1,671
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,627	0,611	0,563	0,462	0,342	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,890	1,674
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820

Falla monofásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	3,515	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	3,515	0,015	0,015	3,515
S/E Charrua 500 kV	52K1	SEL 421	21N	0,015	0,015	0,015	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	3,515	3,515	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,670	1,779	1,326	0,994	0,779	0,684	0,658
S/E Charrua 500 kV	52K1	SEL 421	67N	0,749	0,814	0,922	1,126	1,523	3,443	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	3,350	7,867	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	3,822	12,759	---	---	4,441	2,032	1,701
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	2,040	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	2,040	0,440	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	1,095	0,997	0,870	0,695	0,544	0,475	0,457
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,788	0,726	0,642	0,522	0,414	0,364	0,351
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,801	0,737	0,650	0,527	0,418	0,367	0,353
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	20,102	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220

Falla trifásica en la línea Ancoa - Pehuenche 220 kV - L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Pehuenche
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,440	0,440	1,140	1,140	1,140	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	---	---	---	---	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	0,440	0,440	0,040	0,040	0,040	0,040	0,040
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	14,068	14,487	14,007	10,864	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla bifásica aislada en la línea Ancoa - Pehuenche 220 kV - L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Pehuenche
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,440	0,440	1,140	1,140	1,140	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	---	---	---	---	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	0,440	0,440	0,040	0,040	0,040	0,040	0,040
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610

S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	31,293	33,337	30,848	18,893	10,258	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla bifásica a tierra en la línea Ancoa - Pehuenche 220 kV - L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Pehuenche
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	3,240	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	5,652	3,058
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	6,742	3,352
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	1,240	0,040
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	1,240	0,040
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,440	0,440	1,140	1,140	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	---	---	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	---	---	---	---	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	67N	0,433	0,499	0,667	3,058	1,519	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	0,426	0,418	0,401	0,363	0,317	0,308	0,308
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,368	0,368	0,368	0,368	0,396	0,410	0,416
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,771	0,845	0,922	0,888	0,718	0,583	0,494
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,748	0,817	0,888	0,857	0,697	0,569	0,484
S/E Ancoa 220 kV	52JT1	MICOM P645	51	16,125	17,688	17,958	13,341	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	1,220	1,220	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Ancoa - Pehuenche 220 kV - L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Pehuenche
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	3,240	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	23,316	5,950	3,636	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	7,171	4,060	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	0,421	0,421	0,421	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	1,240	0,740	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	1,240	0,740	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,440	1,140	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	2,040	---	0,740	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,440	0,440	2,040	2,040	2,040	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	0,469	0,522	0,667	2,594	1,422	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	0,460	0,434	0,401	0,356	0,312	0,308	0,308	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,368	0,368	0,368	0,368	0,390	0,413	0,432	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,895	0,915	0,922	0,843	0,695	0,589	0,521	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,864	0,882	0,889	0,815	0,676	0,575	0,510	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	22,354	---	---	---	15,015	3,610	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	1,220	1,220	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	

Falla monofásica en la línea Ancoa - Pehuenche 220 kV - L2
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Central Pehuenche
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---

S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	1,140	0,440	0,040	0,040	0,040	0,040
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,440	2,040	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	1,007	1,187	2,014	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	0,967	0,810	0,670	0,550	0,479	0,447	0,431
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,417	0,431	0,456	0,513	0,613	0,742	0,905
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	5,528	3,252	2,561	2,263
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	3,600	3,600	3,600	3,600	2,878	2,323	2,074
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	3,220	3,220	3,220	3,220	3,220	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla trifásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J5	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	14,076	14,071	14,063	14,047	14,030	14,019	14,012
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla bifásica aislada en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	31,334	31,311	31,271	31,197	31,115	31,062	31,029
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla bifásica a tierra en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
S/E Ancoa 220 kV	52J5	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	0,423	0,424	0,425	0,427	0,429	0,430	0,430	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	0,328	0,328	0,328	0,328	0,328	0,328	0,328	
S/E Ancoa 220 kV	52J5	GED60	67N	0,436	0,436	0,434	0,432	0,430	0,429	0,428	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,772	0,772	0,772	0,771	0,771	0,771	0,770	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,748	0,748	0,748	0,748	0,747	0,747	0,747	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	16,272	16,252	16,215	16,150	16,079	16,033	16,004	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	1,220	1,220	1,220	1,220	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	

Falla monofásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta

Caso: DA-HS											
Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	2,040	2,040	2,040	2,040	2,040	2,040	2,040
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,454	0,455	0,457	0,461	0,464	0,466	0,467
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	0,328	0,328	0,328	0,328	0,328	0,328	0,328
S/E Ancoa 220 kV	52J5	GED60	67N	0,470	0,469	0,468	0,467	0,466	0,465	0,464
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,885	0,887	0,889	0,893	0,897	0,899	0,901
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,854	0,856	0,858	0,862	0,865	0,868	0,869
S/E Ancoa 220 kV	52JT1	MICOM P645	51	23,363	23,216	22,968	22,542	22,104	21,836	21,673
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	1,220	1,220	1,220	1,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,934	0,940	0,950	0,968	0,987	0,999	1,007
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	0,388	0,387	0,386	0,385	0,383	0,383	0,382
S/E Ancoa 220 kV	52J5	GED60	67N	1,002	1,001	1,000	0,997	0,995	0,993	0,992
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	3,600	3,600	3,600	3,600	3,600	3,600	3,600
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla trifásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	0,040	0,040	0,040	0,040	0,040	0,440	0,440	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	1,140	1,140	1,140	0,440	0,440	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	10,691	13,842	14,465	14,144	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	

Falla bifásica aislada en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	0,040	0,040	0,040	0,040	0,040	0,440	0,440	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	1,140	1,140	1,140	0,440	0,440	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	10,120	18,383	30,065	33,221	31,660	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	

| S/E Ancoa 220 kV | 52JT2 | RET 670 EST/KT1 220| 51 | 3,220 | 3,220 | 3,220 | 3,220 | 3,220 | 3,220 | 3,220 |

Falla bifásica a tierra en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	3,240	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	---	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	---	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	3,054	5,566	40,538	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	3,347	6,620	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,040	1,240	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,040	1,240	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,220	0,220	0,220

Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	1,140	1,140	0,440	0,040
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	0,220	0,440	0,440	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,308	0,308	0,316	0,361	0,398	0,415	0,422
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	0,375	0,342	0,328	0,328	0,328
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	1,430	4,061	0,690	0,516	0,444
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,426	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,494	0,581	0,714	0,882	0,924	0,858	0,782
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,484	0,568	0,693	0,852	0,890	0,829	0,757
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	13,095	17,791	17,899	16,492
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	1,220	1,220	1,220	1,220	1,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	3,240	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	3,632	5,871	21,347	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	4,055	7,056	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,740	1,240	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,740	1,240	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	2,040	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	1,140	0,440	0,040
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	0,220	2,040	---	---	---	---	2,040
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,308	0,308	0,311	0,354	0,397	0,428	0,451
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	0,369	0,335	0,328	0,328	0,328
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	1,345	3,257	0,686	0,535	0,476
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,443	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,521	0,588	0,691	0,836	0,917	0,915	0,889
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,510	0,574	0,672	0,809	0,884	0,882	0,858
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	14,657	---	---	---	24,919
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	1,220	1,220	1,220	1,220	1,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,440	1,140	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	0,740	0,740	0,740	0,740	0,740	0,220	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	0,431	0,447	0,478	0,545	0,658	0,783	0,914	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	0,603	0,488	0,428	0,403	0,389	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	2,175	1,234	1,020	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,953	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	2,262	2,550	3,209	5,295	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	2,074	2,314	2,844	3,600	3,600	3,600	3,600	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---	

Falla trifásica en la línea Ancoa - Colbún 220 kV

RELE - Reliable Energy Ingeniería Limitada
TEL.: +56 2 26726279 WEB: www.rele.cl EMAIL: contacto@rele.cl

Resistencia de falla: 0 Ohm											
Ubicación de la falla medida desde: Central Colbún											
Caso: DA-HS											
Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,188	0,188	0,188	0,187	0,187	0,187	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla bifásica aislada en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,203	0,203	0,203	0,203	0,203	0,203	0,202
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440

S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla bifásica a tierra en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	3,240	3,240	3,240	3,240	3,240	3,240
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	3,240	3,240	3,240	3,240	3,240	3,240	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515	
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	2,882	2,882	2,880	2,878	2,875	2,874	2,873	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	3,143	3,142	3,140	3,137	3,134	3,132	3,131	
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,109	0,109	0,109	0,109	0,109	0,109	0,109	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,183	0,183	0,183	0,183	0,183	0,183	0,187	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,417	0,417	0,417	0,417	0,417	0,417	0,417	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,484	0,484	0,484	0,484	0,483	0,483	0,483	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,474	0,474	0,474	0,474	0,474	0,474	0,474	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	

Falla monofásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540

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S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	3,479	3,477	3,474	3,469	3,465	3,462	3,460	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	3,864	3,862	3,858	3,853	3,847	3,843	3,841	
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,109	0,109	0,109	0,109	0,109	0,109	0,109	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,184	0,184	0,184	0,184	0,184	0,184	0,184	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	1,140	1,140	1,140	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	1,140	1,140	1,140	1,140	1,140	1,140	1,140	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,435	0,435	0,435	0,435	0,435	0,435	0,435	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,515	0,514	0,514	0,514	0,514	0,514	0,514	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,504	0,504	0,504	0,503	0,503	0,503	0,503	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	

S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,131	0,131	0,131	0,131	0,131	0,131	0,131
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,805	0,804	0,804	0,803	0,802	0,801	0,801
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,934	0,934	0,934	0,934	0,933	0,933	0,933
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	2,239	2,238	2,237	2,236	2,235	2,234	2,234
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	2,054	2,054	2,053	2,052	2,051	2,050	2,050
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	1,220	1,220	1,220	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Resultados en Demanda Baja Hidrología Humeda

Falla trifásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	3,240	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	3,515	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,195	0,321	0,539
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	3,610	3,610	1,789	3,137	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	3,610	1,784	3,121	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	0,820	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	2,020	3,220

Falla bifásica aislada en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---

S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	3,240	3,240	3,240	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	0,015	0,015	0,015	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	0,015	0,015	0,015	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	1,021	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,210	0,366	0,692	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	1,931	3,603	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	11,399	1,925	3,582	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	2,020	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	2,020	3,220	

Falla bifásica a tierra en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	0,540	---	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	0,540	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	0,015	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	3,515	0,015	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	3,515	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	3,515	0,015	0,015	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	2,659	0,963	1,173
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	2,879	0,991	1,215
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,227	0,776	0,283
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	0,440	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	---	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	0,440	---

S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	2,040	---	2,040	2,040
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	1,043	1,093	1,018	0,779	0,522	0,368	0,369
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,771	0,799	0,746	0,583	0,399	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	3,610	3,610	1,818	1,901	3,073
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,783	0,813	0,758	0,590	0,403	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	9,662	1,814	1,903	3,082
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	0,820	2,020	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	0,820	2,020

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	3,240	3,240	3,240	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	3,240	---	---	0,540	0,540	0,540	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	---	---	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	3,240	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	---	---	3,515	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	---	---	3,515	0,015	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	0,015	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	6,268	1,534	0,919	1,462
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	7,637	1,605	0,944	1,526
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	1,021	1,021	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	0,639	0,306
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	0,440	1,140
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,220	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	0,440	1,140
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,220	2,040	2,040
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	1,078	1,000	0,862	0,643	0,421	0,368	0,412
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,795	0,738	0,641	0,487	0,324	0,298	0,317
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,402	1,807	3,265
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,808	0,749	0,650	0,492	0,327	0,298	0,320
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,408	1,808	3,271
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	2,020

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	3,240	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840

S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	25,872	3,042	2,162	2,338	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	3,333	2,306	2,506	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	2,040	0,740	2,040	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,440	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	1,487	1,245	1,005	0,739	0,544	0,485	0,499	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,056	0,897	0,738	0,555	0,416	0,372	0,383	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,080	0,914	0,749	0,562	0,419	0,375	0,386	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	10,116	3,610	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	1,220	1,220	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220	

Falla trifásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1

Caso: DB-HH											
Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,977	0,462	0,200	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	1,826	3,610	3,610	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	10,358	3,610	1,820	3,610	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	2,020	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	0,820	3,220	---	---	---

Falla bifásica aislada en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	1,021	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	1,665	0,568	0,214	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	1,955	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	18,842	3,610	1,949	13,104	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	2,020	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	0,820	3,220	---	---	---

Falla bifásica a tierra en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	3,240	0,540	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	0,015	3,515	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	0,015	3,515	3,515	3,515

S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	1,386	0,884	2,303	35,866	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	1,444	0,907	2,466	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	---	1,021	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,371	0,191	0,246	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	0,740	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	0,740	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	0,040	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	---	0,740	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	0,040	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	2,040	0,440	---	2,040	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,401	0,368	0,497	0,749	0,989	1,075	1,040	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,310	0,298	0,381	0,562	0,727	0,787	0,769	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	1,910	1,795	3,610	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,312	0,298	0,384	0,569	0,738	0,800	0,781	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	1,913	1,791	10,637	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	2,020	0,820	3,220	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	0,820	0,820	3,220	---	---	---	

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	0,540	0,540	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	0,540	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	0,540	0,540	---	---	0,540	0,540

S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	0,540	---	---	---	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	0,015	3,515	---	---	3,515
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	0,015	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	0,015	3,515	---	---	3,515
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	0,015	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	1,776	1,094	1,349	5,568	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	1,872	1,130	1,404	6,622	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	1,021	1,021	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,402	1,418	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	0,040	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	0,040	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	0,040	1,140	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,220	0,740	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	0,740	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	0,040	1,140	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	2,040	0,220	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	2,040	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,449	0,368	0,396	0,629	0,856	0,999	1,078
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,345	0,298	0,306	0,478	0,637	0,737	0,794
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	2,272	2,930	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,348	0,298	0,308	0,482	0,646	0,748	0,808
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	2,275	2,934	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820

| S/E Ancoa 220 kV | 52JT2 | RET 670 EST/KT1 220| 51 | 3,220 | 0,820 | 2,020 | 3,220 | --- | --- | --- |

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	0,540	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	3,240	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	3,240	---	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	3,240	3,240	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	3,240	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,631	2,232	2,819	18,347	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,846	2,385	3,067	38,482	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	0,740	2,040	---	---	---

Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	0,440	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,520	0,491	0,532	0,725	0,995	1,239	1,485
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,398	0,377	0,406	0,545	0,731	0,893	1,055
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,401	0,380	0,410	0,551	0,742	0,910	1,079
S/E Ancoa 220 kV	52JT1	MICOM P645	51	8,667	3,610	9,245	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	3,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	---	---	---	---

Falla trifásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	---	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	3,240	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	---	1,021	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,384	0,227	0,444
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	2,806	1,812	3,134
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	11,242	2,793	1,807	3,118
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	0,820	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	2,020	0,820	2,020

Falla bifásica aislada en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	---	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	---	---	---	0,015	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	0,015	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	---	0,015	0,015	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	---	1,021	1,021	1,021	1,021	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,467	0,240	0,533	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,251	1,905	3,574	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	24,257	3,234	1,899	3,553	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	2,020	

Falla bifásica a tierra en la línea Ancoa - Charrua 500kV L2

| Resistencia de falla: 0 Ohm |
| Ubicación de la falla medida desde: Reactor Charrua L2 |
| Caso: DB-HH |

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	---	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	3,515	---	---	0,015	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	---	---	---	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	0,015	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,163	4,746	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,325	5,941	---	---	3,001	1,089	0,745
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,062	1,650	1,340	1,015	0,731	0,607	0,607
S/E Charrua 500 kV	52K2	SEL 421	67N	0,681	0,780	0,930	1,171	1,421	1,706	1,860
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	---	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,434	0,620	0,187
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	1,140	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,740	---	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	1,140	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	2,040	0,440	---	0,220
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,875	0,909	0,872	0,710	0,507	0,368	0,368
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,647	0,670	0,645	0,534	0,388	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,009	1,596	1,789
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,656	0,679	0,654	0,540	0,391	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	13,893	2,999	1,595	1,794
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	---	3,220	3,220	3,220	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	---	3,220	3,220	2,020	0,820	0,820

Falla monofásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	---	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	0,540	0,540	3,240
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	3,240	3,240	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	3,515	---	---	---	0,015	3,515
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	3,515	0,015	3,515	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	3,515	---	---	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,157	3,855	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,318	4,608	---	---	1,937	0,804	0,879
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,057	1,526	1,194	0,896	0,643	0,607	0,607
S/E Charrua 500 kV	52K2	SEL 421	67N	0,680	0,751	0,857	1,015	1,126	1,099	2,963
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	---	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	0,312	0,213
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	0,440	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,740	---	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	0,040
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	2,040	0,220	---	2,040
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,873	0,847	0,771	0,616	0,439	0,368	0,368
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,646	0,628	0,576	0,467	0,338	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	---	---	3,610	3,610	1,669	1,992
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,654	0,636	0,583	0,472	0,340	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,671	1,995
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	2,020
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820

Falla monofásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	3,240	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	3,515	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	3,515	0,015	0,015	0,015	0,015	0,015

S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	0,015	0,015	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	0,015	0,015	0,015	0,015	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	3,515	3,515	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	3,213	7,279	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	3,582	10,517	---	---	3,924	1,913	1,671	
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,996	1,879	1,366	1,007	0,776	0,682	0,665	
S/E Charrua 500 kV	52K2	SEL 421	67N	0,761	0,829	0,943	1,159	1,601	5,161	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,740	0,740	0,740	2,040
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,440	0,440	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	1,121	1,023	0,890	0,703	0,543	0,475	0,464	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,808	0,745	0,657	0,529	0,415	0,364	0,356	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,822	0,757	0,666	0,535	0,418	0,367	0,359	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	13,069	3,610	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220	

Falla trifásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---

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S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	---	0,540	0,540	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	3,240	3,240	0,540	0,540	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	---	---	0,015	0,015	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	---	1,021	1,021	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,531	0,205	0,266	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,565	1,658	2,082	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	13,874	3,544	1,654	2,075	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	

S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	0,820	2,020
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	2,020	0,820	0,820

Falla bifásica aislada en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	---	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	---	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	---	---	---	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	0,015	0,015	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	---	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,708	0,220	0,289
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	1,140	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	1,140	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	1,762	2,232
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,757	2,223
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	2,020
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820

Falla bifásica a tierra en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	---	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	0,540	---	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	---	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	3,515	---	---	0,015	0,015	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	---	---	---	0,015	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	0,015	0,015	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	0,015	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	1,955	1,596	1,311	1,008	0,742	0,607	0,607
S/E Charrua 500 kV	52K1	SEL 421	67N	0,682	0,775	0,917	1,147	1,395	1,671	1,840
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,294	5,114	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,506	6,803	---	---	3,536	1,246	0,657

S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	---	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,554	0,250	0,147
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	1,240	---	0,740
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	1,240	---	0,740
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	0,040	---	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	0,040	---	0,040
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	2,040	0,220	---	0,440
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	2,040	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,873	0,896	0,855	0,703	0,514	0,380	0,368
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,646	0,661	0,634	0,529	0,393	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	1,605	1,353
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,654	0,670	0,642	0,534	0,396	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	16,909	3,610	1,603	1,355
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	---	3,220	3,220	3,220	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	---	3,220	3,220	3,220	0,820	0,820

Falla monofásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	0,540	0,540	3,240
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	0,540	3,240	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	3,240	3,240	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	3,240	---

S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	3,515	---	---	---	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	3,515	---	---	---	0,015	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	3,515	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	1,952	1,489	1,181	0,900	0,665	0,607	0,607
S/E Charrua 500 kV	52K1	SEL 421	67N	0,681	0,749	0,851	1,009	1,149	1,195	2,231
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,290	4,164	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,502	5,219	---	---	2,299	0,960	0,702
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	---	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	0,439	0,238
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	1,240	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,740	---	0,740
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	1,240	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,740	---	0,740
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	0,040	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,740	---	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	0,040	0,040
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	2,040	0,440	---	0,440
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,872	0,840	0,764	0,618	0,454	0,368	0,368
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,645	0,623	0,572	0,468	0,349	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	---	---	3,610	3,610	2,021	1,441
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,654	0,632	0,578	0,473	0,352	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	2,024	1,442
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820

Falla monofásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	3,515	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Charrua 500 kV	52K1	SEL 421	21N	0,015	0,015	0,015	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	3,515	3,515	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,783	1,831	1,353	1,010	0,788	0,689	0,657
S/E Charrua 500 kV	52K1	SEL 421	67N	0,762	0,827	0,938	1,149	1,566	3,597	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	3,522	8,630	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	4,047	14,831	---	---	4,870	2,080	1,695
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	2,040	0,440	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	1,120	1,017	0,884	0,704	0,550	0,478	0,455
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,808	0,741	0,653	0,530	0,420	0,367	0,350
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,821	0,753	0,662	0,535	0,424	0,369	0,352
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	15,229	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220

Falla trifásica en la línea Ancoa - Pehuenche 220 kV - L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Pehuenche
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	0,740

S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,440	1,140	1,140	1,140	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	---	---	---	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	0,440	0,440	0,040	0,040	0,040	0,040	0,040
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	21,430	23,454	23,439	16,422	9,630	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla bifásica aislada en la línea Ancoa - Pehuenche 220 kV - L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Pehuenche
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	3,515	3,515	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	3,515	3,515	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	0,421	0,421	0,421	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	0,440	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	0,740	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	0,440	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	0,740	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	0,440	1,140	1,140	1,140	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	---	---	---	0,740	0,740	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	0,440	0,440	0,040	0,040	0,040	0,040	0,040	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,440	0,440	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	15,544	9,527	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	

Falla bifásica a tierra en la línea Ancoa - Pehuenche 220 kV - L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Pehuenche
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %

S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	3,240	---	---	---	3,240	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	5,666	3,080
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	6,761	3,378
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	1,021	1,021	1,021	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	0,740	0,040
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	0,740	0,040
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,440	1,140	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	---	---	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	---	---	---	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	67N	0,425	0,491	0,659	3,186	1,452	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	0,417	0,412	0,397	0,361	0,316	0,308	0,308
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,368	0,368	0,368	0,368	0,394	0,409	0,415
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,745	0,822	0,904	0,879	0,715	0,583	0,494
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,723	0,795	0,872	0,849	0,695	0,569	0,484

S/E Ancoa 220 kV	52JT1	MICOM P645	51	24,974	30,824	34,248	21,640	10,887	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	1,220	1,220	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Ancoa - Pehuenche 220 kV - L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Pehuenche
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	3,240	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	---	---	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	22,028	6,025	3,716
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	7,278	4,159
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	1,240	0,740
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	1,240	0,740
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,440	1,140	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	---	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,440	0,440	2,040	2,040	2,040	2,040	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,454	0,508	0,652	2,620	1,360	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	0,446	0,423	0,394	0,353	0,311	0,308	0,308
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,368	0,368	0,368	0,368	0,388	0,412	0,432
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,843	0,871	0,891	0,829	0,692	0,590	0,524
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,815	0,841	0,860	0,801	0,672	0,576	0,513
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	25,322	9,648	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	1,220	1,220	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	---	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	---	3,220	3,220	3,220	3,220

Falla monofásica en la línea Ancoa - Pehuenche 220 kV - L2
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Central Pehuenche
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	1,140	0,040	0,040	0,040	0,040
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,440	2,040	2,040	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	1,005	1,186	2,027	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	0,964	0,808	0,669	0,549	0,479	0,448	0,431
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,416	0,429	0,454	0,511	0,612	0,740	0,901
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	5,562	3,283	2,586	2,284
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	3,600	3,600	3,600	3,600	2,901	2,342	2,092
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	3,220	3,220	3,220	3,220	3,220	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla trifásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	21,556	21,525	21,472	21,380	21,285	21,226	21,189	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	

Falla bifásica aislada en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440

Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla bifásica a tierra en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	3,240	3,240	3,240	3,240	3,240	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,415	0,416	0,417	0,419	0,420	0,421	0,422
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	0,328	0,328	0,328	0,328	0,328	0,328	0,328
S/E Ancoa 220 kV	52J5	GED60	67N	0,428	0,428	0,426	0,424	0,422	0,420	0,419
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,747	0,746	0,746	0,746	0,745	0,744	0,744
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,724	0,724	0,724	0,723	0,723	0,722	0,722
S/E Ancoa 220 kV	52JT1	MICOM P645	51	25,484	25,406	25,273	25,040	24,793	24,638	24,543
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	1,220	1,220	1,220	1,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	0,421	0,421	0,421	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J5	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	2,040	2,040	2,040	2,040	2,040	2,040	2,040	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	0,440	0,442	0,443	0,446	0,449	0,451	0,452	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	0,328	0,328	0,328	0,328	0,328	0,328	0,328	
S/E Ancoa 220 kV	52J5	GED60	67N	0,455	0,455	0,454	0,452	0,451	0,450	0,449	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,835	0,836	0,838	0,841	0,844	0,846	0,847	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,808	0,809	0,810	0,813	0,816	0,818	0,818	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	1,220	1,220	1,220	1,220	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	

Falla monofásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	2,040	2,040	2,040	2,040	2,040
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,931	0,937	0,947	0,965	0,985	0,997	1,004
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	0,386	0,386	0,385	0,383	0,382	0,381	0,380
S/E Ancoa 220 kV	52J5	GED60	67N	1,000	0,999	0,997	0,995	0,992	0,991	0,990
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	3,600	3,600	3,600	3,600	3,600	3,600	3,600
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla trifásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	0,040	0,040	0,040	0,040	0,040	0,440	0,440	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	1,140	1,140	1,140	0,440	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,440	2,040	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	9,510	16,050	23,075	23,580	21,829	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	

Falla bifásica aislada en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	---	---	---	---	---

S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	0,040	0,040	0,040	0,040	0,040	0,440	0,440	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	1,140	1,140	1,140	0,440	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,440	2,040	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	9,462	15,240	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	

Falla bifásica a tierra en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---

S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	3,240	---	---	---	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	---	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	3,076	5,580	38,254	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	3,374	6,640	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,040	0,740	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,040	0,740	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	1,140	0,440	0,040
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	0,220	0,440	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,440	2,040	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,308	0,308	0,315	0,360	0,395	0,410	0,415
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	0,373	0,339	0,328	0,328	0,328
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	1,372	4,340	0,683	0,508	0,436
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,425	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,494	0,581	0,711	0,874	0,907	0,836	0,757
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,484	0,567	0,691	0,844	0,875	0,808	0,734
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	10,730	21,027	33,849	31,823	26,207
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	1,220	1,220	1,220	1,220	1,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	3,240	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	---	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	---	---	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	3,712	5,946	20,313	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	4,154	7,163	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,740	1,240	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,740	1,240	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	2,040	0,740	0,740	0,740	0,740	0,740

S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	1,140	0,440	0,040
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	0,220	0,440	---	---	---	---	2,040
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,308	0,308	0,310	0,351	0,391	0,418	0,438
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	0,367	0,332	0,328	0,328	0,328
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	1,290	3,331	0,672	0,521	0,461
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,442	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,524	0,589	0,688	0,822	0,887	0,873	0,840
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,513	0,575	0,669	0,796	0,856	0,843	0,812
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	9,549	24,321	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	1,220	1,220	1,220	1,220	1,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	---	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	---	3,220	3,220

Falla monofásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,440	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	0,740	0,740	0,740	0,740	0,740	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	2,040
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,431	0,447	0,477	0,545	0,656	0,780	0,911
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	0,600	0,486	0,427	0,401	0,388
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	2,192	1,233	1,018
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,948	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	2,283	2,575	3,239	5,326	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	2,091	2,333	2,866	3,600	3,600	3,600	3,600
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla trifásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,184	0,184	0,184	0,184	0,184	0,184	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	

Falla bifásica aislada en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm

Ubicación de la falla medida desde: Central Colbún										
Caso: DB-HH										

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,200	0,200	0,199	0,199	0,199	0,199	0,199
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla bifásica a tierra en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,905	2,904	2,903	2,900	2,898	2,896	2,895
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	3,170	3,169	3,167	3,163	3,160	3,158	3,157
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,109	0,109	0,109	0,109	0,109	0,109	0,109
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,181	0,181	0,181	0,181	0,181	0,181	0,184
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040

S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,416	0,416	0,416	0,416	0,416	0,416	0,416
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,485	0,485	0,485	0,484	0,484	0,484	0,484
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,475	0,475	0,475	0,475	0,475	0,475	0,475
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	3,560	3,558	3,555	3,549	3,544	3,541	3,539
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	3,965	3,962	3,958	3,951	3,945	3,941	3,938
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,109	0,109	0,109	0,109	0,109	0,109	0,109
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,182	0,182	0,182	0,182	0,182	0,182	0,182
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,435	0,435	0,435	0,435	0,435	0,435	0,435
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,518	0,518	0,517	0,517	0,517	0,517	0,517
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,507	0,507	0,507	0,506	0,506	0,506	0,506
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,131	0,131	0,131	0,131	0,131	0,131	0,131	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,753	0,753	0,752	0,751	0,750	0,750	0,750	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	0,929	0,929	0,929	0,929	0,929	0,929	0,929	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	2,260	2,259	2,258	2,257	2,256	2,255	2,255	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	2,071	2,071	2,070	2,069	2,068	2,067	2,067	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---	

S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	1,220	1,220	1,220	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

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SIMULACIONES ESCENARIO DE OPERACIÓN CON LÍNEA AN-COA – COLBÚN FUERA DE SERVICIO

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Resultados en Demanda Alta Hidrología Humeda

Falla trifásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	3,240	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,182	0,362	0,616
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	2,040	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	3,610	3,610	1,770	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	3,610	1,765	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	0,820	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	3,220	3,220

Falla bifásica aislada en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	3,240	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	1,021	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,196	0,427	0,841
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	2,040	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	1,918	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	11,472	1,912	3,610	12,202
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	2,020	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	3,220	3,220

Falla bifásica a tierra en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	0,540	---	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	0,540	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---

S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	0,515	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	0,515	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	21,067	2,385	0,962	1,058
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	2,561	0,990	1,091
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	0,421	---	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,218	0,492	0,246
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	2,040	2,040	0,740	---	0,740	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	2,040	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,793	0,836	0,786	0,611	0,415	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	1,796	2,168	3,112
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,810	0,854	0,802	0,621	0,420	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	10,120	1,793	2,174	3,132
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	1,220	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	0,820	2,020	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	0,820	2,020

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C2

Resistencia de falla: 0 Ohm											
Ubicación de la falla medida desde: Reactor A. Jahuel C2											
Caso: DA-HH - Sin Ancoa - Pehuenche L2											

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	3,240	3,240	3,240	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	3,240	---	---	0,540	0,540	0,540	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	---	---	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	0,515	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	0,515	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	0,015	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	4,391	1,381	0,903	1,387
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	5,022	1,438	0,928	1,445
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	0,421	0,421	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	0,417	0,291
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	---	---	0,740	0,740	0,740	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,788	0,746	0,655	0,498	0,328	0,298	0,329
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,597	1,976	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,805	0,760	0,667	0,504	0,331	0,298	0,332
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,981	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	2,020

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	3,240	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	10,025	2,607	1,968	2,122
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	14,047	2,818	2,086	2,261
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	---	---	0,740	0,740	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,090	0,929	0,764	0,574	0,428	0,385	0,397
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,121	0,951	0,780	0,582	0,433	0,389	0,401
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	13,801	3,610	8,308
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220

Falla trifásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	1,189	0,529	0,205	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	2,040	---	2,040
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	2,003	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	20,291	3,610	1,997	3,610	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	2,020	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	0,820	3,220	---	---	---

Falla bifásica aislada en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---

S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	1,021	1,021	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	2,502	0,685	0,223	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	1,140	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	2,040	---	2,040	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	2,189	3,610	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	3,610	2,181	13,423	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	

S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	2,020	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	0,820	3,220	---	---	---

Falla bifásica a tierra en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	3,240	0,540	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	0,515	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	0,515	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	1,237	0,874	2,073	12,872	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	1,283	0,897	2,205	20,349	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	0,421	1,021	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,311	0,370	0,272	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	0,740	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	0,740	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	0,440	---	---	---	---	---

S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	0,740	---	0,740	2,040	2,040	2,040
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	2,040	---	2,040
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,310	0,298	0,394	0,589	0,764	0,822	0,792
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	2,115	1,970	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,313	0,298	0,398	0,598	0,780	0,840	0,808
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	2,123	1,967	11,185	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	2,020	2,020	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	0,820	0,820	3,220	---	---	---

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	0,540	0,540	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	0,540	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	0,540	0,540	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	0,540	---	---	---	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	0,515	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	0,015	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	0,515	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	0,015	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	1,654	1,064	1,228	4,025	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	1,737	1,098	1,273	4,550	---	---	---

S/E Ancoa 220 kV	52J9	ABB RED670	21	---	1,021	0,421	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,370	0,647	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	0,040	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	0,040	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	0,740	0,220	0,740	---	---	2,040
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,358	0,298	0,309	0,487	0,651	0,745	0,788
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	2,517	3,069	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,361	0,298	0,312	0,494	0,662	0,759	0,805
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	2,525	3,081	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	0,820	2,020	3,220	---	---	---

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	0,540	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	0,540	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	3,240	---	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	3,240	3,240	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	3,240	---	---	---

S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,356	2,030	2,447	8,636	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,528	2,156	2,632	11,466	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	0,740	0,740	---	---	2,040
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,413	0,390	0,419	0,563	0,757	0,924	1,089
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,418	0,394	0,424	0,571	0,772	0,947	1,120
S/E Ancoa 220 kV	52JT1	MICOM P645	51	11,803	3,610	12,369	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	3,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	---	---	---	---

Falla trifásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,292	0,252	0,506
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	---	2,040	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	2,535	2,207	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	12,153	2,525	2,198	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	3,220	3,220	3,220	2,020	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	0,820	3,220

Falla bifásica aislada en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	---	---	---	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,339	0,277	0,641
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	1,140	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	2,040	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	2,889	2,402	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	27,904	2,876	2,393	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	3,220

Falla bifásica a tierra en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,515	---	---	---	0,515	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	---	---	---	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	0,515	0,515	---	---

S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	0,015	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515	
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Charrua 500 kV	52K2	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515	
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,168	5,251	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	2,344	6,982	---	---	2,626	1,068	0,700	
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,056	1,650	1,346	1,024	0,741	0,607	0,607	
S/E Charrua 500 kV	52K2	SEL 421	67N	0,669	0,770	0,920	1,156	1,389	1,555	2,039	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,344	0,507	0,166	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	0,040	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	0,040	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	1,140	---	0,040	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	2,040	2,040	0,740	0,740	---	0,220	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	2,040	0,740	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,667	0,698	0,676	0,559	0,405	0,298	0,298	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	2,705	1,879	1,783	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,678	0,711	0,688	0,567	0,409	0,298	0,298	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	16,283	2,698	1,879	1,791	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	0,820	

Falla monofásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %

S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	0,540	0,540	3,240
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	0,540	3,240	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,515	---	---	---	---	0,515	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	0,515	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	---	---	---	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,056	3,846	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,213	4,701	---	---	1,676	0,766	0,869
S/E Ancoa 500 kV	52K4	SEL 421	67N	1,955	1,479	1,173	0,887	0,637	0,607	0,607
S/E Charrua 500 kV	52K2	SEL 421	67N	0,658	0,730	0,835	0,985	1,067	0,990	4,586
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	0,421	1,021	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	2,522	0,251	0,344
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	1,140	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	2,040	2,040	0,740	0,740	---	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,645	0,635	0,587	0,477	0,342	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	1,729	2,194
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,656	0,645	0,596	0,483	0,345	0,298	0,298

S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,733	2,202
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	2,020
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820

Falla monofásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	3,240	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	3,240	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	0,515	0,515	0,515	0,515	0,515
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	0,515	0,515	0,515	0,515	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	3,188	7,992	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	3,582	12,823	---	---	3,128	1,761	1,576
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,952	1,852	1,353	1,003	0,777	0,686	0,671
S/E Charrua 500 kV	52K2	SEL 421	67N	0,745	0,811	0,924	1,129	1,519	3,613	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	2,040	2,040	0,740	0,740	0,740	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,834	0,770	0,680	0,546	0,427	0,376	0,369
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,853	0,785	0,692	0,554	0,431	0,380	0,372
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	20,092	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220

Falla trifásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	---	---	0,015	0,015	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,390	0,185	0,306
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	---	2,040	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,299	1,630	2,645
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	15,738	3,281	1,625	2,633
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	0,820

Falla bifásica aislada en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---

S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	---	0,015	0,015	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	---	---	---	0,015	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	0,015	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,479	0,197	0,347	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	2,040	0,740	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	1,728	2,949	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,723	2,935	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	2,020	

Falla bifásica a tierra en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	---	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,515	---	---	---	0,515	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	---	---	---	0,015	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	0,515	0,515	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	0,015	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	1,950	1,597	1,318	1,017	0,753	0,607	0,607
S/E Charrua 500 kV	52K1	SEL 421	67N	0,670	0,765	0,907	1,132	1,363	1,578	1,769
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,297	5,673	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,528	8,185	---	---	3,017	1,236	0,680
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	0,421	1,021	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,433	0,261	0,205
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	1,240	---	0,040
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	1,240	---	0,040
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	0,440	---	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	2,040	2,040	0,740	0,220	---	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	2,040	0,740	2,040	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,665	0,688	0,663	0,553	0,410	0,309	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,596	1,562	1,525
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,677	0,700	0,674	0,561	0,414	0,312	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	21,435	3,584	1,560	1,529
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	0,820

Falla monofásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	0,540	3,240	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	---	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	3,240	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	3,240	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	---	---	---	---	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,515	---	---	---	---	0,515	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	0,515	0,515	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	1,861	1,444	1,160	0,891	0,660	0,607	0,607
S/E Charrua 500 kV	52K1	SEL 421	67N	0,659	0,727	0,829	0,978	1,088	1,063	1,954
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,175	4,133	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,381	5,325	---	---	1,941	0,895	0,706
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	0,218
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	1,240	---

S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,740	---	0,040
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	1,240	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,740	---	0,040
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	2,040	2,040	0,740	0,740	---	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	0,220	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,644	0,630	0,582	0,478	0,354	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	2,075	1,576
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,655	0,640	0,591	0,484	0,358	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	2,082	1,581
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820

Falla monofásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	0,515	0,515	0,515	0,515	0,515

S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	0,015	0,015	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	0,515	0,515	0,515	0,515	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,748	1,807	1,341	1,006	0,789	0,692	0,662	
S/E Charrua 500 kV	52K1	SEL 421	67N	0,746	0,810	0,918	1,119	1,485	2,821	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	3,489	9,579	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	4,048	19,842	---	---	3,680	1,892	1,593	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	2,040	2,040	0,740	0,740	0,740	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,834	0,766	0,675	0,546	0,432	0,378	0,361	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,852	0,781	0,687	0,554	0,437	0,381	0,365	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	25,647	3,610	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220	

Falla trifásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla bifásica aislada en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---	

Falla bifásica a tierra en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	0,476	0,477	0,479	0,483	0,486	0,489	0,490	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	2,541	2,577	2,640	2,753	2,877	2,958	3,009	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	2,306	2,335	2,387	2,479	2,579	2,644	2,685	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	1,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---	

Falla monofásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---

S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	0,499	0,501	0,504	0,509	0,514	0,517	0,519	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	3,386	3,468	3,616	3,896	4,229	4,461	4,615	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	2,982	3,045	3,159	3,370	3,600	3,600	3,600	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---	

Falla monofásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	1,140	1,140	1,140	1,140	1,140	1,140	1,140
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	1,006	1,014	1,027	1,050	1,075	1,090	1,100
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla trifásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	0,040	0,040	0,040	0,040	0,040	0,440	0,440	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	14,711	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	---	

Falla bifásica aislada en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	0,040	0,040	0,040	0,040	0,040	0,440	0,440	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	10,872	34,660	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	---	---	---	

Falla bifásica a tierra en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm

Ubicación de la falla medida desde: S/E Ancoa											
Caso: DA-HH - Sin Ancoa - Pehuenche L2											
Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	3,240	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,690	4,220	14,499	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,916	4,800	24,735	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,040	0,740	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,040	0,740	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,308	0,308	0,314	0,360	0,409	0,444	0,472
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,472	0,544	0,670	0,930	1,349	1,842	2,438
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,463	0,532	0,652	0,896	1,279	1,714	2,220
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	8,483	19,882	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	1,220	1,220	3,220	3,220	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	---	---

Falla monofásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	3,240	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,845	4,051	9,777	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	3,099	4,583	13,564	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,740	1,240	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,740	1,240	---	---	---	---	---

S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,308	0,308	0,308	0,351	0,405	0,452	0,493
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,482	0,538	0,641	0,868	1,305	1,977	3,133
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,472	0,526	0,624	0,839	1,239	1,831	2,784
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	15,836	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	1,220	1,220	3,220	3,220	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	1,220	1,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	---	---	---

Falla monofásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,440	1,140	1,140
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,430	0,446	0,476	0,546	0,670	0,816	0,980
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,614	1,862	2,548	8,192	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,516	1,732	2,312	3,600	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	3,220	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	1,220	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla trifásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,182	0,182	0,182	0,182	0,182	0,182	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	

| S/E Ancoa 220 kV | 52JT2 | RET 670 EST/KT1 220| 51N | --- | --- | --- | --- | --- | --- | --- |
| S/E Ancoa 220 kV | 52JT2 | RET 670 EST/KT1 220| 51 | 3,220 | 3,220 | 3,220 | 3,220 | 3,220 | 3,220 | 3,220 |

Falla bifásica aislada en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,196	0,196	0,196	0,196	0,196	0,196	0,196
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla bifásica a tierra en la línea Ancoa – Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,577	2,576	2,575	2,573	2,572	2,571	2,570
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,783	2,782	2,781	2,779	2,777	2,776	2,775
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421

S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,109	0,109	0,109	0,109	0,109	0,109	0,109
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,182	0,182	0,182	0,182	0,182	0,182	0,188
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,465	0,465	0,465	0,464	0,464	0,464	0,464
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,456	0,456	0,456	0,456	0,456	0,455	0,455
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640

S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	2,757	2,756	2,754	2,751	2,748	2,746	2,745	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	2,995	2,993	2,991	2,988	2,984	2,982	2,980	
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,109	0,109	0,109	0,109	0,109	0,109	0,109	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,188	0,188	0,188	0,188	0,188	0,188	0,188	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,476	0,476	0,476	0,476	0,476	0,476	0,476	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,467	0,467	0,467	0,467	0,467	0,466	0,466	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	

Falla monofásica en la línea Ancoa - Colbún 220 kV											
Resistencia de falla: 25 Ohm											
Ubicación de la falla medida desde: Central Colbún											
Caso: DA-HH - Sin Ancoa - Pehuenche L2											
Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,138	0,138	0,138	0,138	0,138	0,138	0,138
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,837	0,837	0,836	0,835	0,834	0,834	0,833
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	2,040	2,040	2,040	2,040	2,040	2,040
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,594	1,593	1,593	1,592	1,592	1,591	1,591
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,497	1,497	1,497	1,496	1,496	1,495	1,495
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	1,220	1,220	1,220	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Resultados en Demanda Alta Hidrología Seca

Falla trifásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	3,240	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	1,021	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,170	0,304	0,482
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	1,816	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	8,799	1,810	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	0,820	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	3,220	3,220

Falla bifásica aislada en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	3,240	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	1,021	1,021	1,021	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,183	0,349	0,607
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	1,980	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	14,876	1,974	3,610	12,039
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	2,020	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	3,220	3,220

Falla bifásica a tierra en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	3,240	---	---	0,540	---	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	0,540	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	0,515	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	0,515	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	21,674	2,388	0,971	1,039
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	2,564	1,000	1,072
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	1,021	0,421	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,198	0,587	0,233
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	1,140	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	---	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,787	0,833	0,785	0,613	0,416	0,298	0,298

S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	1,852	2,184	3,051	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,804	0,851	0,802	0,623	0,420	0,298	0,298	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	12,495	1,849	2,189	3,070	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	1,220	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	2,020	2,020	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	0,820	2,020	

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	3,240	3,240	3,240	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	3,240	---	---	0,540	0,540	0,540	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	---	---	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	0,515	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	0,515	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	0,015	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	4,437	1,408	0,883	1,348
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	5,083	1,467	0,906	1,403
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	0,421	0,421	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	0,440	0,269
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	0,440	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,740	0,740	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,775	0,739	0,653	0,499	0,332	0,298	0,324	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	1,945	3,608	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,791	0,753	0,665	0,506	0,335	0,298	0,327	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,950	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	0,820	2,020	

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	3,240	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	10,127	2,628	1,959	2,091	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	14,248	2,843	2,077	2,225	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,740	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,074	0,921	0,762	0,574	0,430	0,385	0,395	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,105	0,943	0,777	0,583	0,435	0,389	0,399	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	15,926	3,610	8,504	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	1,220	1,220	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220	

Falla trifásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540

S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	0,015	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	0,015	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	1,021	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,787	0,421	0,185	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	1,993	3,610	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	21,214	3,610	1,987	9,848	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	2,020	3,220	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	0,820	3,220	---	---	---	

Falla bifásica aislada en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	1,021	1,021	1,021	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	1,194	0,513	0,199	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---

S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	2,187	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	3,610	2,179	18,131	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	2,020	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	0,820	3,220	---	---	---

Falla bifásica a tierra en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	3,240	0,540	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	0,540	0,540	---	3,240	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	1,219	0,877	2,077	13,073	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	1,263	0,900	2,209	20,857	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	0,421	1,021	0,421	1,021	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,293	0,412	0,230	---	---	---	---

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	0,740	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	0,740	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	0,040	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	---	0,740	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,308	0,298	0,394	0,590	0,764	0,819	0,785
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	2,131	1,972	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,310	0,298	0,398	0,599	0,779	0,837	0,802
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	2,140	1,968	13,987	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	2,020	2,020	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	0,820	0,820	3,220	---	---	---

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	0,540	0,540	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	0,540	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	0,540	0,540	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	0,540	---	---	---	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	---	3,640	3,640

S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	0,515	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	0,015	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	0,515	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	0,015	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	1,614	1,039	1,249	4,059	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	1,693	1,071	1,296	4,593	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	1,021	0,421	1,021	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,340	0,703	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	0,040	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	0,040	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	0,440	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,220	0,740	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	0,740	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,354	0,298	0,312	0,489	0,649	0,738	0,775	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	2,475	3,231	3,610	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,357	0,298	0,315	0,495	0,660	0,752	0,791	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	2,483	3,245	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	0,820	2,020	3,220	---	---	---	

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 25 Ohm

Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1										
Caso: DA-HS - Sin Ancoa - Pehuenche L2										
Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	0,540	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	0,540	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	3,240	---	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	3,240	3,240	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	3,240	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,318	2,015	2,461	8,696	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,484	2,139	2,648	11,570	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,740	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,411	0,389	0,420	0,563	0,755	0,916	1,073
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,415	0,393	0,425	0,572	0,769	0,938	1,104
S/E Ancoa 220 kV	52JT1	MICOM P645	51	12,210	3,610	13,955	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	3,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	---	---	---	---

Falla trifásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	0,421	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,250	0,226	0,406
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	3,610	3,610	2,631	2,351	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	15,625	2,620	2,342	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	0,820	3,220

Falla bifásica aislada en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	---	---	---	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	---

S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	0,421	1,021	1,021	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,281	0,246	0,486	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,013	2,588	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	2,998	2,577	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	3,220	

Falla bifásica a tierra en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---

S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,515	---	---	---	0,515	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	---	---	---	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	0,515	0,515	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,192	5,346	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,373	7,151	---	---	2,624	1,060	0,702
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,078	1,660	1,349	1,025	0,741	0,607	0,607
S/E Charrua 500 kV	52K2	SEL 421	67N	0,672	0,772	0,922	1,158	1,389	1,539	2,059
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,289	0,515	0,163
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	0,040
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	0,040
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,740	---	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,672	0,702	0,678	0,559	0,405	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	2,796	1,955	1,821
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,683	0,714	0,690	0,568	0,409	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	22,384	2,788	1,955	1,830
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	0,820

S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	0,820

Falla monofásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	0,540	0,540	3,240
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	0,540	3,240	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	3,240	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,515	---	---	---	---	0,515	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	0,515	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	---	---	---	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,096	3,942	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,260	4,845	---	---	1,669	0,762	0,877
S/E Ancoa 500 kV	52K4	SEL 421	67N	1,991	1,493	1,178	0,888	0,636	0,607	0,607
S/E Charrua 500 kV	52K2	SEL 421	67N	0,662	0,733	0,838	0,986	1,064	0,984	4,833
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	---	---	1,021	0,421	1,021	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	0,265	0,383
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	1,140	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,740	---	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,653	0,640	0,590	0,477	0,342	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	1,747	2,277
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,664	0,651	0,599	0,483	0,345	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,752	2,286
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820

Falla monofásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	3,240	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	0,515	0,515	0,515	0,515	0,515
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	0,515	0,515	0,515	0,515	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	3,238	8,245	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	3,646	13,490	---	---	3,120	1,760	1,579
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,996	1,865	1,358	1,003	0,777	0,686	0,672
S/E Charrua 500 kV	52K2	SEL 421	67N	0,747	0,814	0,926	1,130	1,517	3,608	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	---	---	0,740	0,740	0,740	2,040
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,842	0,775	0,682	0,546	0,426	0,376	0,369
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,860	0,790	0,694	0,554	0,431	0,380	0,373
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	24,597	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220

Falla trifásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	---	---	0,015	0,015	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,318	0,169	0,268	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	3,610	3,610	3,483	1,687	2,856	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	22,137	3,463	1,683	2,842	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	2,020	

Falla bifásica aislada en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	---	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	---	---	---	0,015	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	0,015	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,372	0,178	0,298
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	1,800	3,229
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,795	3,211
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	2,020

Falla bifásica a tierra en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	---	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,515	---	---	---	0,515	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	---	---	---	0,015	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	0,515	0,515	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	1,970	1,606	1,321	1,018	0,753	0,607	0,607
S/E Charrua 500 kV	52K1	SEL 421	67N	0,673	0,767	0,909	1,134	1,363	1,563	1,749
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,325	5,788	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,562	8,425	---	---	3,018	1,227	0,677
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,358	0,220	0,213
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	1,240	---	0,040
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	1,240	---	0,040
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	0,440	---	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,740	---	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,670	0,692	0,665	0,553	0,410	0,308	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	1,607	1,548
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,682	0,704	0,676	0,561	0,415	0,311	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	33,219	3,610	1,605	1,553
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820

Falla monofásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	0,540	3,240	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	---	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	3,240	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	---	---	---	---	0,015

S/E Ancoa 500 kV	52K4	SEL 421	21N	0,515	---	---	---	---	0,515	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	0,015	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	0,515	0,515	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	0,015	0,015	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	1,894	1,458	1,165	0,892	0,659	0,607	0,607	
S/E Charrua 500 kV	52K1	SEL 421	67N	0,663	0,731	0,831	0,979	1,086	1,055	2,002	
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,220	4,247	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	2,435	5,516	---	---	1,935	0,889	0,712	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	---	---	1,021	0,421	0,421	0,421	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	0,232	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	1,240	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,740	---	0,040	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	1,240	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,740	---	0,040	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	0,040	0,040	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	0,740	0,740	---	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,652	0,635	0,585	0,478	0,354	0,298	0,298	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	2,098	1,622	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,663	0,646	0,594	0,484	0,357	0,298	0,298	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	2,105	1,626	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820	

Falla monofásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %

S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	0,540	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	0,540	0,540	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	3,240	3,240	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	3,240	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	0,515	0,515	0,515	0,515	0,515	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	0,015	0,015	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	0,515	0,515	0,515	0,515	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,785	1,820	1,346	1,007	0,789	0,692	0,662	
S/E Charrua 500 kV	52K1	SEL 421	67N	0,749	0,813	0,920	1,120	1,484	2,815	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	3,549	9,952	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	4,131	21,517	---	---	3,672	1,890	1,594	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	---	---	0,740	0,740	0,740	2,040	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,841	0,771	0,677	0,547	0,432	0,378	0,361	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,859	0,786	0,689	0,555	0,437	0,381	0,365	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	33,361	8,550	3,610	

S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220

Falla trifásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla bifásica aislada en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla bifásica a tierra en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	0,493	0,495	0,497	0,501	0,505	0,508	0,509	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	3,133	3,191	3,293	3,480	3,693	3,834	3,925	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	2,784	2,830	2,910	3,055	3,217	3,324	3,393	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---	

Falla monofásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	2,040	2,040	2,040	2,040	2,040
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,532	0,534	0,537	0,543	0,550	0,554	0,556
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	5,841	6,101	6,592	7,631	9,089	10,285	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	3,600	3,600	3,600	3,600	3,600	3,600	3,600
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla monofásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,440	0,440	1,140	1,140	1,140	1,140	1,140
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	1,021	1,029	1,043	1,066	1,091	1,107	1,117
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla trifásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,040	0,040	0,040	0,040	0,040	0,440	0,440	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	14,580	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	---	

Falla bifásica aislada en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,040	0,040	0,040	0,040	0,040	0,440	0,440
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	---	---

S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	10,637	33,997	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	---	---	---

Falla bifásica a tierra en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	3,240	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,744	4,377	17,162	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,979	5,005	33,633	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,040	0,740	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,040	0,740	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,308	0,308	0,316	0,365	0,417	0,457	0,489
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,476	0,549	0,680	0,958	1,440	2,076	2,965
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,466	0,537	0,662	0,922	1,361	1,916	2,650
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	8,330	19,479	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	1,220	1,220	3,220	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	1,220	1,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	---	---

Falla monofásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	3,240	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K1	SEL 421	67N	2,952	4,330	12,313	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	3,226	4,943	18,988	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,740	1,240	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,740	1,240	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,440	0,440	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,220	0,220	0,220	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	2,040	2,040	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	0,308	0,308	0,312	0,359	0,420	0,475	0,525	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,488	0,547	0,659	0,919	1,476	2,517	5,085	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,478	0,535	0,642	0,886	1,393	2,286	3,600	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	14,675	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	1,220	1,220	3,220	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	1,220	1,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	---	---	---	

Falla monofásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---

S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,440	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,430	0,446	0,477	0,549	0,675	0,826	0,994
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,618	1,870	2,577	8,793	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,519	1,739	2,335	3,600	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	3,220	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	1,220	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla trifásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,189	0,189	0,189	0,189	0,189	0,189	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla bifásica aislada en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,205	0,205	0,204	0,204	0,204	0,204	0,204
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla bifásica a tierra en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	3,240	3,240	3,240	3,240	3,240	3,240
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,625	2,624	2,623	2,622	2,620	2,619	2,618
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,839	2,838	2,837	2,835	2,833	2,832	2,831
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,109	0,109	0,109	0,109	0,109	0,109	0,109
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,188	0,188	0,188	0,188	0,188	0,188	0,195
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,468	0,468	0,468	0,468	0,468	0,468	0,467
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,459	0,459	0,459	0,459	0,459	0,459	0,459
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún

Caso: DA-HS - Sin Ancoa - Pehuenche L2											
Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	3,240	3,240	3,240	3,240	3,240	3,240
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,854	2,852	2,851	2,848	2,845	2,843	2,842
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	3,108	3,107	3,105	3,101	3,098	3,096	3,095
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,109	0,109	0,109	0,109	0,109	0,109	0,109
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,194	0,194	0,194	0,194	0,194	0,193	0,193
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,482	0,482	0,482	0,482	0,482	0,482	0,481
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,473	0,473	0,473	0,472	0,472	0,472	0,472
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HS - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,138	0,138	0,138	0,138	0,138	0,138	0,138
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,903	0,903	0,902	0,901	0,900	0,899	0,899
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,597	1,597	1,596	1,596	1,595	1,595	1,595	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,500	1,500	1,500	1,499	1,499	1,498	1,498	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	1,220	1,220	1,220	1,220	1,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---	

Resultados en Demanda Baja Hidrología Humeda

Falla trifásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	3,240	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	---	---	---

S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	0,015	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	0,015	0,015	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,195	0,305	0,503	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	0,740	0,740	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	3,610	3,610	1,858	3,140	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	3,610	1,852	3,124	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	2,020	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	2,020	3,220	

Falla bifásica aislada en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %

RELE - Reliable Energy Ingeniería Limitada
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S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	3,240	3,240	3,240	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	0,015	0,015	0,015	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	0,015	0,015	0,015	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	1,021	1,021	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,211	0,346	0,637	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	1,140	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	0,740	0,740	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	2,013	3,606	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	13,546	2,006	3,585	3,610	

S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	2,020	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	2,020	3,220

Falla bifásica a tierra en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	0,540	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	0,515	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	0,515	0,515	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	0,515	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	0,515	0,515	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	27,134	2,503	0,999	1,024
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	2,697	1,029	1,056
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,230	0,567	0,232
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	2,040	2,040	0,740	---	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	0,740	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,826	0,858	0,799	0,618	0,422	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	1,900	2,068	2,823
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,844	0,878	0,816	0,628	0,426	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	11,341	1,896	2,071	2,838
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	1,220	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	2,020	2,020	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	0,820	2,020

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	3,240	3,240	3,240	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	3,240	---	---	0,540	0,540	0,540	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	---	---	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	0,515	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	0,515	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	0,015	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	5,009	1,485	0,863	1,306
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	5,846	1,551	0,885	1,357
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	0,421	0,421	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	0,379	0,267
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	1,140	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	---	---	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	0,740	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,854	0,788	0,680	0,511	0,340	0,298	0,319
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	1,815	3,213
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,873	0,804	0,692	0,518	0,343	0,298	0,321
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,819	3,225
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	2,020

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	3,240	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	3,240

S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	12,273	2,717	1,964	2,066	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	18,888	2,947	2,082	2,197	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	---	---	0,740	0,740	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,158	0,970	0,787	0,585	0,434	0,384	0,392	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,193	0,995	0,803	0,594	0,439	0,388	0,396	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	12,833	3,610	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	1,220	1,220	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220	

Falla trifásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,872	0,433	0,198	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	2,040	2,040	2,040
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	1,868	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	10,783	3,610	1,862	9,122	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	2,020	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	0,820	3,220	---	---	---

Falla bifásica aislada en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	1,021	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	1,391	0,527	0,212	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	2,040	2,040	2,040
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	2,004	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	20,247	3,610	1,998	16,005	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	2,020	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	0,820	3,220	---	---	---

Falla bifásica a tierra en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	3,240	0,540	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	0,515	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	0,515	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	1,202	0,892	2,203	15,048	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	1,246	0,916	2,352	26,366	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	0,421	1,021	1,021	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,294	0,395	0,245	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	1,240	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	1,240	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	0,440	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	---	0,740	2,040	2,040	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	2,040	2,040	2,040	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,305	0,298	0,402	0,595	0,777	0,844	0,824	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	2,055	1,851	3,610	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,308	0,298	0,407	0,605	0,793	0,863	0,842	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	2,062	1,848	12,736	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	2,020	2,020	3,220	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	0,820	0,820	3,220	---	---	---	

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	0,540	0,540	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	0,540	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	0,540	0,540	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	0,540	---	---	---	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	0,515	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	0,015	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	0,515	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	0,015	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	1,567	1,002	1,320	4,558	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	1,641	1,032	1,372	5,242	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	1,021	0,421	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,339	0,545	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	0,040	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	0,040	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	0,440	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	0,740	0,220	0,740	---	---	2,040
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	0,740	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,348	0,298	0,320	0,501	0,675	0,787	0,853
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	2,241	3,261	3,610	---	---	---

S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,352	0,298	0,323	0,508	0,687	0,803	0,873
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	2,247	3,274	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	2,020	3,220	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	0,820	2,020	3,220	---	---	---

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	0,540	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	0,540	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	3,240	---	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	3,240	3,240	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	3,240	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,283	2,007	2,534	10,289	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,443	2,131	2,733	14,567	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	0,740	0,740	---	---	2,040
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,408	0,388	0,423	0,574	0,779	0,965	1,156
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,412	0,392	0,428	0,582	0,795	0,990	1,192
S/E Ancoa 220 kV	52JT1	MICOM P645	51	9,474	3,610	11,454	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	3,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	---	---	---	---

Falla trifásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	---	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,379	0,216	0,400
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	2,040	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	2,991	1,817	3,130
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	13,373	2,977	1,811	3,114
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	---	3,220	3,220	3,220	0,820	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	3,220	3,220	2,020	0,820	2,020

Falla bifásica aislada en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---

S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	---	---	---	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	---	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,460	0,228	0,472
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	1,140	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	2,040	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,493	1,908	3,565
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	36,279	3,473	1,902	3,544
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	2,020

Falla bifásica a tierra en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,515	---	---	---	0,515	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	---	---	---	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	0,515	0,515	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,263	5,541	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,455	7,491	---	---	2,771	1,137	0,686
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,144	1,692	1,367	1,035	0,751	0,607	0,607
S/E Charrua 500 kV	52K2	SEL 421	67N	0,682	0,781	0,932	1,173	1,426	1,708	1,916
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,423	0,467	0,159
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	1,240	---	0,740
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	0,740
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	0,440	---	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	2,040	2,040	0,740	0,740	---	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	2,040	0,740	2,040	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,685	0,712	0,685	0,565	0,410	0,302	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,239	1,649	1,657
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,698	0,725	0,697	0,573	0,415	0,304	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	17,919	3,228	1,647	1,663
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	0,820

Falla monofásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	0,540	0,540	3,240
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	3,240	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,515	---	---	---	---	0,515	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	0,015	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	0,515	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	---	---	---	---	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,254	4,354	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,445	5,475	---	---	1,827	0,824	0,807
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,136	1,561	1,214	0,910	0,657	0,607	0,607
S/E Charrua 500 kV	52K2	SEL 421	67N	0,681	0,752	0,858	1,015	1,125	1,089	3,255
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	0,421	1,021	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	0,288	0,293
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	0,440	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	2,040	2,040	0,740	0,740	---	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	2,040	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,684	0,664	0,608	0,490	0,354	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	1,865	1,918
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,696	0,676	0,617	0,496	0,357	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,870	1,924
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	2,020
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820

Falla monofásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	0,515	0,515	0,515	0,515	0,515
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	0,515	0,515	0,515	0,515	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	3,413	9,163	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	3,868	16,066	---	---	3,333	1,787	1,561
S/E Ancoa 500 kV	52K4	SEL 421	67N	3,151	1,927	1,389	1,021	0,787	0,690	0,668
S/E Charrua 500 kV	52K2	SEL 421	67N	0,761	0,829	0,942	1,155	1,562	3,738	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	2,040	2,040	0,740	0,740	0,740	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,865	0,794	0,697	0,556	0,433	0,378	0,367
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,885	0,811	0,709	0,564	0,438	0,382	0,370
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	18,725	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220

Falla trifásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1

Caso: DB-HH - Sin Ancoa - Pehuenche L2											
Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	---	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	---	---	0,015	0,015	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,515	0,206	0,248
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	2,040	0,740	0,740	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	1,740	2,065
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	17,172	3,610	1,735	2,057
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	---	3,220	3,220	3,220	0,820	2,020
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820

Falla bifásica aislada en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	---	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	---	---	---	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	0,015	0,015	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,681	0,222	0,268
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	1,140	1,140
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	2,040	0,740	0,740	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	1,858	2,208
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,853	2,200
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	2,020
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820

Falla bifásica a tierra en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	---	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	0,540	---	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	---	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,515	---	---	---	0,515	0,515	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	---	---	---	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	0,515	0,515	---	---

S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	0,015	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,030	1,638	1,338	1,028	0,762	0,607	0,607	
S/E Charrua 500 kV	52K1	SEL 421	67N	0,683	0,776	0,919	1,149	1,397	1,652	2,017	
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,405	6,033	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	2,659	8,931	---	---	3,201	1,280	0,713	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	0,421	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,524	0,250	0,221	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	1,240	---	0,040	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	1,240	---	0,040	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	0,040	---	0,440	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	2,040	2,040	0,740	0,740	---	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	2,040	0,740	0,740	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,684	0,702	0,672	0,559	0,416	0,314	0,298	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	1,709	1,471		
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,696	0,715	0,684	0,567	0,420	0,317	0,298	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	23,283	3,610	1,707	1,474	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820	

Falla monofásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	0,540	0,540	0,540

S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	0,540	3,240	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	---	0,540	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	0,540	0,540	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	3,240	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	0,015	0,015	0,015	
S/E Charrua 500 kV	52K1	SEL 421	21N	0,515	0,515	0,515	0,515	0,515	0,515	0,515	
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	---	---	---	---	0,015	
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,515	---	---	---	---	0,515	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	0,015	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	0,515	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	0,015	0,015	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,025	1,524	1,202	0,914	0,679	0,607	0,607	
S/E Charrua 500 kV	52K1	SEL 421	67N	0,682	0,749	0,852	1,008	1,144	1,182	1,700	
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,398	4,742	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	2,651	6,368	---	---	2,131	0,978	0,668	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	0,421	0,421	0,421	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	0,199	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	0,440	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,740	---	0,040	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	0,440	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,740	---	0,040	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	0,440	0,440	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	2,040	2,040	0,740	0,740	---	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	2,040	0,740	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,683	0,659	0,602	0,491	0,366	0,298	0,298	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	2,281	1,438	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,695	0,670	0,612	0,497	0,369	0,298	0,298	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	2,288	1,441	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	3,220	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	

| S/E Ancoa 220 kV | 52JT2 | RET 670 EST/KT1 220| 51 | --- | --- | --- | 3,220 | 3,220 | 0,820 | 0,820 |

Falla monofásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	0,515	0,515	0,515	0,515	0,515
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21N	0,515	0,515	0,515	0,515	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,919	1,879	1,377	1,025	0,800	0,698	0,662
S/E Charrua 500 kV	52K1	SEL 421	67N	0,763	0,827	0,937	1,144	1,529	2,933	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	3,760	11,342	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	4,418	29,018	---	---	3,981	1,940	1,594
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	2,040	2,040	0,740	0,740	0,740	---

Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,865	0,790	0,692	0,557	0,439	0,381	0,361
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,884	0,806	0,705	0,565	0,444	0,385	0,364
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	23,530	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220

Falla trifásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla bifásica aislada en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---	

Falla bifásica a tierra en la línea Pehuenche - Tap. Loma Alta 220 kV L1

Resistencia de falla: 0 Ohm											
Ubicación de la falla medida desde: Tap Loma Alta											
Caso: DB-HH - Sin Ancoa - Pehuenche L2											
Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,478	0,479	0,481	0,484	0,488	0,490	0,492
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	2,600	2,638	2,704	2,823	2,954	3,040	3,094
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	2,354	2,385	2,439	2,535	2,641	2,709	2,752
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla monofásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,503	0,505	0,508	0,513	0,518	0,521	0,523
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	3,587	3,680	3,846	4,164	4,547	4,816	4,996
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	3,136	3,207	3,332	3,568	3,600	3,600	3,600
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla monofásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	1,140	1,140	1,140	1,140	1,140	1,140	1,140	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	1,008	1,016	1,029	1,052	1,077	1,093	1,103	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---	

Falla trifásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---

S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	0,040	0,040	0,040	0,040	0,040	0,440	0,440	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	9,534	22,406	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	

S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	---	---

Falla bifásica aislada en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J4	GED60	21	0,040	0,040	0,040	0,040	0,040	0,440	0,440
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	9,252	15,361	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	---	---	---

Falla bifásica a tierra en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	3,240	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,785	4,406	16,310	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	3,027	5,042	30,498	---	---	---	---

S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,040	0,740	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,040	0,740	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,308	0,308	0,316	0,362	0,410	0,446	0,474
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,478	0,549	0,676	0,939	1,365	1,872	2,492
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,468	0,537	0,658	0,904	1,294	1,741	2,265
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	10,646	34,293	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	1,220	1,220	3,220	3,220	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	---	---	---

Falla monofásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	3,240	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---

S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	3,052	4,406	11,554	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	3,345	5,042	17,237	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,740	1,240	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,740	1,240	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,440	0,440	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,220	0,220	0,220	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	0,308	0,308	0,311	0,354	0,408	0,455	0,497	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,493	0,549	0,653	0,886	1,337	2,046	3,306	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,483	0,537	0,636	0,855	1,269	1,891	2,919	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	9,084	22,383	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	1,220	1,220	3,220	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	1,220	1,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	---	---	---	---	

Falla monofásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,440	1,140	1,140
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J4	GED60	67N	0,431	0,446	0,477	0,547	0,671	0,818	0,982
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,627	1,878	2,579	8,501	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,526	1,746	2,337	3,600	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	3,220	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	1,220	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla trifásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,188	0,188	0,188	0,188	0,188	0,188	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740

S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	

Falla bifásica aislada en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,204	0,204	0,204	0,203	0,203	0,203	0,203
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla bifásica a tierra en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %

S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,666	2,666	2,665	2,663	2,661	2,660	2,659
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,888	2,887	2,885	2,883	2,881	2,880	2,879
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,109	0,109	0,109	0,109	0,109	0,109	0,109
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,187	0,187	0,187	0,187	0,187	0,187	0,194
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,470	0,470	0,470	0,470	0,470	0,470	0,470
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,461	0,461	0,461	0,461	0,461	0,461	0,461

S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,955	2,954	2,952	2,949	2,945	2,943	2,942
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	3,229	3,228	3,225	3,221	3,217	3,215	3,213
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,109	0,109	0,109	0,109	0,109	0,109	0,109
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,193	0,193	0,193	0,193	0,193	0,193	0,193
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,488	0,488	0,487	0,487	0,487	0,487	0,487
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,478	0,478	0,478	0,478	0,477	0,477	0,477
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DB-HH - Sin Ancoa - Pehuenche L2

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,138	0,138	0,138	0,138	0,138	0,138	0,138
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,847	0,847	0,846	0,845	0,844	0,844	0,843
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	2,040	2,040	2,040	2,040	2,040	2,040
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,606	1,605	1,605	1,604	1,604	1,603	1,603
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,508	1,508	1,507	1,507	1,506	1,506	1,506
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	1,220	1,220	1,220	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

SIMULACIONES ESCENARIO DE OPERACIÓN CON LÍNEA AN-COA – PEHUENCHE C2 ATERRIZADA

RELE - Reliable Energy Ingeniería Limitada
TEL.: +56 2 26726279 WEB: www.rele.cl EMAIL: contacto@rele.cl

Resultados en Demanda Alta Hidrología Humeda

Falla trifásica en la línea Ancoa - Alto Jahuel 500 kV C2											
Resistencia de falla: 0 Ohm											
Ubicación de la falla medida desde: Reactor A. Jahuel C2											
Caso: DA-HH											
Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	3,240	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,182	0,362	0,616
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	2,040	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	3,610	3,610	1,770	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	3,610	1,765	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	0,820	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	3,220	3,220

Falla bifásica aislada en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	3,240	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	1,021	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,196	0,427	0,842	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	2,040	0,740	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	1,918	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	11,466	1,912	3,610	12,200	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	2,020	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	3,220	3,220	

Falla bifásica a tierra en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	3,240	---	---	0,540	---	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	0,540	3,240	3,240

S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	3,515	0,015	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	3,515	0,015	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	27,238	2,421	0,951	1,093	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	2,602	0,978	1,129	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	---	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,217	0,521	0,259	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	0,440	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	2,040	2,040	0,740	---	0,740	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	2,040	0,740	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,778	0,819	0,771	0,601	0,409	0,298	0,298	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	1,792	2,109	3,184	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,794	0,836	0,785	0,610	0,413	0,298	0,298	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	10,039	1,789	2,114	3,202	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	0,820	2,020	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	0,820	2,020	

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	3,240	3,240	3,240	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	3,240	---	---	0,540	0,540	0,540	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	---	---	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	---	---	3,515	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	---	---	3,515	0,015	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	0,015	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	4,623	1,394	0,918	1,426
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	5,328	1,452	0,944	1,487
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	0,421	1,021	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	0,471	0,300
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	1,140	0,440	1,140
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	2,040	2,040	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	0,740	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,774	0,733	0,645	0,491	0,324	0,298	0,328
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,509	1,975	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,789	0,746	0,655	0,497	0,327	0,298	0,331
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,522	1,979	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	2,020

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	3,240	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	11,383	2,683	2,017	2,189
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	16,864	2,907	2,141	2,336
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	2,040	2,040	0,740	0,740	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,063	0,909	0,751	0,565	0,423	0,382	0,394
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,091	0,929	0,764	0,573	0,428	0,385	0,398
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	12,989	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220

Falla trifásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	1,189	0,529	0,205	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	2,040	---	2,040
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	2,003	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	20,284	3,610	1,997	3,610	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	2,020	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	0,820	3,220	---	---	---

Falla bifásica aislada en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %

S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	1,021	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	2,504	0,686	0,223	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	1,140	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	2,040	---	2,040
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	2,189	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	3,610	2,181	13,414	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	2,020	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	0,820	3,220	---	---	---

Falla bifásica a tierra en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	3,240	0,540	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	3,515	---	0,015	3,515	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	3,515	---	0,015	3,515	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	1,281	0,870	2,095	14,899	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	1,331	0,892	2,230	25,922	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	0,421	1,021	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,330	0,390	0,271	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	0,740	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	0,740	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	0,040	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	---	0,740	2,040	2,040	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	2,040	---	2,040
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,311	0,298	0,388	0,579	0,750	0,806	0,777
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	2,064	1,964	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,313	0,298	0,391	0,588	0,764	0,822	0,792
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	2,071	1,960	11,068	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	2,020	2,020	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	0,820	0,820	3,220	---	---	---

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	0,540	0,540	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	0,540	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	0,540	0,540	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	0,540	---	---	---	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	0,015	3,515	---	---	3,515
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	0,015	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	0,015	3,515	---	---	3,515
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	0,015	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	1,707	1,087	1,236	4,218	---	---	---

S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	1,795	1,123	1,282	4,797	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	1,021	0,421	1,021	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,385	0,792	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	0,040	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	0,040	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	0,040	0,440	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,220	0,740	2,040	2,040	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	0,740	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,356	0,298	0,305	0,481	0,641	0,732	0,774	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	2,522	2,997	3,610	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,359	0,298	0,308	0,487	0,651	0,745	0,789	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	2,529	3,007	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	0,820	2,020	3,220	---	---	---	

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	0,540	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	3,240	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	3,240	---	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	3,240	3,240	---	---	---	0,540	0,540

S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	3,240	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,441	2,085	2,514	9,622	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,626	2,218	2,710	13,268	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	0,740	0,740	2,040	2,040	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,410	0,387	0,414	0,555	0,744	0,905	1,062
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,414	0,390	0,418	0,562	0,757	0,925	1,090
S/E Ancoa 220 kV	52JT1	MICOM P645	51	11,486	3,610	11,708	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	3,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	---	---	---	---

Falla trifásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	3,515	---	0,015	3,515	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,292	0,252	0,506
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	---	2,040	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	2,535	2,207	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	12,145	2,524	2,198	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	3,220	3,220	3,220	2,020	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	0,820	3,220

Falla bifásica aislada en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	3,515	---	---	0,015	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,339	0,278	0,642
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	1,140	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	2,040	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	2,889	2,403	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	27,867	2,875	2,393	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	3,220

Falla bifásica a tierra en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	3,515	---	---	0,015	3,515	3,515

S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	3,515	---	---	0,015	3,515	3,515	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	0,015	0,015	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	0,015	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Charrua 500 kV	52K2	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,142	5,029	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	2,310	6,538	---	---	2,680	1,056	0,712	
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,035	1,640	1,339	1,019	0,736	0,607	0,607	
S/E Charrua 500 kV	52K2	SEL 421	67N	0,669	0,770	0,920	1,156	1,389	1,555	2,069	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,344	0,524	0,172	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	1,240	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	1,240	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	1,140	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	2,040	0,740	0,740	---	---	0,220	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	2,040	0,740	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,656	0,686	0,664	0,550	0,399	0,298	0,298	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	2,696	1,856	1,810	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,667	0,698	0,675	0,557	0,402	0,298	0,298	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	16,084	2,688	1,855	1,817	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	0,820	

Falla monofásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	0,540	0,540	3,240
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	3,240	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	3,515	---	---	---	0,015	3,515
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	3,515	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	3,515	3,515	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	3,515	---	---	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,035	3,732	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,186	4,504	---	---	1,702	0,763	0,886
S/E Ancoa 500 kV	52K4	SEL 421	67N	1,938	1,471	1,168	0,884	0,634	0,607	0,607
S/E Charrua 500 kV	52K2	SEL 421	67N	0,658	0,730	0,836	0,985	1,069	0,996	4,675
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	0,421	1,021	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	4,471	0,258	0,377
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,040	0,440	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,040	0,440	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	0,440	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	2,040	0,740	0,740	0,740	---	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	2,040	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,635	0,625	0,579	0,471	0,338	0,298	0,298

S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	1,687	2,209
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,645	0,635	0,587	0,476	0,341	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,691	2,216
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	2,020
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820

Falla monofásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	3,240	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	3,515	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	3,515	0,015	0,015	3,515
S/E Charrua 500 kV	52K2	SEL 421	21N	0,015	0,015	0,015	0,015	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	3,515	3,515	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	3,140	7,525	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	3,513	11,485	---	---	3,253	1,792	1,604
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,915	1,840	1,348	0,999	0,774	0,684	0,670
S/E Charrua 500 kV	52K2	SEL 421	67N	0,745	0,812	0,924	1,131	1,530	3,901	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	2,040	0,740	0,740	0,740	0,740	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,819	0,756	0,669	0,538	0,422	0,372	0,365
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,835	0,770	0,680	0,545	0,426	0,375	0,369
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	18,259	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220

Falla trifásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	3,515	---	0,015	0,015	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	---	---	---

S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,390	0,185	0,306	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	---	2,040	0,740	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,298	1,630	2,645	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	15,726	3,280	1,625	2,633	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	3,220	3,220	3,220	0,820	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	0,820	

Falla bifásica aislada en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---

S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	---	0,015	0,015	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	3,515	---	---	0,015	3,515	3,515	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	0,015	0,015	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,479	0,197	0,347	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	2,040	0,740	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	1,728	2,949	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,723	2,935	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	2,020	

Falla bifásica a tierra en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	---	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	3,515	---	---	0,015	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	3,515	---	---	0,015	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	0,015	0,015	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	0,015	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	1,931	1,587	1,311	1,012	0,748	0,607	0,607
S/E Charrua 500 kV	52K1	SEL 421	67N	0,670	0,764	0,907	1,132	1,364	1,581	1,797
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,269	5,419	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,489	7,578	---	---	3,093	1,226	0,663
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,434	0,260	0,202
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	1,240	---	0,040
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	1,240	---	0,040
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	0,440	---	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	2,040	0,740	0,740	0,740	---	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	2,040	0,740	---	---	---

S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,655	0,677	0,652	0,544	0,404	0,303	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,576	1,553	1,474
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,665	0,688	0,662	0,551	0,408	0,305	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	21,037	3,564	1,552	1,478
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	0,820

Falla monofásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	0,540	3,240	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	3,240	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	3,240	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	3,515	3,515	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	3,515	---	---	---	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	3,515	---	---	---	0,015	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	0,015	3,515
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	3,515	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	1,845	1,437	1,155	0,887	0,656	0,607	0,607
S/E Charrua 500 kV	52K1	SEL 421	67N	0,659	0,727	0,829	0,979	1,091	1,067	2,239
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,152	4,004	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,349	5,073	---	---	1,979	0,892	0,716
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	0,230

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	1,240	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,740	---	0,040	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	1,240	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,740	---	0,040	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	0,040	0,040	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	---	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	0,220	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,634	0,620	0,574	0,472	0,350	0,298	0,298	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	2,018	1,582	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,644	0,630	0,582	0,477	0,353	0,298	0,298	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	2,024	1,586	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820	

Falla monofásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640

S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	3,515	0,015	0,015	0,015	0,015	0,015	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	3,515	0,015	0,015	3,515	
S/E Charrua 500 kV	52K1	SEL 421	21N	0,015	0,015	0,015	0,015	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	3,515	3,515	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,715	1,795	1,336	1,003	0,786	0,690	0,660	
S/E Charrua 500 kV	52K1	SEL 421	67N	0,746	0,810	0,919	1,121	1,496	2,967	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	3,432	8,930	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	3,960	16,803	---	---	3,857	1,927	1,618	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,818	0,752	0,664	0,539	0,427	0,374	0,358	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,834	0,766	0,675	0,546	0,431	0,377	0,361	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	22,718	3,610	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220	

Falla trifásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm

Ubicación de la falla medida desde: Tap Loma Alta											
Caso: DA-HH											

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla bifásica aislada en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla bifásica a tierra en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,413	0,414	0,416	0,419	0,422	0,424	0,425
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,400	1,412	1,434	1,471	1,511	1,536	1,552
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,325	1,336	1,355	1,389	1,424	1,447	1,460
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	1,220	1,220	1,220	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla monofásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	0,436	0,438	0,440	0,444	0,448	0,451	0,453	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,709	1,731	1,769	1,838	1,913	1,962	1,992	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,599	1,618	1,652	1,711	1,776	1,818	1,845	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---	

S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	1,220	1,220	1,220	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla monofásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	1,140	1,140	1,140	1,140	1,140	1,140	1,140
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,794	0,798	0,807	0,821	0,836	0,846	0,852
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla trifásica en la línea Tap Loma Alta – Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021

S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,040	0,040	0,040	0,040	0,040	0,440	0,440
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	14,695	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	---

Falla bifásica aislada en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	0,040	0,040	0,040	0,040	0,040	0,440	0,440	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	10,871	34,573	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	---	---	---	

Falla bifásica a tierra en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	3,240	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,762	4,458	16,569	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	3,001	5,110	31,430	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,040	0,740	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,040	0,740	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,308	0,308	0,316	0,357	0,390	0,406	0,413

Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,477	0,552	0,678	0,907	1,161	1,313	1,391
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,467	0,539	0,660	0,874	1,109	1,247	1,317
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	8,494	19,645	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	1,220	1,220	3,220	3,220	3,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	---	---

Falla monofásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	3,240	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,991	4,328	10,733	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	3,271	4,941	15,476	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,740	1,240	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,740	1,240	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,308	0,308	0,310	0,348	0,387	0,415	0,434
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,490	0,547	0,648	0,849	1,138	1,416	1,671
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,480	0,535	0,632	0,820	1,088	1,340	1,566
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	16,086	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	1,220	1,220	3,220	3,220	3,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	---	---	---

Falla monofásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,440	0,440	0,440	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	0,439	0,453	0,480	0,539	0,626	0,710	0,783	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,744	2,001	2,679	6,786	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,630	1,852	2,419	3,600	3,600	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	3,220	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	3,220	3,220	3,220	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---	

Falla trifásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %

S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,182	0,182	0,182	0,182	0,182	0,182	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	3,610

S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla bifásica aislada en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,196	0,196	0,196	0,196	0,196	0,196	0,196
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla bifásica a tierra en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,638	2,638	2,636	2,634	2,632	2,631	2,631
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K2	SEL 421	67N	2,855	2,854	2,852	2,850	2,848	2,847	2,846
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,109	0,109	0,109	0,109	0,109	0,109	0,109
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,182	0,182	0,181	0,181	0,181	0,181	0,186
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,469	0,469	0,469	0,469	0,468	0,468	0,468
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,460	0,460	0,460	0,460	0,459	0,459	0,459
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	2,894	2,892	2,890	2,887	2,883	2,881	2,880	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	3,156	3,154	3,152	3,148	3,144	3,141	3,140	
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,109	0,109	0,109	0,109	0,109	0,109	0,109	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,186	0,186	0,186	0,186	0,186	0,186	0,186	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,485	0,484	0,484	0,484	0,484	0,484	0,484	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,475	0,475	0,475	0,475	0,474	0,474	0,474	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	

Falla monofásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,136	0,136	0,136	0,136	0,136	0,136	0,136
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,813	0,812	0,812	0,811	0,810	0,809	0,809
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,723	1,723	1,722	1,722	1,721	1,721	1,720
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,611	1,611	1,611	1,610	1,609	1,609	1,609
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	1,220	1,220	1,220	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Resultados en Demanda Alta Hidrología Seca

Falla trifásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	3,240	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	3,515	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	1,021	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,170	0,304	0,482

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	1,816	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	8,797	1,810	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	0,820	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	3,220	3,220

Falla bifásica aislada en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	3,240	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	1,021	1,021	1,021	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,183	0,349	0,607	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	1,980	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	14,871	1,974	3,610	12,038	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	2,020	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	3,220	3,220	

Falla bifásica a tierra en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm

Ubicación de la falla medida desde: Reactor A. Jahuel C2										
Caso: DA-HS										

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	3,240	---	---	0,540	---	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	0,540	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	3,515	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	3,515	0,015	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	28,205	2,424	0,961	1,074
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	2,606	0,989	1,108
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	1,021	0,421	---	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,198	0,641	0,244
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	0,440	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	---	---	0,740	---	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,773	0,816	0,770	0,603	0,409	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	1,848	2,125	3,122
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,787	0,833	0,785	0,611	0,413	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	12,365	1,845	2,130	3,139
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	2,020	2,020	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	0,820	2,020

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	3,240	3,240	3,240	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	3,240	---	---	0,540	0,540	0,540	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	---	---	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	---	---	3,515	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	---	---	3,515	0,015	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	0,015	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	4,673	1,421	0,896	1,384
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	5,395	1,482	0,920	1,442
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	1,021	1,021	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	0,506	0,277
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---

S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	0,440	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	---	---	0,740	0,220	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,761	0,726	0,643	0,493	0,328	0,298	0,323
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	1,941	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,775	0,739	0,653	0,499	0,330	0,298	0,326
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,946	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	2,020

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	3,240	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	11,504	2,704	2,007	2,154
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	17,132	2,932	2,130	2,297
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	---	---	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,048	0,902	0,748	0,566	0,425	0,381	0,392
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,075	0,922	0,762	0,574	0,429	0,385	0,396
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	14,843	3,610	8,317
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220

Falla trifásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---

S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	0,015	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	0,015	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	1,021	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,787	0,421	0,185	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	1,993	3,610	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	21,210	3,610	1,987	9,846	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	2,020	3,220	---	---	---	

S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	0,820	3,220	---	---	---

Falla bifásica aislada en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	1,021	1,021	1,021	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	1,195	0,513	0,199	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	2,187	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	3,610	2,179	18,124	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	2,020	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	0,820	3,220	---	---	---

Falla bifásica a tierra en la línea Ancoa – Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	3,240	0,540	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	0,540	0,540	---	3,240	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	3,515	---	0,015	3,515	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	3,515	---	0,015	3,515	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	1,262	0,872	2,099	15,154	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	1,310	0,894	2,234	26,704	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	0,421	1,021	0,421	1,021	---	---

S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,310	0,440	0,229	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	0,740	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	0,740	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	0,040	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	---	0,740	---	---	2,040
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,309	0,298	0,388	0,580	0,749	0,803	0,771
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	2,077	1,965	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,311	0,298	0,392	0,589	0,763	0,819	0,786
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	2,085	1,962	13,794	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	2,020	2,020	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	0,820	0,820	3,220	---	---	---

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	0,540	0,540	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	0,540	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	0,540	0,540	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	0,540	---	---	---	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640

S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	0,015	3,515	---	---	3,515	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	0,015	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	0,015	3,515	---	---	3,515	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	0,015	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	1,663	1,060	1,258	4,253	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	1,747	1,094	1,306	4,844	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	1,021	0,421	1,021	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,351	0,897	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	0,040	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	0,040	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	1,140	0,040	0,440	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,220	0,740	---	---	2,040	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	0,740	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,352	0,298	0,308	0,482	0,639	0,725	0,761	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	2,479	3,152	3,610	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,355	0,298	0,311	0,488	0,649	0,738	0,775	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	2,486	3,164	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	0,820	2,020	3,220	---	---	---	

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C1											
Resistencia de falla: 25 Ohm											
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1											
Caso: DA-HS											

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	0,540	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	0,540	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	3,240	---	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	3,240	3,240	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	3,240	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,400	2,069	2,529	9,688	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,577	2,200	2,727	13,394	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	0,740	0,740	0,740	---	---	2,040
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,407	0,386	0,415	0,556	0,741	0,897	1,047
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,412	0,389	0,419	0,563	0,755	0,917	1,074
S/E Ancoa 220 kV	52JT1	MICOM P645	51	11,859	3,610	13,109	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	3,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	---	---	---	---

Falla trifásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	3,515	---	0,015	3,515	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	0,421	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,250	0,226	0,407
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	3,610	3,610	2,631	2,351	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	15,620	2,619	2,342	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	0,820	3,220

Falla bifásica aislada en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	3,515	---	---	0,015	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	0,015	---	---

S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	0,421	1,021	1,021	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,281	0,246	0,486
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,012	2,588	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	2,997	2,577	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	3,220

Falla bifásica a tierra en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %

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S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	3,515	---	---	0,015	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	3,515	---	---	0,015	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	0,015	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,167	5,118	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,339	6,689	---	---	2,677	1,048	0,715
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,057	1,649	1,343	1,020	0,736	0,607	0,607
S/E Charrua 500 kV	52K2	SEL 421	67N	0,672	0,772	0,922	1,158	1,389	1,539	2,093
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,288	0,539	0,168
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	1,240
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	1,240
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	1,140	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	2,040	2,040	0,740	0,740	---	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,661	0,690	0,666	0,551	0,399	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	2,785	1,927	1,849
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,672	0,701	0,677	0,558	0,402	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	21,996	2,777	1,928	1,857

S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	2,020
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	0,820

Falla monofásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	0,540	0,540	3,240
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	0,540	3,240	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	3,240	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	3,515	---	---	---	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	3,515	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	3,515	3,515	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	3,515	---	---	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,074	3,822	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,231	4,637	---	---	1,695	0,759	0,894
S/E Ancoa 500 kV	52K4	SEL 421	67N	1,973	1,485	1,174	0,884	0,633	0,607	0,607
S/E Charrua 500 kV	52K2	SEL 421	67N	0,662	0,733	0,838	0,987	1,066	0,989	4,933
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	---	---	1,021	0,421	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	0,273	0,204
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,040	0,440	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,040	0,440	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	1,140	0,440	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	2,040	2,040	0,740	0,740	---	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,643	0,631	0,582	0,471	0,338	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	1,705	2,292
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,653	0,640	0,590	0,477	0,340	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,709	2,300
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820

Falla monofásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	3,240	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	3,515	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	3,515	0,015	0,015	3,515
S/E Charrua 500 kV	52K2	SEL 421	21N	0,015	0,015	0,015	0,015	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	3,515	3,515	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	3,189	7,753	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	3,575	12,026	---	---	3,244	1,791	1,607
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,958	1,854	1,352	1,000	0,774	0,684	0,671

S/E Charrua 500 kV	52K2	SEL 421	67N	0,748	0,814	0,926	1,132	1,528	3,893	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	2,040	2,040	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,826	0,761	0,671	0,539	0,421	0,372	0,366
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,842	0,775	0,682	0,546	0,426	0,375	0,369
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	21,875	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220

Falla trifásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	3,515	---	0,015	0,015	3,515	3,515	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,318	0,169	0,268	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	3,610	3,610	3,483	1,687	2,856	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	22,127	3,463	1,683	2,842	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	2,020	

Falla bifásica aislada en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	---	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	3,515	---	---	0,015	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	0,015	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,372	0,178	0,298
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	0,740	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	1,800	3,229
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,795	3,211
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	2,020

Falla bifásica a tierra en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	---	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	3,515	---	---	0,015	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	3,515	---	---	0,015	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	0,015	0,015	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	0,015	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	1,951	1,596	1,314	1,013	0,748	0,607	0,607
S/E Charrua 500 kV	52K1	SEL 421	67N	0,672	0,767	0,908	1,134	1,364	1,566	1,780
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,297	5,526	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,522	7,788	---	---	3,092	1,217	0,661
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,357	0,220	0,211
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	1,240	---	0,040

S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	1,240	---	0,040	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	0,440	---	0,040	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	2,040	2,040	0,740	0,740	---	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,660	0,680	0,654	0,545	0,404	0,302	0,298	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	1,597	1,495	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,670	0,691	0,664	0,552	0,408	0,304	0,298	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	32,230	3,610	1,596	1,499	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820	

Falla monofásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	0,540	3,240	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	3,240	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	3,515	3,515	0,015	0,015	0,015

S/E Charrua 500 kV	52K1	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	3,515	---	---	---	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	3,515	---	---	---	0,015	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	0,015	3,515
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	3,515	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	1,877	1,450	1,161	0,889	0,656	0,607	0,607
S/E Charrua 500 kV	52K1	SEL 421	67N	0,663	0,731	0,832	0,980	1,089	1,059	2,304
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,196	4,111	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,401	5,247	---	---	1,972	0,886	0,723
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	---	---	1,021	---	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	0,247
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	1,240	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,740	---	0,740
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	1,240	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,740	---	0,740
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	1,140	0,040	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	2,040	2,040	0,740	0,740	---	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,642	0,626	0,576	0,472	0,350	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	2,039	1,628
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,652	0,635	0,585	0,478	0,353	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	2,045	1,632
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820

Falla monofásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DA-HS

RELE - Reliable Energy Ingeniería Limitada
TEL.: +56 2 26726279 WEB: www.rele.cl EMAIL: contacto@rele.cl

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	3,515	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	3,515	0,015	0,015	3,515
S/E Charrua 500 kV	52K1	SEL 421	21N	0,015	0,015	0,015	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	3,515	3,515	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,752	1,808	1,340	1,004	0,786	0,690	0,661
S/E Charrua 500 kV	52K1	SEL 421	67N	0,749	0,813	0,921	1,122	1,494	2,960	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	3,491	9,258	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	4,039	18,009	---	---	3,848	1,924	1,620
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	2,040	2,040	2,040	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,825	0,757	0,667	0,539	0,427	0,373	0,358
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610

S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,842	0,771	0,678	0,546	0,431	0,377	0,361
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	28,518	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220

Falla trifásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla bifásica aislada en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla bifásica a tierra en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---

S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	0,427	0,428	0,430	0,434	0,437	0,439	0,441	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,575	1,591	1,619	1,669	1,723	1,756	1,778	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,481	1,495	1,520	1,564	1,611	1,640	1,659	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	1,220	1,220	1,220	1,220	1,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---	

Falla monofásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	2,040	2,040	2,040	2,040	2,040
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,462	0,464	0,466	0,471	0,476	0,479	0,481
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	2,190	2,228	2,293	2,413	2,549	2,639	2,697
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	2,013	2,045	2,100	2,200	2,313	2,387	2,434
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	1,220	1,220	1,220	1,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla monofásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,803	0,808	0,817	0,831	0,847	0,856	0,862
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla trifásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,040	0,040	0,040	0,040	0,040	0,440	0,440	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	14,560	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	---	

Falla bifásica aislada en la línea Tap Loma Alta – Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa

Caso: DA-HS											
Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,040	0,040	0,040	0,040	0,040	0,440	0,440
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	10,635	33,889	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	---	---	---

Falla bifásica a tierra en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	3,240	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,820	4,634	20,072	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	3,069	5,342	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,040	0,740	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,040	0,740	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,308	0,308	0,318	0,361	0,397	0,416	0,426
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,480	0,557	0,688	0,933	1,228	1,432	1,559
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,471	0,544	0,669	0,899	1,170	1,354	1,467
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	8,339	19,244	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	1,220	1,220	3,220	3,220	3,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	---	---

Falla monofásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	3,240	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	---	---	---	---	---

S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	3,110	4,647	13,832	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	3,414	5,360	22,855	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,740	1,240	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,740	1,240	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	2,040	2,040
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,308	0,308	0,314	0,355	0,401	0,434	0,459
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,496	0,557	0,667	0,896	1,267	1,679	2,120
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,486	0,545	0,649	0,865	1,205	1,573	1,953
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	14,869	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	1,220	1,220	3,220	3,220	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	---	---	---

Falla monofásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,440	0,440	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	0,439	0,453	0,481	0,541	0,631	0,717	0,793	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,748	2,009	2,707	7,165	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,633	1,859	2,442	3,600	3,600	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	3,220	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	3,220	3,220	3,220	---	---	

| S/E Ancoa 220 kV | 52JT2 | RET 670 EST/KT1 220| 51 | --- | --- | --- | --- | --- | --- | --- |

Falla trifásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,189	0,189	0,189	0,189	0,189	0,189	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla bifásica aislada en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,205	0,205	0,204	0,204	0,204	0,204	0,204
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla bifásica a tierra en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	3,240	3,240	3,240	3,240	3,240	3,240
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,690	2,689	2,688	2,686	2,684	2,683	2,682
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,915	2,914	2,913	2,911	2,908	2,907	2,906
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,109	0,109	0,109	0,109	0,109	0,109	0,109
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,187	0,187	0,187	0,187	0,187	0,187	0,193
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,472	0,472	0,472	0,472	0,472	0,472	0,472
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,463	0,463	0,463	0,463	0,463	0,463	0,463
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Ancoa - Colbún 220 kV

| Resistencia de falla: 0 Ohm |
| Ubicación de la falla medida desde: Central Colbún |
| Caso: DA-HS |

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	3,000	2,999	2,997	2,994	2,990	2,988	2,987
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	3,283	3,282	3,279	3,275	3,271	3,269	3,267
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,109	0,109	0,109	0,109	0,109	0,109	0,109
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,191	0,191	0,191	0,191	0,191	0,191	0,191
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	1,140	1,140	1,140	1,140	1,140	1,140	1,140
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,491	0,491	0,490	0,490	0,490	0,490	0,490
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,481	0,481	0,481	0,480	0,480	0,480	0,480
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DA-HS

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,136	0,136	0,136	0,136	0,136	0,136	0,136
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,874	0,874	0,873	0,872	0,871	0,870	0,870
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,726	1,726	1,725	1,725	1,724	1,724	1,723
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,614	1,614	1,613	1,613	1,612	1,612	1,611
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	1,220	1,220	1,220	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Resultados en Demanda Baja Hidrología Humeda

Falla trifásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	3,240	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	0,015	---	---	---

S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	3,515	0,015	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	0,015	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,195	0,305	0,503	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	0,740	0,740	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	3,610	3,610	1,858	3,140	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	3,610	1,852	3,124	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	2,020	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	2,020	3,220	

Falla bifásica aislada en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	3,240	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	0,015	0,015	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	0,015	0,015	0,015	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	1,021	1,021	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,211	0,346	0,637
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	1,140	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	0,740	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	2,013	3,606	3,610

S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	13,537	2,006	3,585	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	2,020	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	2,020	3,220

Falla bifásica a tierra en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	0,540	---	3,240	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	0,540	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	0,015	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	3,515	0,015	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	3,515	0,015	0,015	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	0,015	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	38,391	2,544	0,988	1,058
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	2,744	1,018	1,092
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,229	0,609	0,244
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	1,140	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	2,040	0,740	0,740	---	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	0,740	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,810	0,841	0,783	0,608	0,415	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	1,896	2,022	2,888
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,826	0,858	0,798	0,617	0,419	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	11,291	1,892	2,025	2,901
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	1,220	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	2,020	2,020	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	0,820	0,820	2,020

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	3,240	3,240	3,240	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	3,240	---	---	0,540	0,540	0,540	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	---	---	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	---	---	3,515	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	---	---	3,515	0,015	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	0,015	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	5,316	1,501	0,874	1,341	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	6,269	1,569	0,897	1,395	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	0,421	0,421	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	0,421	0,275	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	0,440	1,140	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	2,040	2,040	0,740	0,740	0,740	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	0,740	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,837	0,773	0,669	0,505	0,336	0,298	0,318	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	1,807	3,225	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,854	0,788	0,680	0,511	0,338	0,298	0,320	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,811	3,235	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	2,020	

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	3,240	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	---	---

S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	3,240	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	2,840	2,840	2,840	2,840	2,840	2,840	2,840	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	14,380	2,800	2,011	2,129	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	24,382	3,045	2,135	2,268	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	2,040	2,040	0,740	0,740	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,127	0,949	0,772	0,576	0,428	0,381	0,389	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,159	0,971	0,787	0,584	0,433	0,384	0,393	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	12,145	3,610	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	1,220	1,220	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220	

Falla trifásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,872	0,433	0,198	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	2,040	2,040	2,040
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	1,867	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	10,782	3,610	1,862	9,118	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	2,020	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	0,820	3,220	---	---	---

Falla bifásica aislada en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	0,015	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	1,021	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	1,392	0,527	0,212	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	2,040	2,040	2,040
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	2,004	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	20,241	3,610	1,998	15,992	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	2,020	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	0,820	3,220	---	---	---

Falla bifásica a tierra en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	3,240	0,540	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	3,240	0,540	---	3,240	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840

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S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	3,515	---	0,015	3,515	3,515	3,515	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	3,515	---	0,015	3,515	3,515	3,515	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	3,515	3,515	3,515	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	1,245	0,885	2,229	17,914	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	1,292	0,909	2,381	36,626	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	0,421	1,021	1,021	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,310	0,416	0,244	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	0,740	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	0,740	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	0,040	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	---	0,740	2,040	2,040	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	0,740	2,040	2,040	2,040	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,306	0,298	0,396	0,586	0,762	0,827	0,808	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	2,005	1,846	3,610	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,308	0,298	0,400	0,594	0,776	0,844	0,824	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	2,011	1,843	12,660	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	2,020	2,020	3,220	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	0,820	0,820	3,220	---	---	---	

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1

Caso: DB-HH											
Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	0,540	0,540	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	0,540	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	0,540	0,540	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	3,240	0,540	---	---	---	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	0,015	3,515	---	---	3,515
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	0,015	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	0,015	3,515	---	---	3,515
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	0,015	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	1,614	1,022	1,331	4,809	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	1,693	1,053	1,384	5,576	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	1,021	0,421	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,352	0,646	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	0,040	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	0,040	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	0,040	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	0,740	0,220	0,740	2,040	2,040	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	0,740	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,347	0,298	0,317	0,494	0,665	0,772	0,837
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	2,245	3,186	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,350	0,298	0,319	0,500	0,675	0,787	0,854
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	2,250	3,196	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	2,020	3,220	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	0,820	2,020	3,220	---	---	---

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: CCSS Ancoa - A Jahuel C1
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	0,540	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	3,240	3,240	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	3,240	---	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	3,240	3,240	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	0,540	0,540	3,240	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	2,840	2,840
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,362	2,060	2,606	11,723	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,534	2,190	2,817	17,617	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	0,740	0,740	2,040	2,040	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,404	0,384	0,418	0,565	0,765	0,944	1,126
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,408	0,388	0,423	0,573	0,780	0,966	1,158
S/E Ancoa 220 kV	52JT1	MICOM P645	51	9,273	3,610	10,897	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	1,220	1,220	3,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	---	---	---	---

Falla trifásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	---	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	---	---	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,379	0,216	0,401
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	2,040	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	2,991	1,817	3,130
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	13,364	2,976	1,811	3,114
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	---	3,220	3,220	3,220	0,820	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	3,220	3,220	2,020	0,820	2,020

Falla bifásica aislada en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	---	---	---	0,015	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	0,015	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	---	0,015	0,015	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,460	0,228	0,472	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	1,140	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	2,040	0,740	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,492	1,908	3,565	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	36,215	3,472	1,902	3,544	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	

| S/E Ancoa 220 kV | 52JT2 | RET 670 EST/KT1 220| 51 | --- | --- | --- | 3,220 | 2,020 | 0,820 | 2,020 |

Falla bifásica a tierra en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	3,515	---	---	0,015	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	---	---	---	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	0,015	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,235	5,298	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,419	6,987	---	---	2,832	1,125	0,693
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,122	1,681	1,360	1,030	0,746	0,607	0,607
S/E Charrua 500 kV	52K2	SEL 421	67N	0,682	0,781	0,932	1,173	1,426	1,712	1,903
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,424	0,468	0,164
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	1,240	---	0,740
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	0,740
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	0,440	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	2,040	0,740	0,740	0,740	---	0,220

Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	2,040	0,740	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,674	0,699	0,673	0,556	0,404	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,224	1,636	1,670
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,685	0,711	0,684	0,563	0,408	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	17,660	3,213	1,635	1,675
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	2,020	0,820	0,820

Falla monofásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	0,540	0,540	3,240
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	3,240	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	3,515	---	---	---	0,015	3,515
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	3,515	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	3,515	---	---	3,515	0,015
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,229	4,210	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,411	5,213	---	---	1,861	0,820	0,821
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,116	1,553	1,210	0,907	0,654	0,607	0,607
S/E Charrua 500 kV	52K2	SEL 421	67N	0,681	0,752	0,858	1,016	1,128	1,096	3,293
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	0,421	1,021	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	0,296	0,316
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	1,240
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,040	---	1,240
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	0,040	0,040
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	---	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	0,740	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,673	0,654	0,599	0,484	0,350	0,298	0,298
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	1,817	1,930
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,684	0,664	0,607	0,489	0,353	0,298	0,298
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,822	1,935
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	2,020
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820

Falla monofásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	3,240	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	3,515	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	3,515	0,015	0,015	0,015	0,015	0,015	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	0,015	0,015	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	0,015	0,015	0,015	0,015	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	3,515	3,515	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	3,358	8,561	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	3,788	14,040	---	---	3,477	1,819	1,587	
S/E Ancoa 500 kV	52K4	SEL 421	67N	3,110	1,915	1,383	1,017	0,785	0,688	0,667	
S/E Charrua 500 kV	52K2	SEL 421	67N	0,761	0,829	0,943	1,157	1,574	4,042	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,849	0,780	0,685	0,548	0,428	0,374	0,363	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,866	0,795	0,697	0,556	0,432	0,377	0,366	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	17,169	3,610	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220	

Falla trifásica en la línea Charrúa - Ancoa 500kV L1

Resistencia de falla: 0 Ohm											
Ubicación de la falla medida desde: Reactor Charrua L1											
Caso: DB-HH											

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	---	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	---	---	0,015	0,015	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,515	0,206	0,248
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	2,040	0,740	0,740	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	1,739	2,065
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	17,158	3,610	1,734	2,058
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	---	3,220	3,220	3,220	0,820	2,020
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820

Falla bifásica aislada en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	---	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	---	---	---	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	0,015	0,015	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,681	0,222	0,268
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	1,140	1,140	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	2,040	0,740	0,740	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	1,858	2,208	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	1,852	2,200	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	2,020	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820	

Falla bifásica a tierra en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	---	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	0,540	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	---	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	0,540	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	0,540	---	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	3,240	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	0,015	0,015	---	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	3,515	---	---	0,015	0,015	3,515

S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	---	---	---	0,015	0,015	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	0,015	0,015	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	0,015	0,015	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,009	1,627	1,331	1,023	0,757	0,607	0,607	
S/E Charrua 500 kV	52K1	SEL 421	67N	0,683	0,776	0,919	1,149	1,398	1,659	2,031	
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,374	5,750	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	2,616	8,222	---	---	3,289	1,271	0,692	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	0,421	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	0,527	0,249	0,217	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	1,240	---	0,040	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	1,240	---	0,040	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	0,040	---	0,040	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	---	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	2,040	2,040	2,040	0,740	0,740	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,673	0,690	0,661	0,550	0,409	0,309	0,298	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	1,701	1,429	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,684	0,702	0,672	0,557	0,413	0,311	0,298	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	22,788	3,610	1,698	1,432	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820	

Falla monofásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	---	0,540

S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	0,540	0,540	0,540	
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	0,540	3,240	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	3,240	0,540	0,540	0,540	---	0,540	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	0,540	0,540	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	3,240	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	0,015	0,015	0,015	
S/E Charrua 500 kV	52K1	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015	
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	0,015	3,515	---	---	---	0,015	
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	3,515	---	---	---	0,015	3,515	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	0,015	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	3,515	0,015	0,015	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	0,015	0,015	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,007	1,515	1,197	0,911	0,676	0,607	0,607	
S/E Charrua 500 kV	52K1	SEL 421	67N	0,682	0,750	0,852	1,009	1,148	1,191	1,868	
S/E Ancoa 500 kV	52K4	SEL 421	67N	2,371	4,575	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	2,612	6,015	---	---	2,180	0,976	0,672	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	1,021	---	0,421	0,421	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	0,206	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	0,440	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	0,740	---	0,040	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	0,440	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	0,740	---	0,040	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	0,040	0,040	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	---	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	2,040	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,672	0,649	0,593	0,485	0,361	0,298	0,298	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	3,610	3,610	2,220	1,428	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,683	0,659	0,602	0,490	0,365	0,298	0,298	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	3,610	2,227	1,430	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	0,820	0,820	0,820	0,820	0,820	

S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	3,220	3,220	2,020	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	3,220	3,220	0,820	0,820

Falla monofásica en la línea Charrúa - Ancoa 500kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor Charrua L1
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	3,240	3,240
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	3,240
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	3,515	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	0,015	0,015	0,015
S/E Charrua 500 kV	52K1	SEL 421	21N	0,015	0,015	0,015	0,015	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	0,015	3,515	3,515	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	3,515	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	2,883	1,866	1,371	1,021	0,797	0,695	0,660
S/E Charrua 500 kV	52K1	SEL 421	67N	0,763	0,828	0,938	1,146	1,540	3,090	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	3,695	10,451	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	4,313	23,001	---	---	4,191	1,975	1,618
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,848	0,776	0,681	0,549	0,433	0,377	0,357
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,865	0,791	0,692	0,556	0,438	0,380	0,361
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	21,117	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	1,220	1,220	1,220	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	3,220	3,220	3,220

Falla trifásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla bifásica aislada en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---

S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---	

Falla bifásica a tierra en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,220	0,220	0,220	0,220	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J4	GED60	67N	0,415	0,416	0,418	0,421	0,424	0,426	0,427
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,419	1,432	1,454	1,493	1,533	1,559	1,575
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,342	1,354	1,373	1,408	1,444	1,467	1,481
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	1,220	1,220	1,220	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla monofásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,220	0,220	0,220	0,220	0,220	0,220	0,220
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,439	0,441	0,443	0,447	0,452	0,454	0,456
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,761	1,784	1,825	1,897	1,977	2,029	2,062
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,644	1,664	1,700	1,762	1,831	1,876	1,904
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	3,220	3,220	3,220	3,220	3,220	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	1,220	1,220	1,220	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla monofásica en la línea Pehuenche - Tap. Loma Alta 220 kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Tap Loma Alta
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---

S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	1,140	1,140	1,140	1,140	1,140	1,140	1,140	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	0,795	0,800	0,808	0,822	0,838	0,847	0,853	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---	

Falla trifásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %

S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,040	0,040	0,040	0,040	0,040	0,440	0,440	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	---

S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	9,534	22,373	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	---	---

Falla bifásica aislada en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	0,040	0,040	0,040	0,040	0,040	0,440	0,440
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	9,253	15,361	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	---	---	---

Falla bifásica a tierra en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	3,240	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,865	4,669	18,987	---	---	---	---

S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	3,122	5,389	41,409	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,040	0,740	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,040	0,740	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,440	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,220	0,220	0,220	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,220	0,220	0,220	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	0,308	0,308	0,317	0,358	0,391	0,407	0,414	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,482	0,557	0,685	0,915	1,174	1,329	1,410	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,473	0,545	0,666	0,882	1,120	1,261	1,334	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	10,666	33,551	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	1,220	1,220	3,220	3,220	3,220	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	---	---	---	

Falla monofásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	3,240	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	---	---	---	
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	---	---	---	---	
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	3,223	4,738	12,918	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	3,551	5,482	20,459	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	1,021	1,021	1,021	1,021	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,740	1,240	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,740	1,240	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,040	0,440	0,440	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,220	0,220	0,220	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	0,308	0,308	0,312	0,350	0,390	0,418	0,437	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,502	0,559	0,661	0,865	1,164	1,453	1,721	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,492	0,547	0,644	0,836	1,111	1,372	1,609	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	9,162	22,915	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	1,220	1,220	3,220	3,220	3,220	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	1,220	1,220	1,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	---	---	---	---	

Falla monofásica en la línea Tap Loma Alta - Ancoa 220 kV L1
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: S/E Ancoa
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	0,040	0,040	0,040	0,040	0,440	0,440	1,140
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---

Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	0,439	0,454	0,481	0,540	0,627	0,711	0,785
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,759	2,020	2,714	6,998	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,642	1,868	2,447	3,600	3,600	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	3,220	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	3,220	3,220	3,220	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Falla trifásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,188	0,188	0,188	0,188	0,188	0,188	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440

S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla bifásica aislada en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515	
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515	
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---	
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421	
S/E Ancoa 220 kV	52J9	ABB RED670	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,204	0,204	0,204	0,203	0,203	0,203	0,203	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740	
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---	
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	---	---	---	---	---	---	---	
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	---	---	---	---	---	---	---	
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220	

Falla bifásica a tierra en la línea Ancoa – Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	2,735	2,734	2,733	2,731	2,729	2,728	2,727
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	2,968	2,967	2,966	2,963	2,961	2,959	2,959
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,109	0,109	0,109	0,109	0,109	0,109	0,109
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,187	0,187	0,187	0,187	0,186	0,186	0,192
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	0,440	0,440	0,440	0,440	0,440	0,440	0,440
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,040	0,040	0,040	0,040	0,040	0,040	0,040
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,475	0,474	0,474	0,474	0,474	0,474	0,474

S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,465	0,465	0,465	0,465	0,465	0,465	0,465
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	3,640	3,640	3,640	3,640	3,640	3,640	3,640
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	3,515	3,515	3,515	3,515	3,515	3,515	3,515
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	3,115	3,114	3,112	3,108	3,104	3,102	3,100
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	3,421	3,420	3,417	3,412	3,408	3,405	3,403
S/E Ancoa 220 kV	52J9	ABB RED670	21	0,421	0,421	0,421	0,421	0,421	0,421	0,421
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,109	0,109	0,109	0,109	0,109	0,109	0,109
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,191	0,191	0,191	0,190	0,190	0,190	0,190
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---

S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	0,496	0,496	0,496	0,496	0,496	0,496	0,496
S/E Ancoa 500 kV	52KT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	0,486	0,486	0,486	0,486	0,486	0,486	0,486
S/E Ancoa 220 kV	52JT1	MICOM P645	51	3,610	3,610	3,610	3,610	3,610	3,610	3,610
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	0,820	0,820	0,820	0,820	0,820	0,820	0,820
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	3,220	3,220	3,220	3,220	3,220	3,220	3,220

Falla monofásica en la línea Ancoa - Colbún 220 kV
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Central Colbún
Caso: DB-HH

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	---	---	---	---	---	---	---

S/E Ancoa 500 kV	52K3	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	67N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J9	ABB RED670	21	1,021	1,021	1,021	1,021	1,021	1,021	1,021
S/E Ancoa 220 kV	52J9	ABB RED670	67N	0,136	0,136	0,136	0,136	0,136	0,136	0,136
S/E Ancoa 220 kV	52J9	ABB RED 670	67	0,822	0,822	0,821	0,820	0,819	0,819	0,818
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J8	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J6	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Itahue 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21N	0,740	0,740	0,740	0,740	0,740	0,740	0,740
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	21	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	21	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J4	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J1	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52J5	GED60	67N	---	---	---	---	---	---	---
Central Pehuenche 220 kV	52J2	SIEMENS 7SA612	67N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT1	MICOM P645	51N	1,737	1,737	1,737	1,736	1,735	1,735	1,734
S/E Ancoa 500 kV	52KT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT1	MICOM P645	51N	1,624	1,623	1,623	1,622	1,622	1,621	1,621
S/E Ancoa 220 kV	52JT1	MICOM P645	51	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51N	3,220	3,220	3,220	3,220	3,220	3,220	3,220
S/E Ancoa 500 kV	52KT2	RET 670 EST/KT1 500	51	---	---	---	---	---	---	---
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51N	1,220	1,220	1,220	1,220	1,220	1,220	1,220
S/E Ancoa 220 kV	52JT2	RET 670 EST/KT1 220	51	---	---	---	---	---	---	---

Observaciones respecto a los resultados

Las protecciones principales de cada línea y sus respaldos operan correctamente, sin embargo se puede apreciar que en algunos casos ocurre la operación de protecciones en paños aledaños que no es considerada correcta e incluso su operación resulta ser instantánea.

A continuación se presenta un grupo de observaciones y comentarios respecto a los resultados obtenidos:

- La operación de las protecciones de distancia SEL421 de la línea Ancoa - Charrua 2x500 kV en los paños asociados a la S/E Charrúa operan en un tiempo instantanéo para fallas en uno de los circuitos de la línea Ancoa – Alto Jahuel 2x500 kV, esta operación realmente corresponde a 0,5 [s] en zona 2 de la protección, pues la zona 1 de las SEL421 de la S/E Charrúa corresponde a la zona de teleprotección

- Se puede observar que los tiempos de operación de las protecciones de distancia de la línea Ancoa – Alto Jahuel 2x500 kV para distintas fallas corresponden a 0,5 [s] el cual no cumple la norma técnica, sin embargo la zona de teleprotecciones Z1B posee los mismos ajustes de zona II, de manera que el despeje no resulta ser de 0,5 [s], sino que instantáneo

- Para el caso de la función de respaldo 67N correspondiente a la S/E Charrúa (paños K1 y K2), además de la curva ajustada, cuyos tiempos de operación se muestran en las tablas de verificación, se tiene un esquema de comparación direccional que dará un trip permisivo desde el extremo remoto al momento de ocurrir una falla en la línea Ancoa – Charrúa 2x500 kV.

- Para fallas en uno de los circuitos de la línea Ancoa – Alto Jahuel 2x500 kV se puede observar que para cortocircuitos en diversos puntos de la línea, operan las protecciones en la línea paralela, esto se debe a una condición previa del sistema y no por la entrada de operación del transformador asociado al paño KT1 y JT1 de la S/E Ancoa. Esto puede justificarse a partir de la siguiente tabla de verificación de tiempos de operación, en donde se puede observar los cortocircuitos del circuito 2 de la línea Ancoa – Alto Jahuel 2x500kV, en donde se puede apreciar que la funciones 21 o 21N (dependiendo del tipo de cortocircuito), de los extremos del circuito paralelo operan en algunos casos ambas zonas 2 de protección, sin embargo el circuito afectado quedará fuera de servicio de forma instantaneá conforme a su esquema de teleprotecciones.

  A continuación se presentan las tablas de verificación de tiempo para fallas en el circuito 2 de ambas líneas, previó a la puesta en servicio del autotransformador 1 de la subestación Ancoa

Cortocircuitos para circuito 2 de línea Ancoa – Alto Jahuel 2x500 kV

Falla trifásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HH - TR2 F/S

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	3,240	3,240	3,240

Falla bifásica aislada en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HH - TR2 F/S

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	3,240	3,240	3,240

Falla bifásica a tierra en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HH - TR2 F/S

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540

S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	0,540	---	---	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	0,540	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	---	0,540	3,240	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	0,540	3,240	---	0,540	0,540	3,240	3,240

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HH - TR2 F/S

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	0,540	---	---	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	3,240	3,240	3,240	0,540	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	3,240	---	---	0,540	0,540	0,540	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	0,540	0,540	---	---	0,540	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	0,540	3,240	3,240

Falla monofásica en la línea Ancoa - Alto Jahuel 500 kV C2
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor A. Jahuel C2
Caso: DA-HH - TR2 F/S

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	---
S/E Alto Jahuel 500 kV	52K2	SIEMENS 7SD522	21	0,540	0,540	---	---	---	---	---
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21N	0,540	0,540	0,540	0,540	0,540	0,540	0,540
S/E Ancoa 500 kV	52K2	SIEMENS_7SD522	21	---	---	---	3,240	0,540	0,540	0,540
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	0,540	---	---
S/E Alto Jahuel 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21N	---	---	---	---	---	0,540	0,540
S/E Ancoa 500 kV	52K1	SIEMENS 7SD522	21	---	---	---	---	---	---	---

Cortocircuitos para circuito 2 de línea Ancoa – Charrúa 2x500 kV

Falla trifásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HH - TR2 F/S

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	3,515	---	0,015	3,515	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015

Falla bifásica aislada en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HH - TR2 F/S

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	3,515	---	---	0,015	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015

Falla bifásica a tierra en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HH - TR2 F/S

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	3,515	---	---	0,015	3,515	3,515

S/E Ancoa 500 kV	52K3	SEL 421	21	0,015	3,515	---	---	0,015	3,515	3,515
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	0,015	0,015	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	0,015	0,015	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	0,015	0,015	0,015	0,015	0,015

Falla monofásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 0 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HH - TR2 F/S

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Ancoa 500 kV	52K3	SEL 421	21N	0,015	3,515	---	---	---	0,015	3,515
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	0,015	3,515
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	3,515	0,015	3,515	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	0,015	0,015	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	3,515	0,015	0,015	0,015	---
S/E Charrua 500 kV	52K2	SEL 421	21N	0,015	0,015	0,015	0,015	0,015	0,015	0,015
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	0,015	3,515	---	---	3,515	0,015

Falla monofásica en la línea Ancoa - Charrua 500kV L2
Resistencia de falla: 25 Ohm
Ubicación de la falla medida desde: Reactor Charrua L2
Caso: DA-HH - TR2 F/S

Subestación	Paño	Protección	Función	0 %	10 %	25 %	50 %	75 %	90 %	100 %
S/E Ancoa 500 kV	52K3	SEL 421	21N	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K3	SEL 421	21	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21N	---	---	---	---	---	---	---
S/E Charrua 500 kV	52K1	SEL 421	21	---	---	---	---	---	---	---
S/E Ancoa 500 kV	52K4	SEL 421	21N	---	3,515	0,015	0,015	0,015	0,015	0,015
S/E Ancoa 500 kV	52K4	SEL 421	21	---	---	---	3,515	0,015	0,015	3,515
S/E Charrua 500 kV	52K2	SEL 421	21N	0,015	0,015	0,015	0,015	---	---	---
S/E Charrua 500 kV	52K2	SEL 421	21	0,015	3,515	3,515	---	---	---	---

- Se puede apreciar que para fallas correspondientes a la línea Ancoa – Charrúa 2x500 kV, operan protecciones asociadas a la línea Ancoa – Alto Jahuel 2x500 kV a causa de la compensación serie de la misma línea, sin embargo la línea Ancoa – Charrúa 2x500 kV saldrá de servicio de forma inmediata de acuerdo al esquema de teleprotecciones que está posee.

  A continuación se presenta un barrido de corto circuito el cual considera un path desde la subestación Alto Jahuel hasta la subestación Charrúa a 500 kV pasando por los circuitos número 2 de la línea Ancoa – Alto Jahuel 2x500 kV y Ancoa – Charrúa 2x500 kV, considerando la reactancia vista por la protección de distancia del paño K2 de la subestación Alto Jahuel y la protección de distancia del paño K2 de la subestación Ancoa.

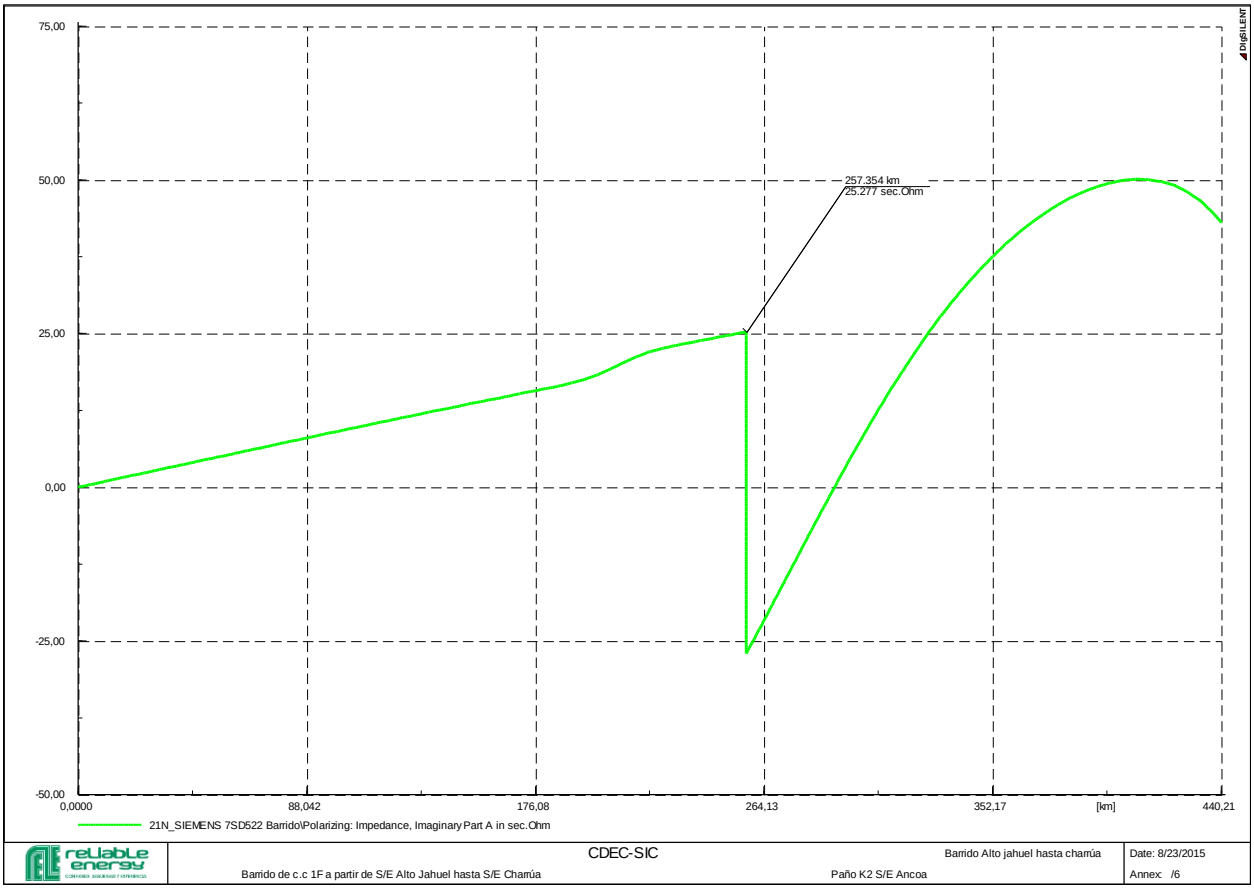

FIG C1: Barrido de cortocircuito 1F – Reactancia de fase A vista por relé del paño K2 de S/E Alto Jahuel

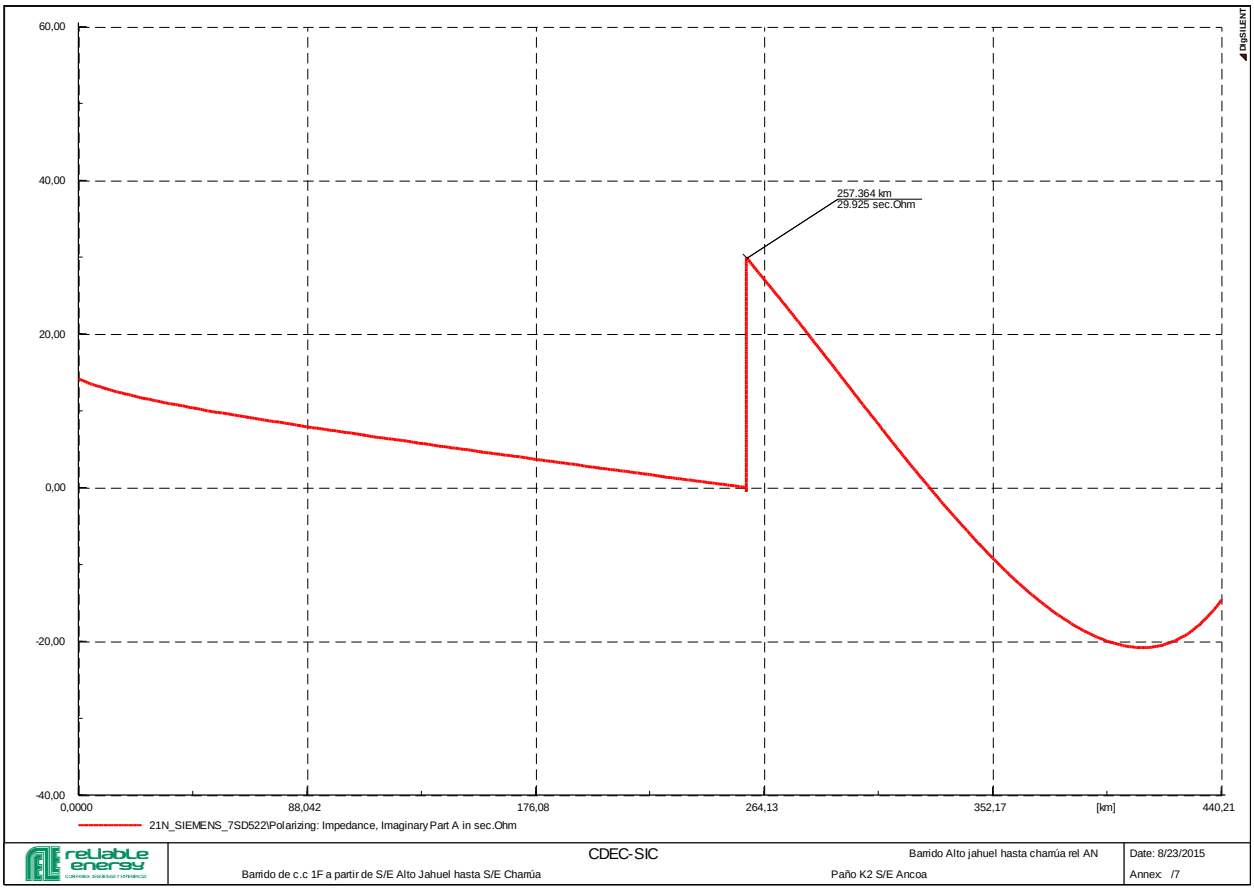

FIG C2: Barrido de cortocircuito 1F – Reactancia de fase A vista por relé del paño K2 de S/E Ancoa

Las figuras C1 y C2 permite observar el cambio de reactancia vista por parte del Relé Siemens7DS522 de cada Paño, la cual llega a ser capacitiva debido a la compensación serie, de manera que la protección de distancia asociada al paño K2 de la subestación Ancoa “verá” fallas en la línea Ancoa – Charrúa 2x500kV de manera reversa. Este fenómeno se repite para la línea Ancoa – Charrúa 2x500 kV la cual posee elementos de compensación serie al igual que la línea antes mencionada, de manera que es una condición previa a la puesta en servicio del autotransformador 1 correspondiente a los paños KT1 y JT1.

ANEXO D

ESTUDIO DE VERIFICACIÓN DE PROTECCIONES
CURVAS DE SOBRECORRIENTE

RELE - Reliable Energy Ingeniería Limitada
TEL.: +56 2 26726279 WEB: www.rele.cl EMAIL: contacto@rele.cl

1. METODOLOGÍA DEL ESTUDIO DE VERIFICACIÓN DE COORDINACIÓN

Se ha configurado el sistema eléctrico en demanda alta en Día Laboral con Demanda Alta - Hidrología Húmeda (DA-HH) y Demanda Alta Hidrología Seca (DA-HS), considerando en el primer caso una transferencia de 1800 MW desde S/E Charrúa a S/E Ancoa, con un aporte máximo de las centrales hidroeléctricas desde Sur a Norte. Para el segundo caso, se tiene una transferencia de 900 MW por la línea 2x500 kV Charrúa – Ancoa, disminuyendo el aporte de las centrales hidroeléctricas y aumentando el despacho de las centrales termoeléctricas aledañas a la zona de estudio.

Lo anterior descrito se indicará como escenario de Operación Normal y además se considerarán las siguientes contingencias:

- Línea Ancoa – Pehuenche 220 kV L2 aterrizada a ambos extremos o Fuera de servicio.
- Línea Ancoa – Colbún 220 kV Fuera de servicio.

Con el objeto de verificar la coordinación de las protecciones de sobrecorriente tanto de fase como residuales para el autotransformador N°1 de S/E Ancoa, se realizan cortocircuitos en los bornes del equipo transformador y en las barras de 220 kV y 500 kV de S/E Ancoa del tipo: trifásico, bifásico aislado, bifásico a tierra y monofásico con 0 y 25 ohm de impedancia. El cálculo de las corrientes de cortocircuitos se realiza mediante el “método completo” de la simulación de DIgSILENT. Esta metodología permite calcular la corriente de cortocircuito a partir del comportamiento real del sistema de potencia, con la cual es posible determinar si los equipos de protección operan o no correctamente ante fallas en la subestaciones analizadas.

2. RESULTADOS

Los resultados se presentan mediante diagramas de curvas de sobrecorriente de fase y residual, para los paños KT1 y JT1 de la S/E Ancoa en tablas, las cuales muestran los tiempos de operación de las protecciones ajustadas para los nuevos relés a implementar.

ESCENARIO DE OPERACIÓN NORMAL

SIMULACIONES EN DEMANDA ALTA – HIDROLOGÍA HUMEDA

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FALLA EN BARRA 500 KV S/E ANCOA

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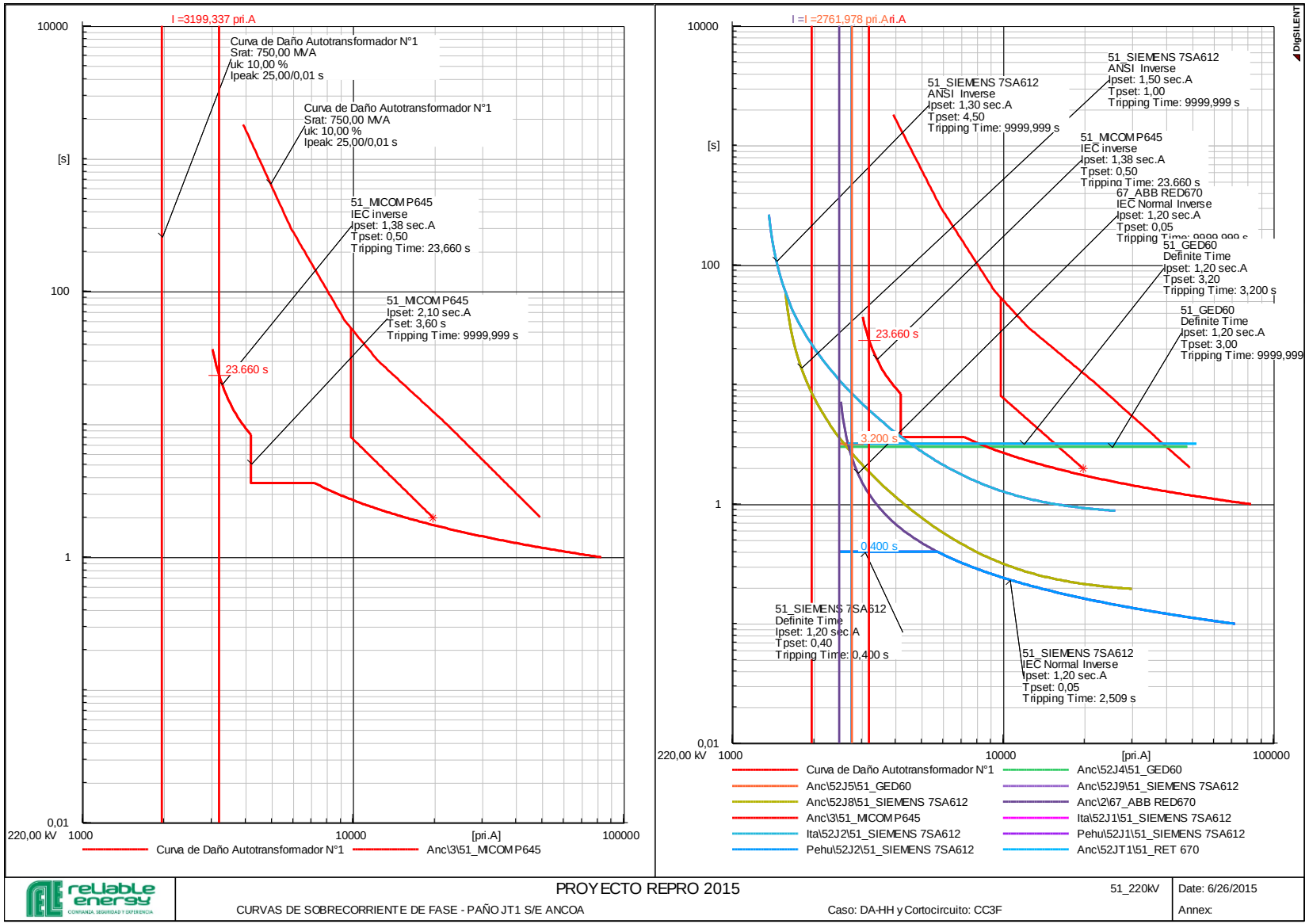
FUNCIÓN 51 LADO DE 220 KV



reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC3F	Annex:

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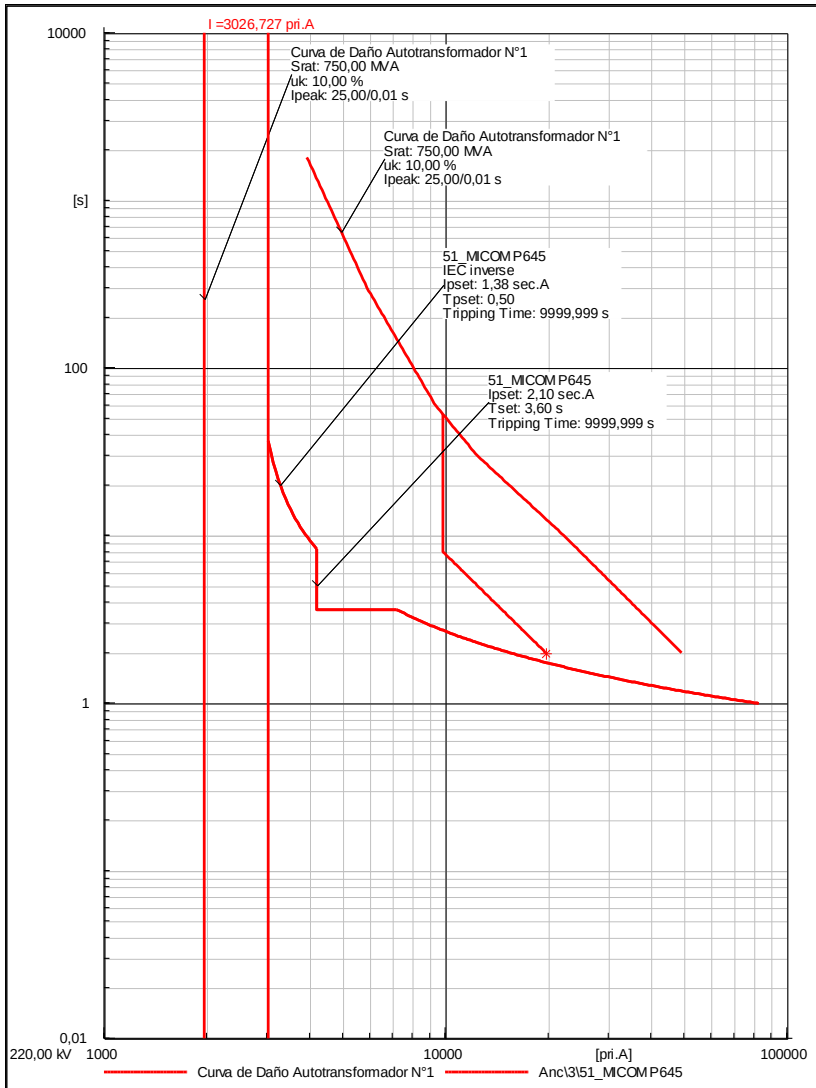

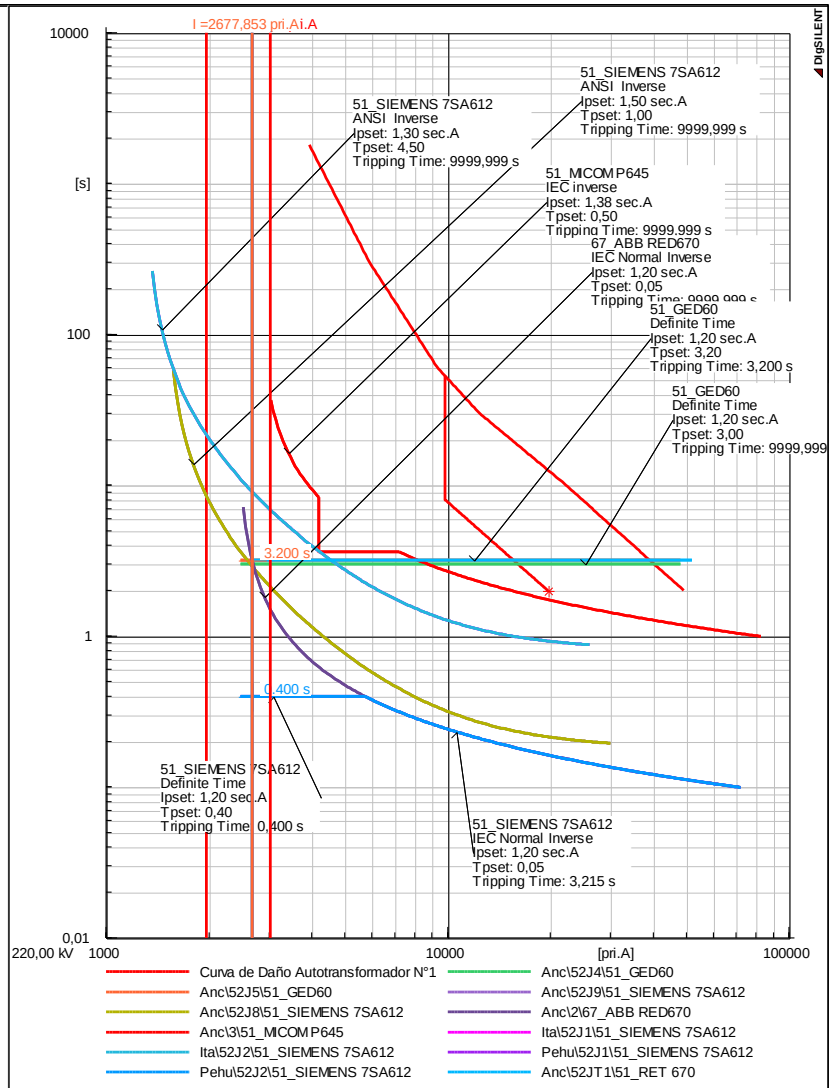

reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2F	Annex:

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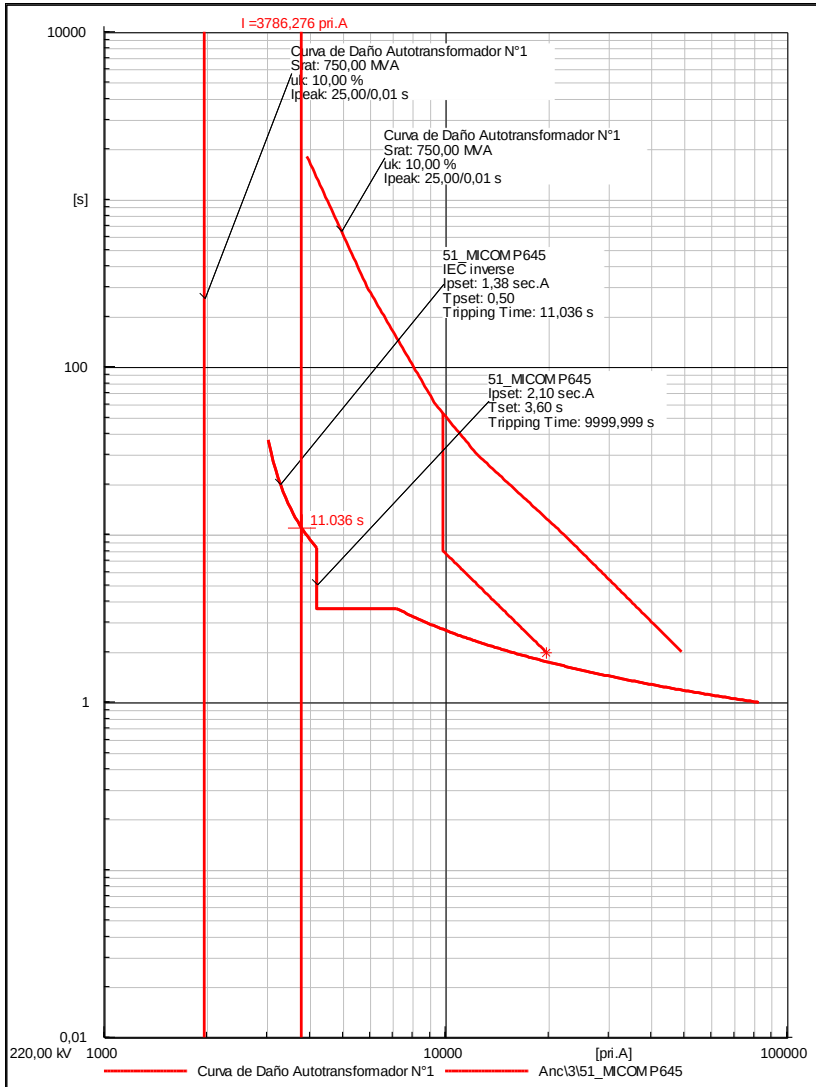

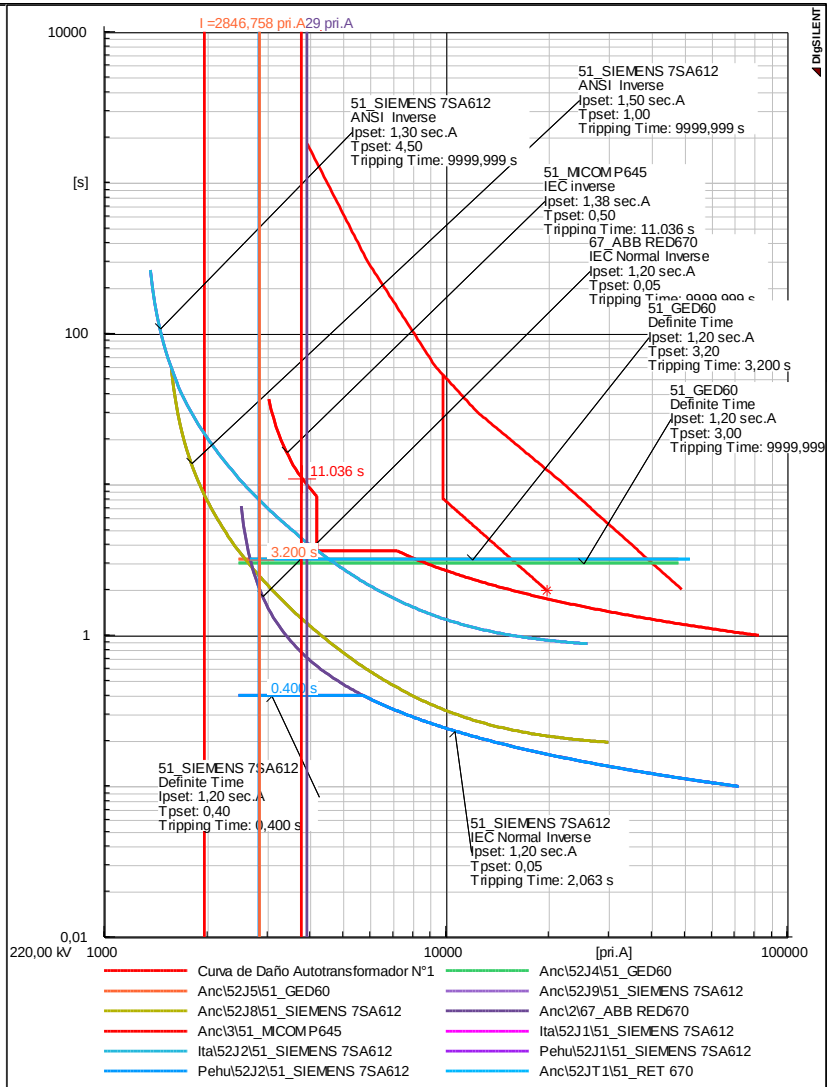

reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2FT	Annex:

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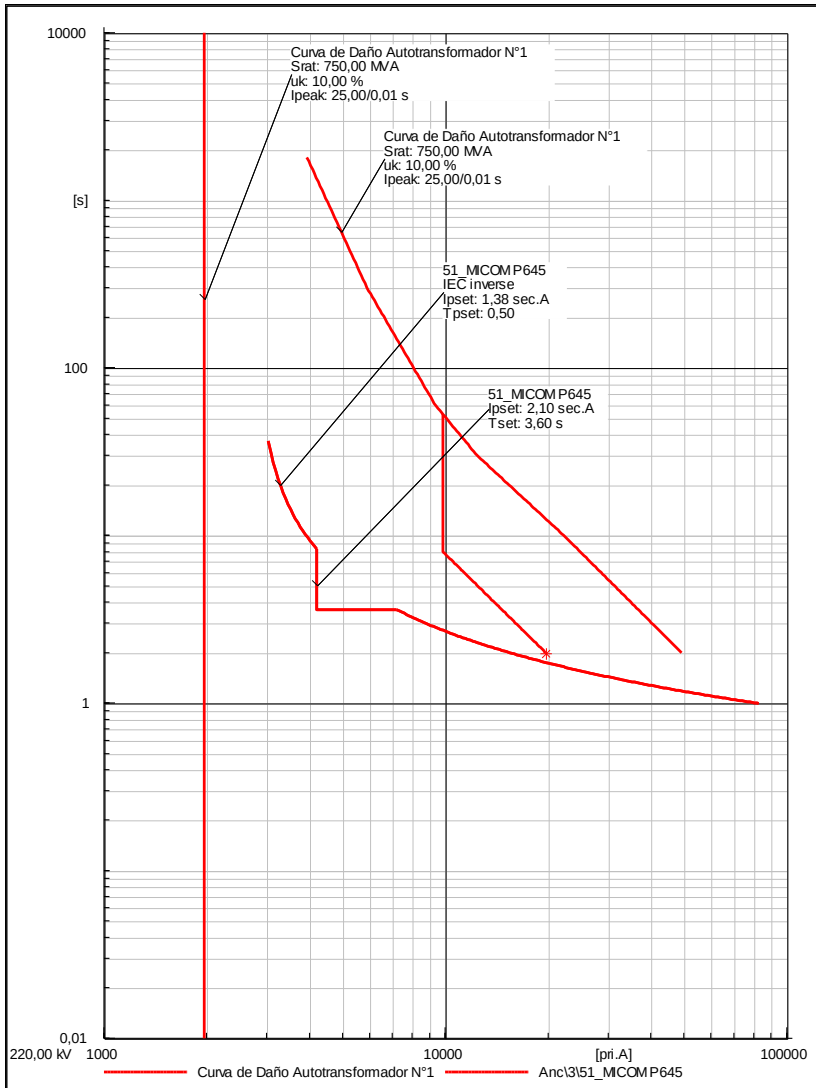

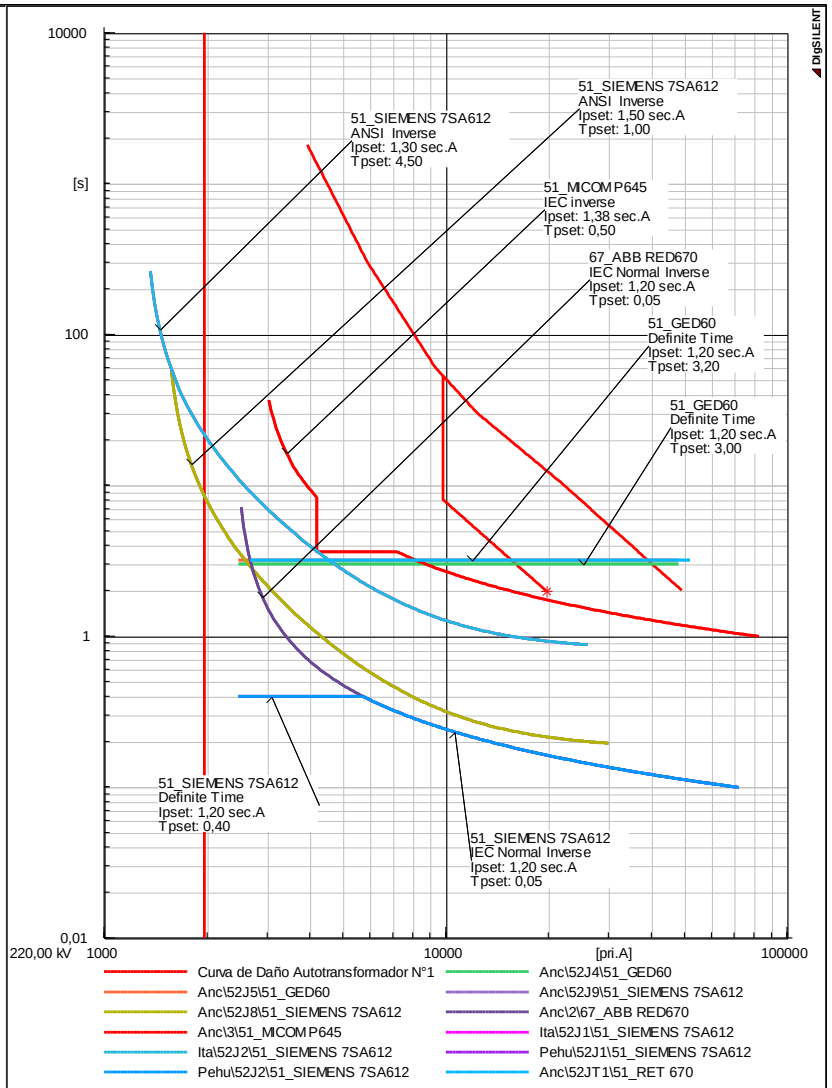

reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-0	Annex:

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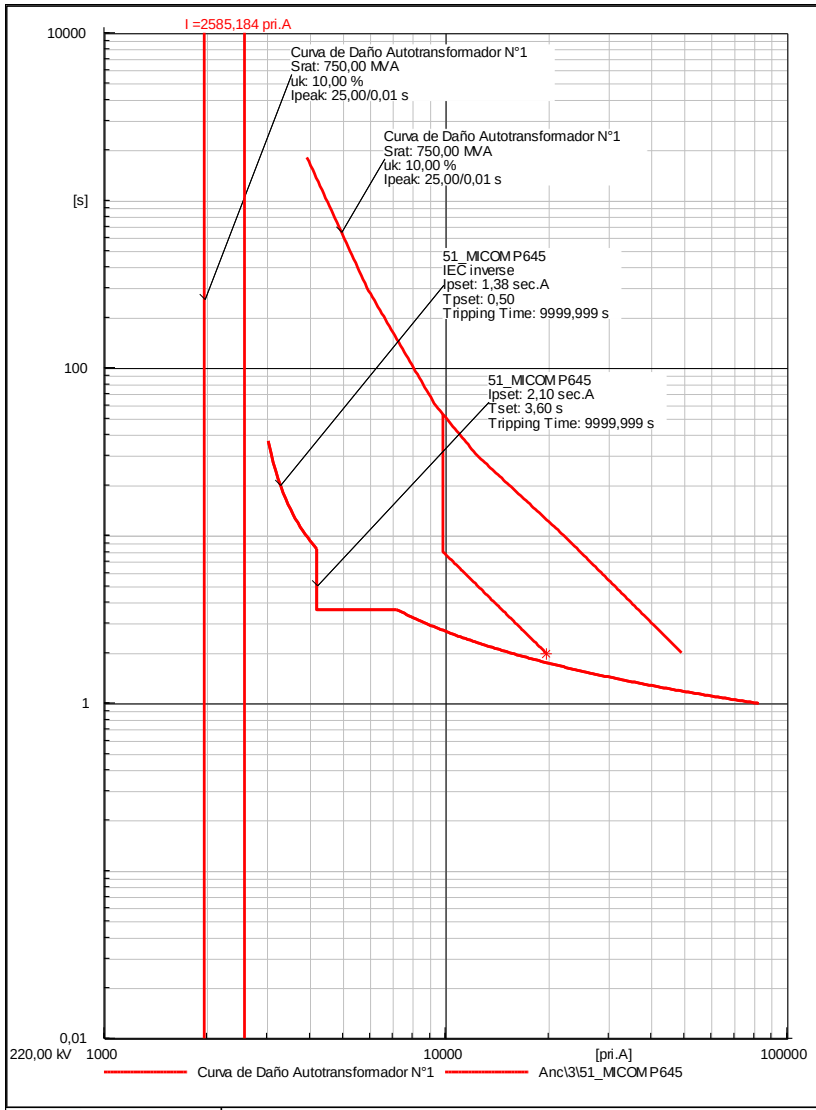

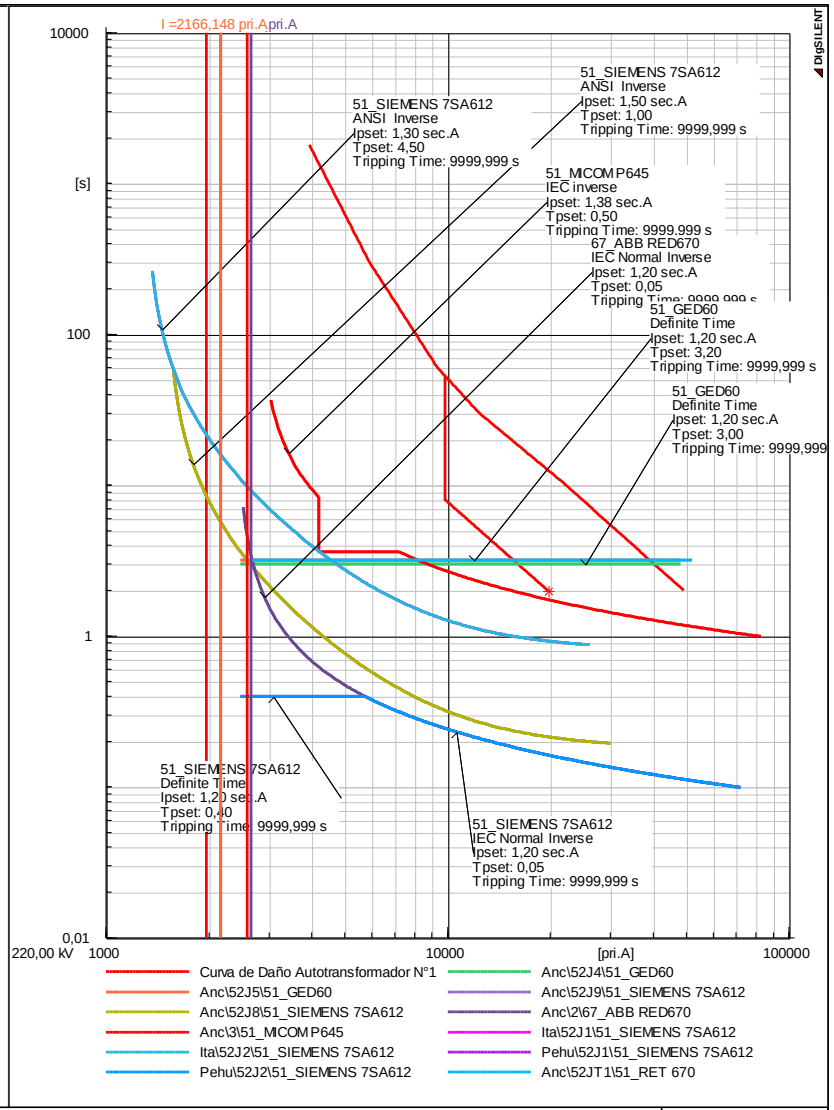

reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-25	Annex:

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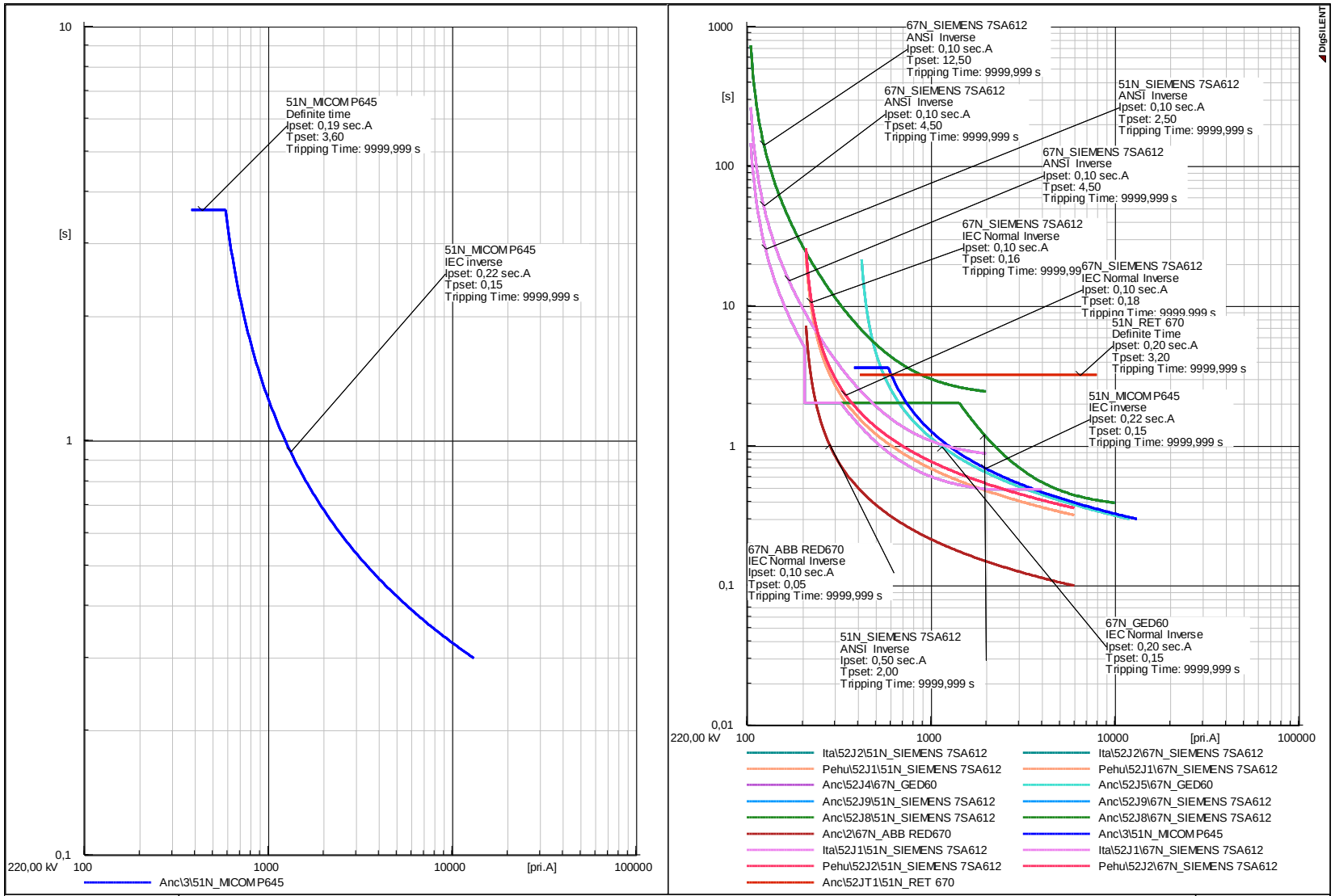
FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC3F	Annex:

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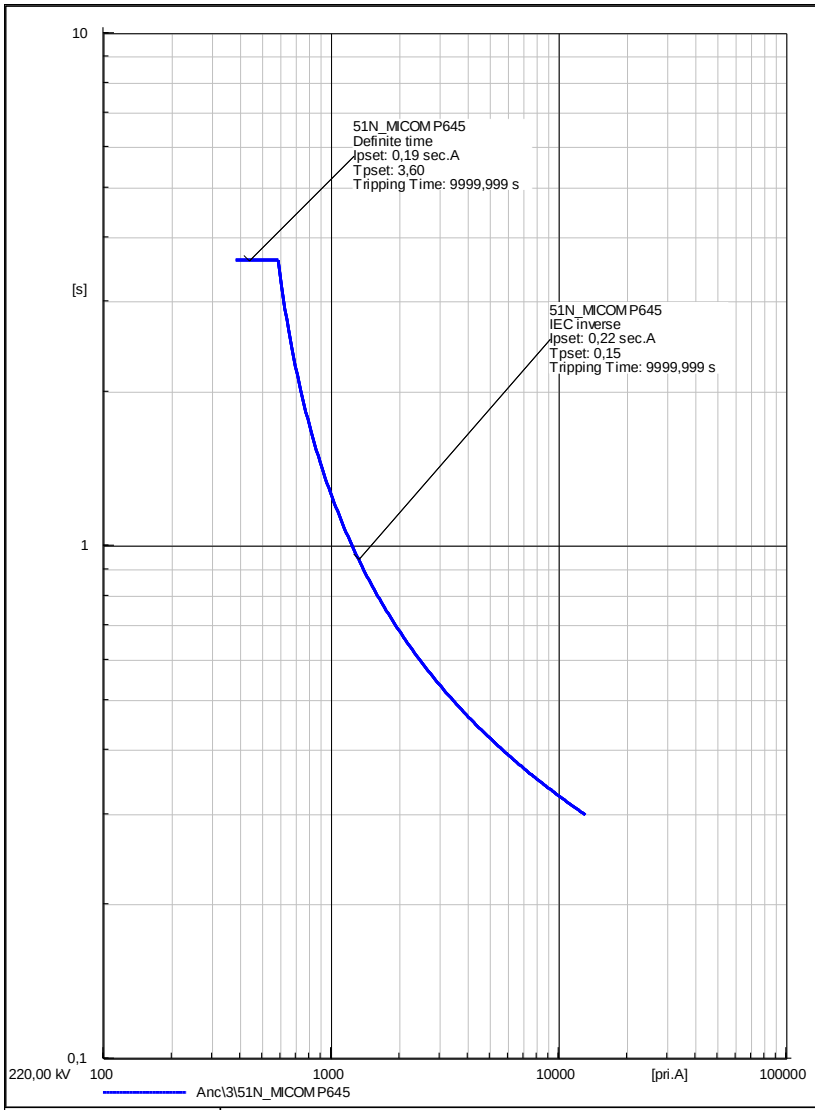

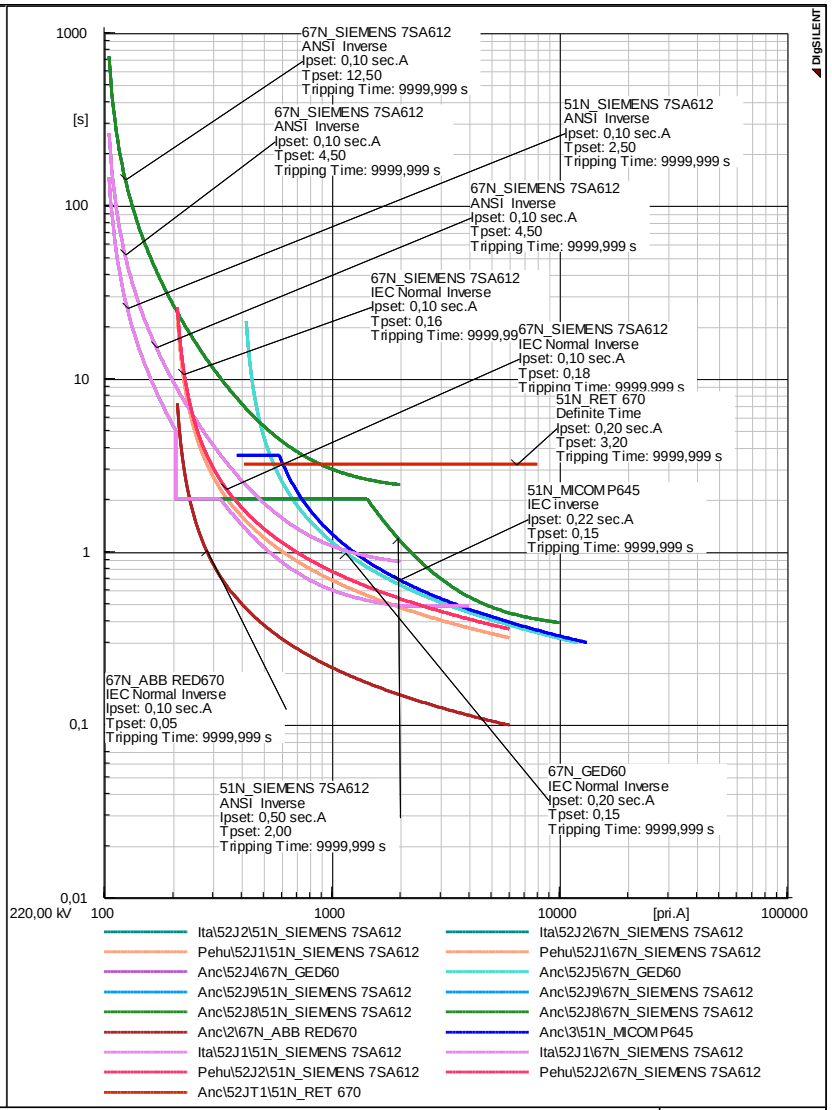

	PROYECTO REPRO 2015	51N_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2F	Annex:

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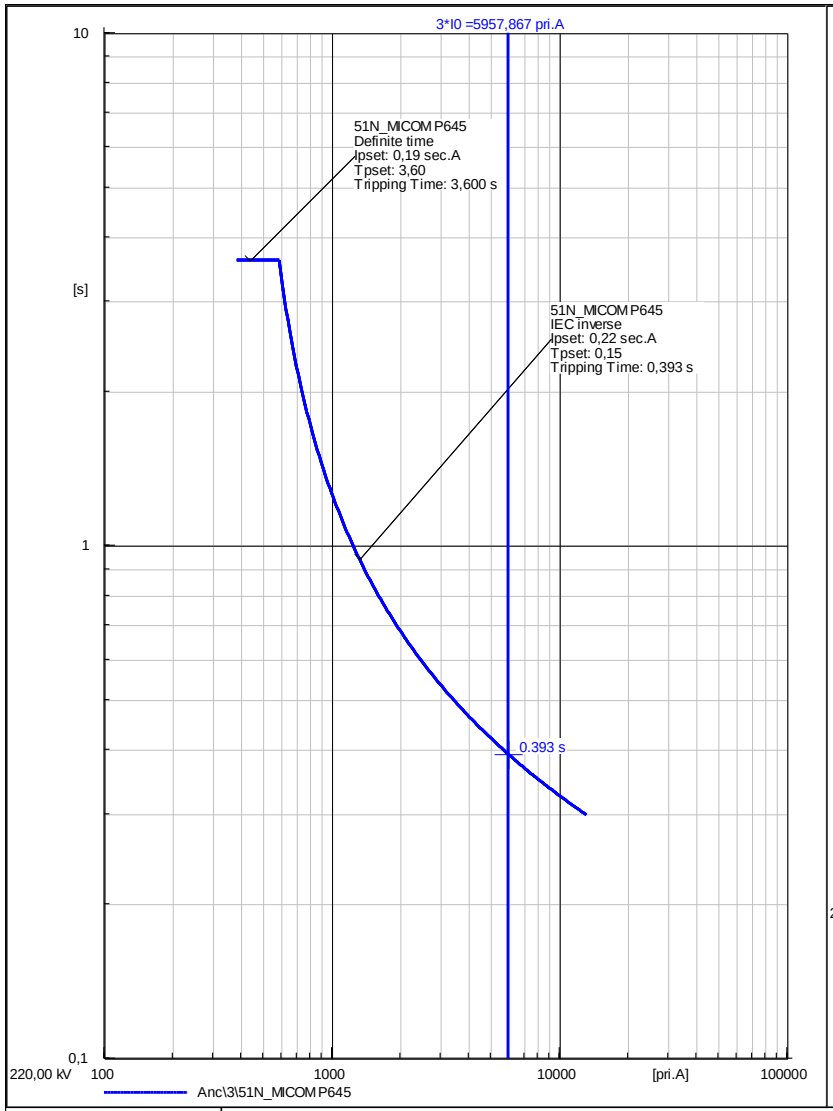

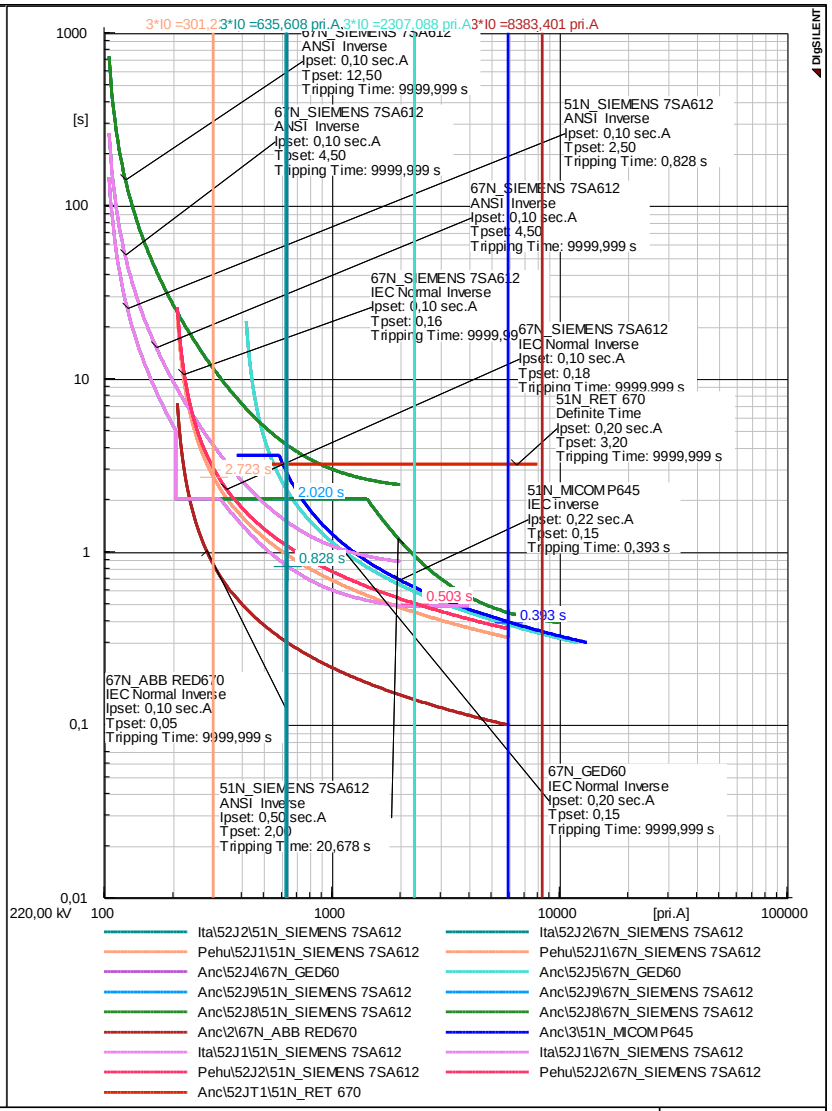

	PROYECTO REPRO 2015	51N_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2FT	Annex:

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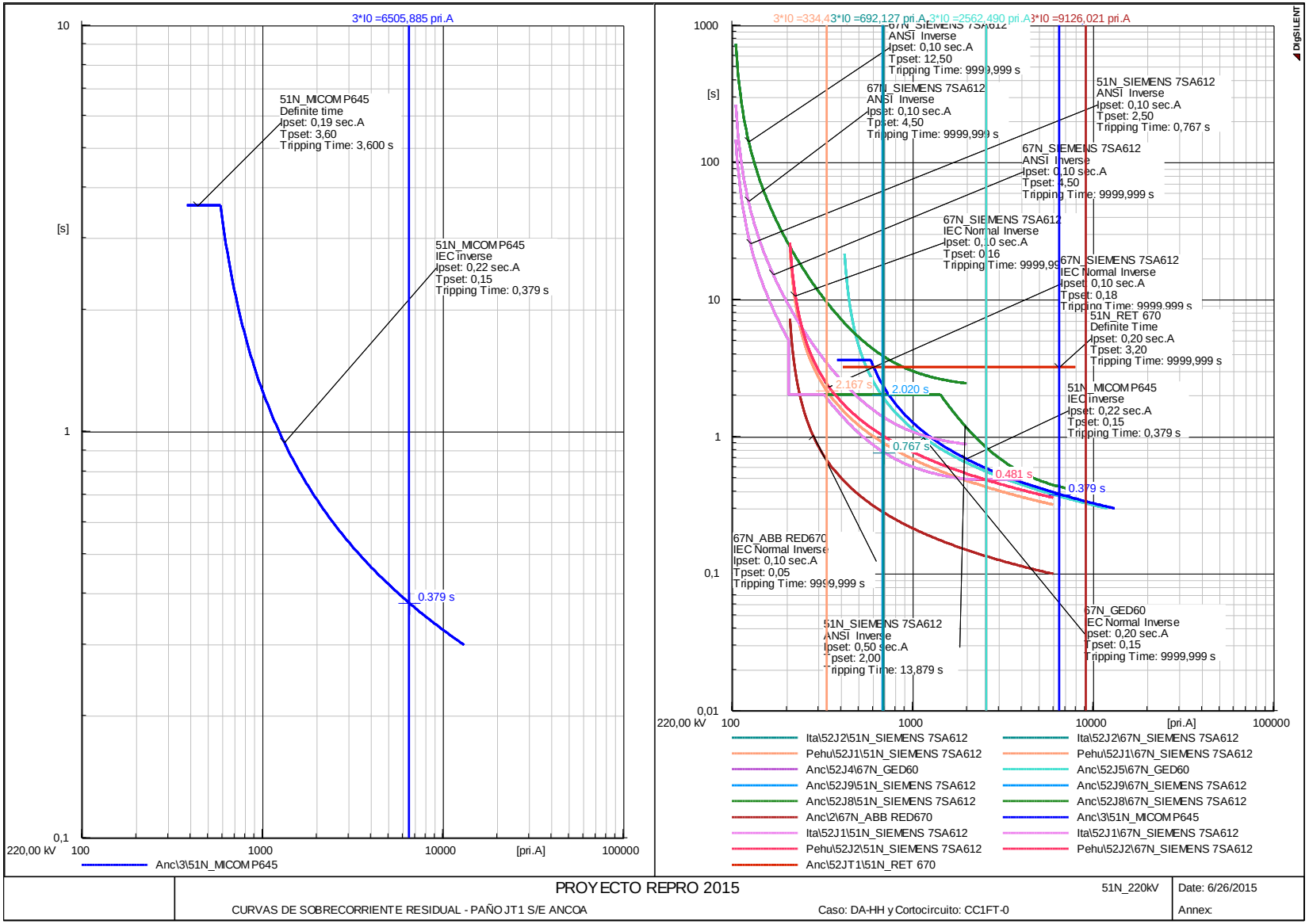

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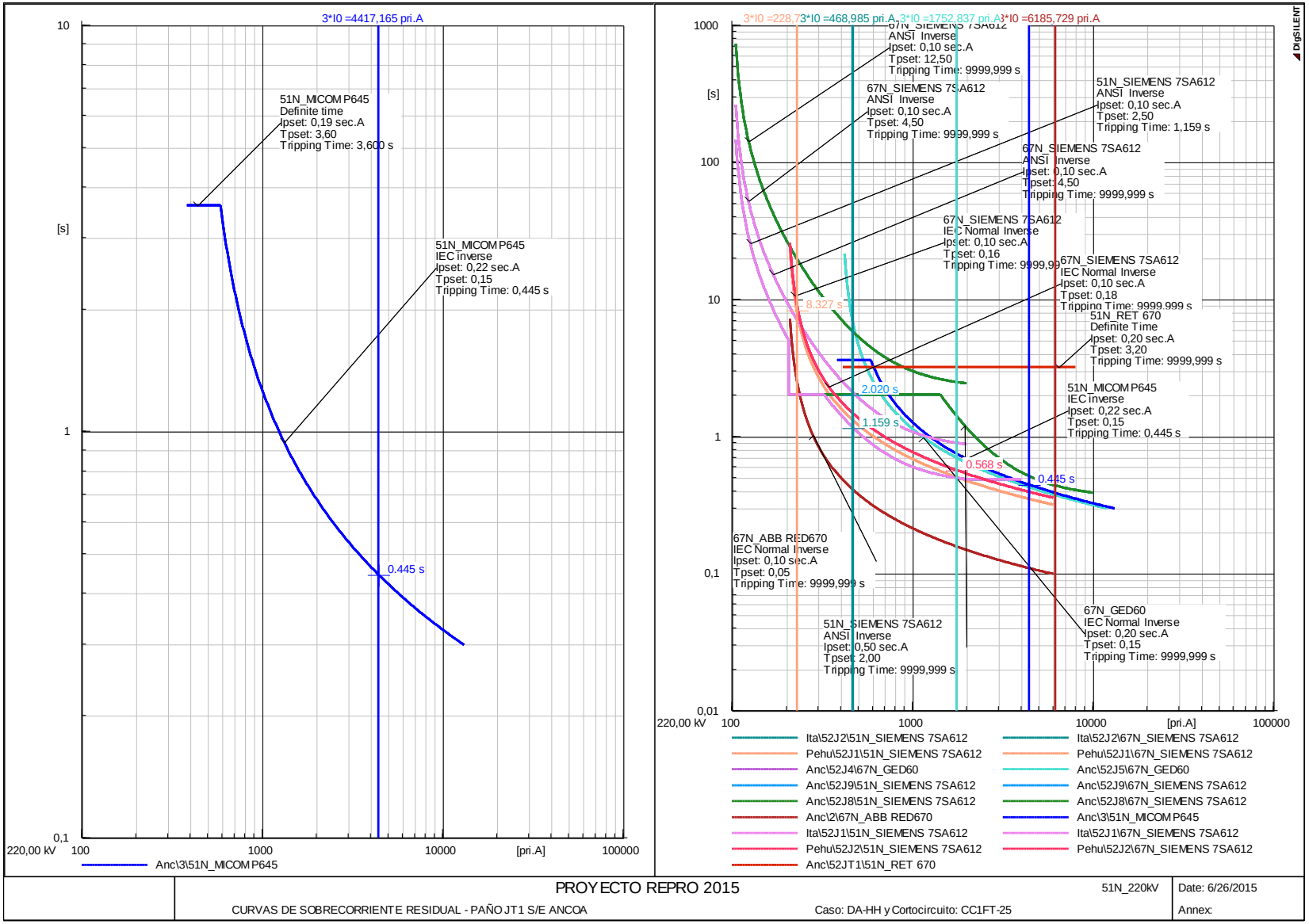

	PROYECTO REPRO 2015	51N_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-25	Annex:

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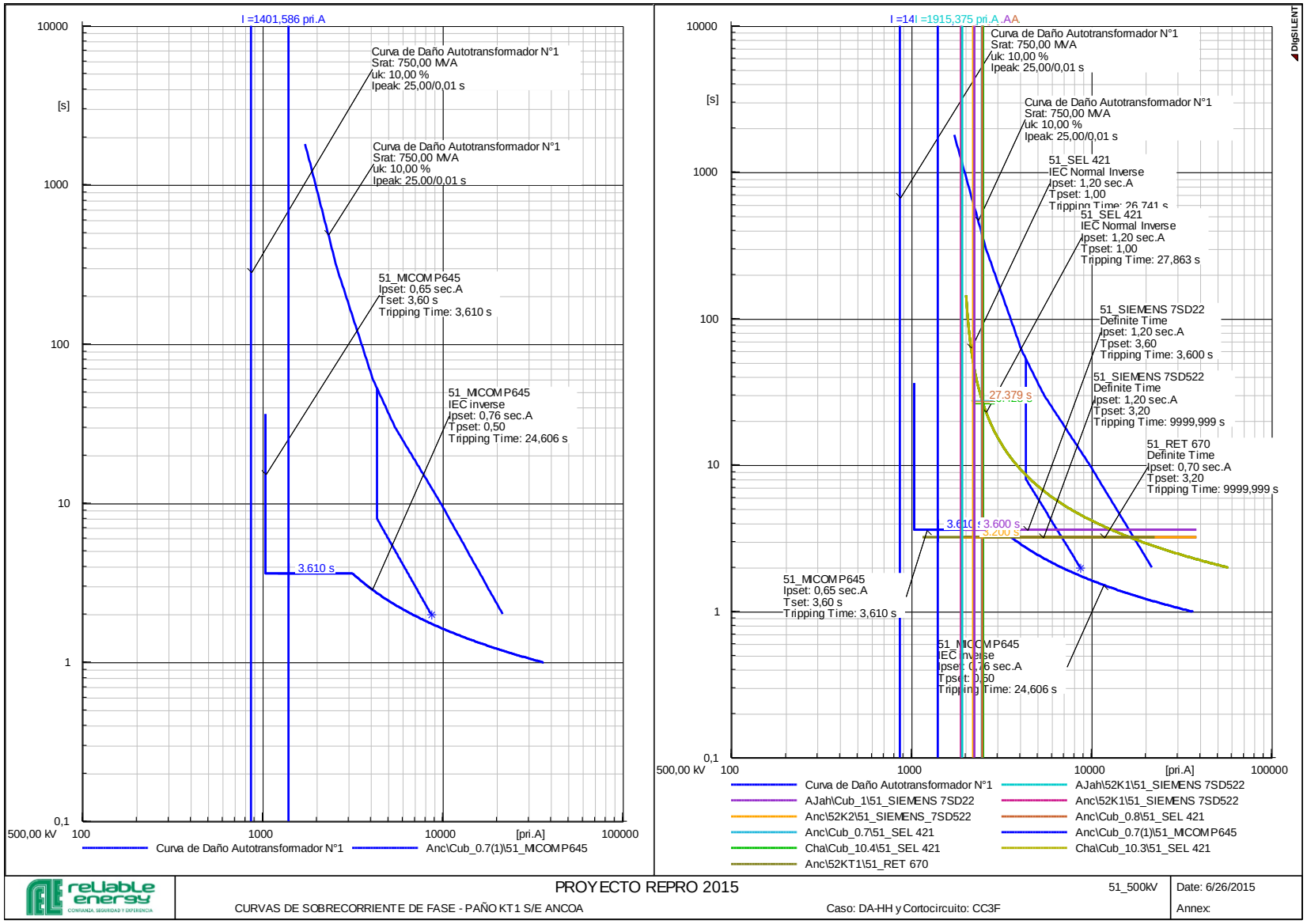
FUNCIÓN 51 LADO DE 500 KV



reliable energy	PROYECTO REPRO 2015	51_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC3F	Annex:

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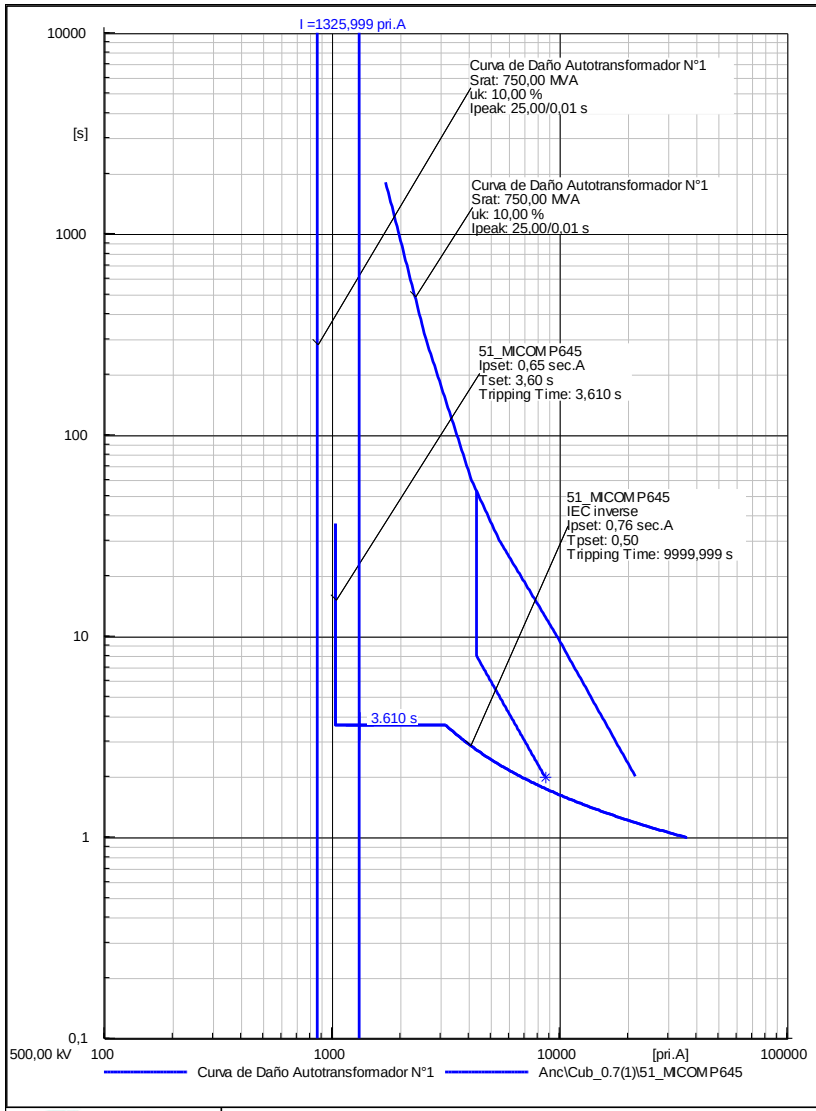

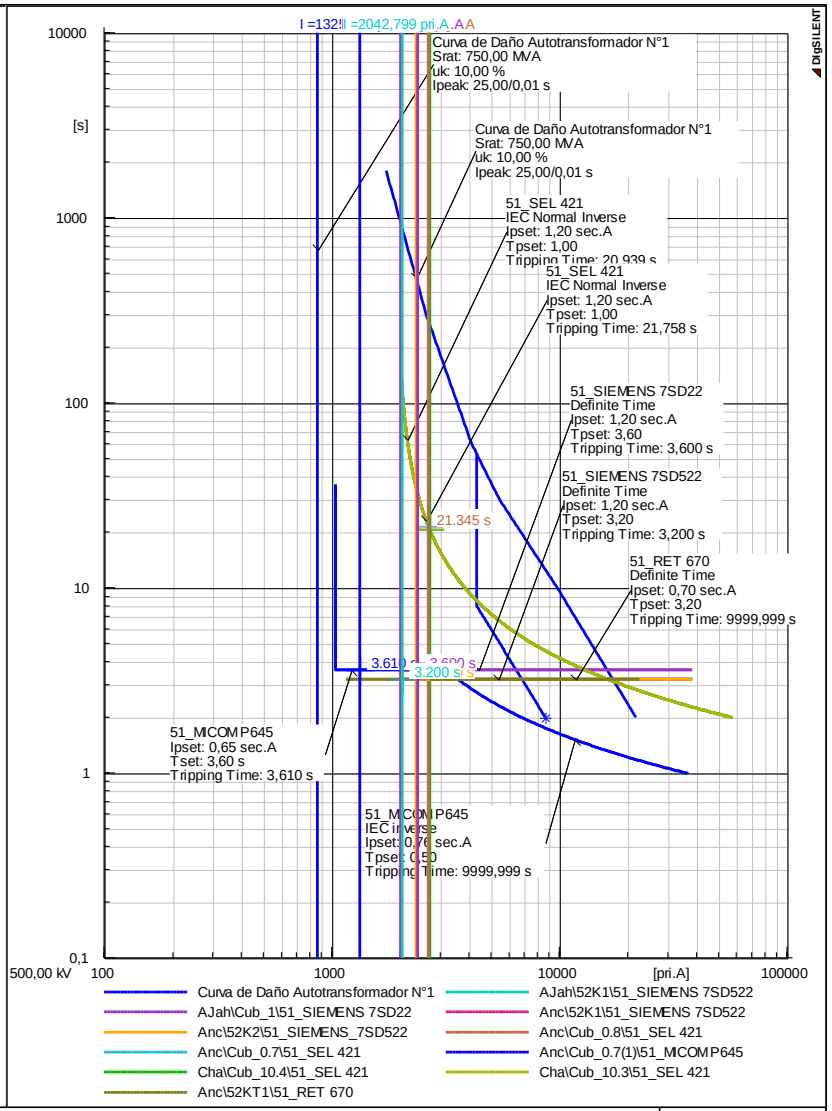

reliable energy	PROYECTO REPRO 2015	51_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2F	Annex:

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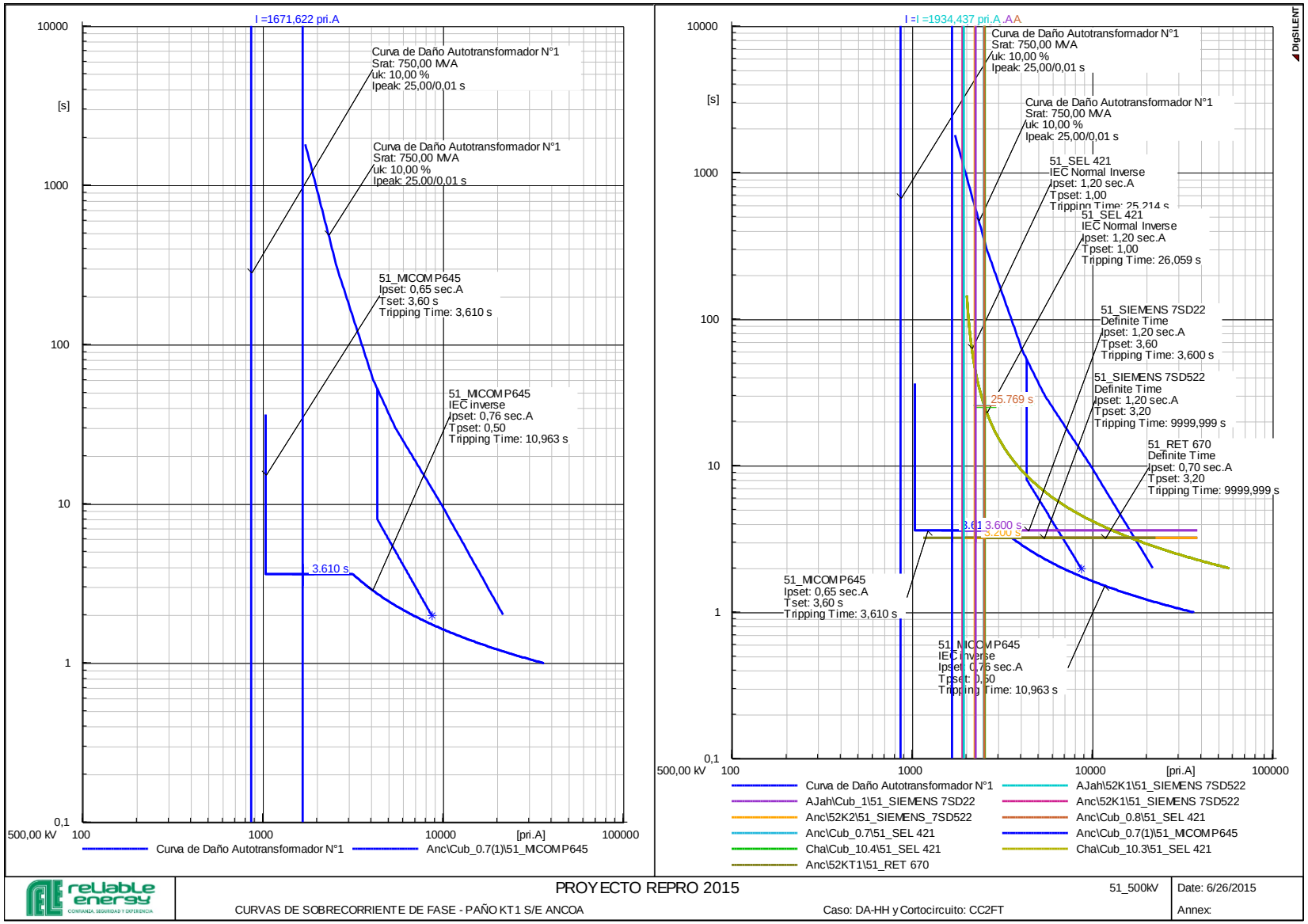

reliable energy	PROYECTO REPRO 2015	51_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2FT	Annex:

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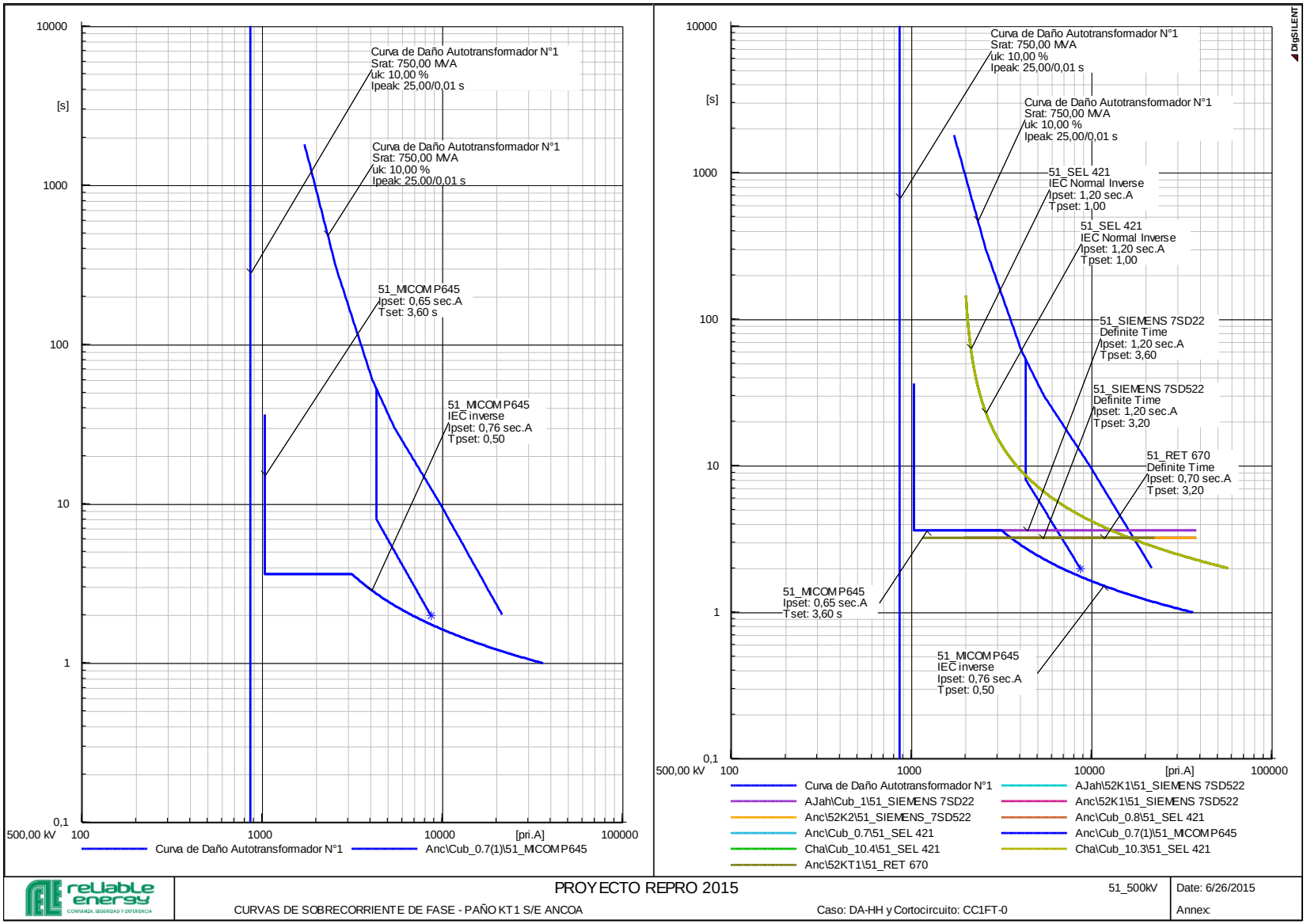

reliable energy	PROYECTO REPRO 2015	51_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-0	Annex:

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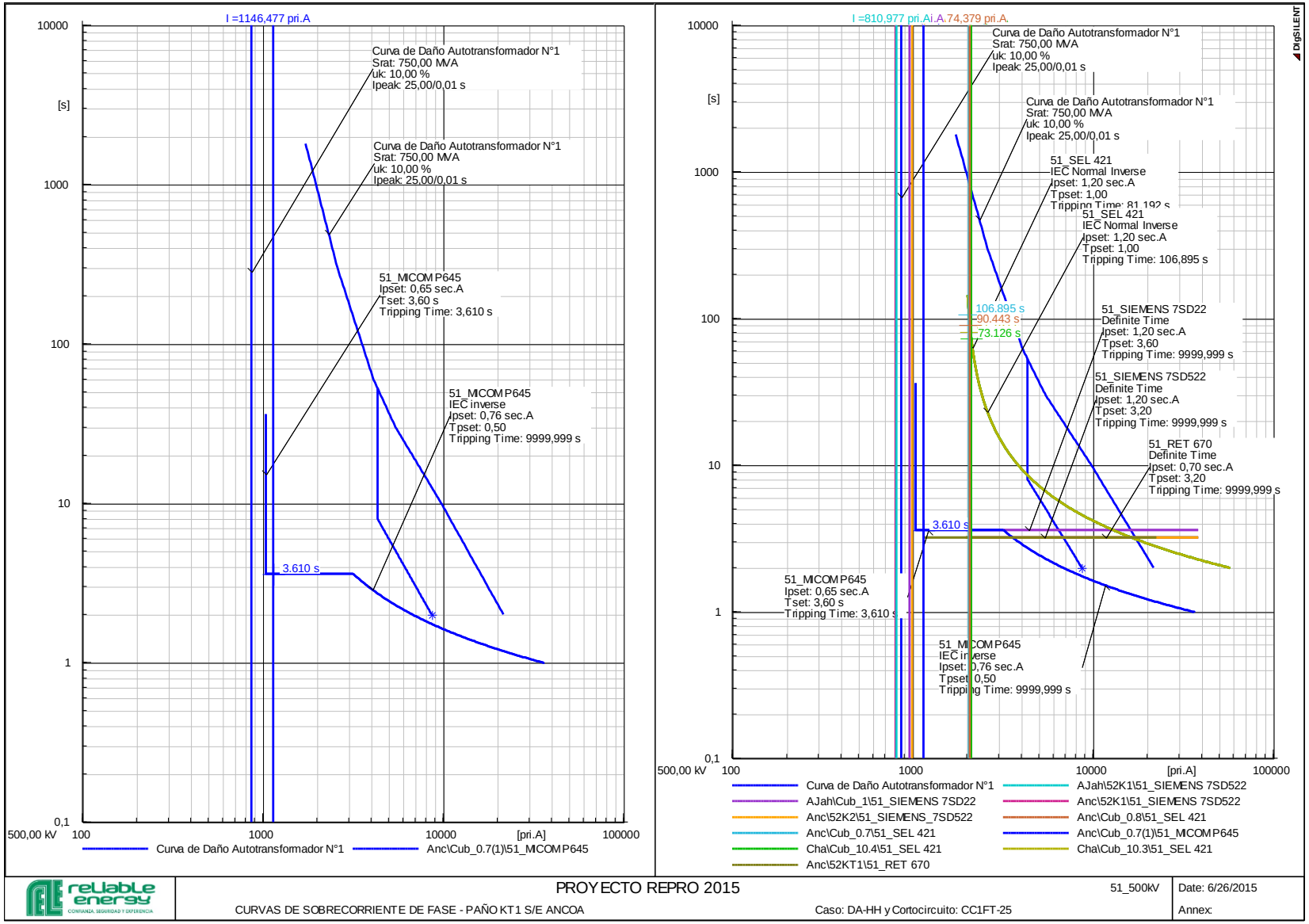

reliable energy	PROYECTO REPRO 2015	51_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-25	Annex:

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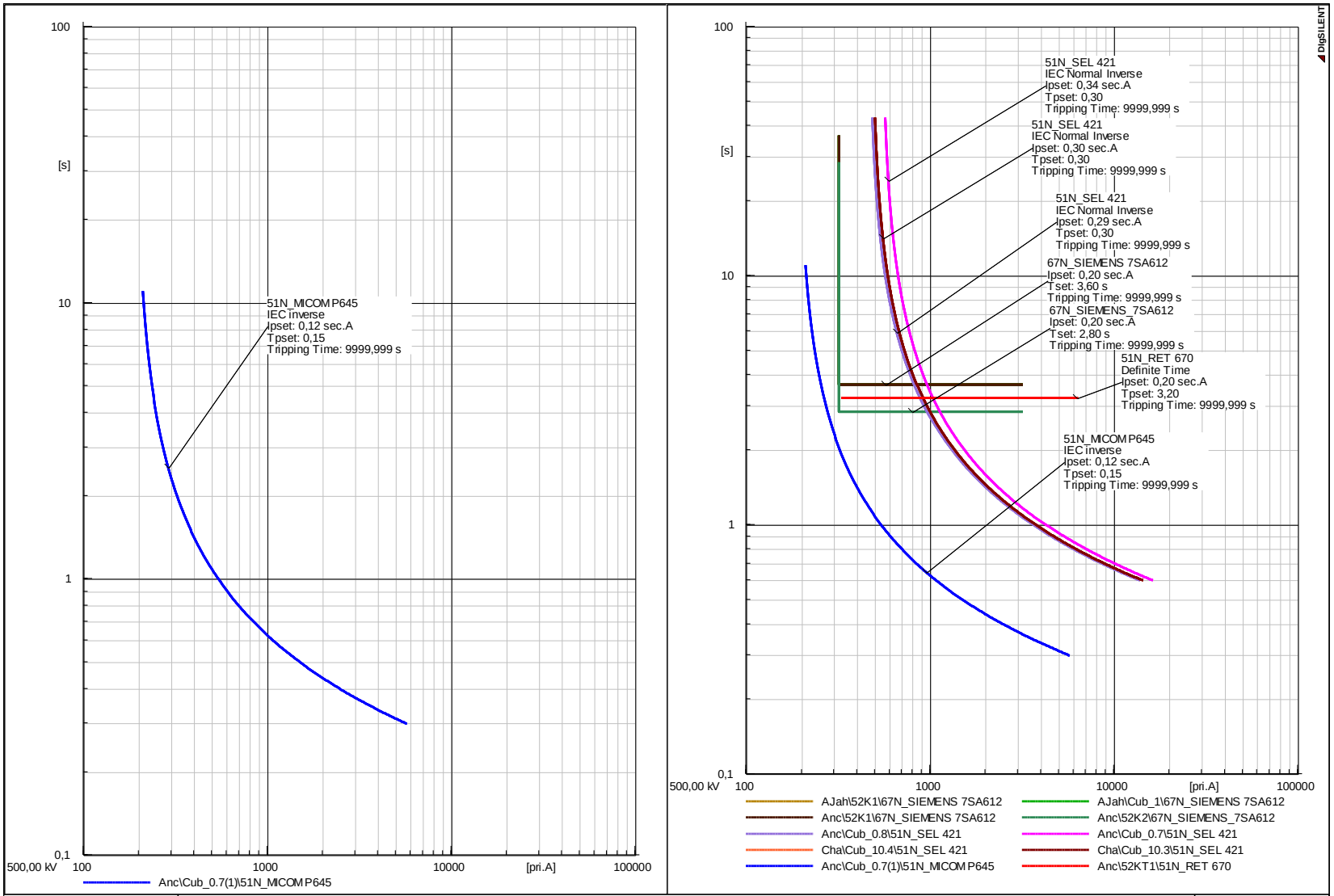
FUNCIÓN 51N LADO DE 500 KV



	PROYECTO REPRO 2015	51N_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC3F	Annex:

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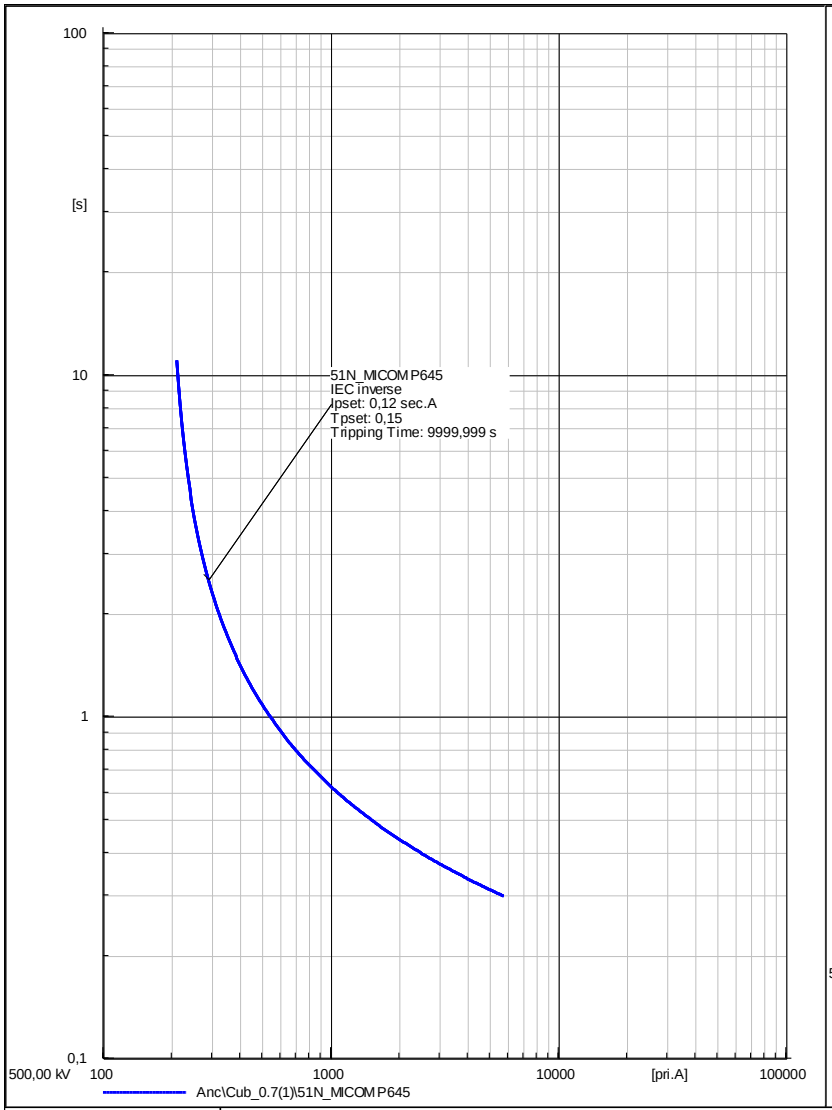

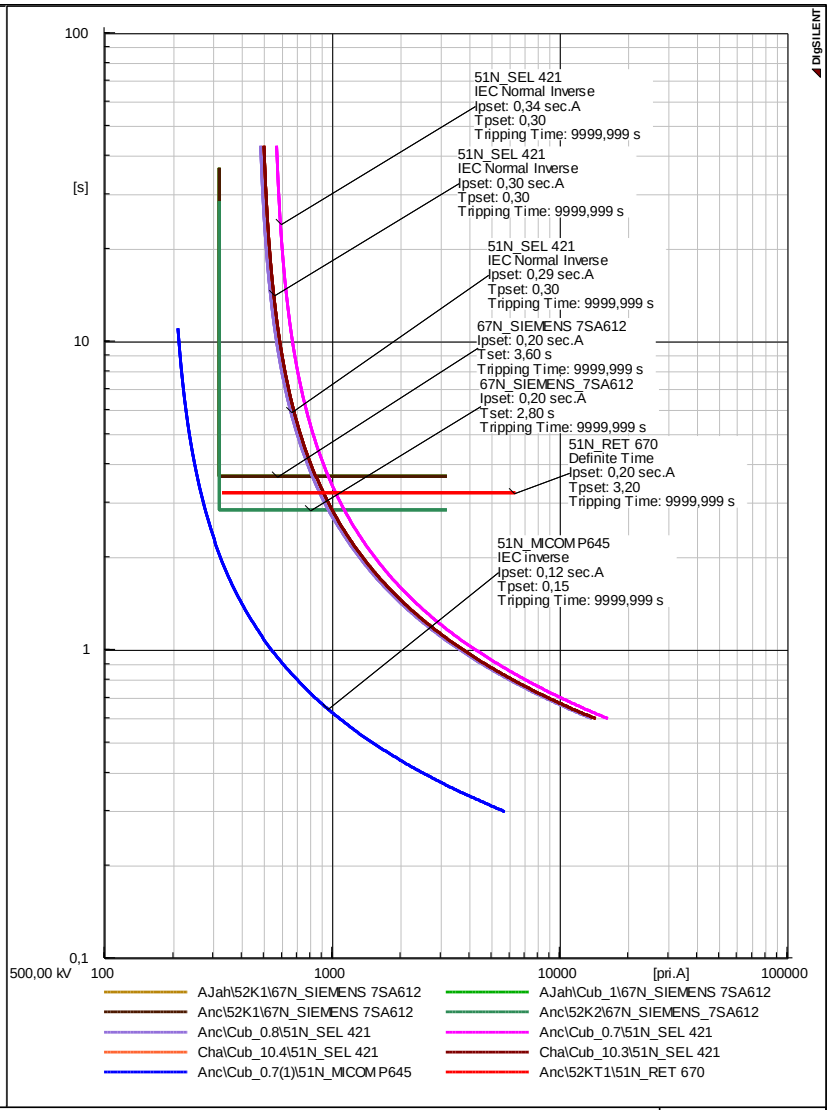

	PROYECTO REPRO 2015	51N_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2F	Annex:

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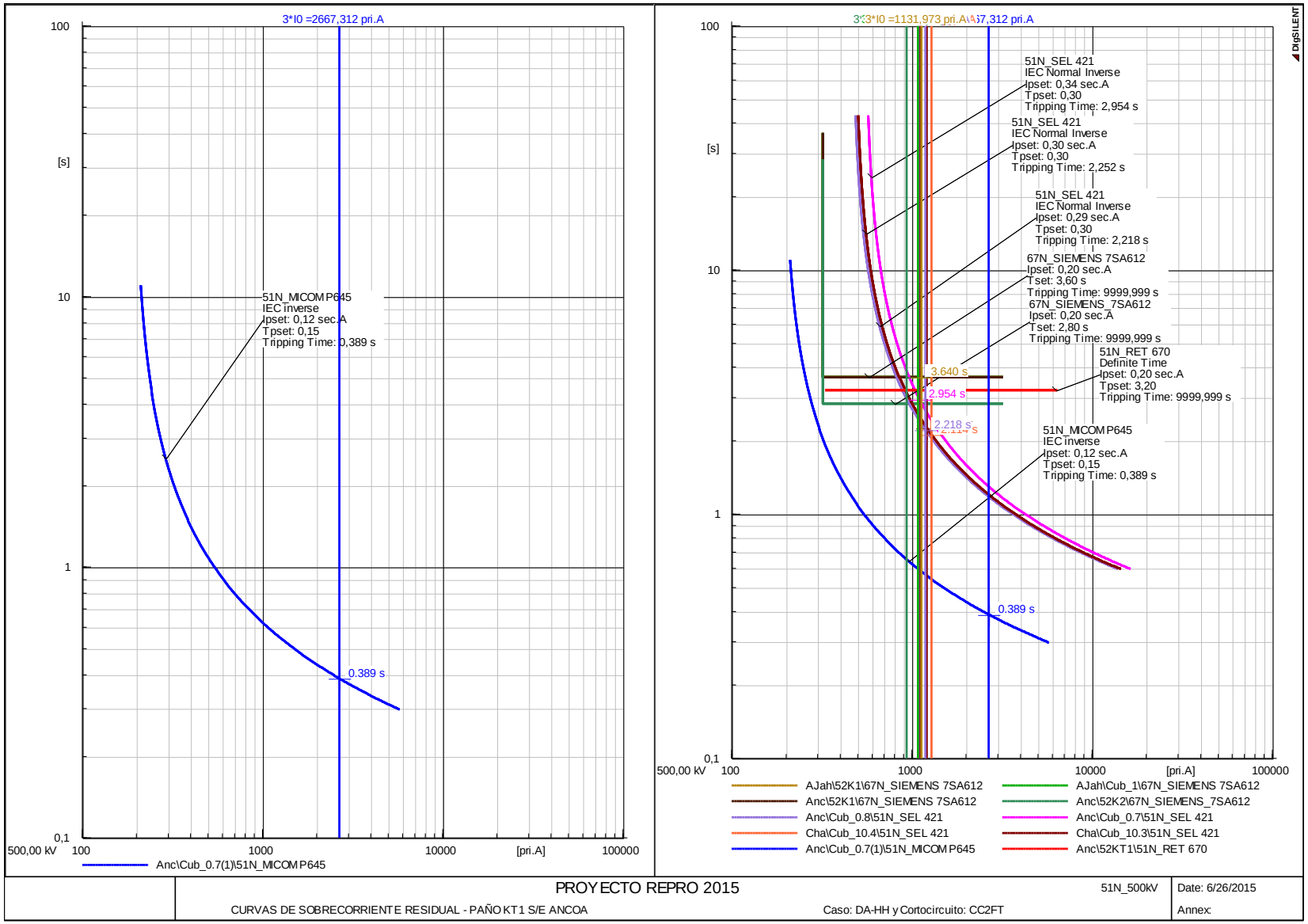

	PROYECTO REPRO 2015	51N_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2FT	Annex:

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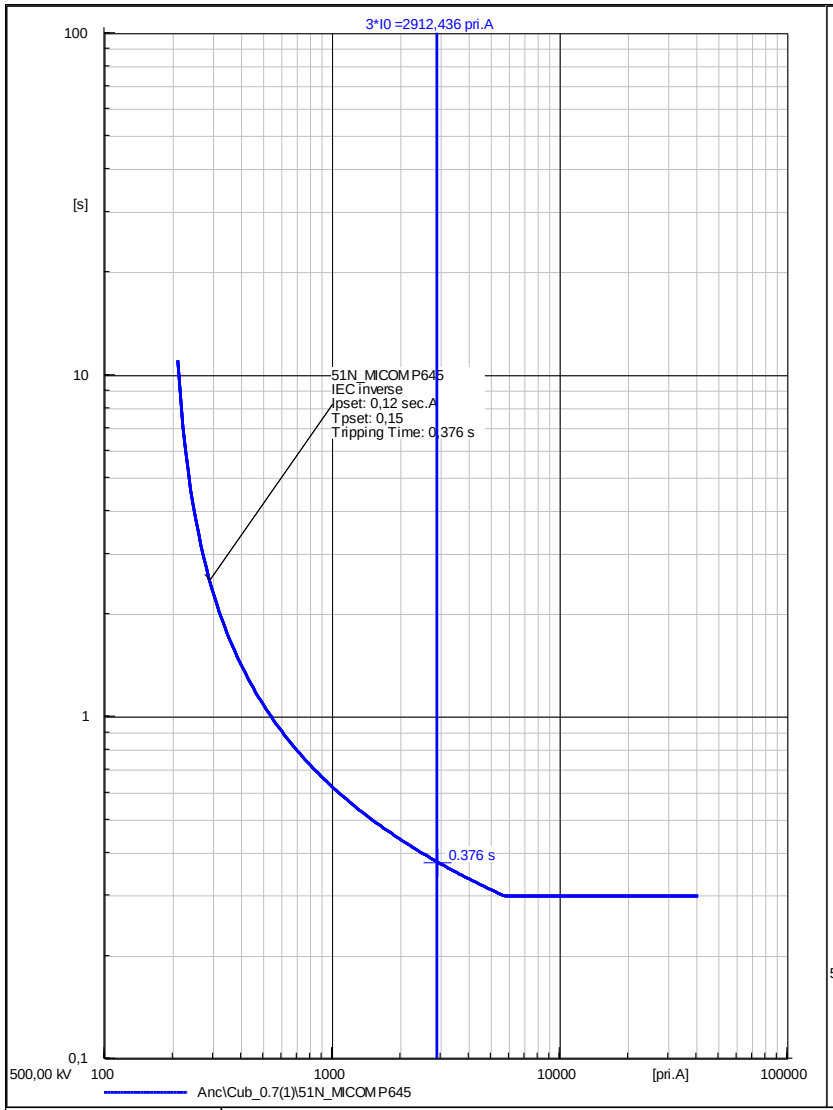

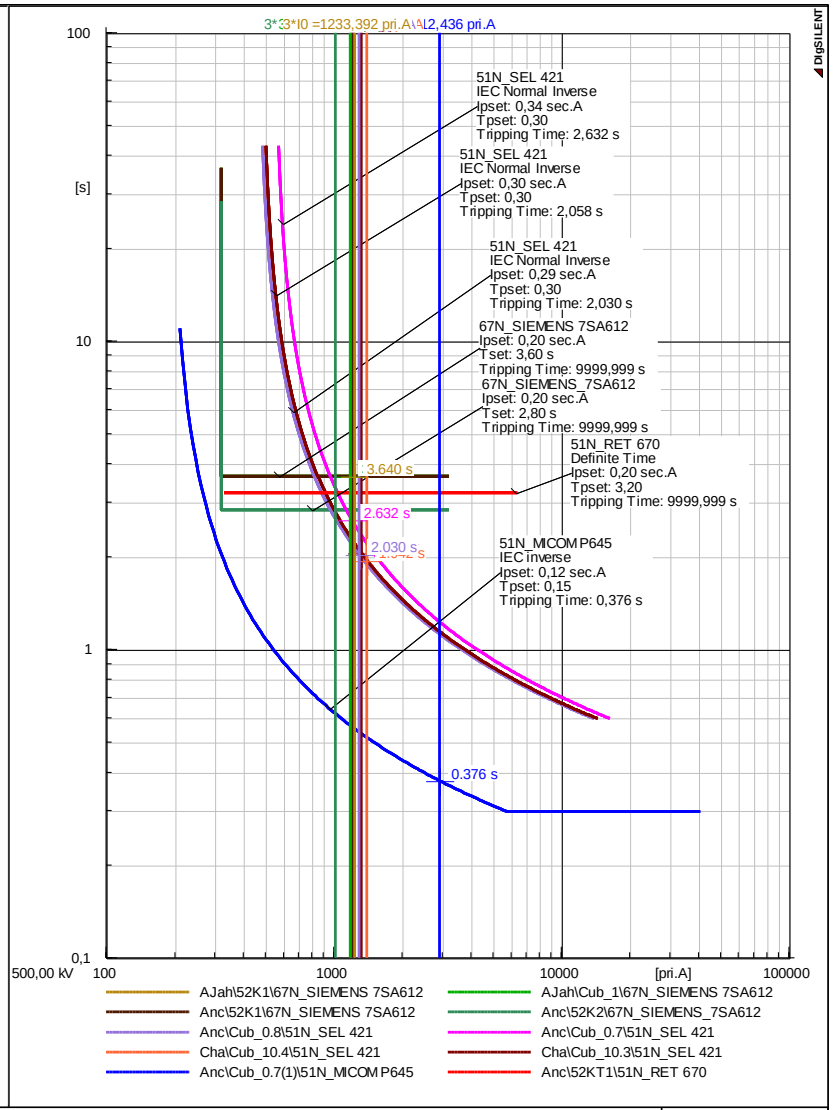

	PROYECTO REPRO 2015	51N_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-0	Annex:

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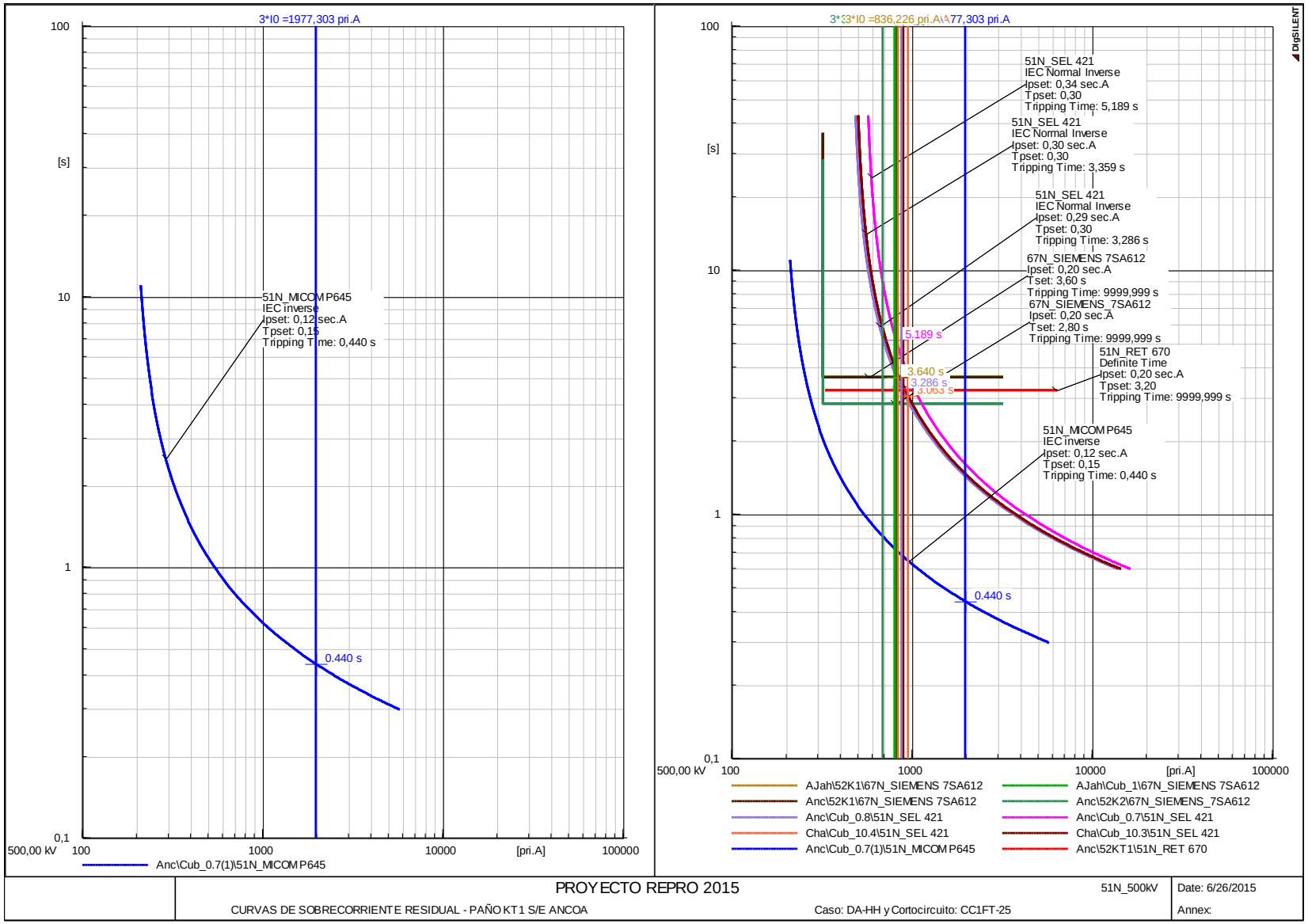
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100
[s]
10
1
0,1
51N_MICOM P645
IEC Inverse
Ipset: 0,12 sec.A
Tpset: 0,15
Tripping Time: 0,440 s
0.440 s
500,00 kV
100
1000
10000
[pri.A]
100000
Anc\Cub_0.7(1)\51N_MICOM P645
3*I0 =836,226 pri.A\A77,303 pri.A
51N_SEL 421
IEC Normal Inverse
Ipset: 0,34 sec.A
Tpset: 0,30
Tripping Time: 5,189 s
51N_SEL 421
IEC Normal Inverse
Ipset: 0,30 sec.A
Tpset: 0,30
Tripping Time: 3,359 s
51N_SEL 421
IEC Normal Inverse
Ipset: 0,29 sec.A
Tpset: 0,30
Tripping Time: 3,286 s
67N_SIEMENS 7SA612
Ipset: 0,20 sec.A
Tset: 3,60 s
Tripping Time: 9999,999 s
67N_SIEMENS_7SA612
Ipset: 0,20 sec.A
Tset: 2,80 s
Tripping Time: 9999,999 s
51N_RET 670
Definite Time
Ipset: 0,20 sec.A
Tpset: 3,20
Tripping Time: 9999,999 s
5.189 s
3.640 s
3.286 s
0.440 s
AJah\52K1\67N_SIEMENS 7SA612
Anc\52K1\67N_SIEMENS 7SA612
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Cha\Cub_10.4\51N_SEL 421
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DIgSILENT
PROYECTO REPRO 2015
51N_500kV
Date: 6/26/2015
CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA
Caso: DA-HH y Cortocircuito: CC1FT-25
Annex:

FALLA EN EL TERMINAL DE 525 KV DEL AUTOTRANSFORMADOR N°1

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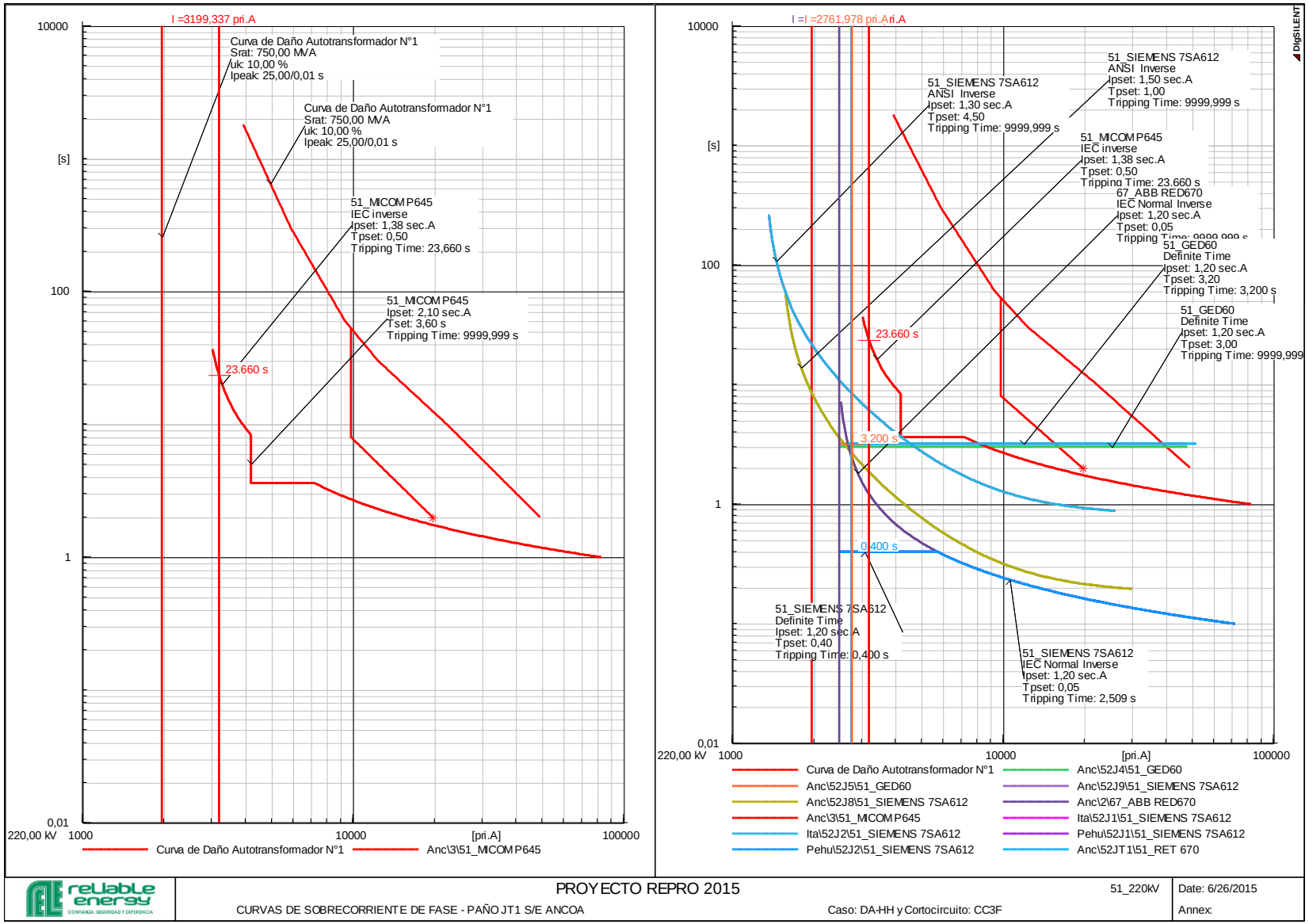
FUNCIÓN 51 LADO DE 220 KV



reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC3F	Annex:

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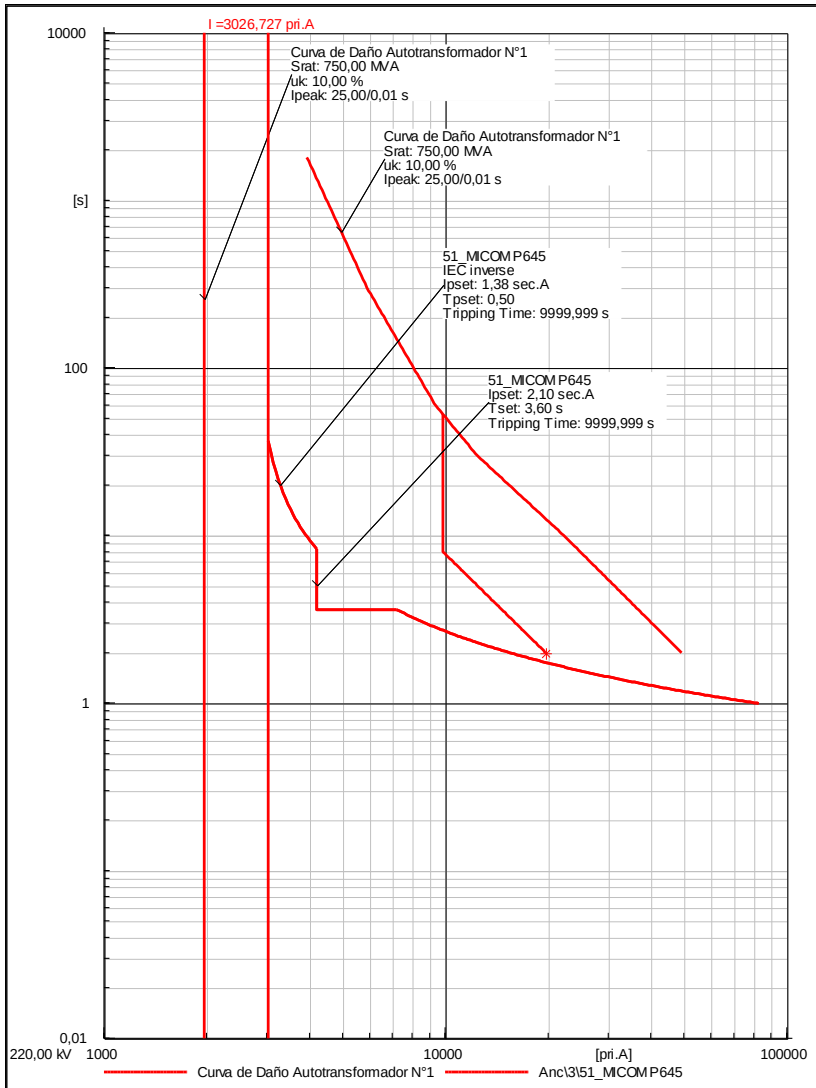

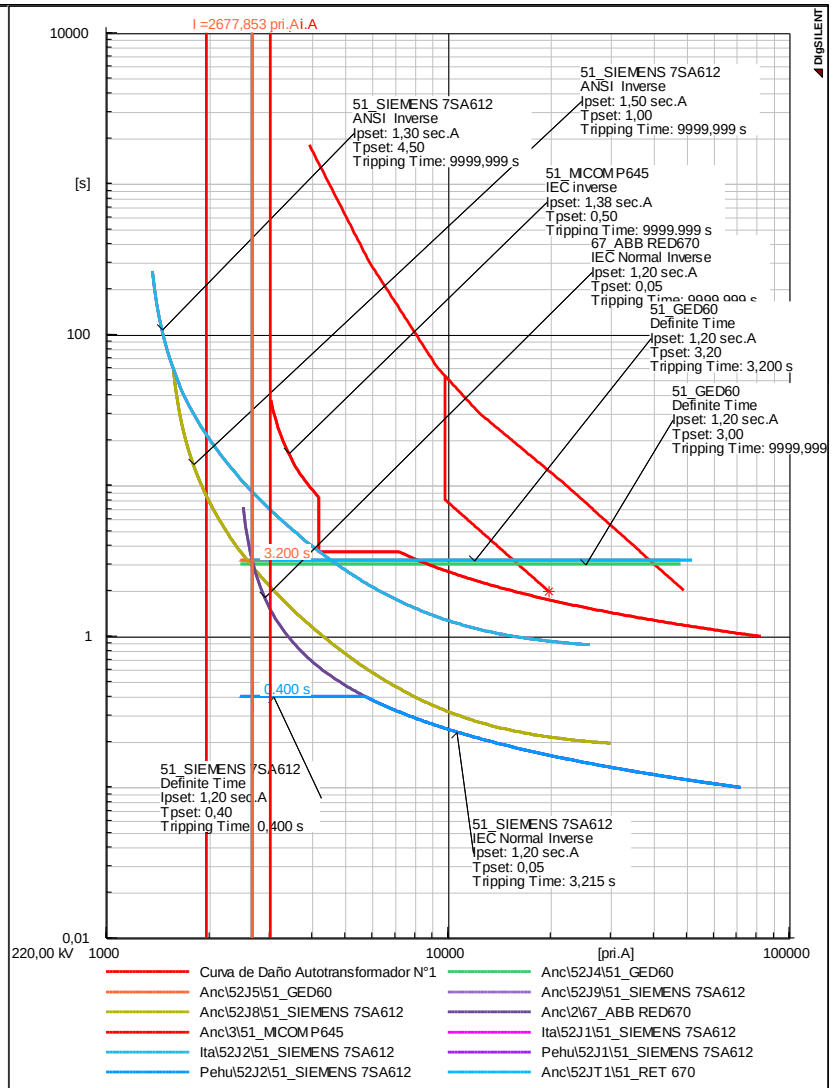

reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2F	Annex:

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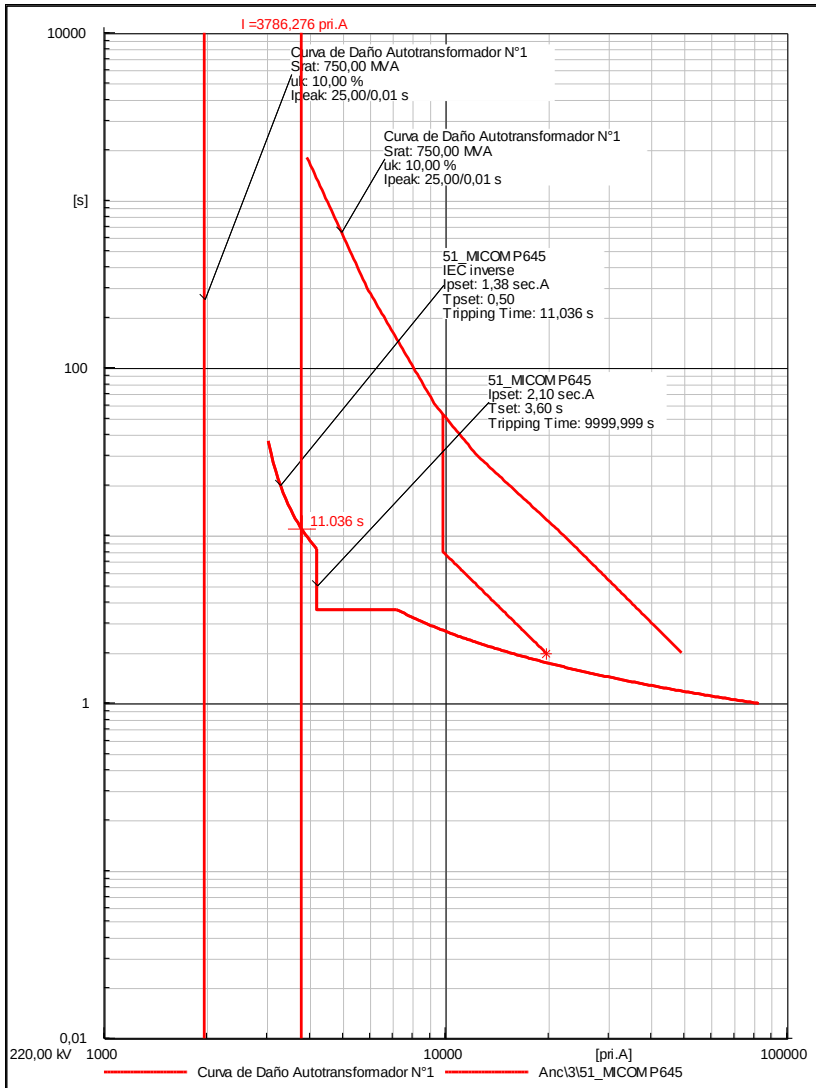

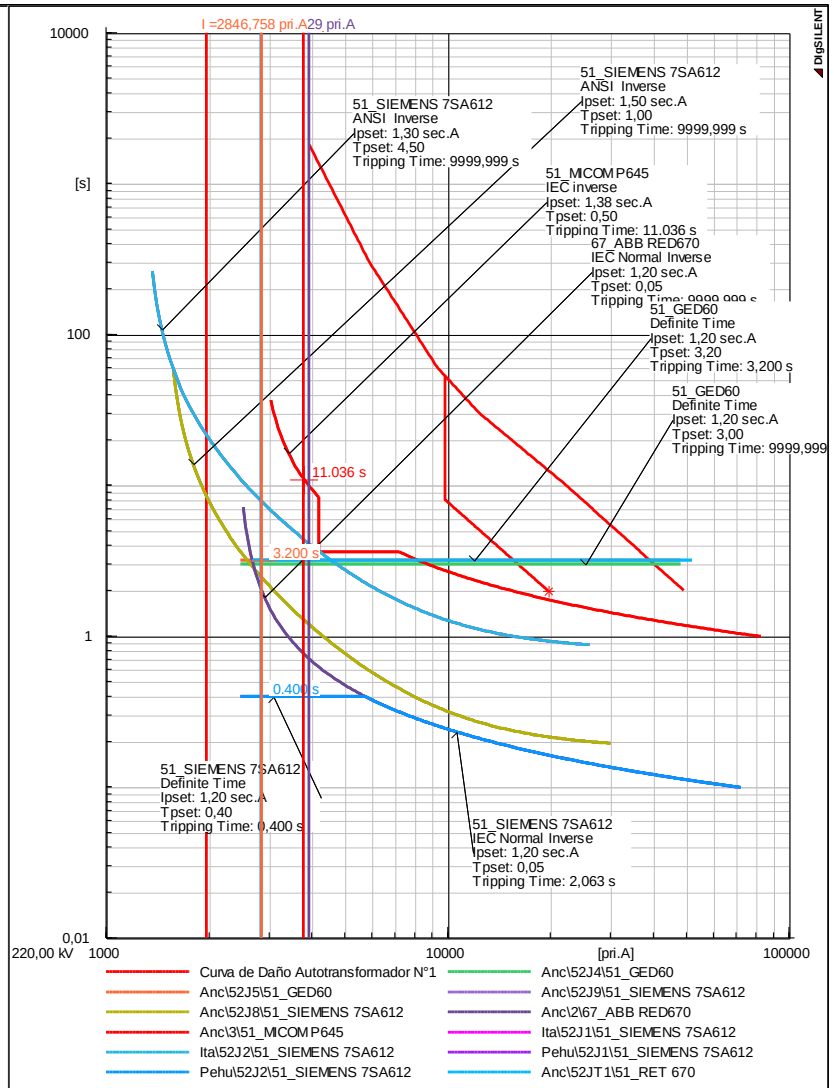

reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2FT	Annex:

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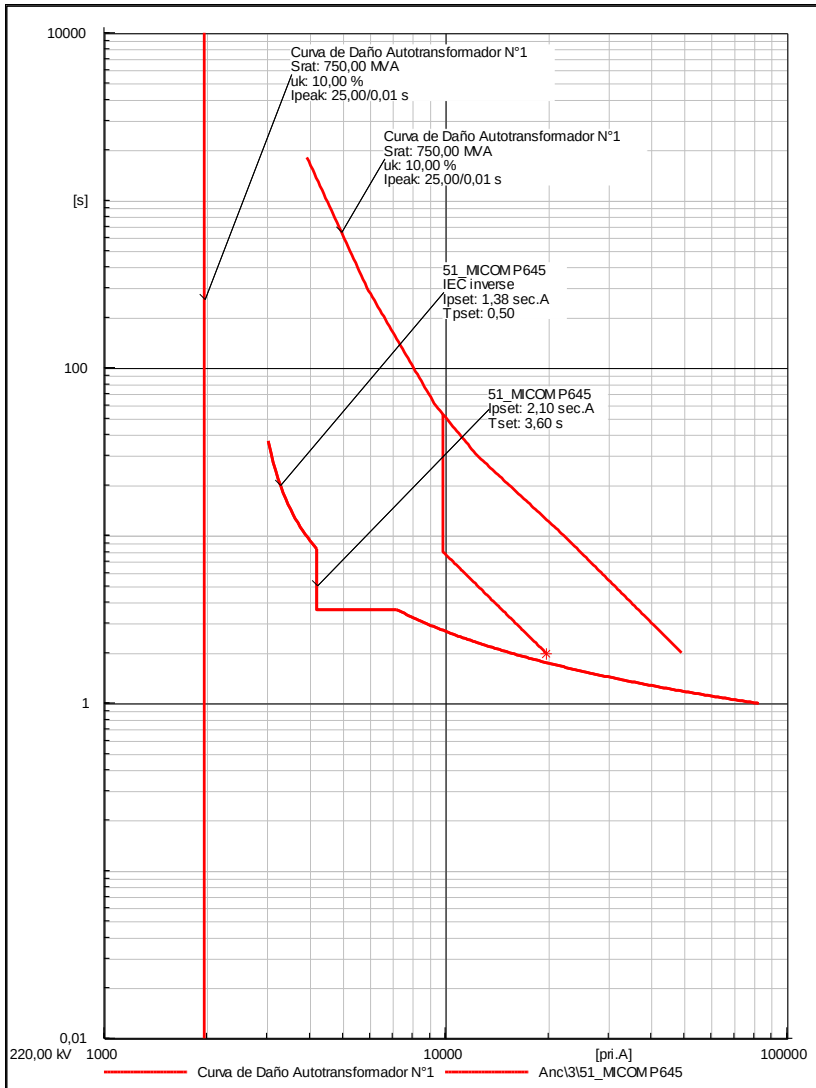

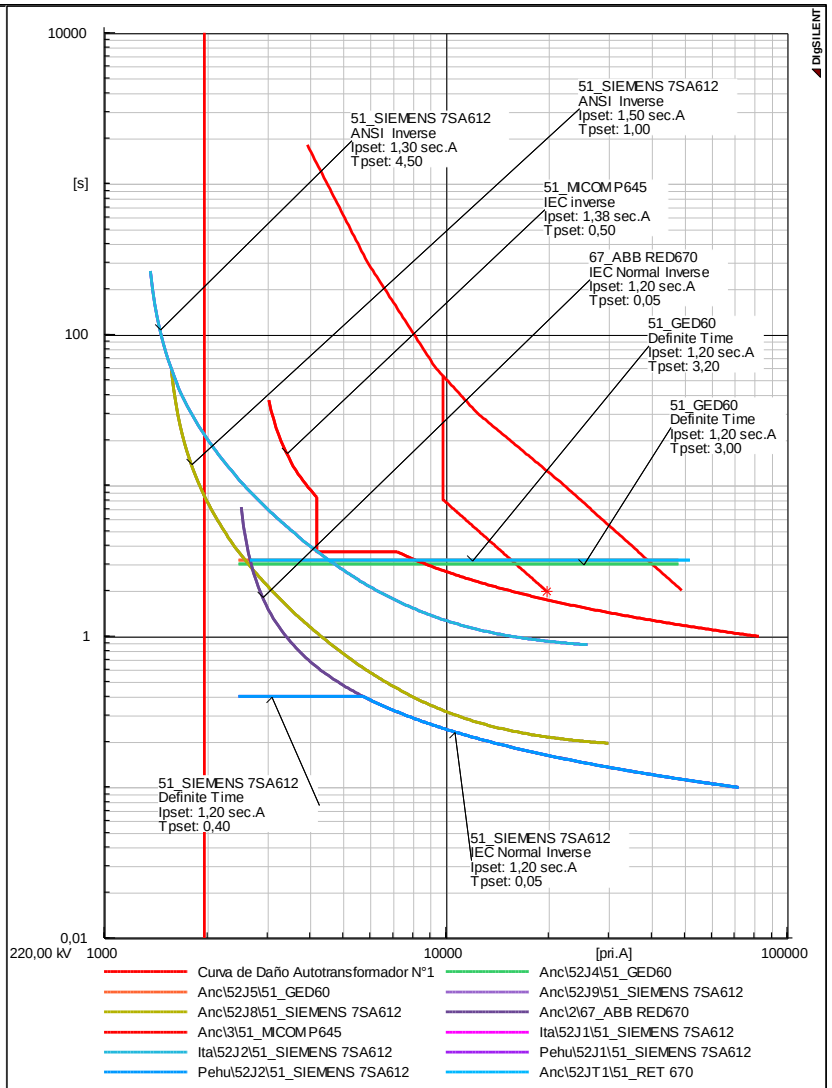

reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-0	Annex:

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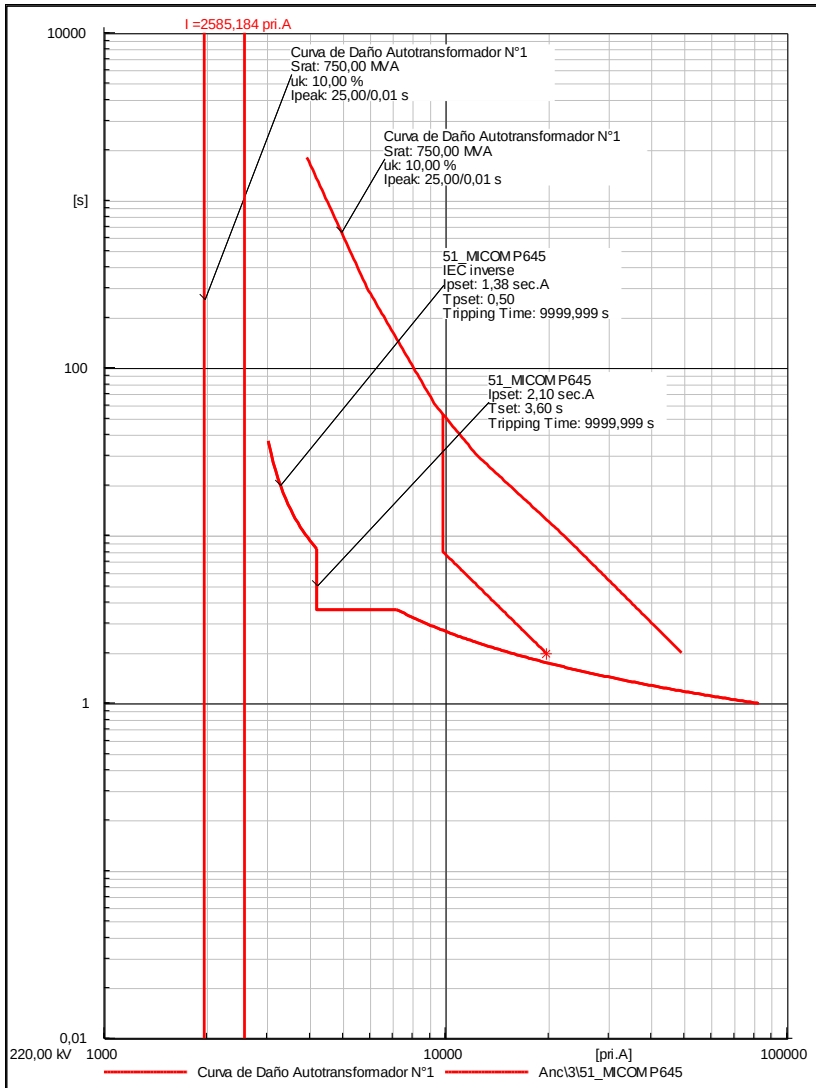

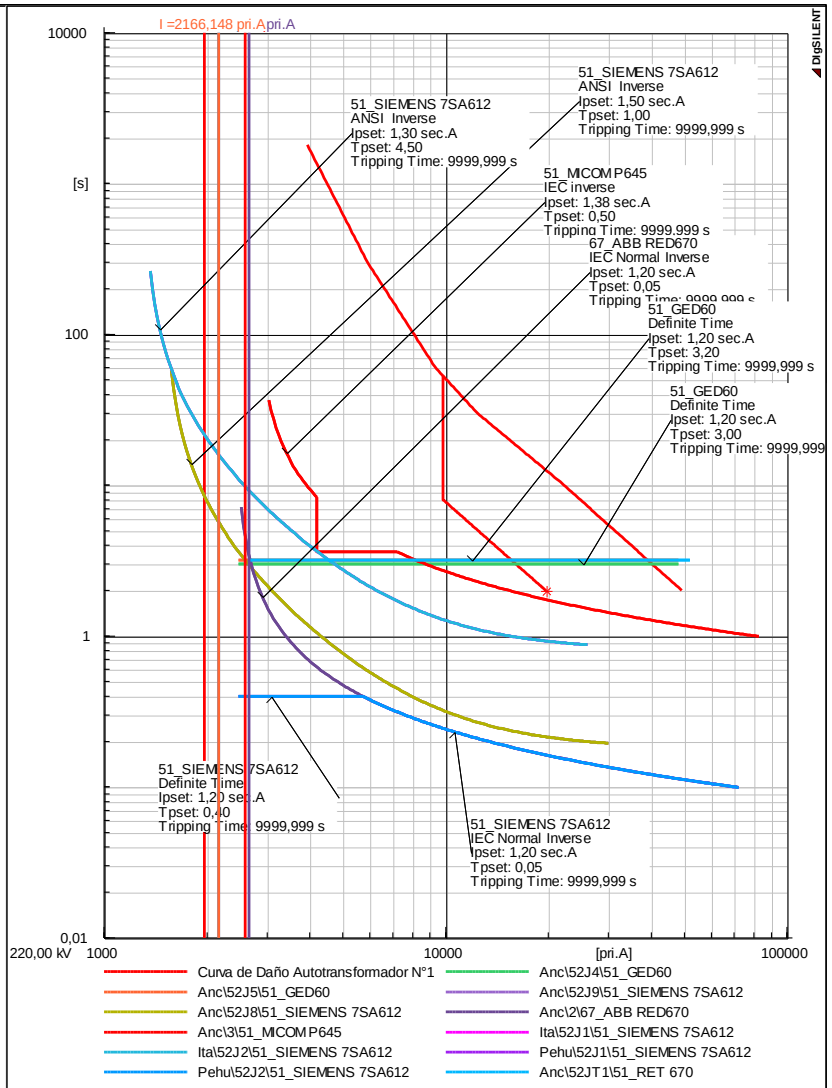

reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-25	Annex:

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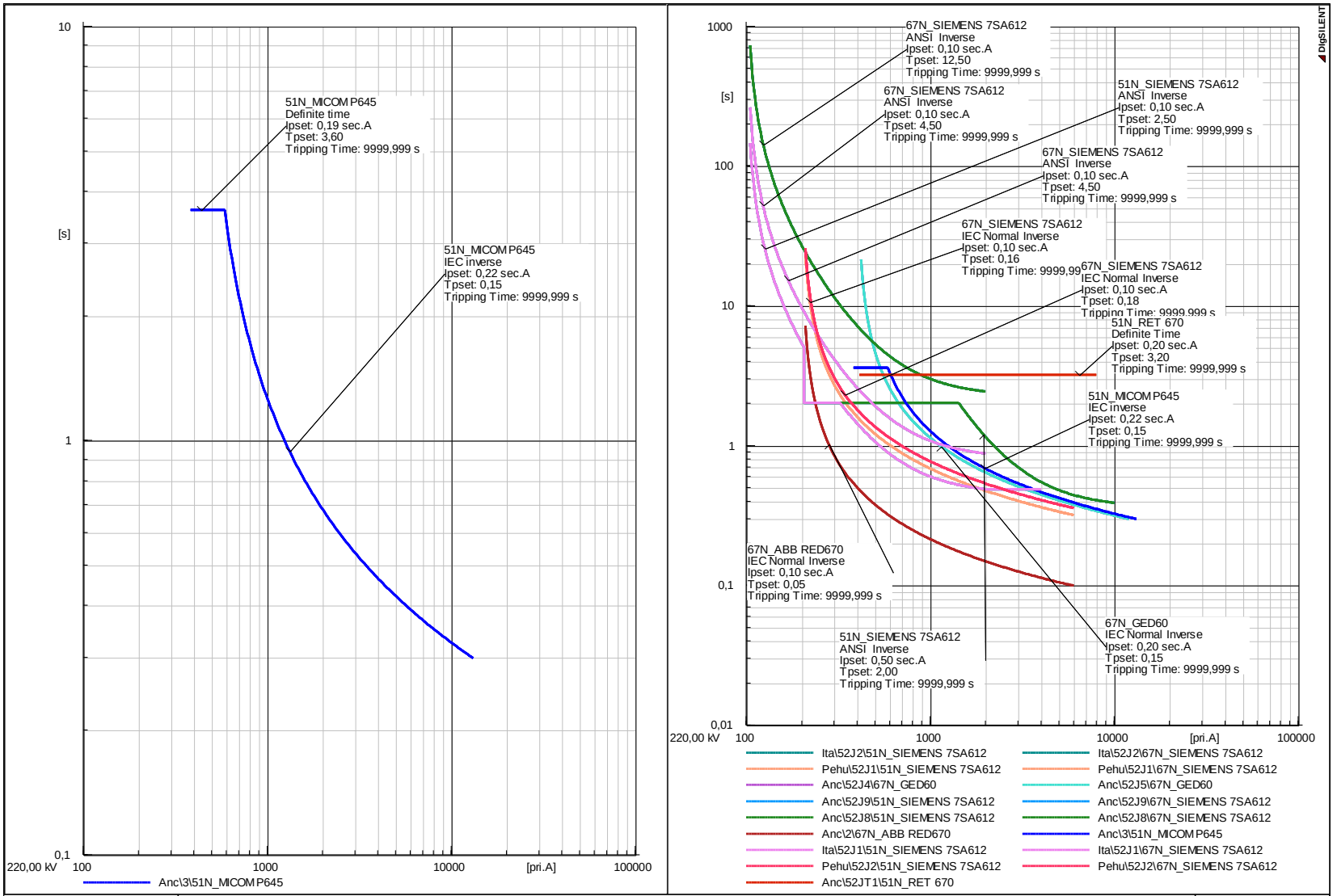
FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC3F	Annex:

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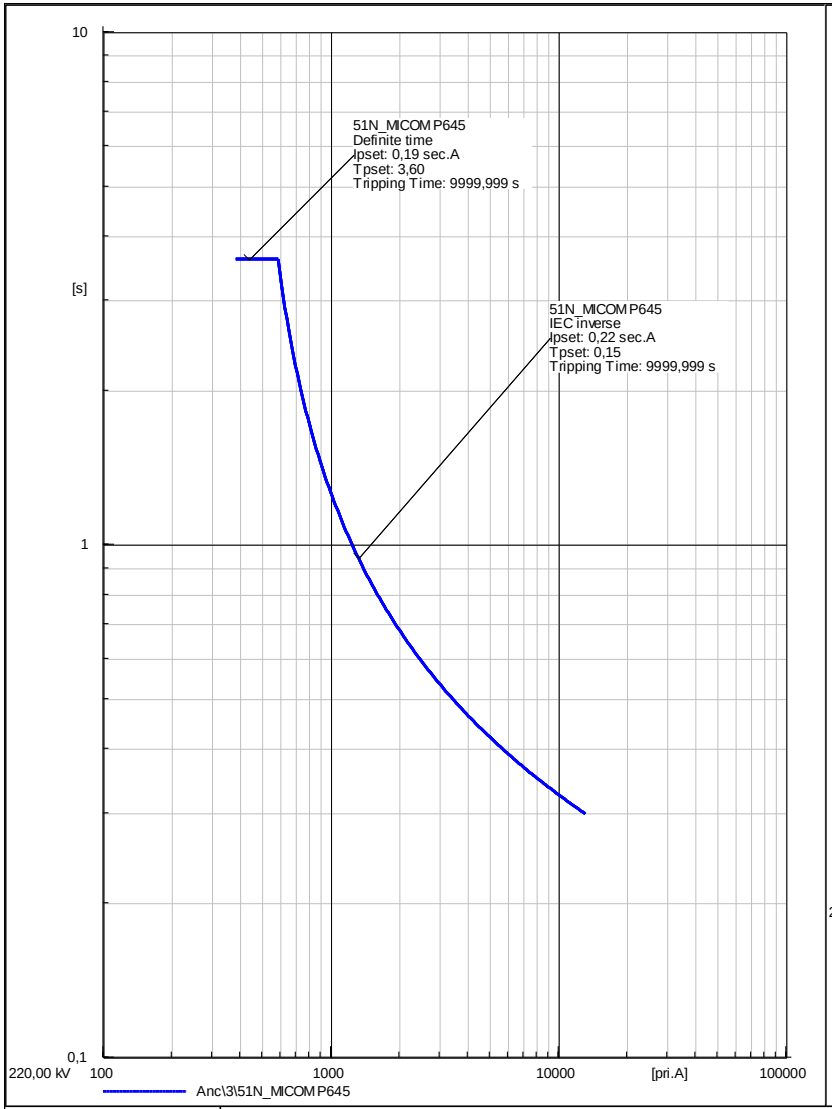

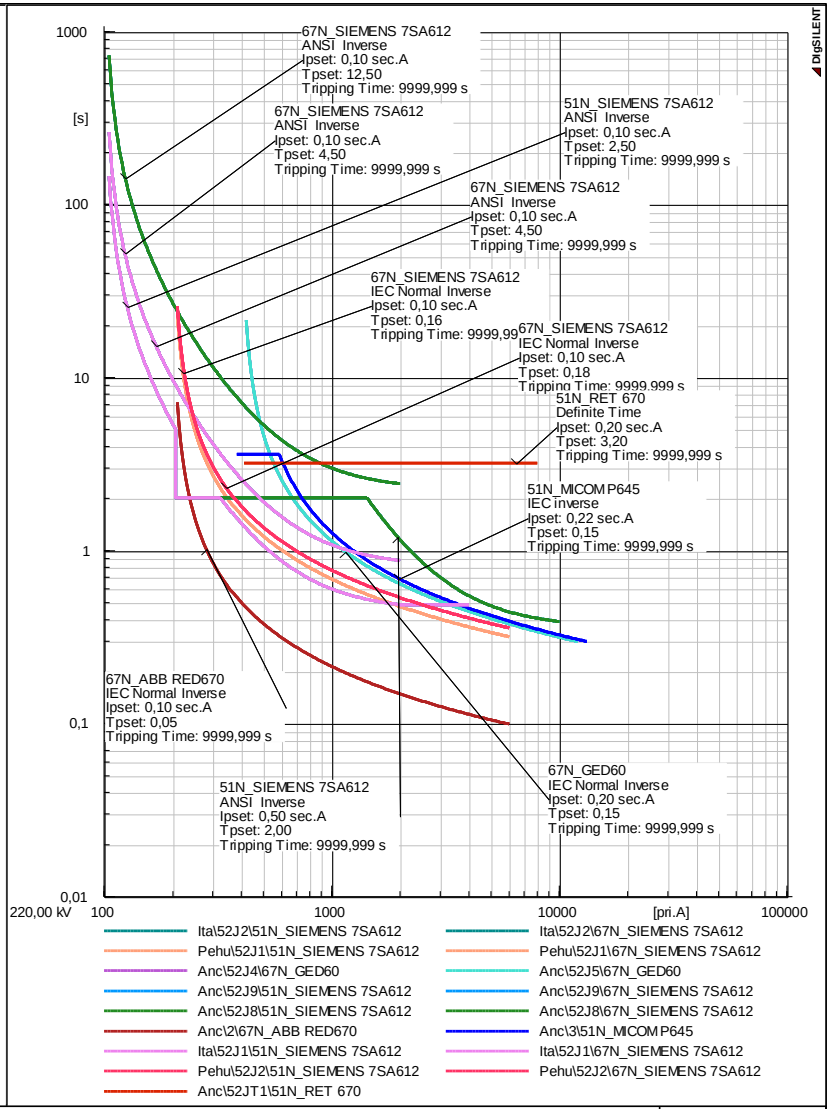

	PROYECTO REPRO 2015	51N_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2F	Annex:

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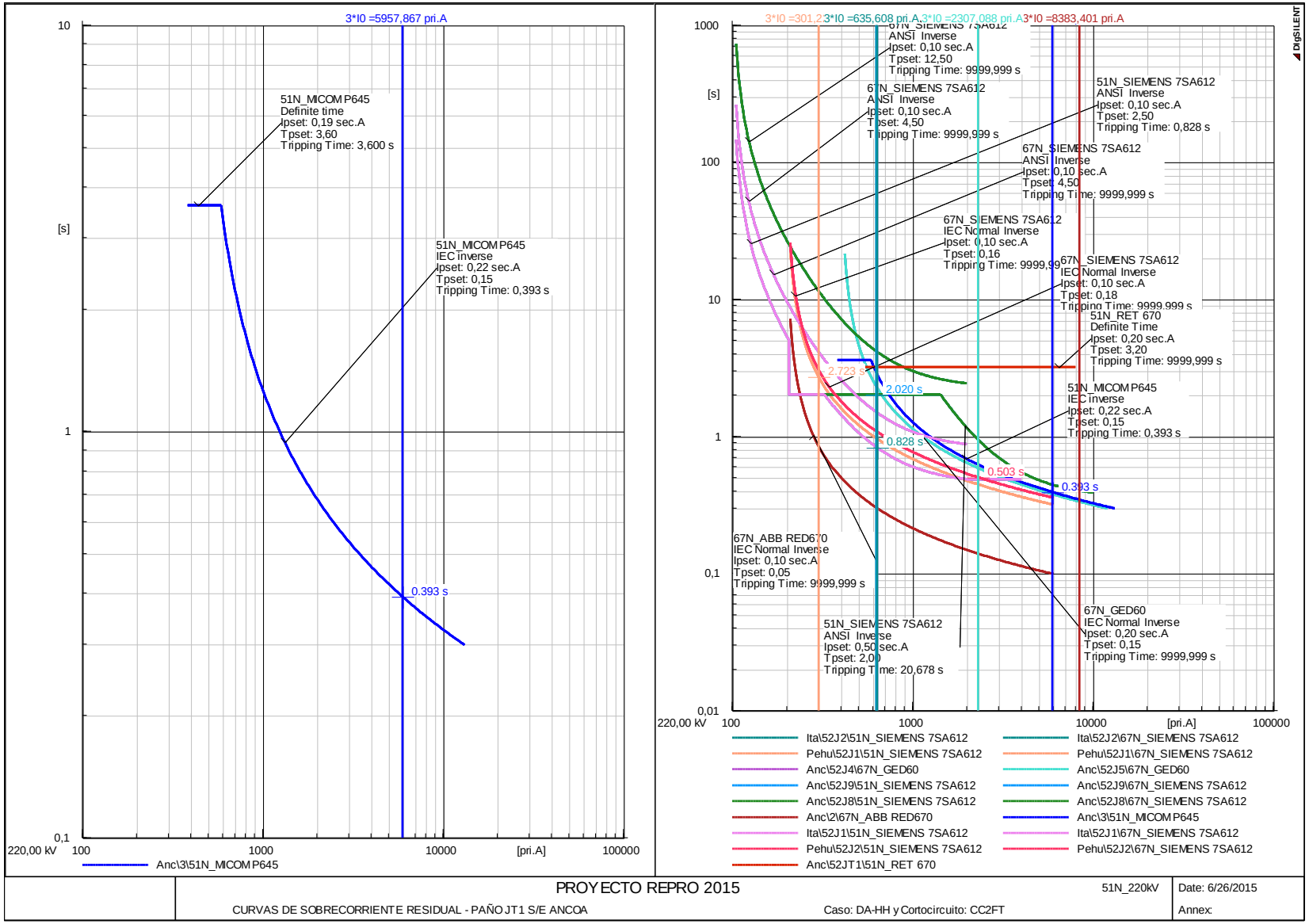

PROYECTO REPRO 2015

CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA

51N_220kV

Caso: DA-HH y Cortocircuito: CC2FT

Date: 6/26/2015

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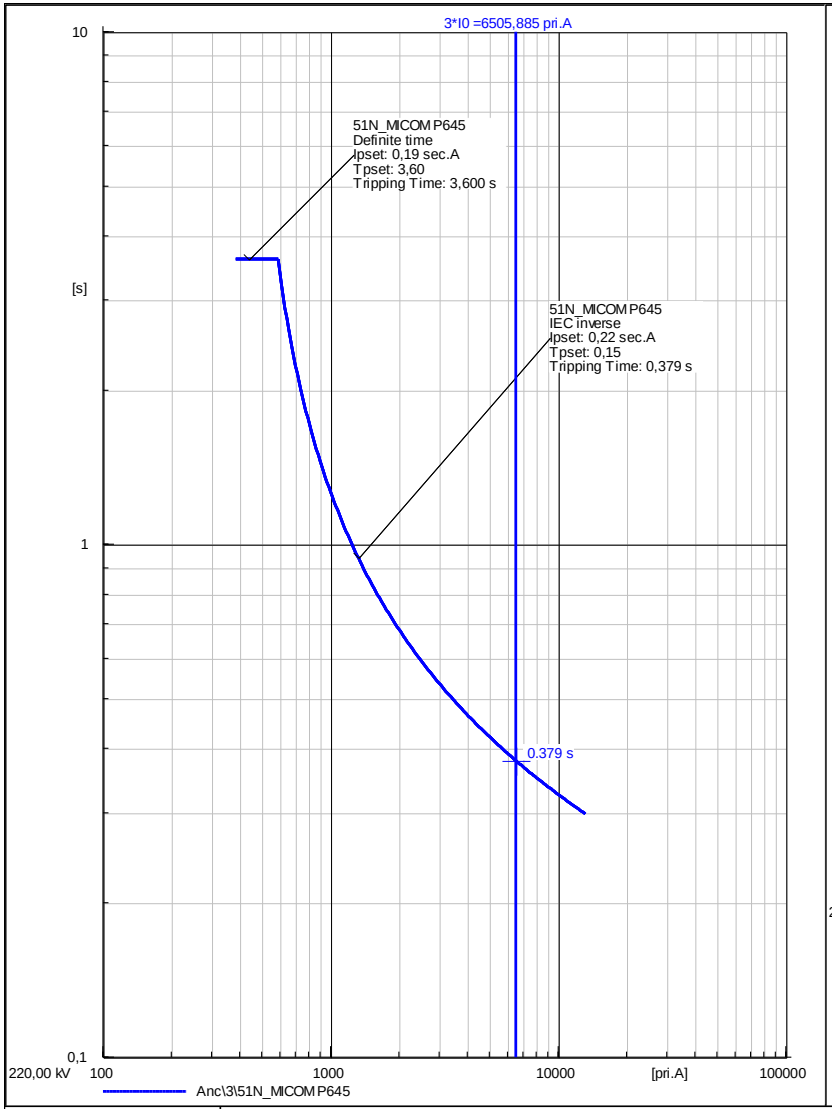

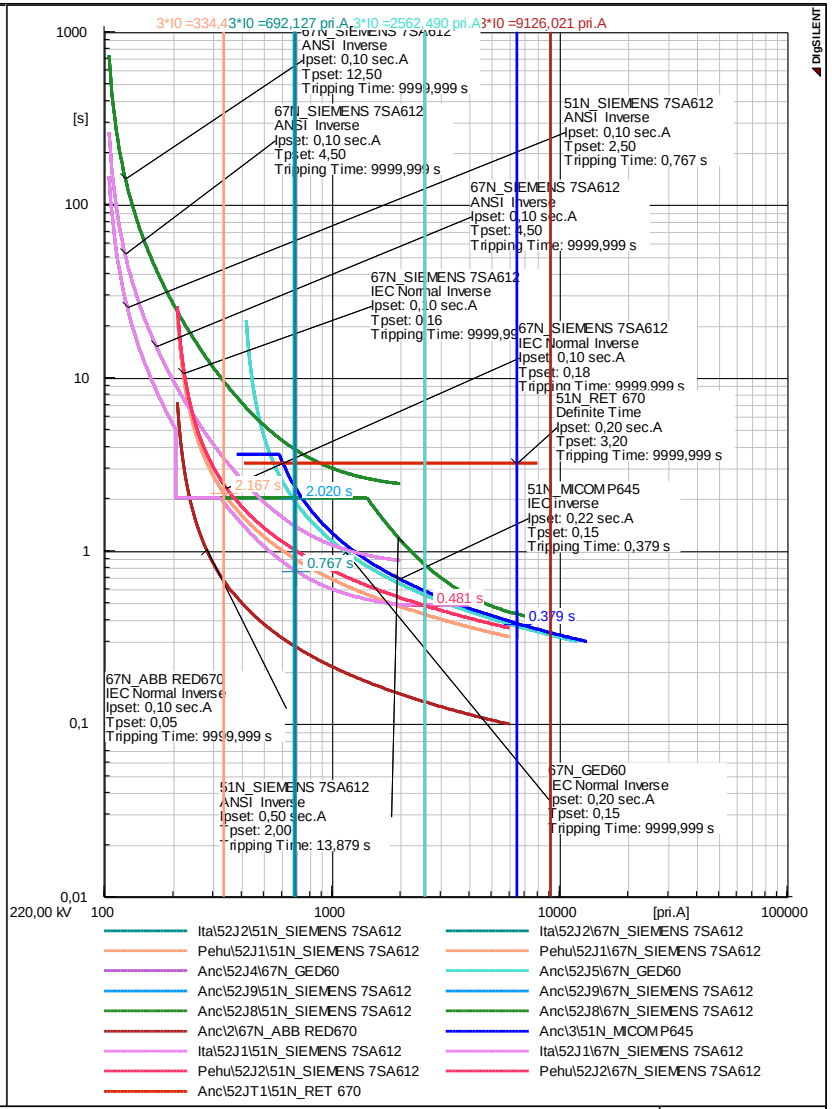

	PROYECTO REPRO 2015	51N_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1F-0	Annex:

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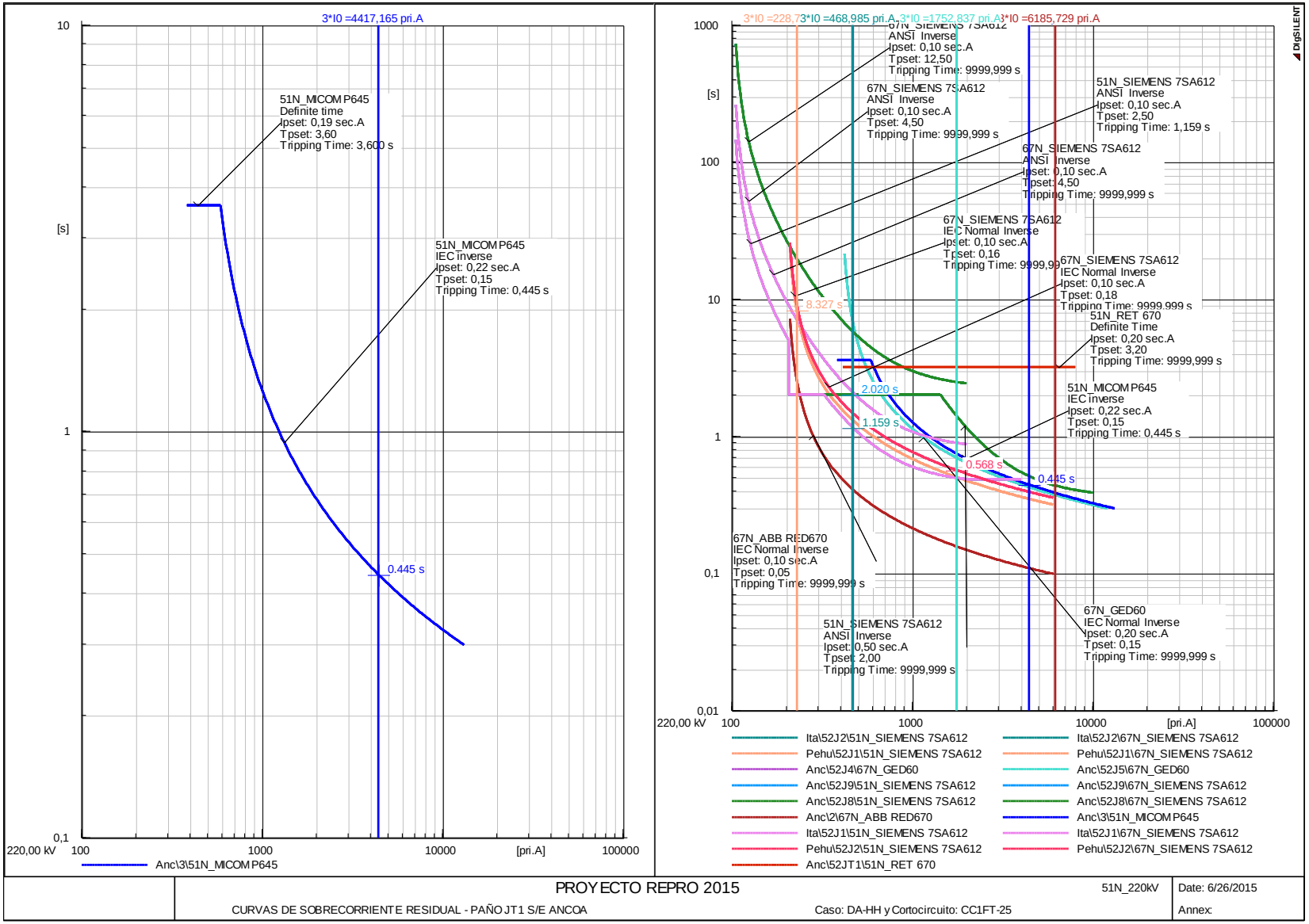

	PROYECTO REPRO 2015	51N_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-25	Annex:

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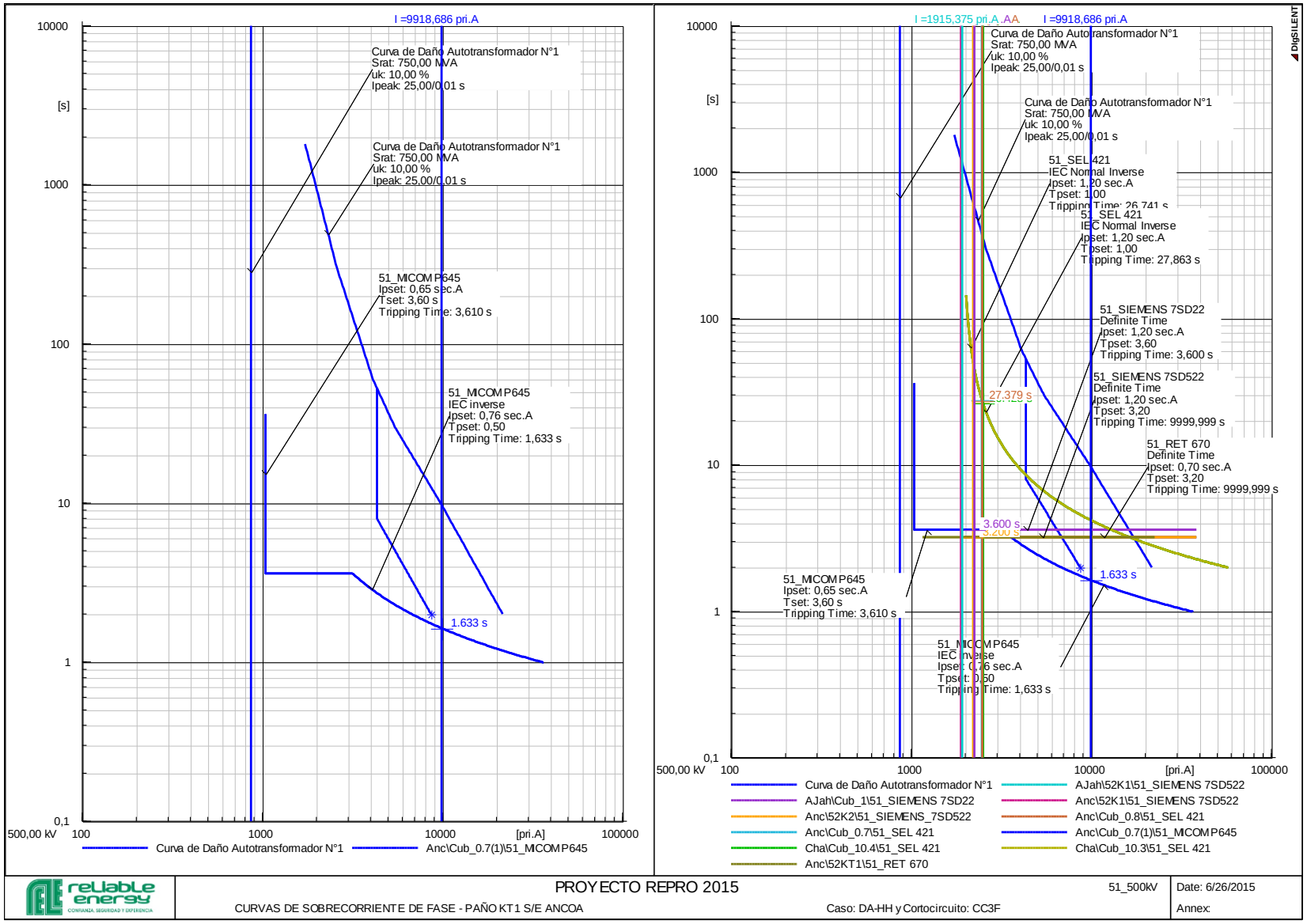
FUNCIÓN 51 LADO DE 500 KV



reliable energy	PROYECTO REPRO 2015	51_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC3F	Annex:

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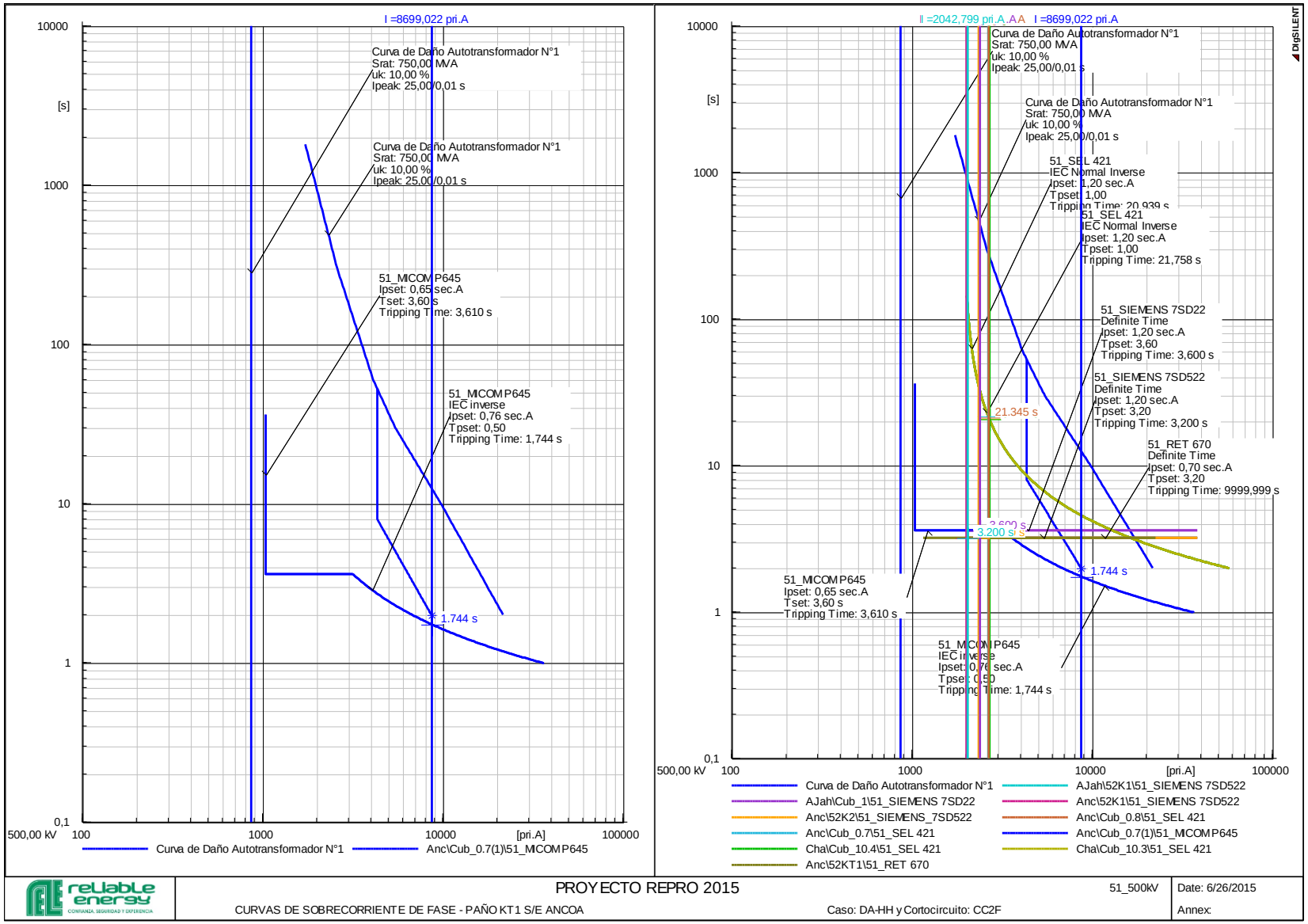

PROYECTO REPRO 2015

CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA

51_500kV

Caso: DA-HH y Cortocircuito: CC2F

Date: 6/26/2015

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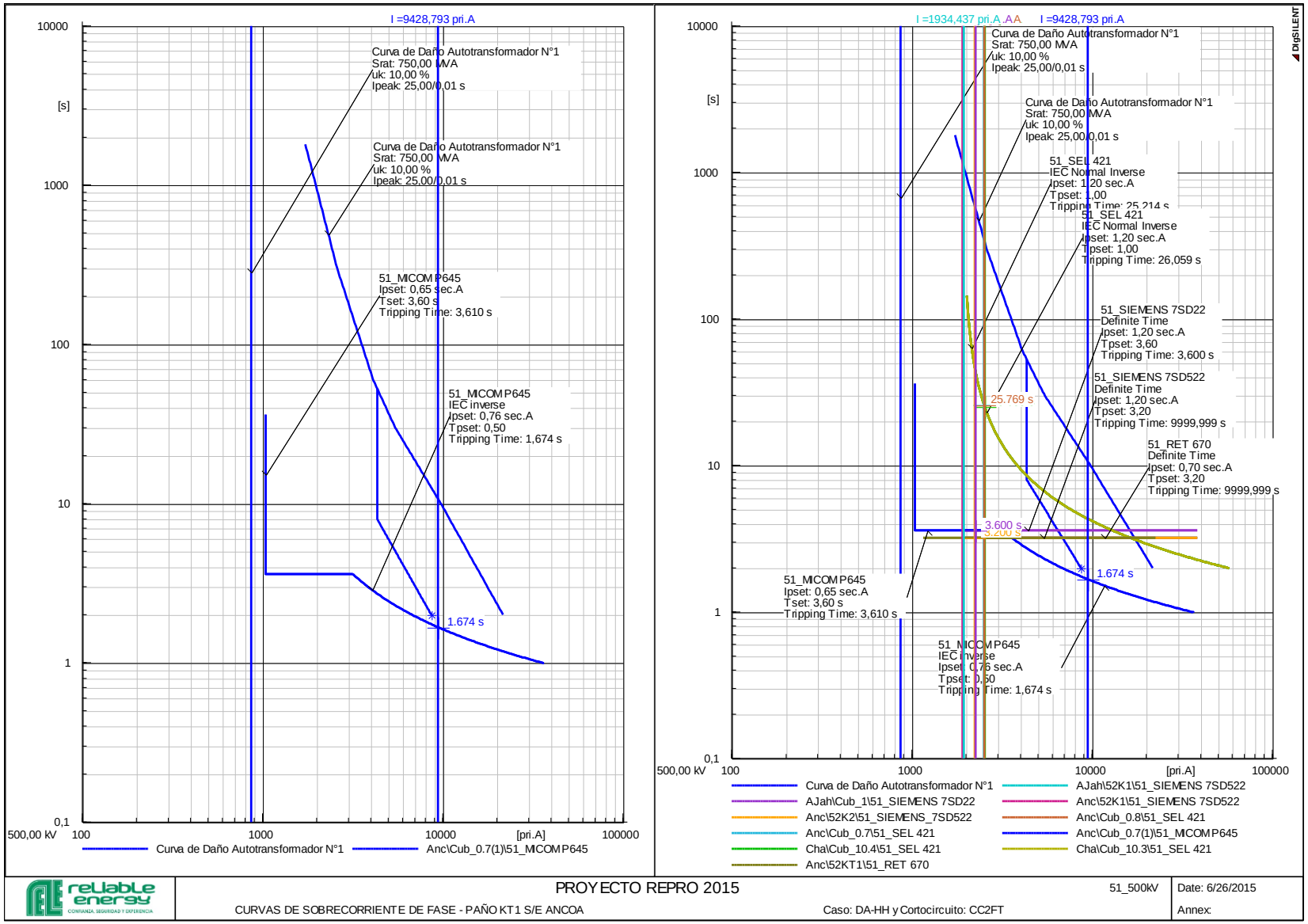

reliable energy	PROYECTO REPRO 2015	51_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2FT	Annex:

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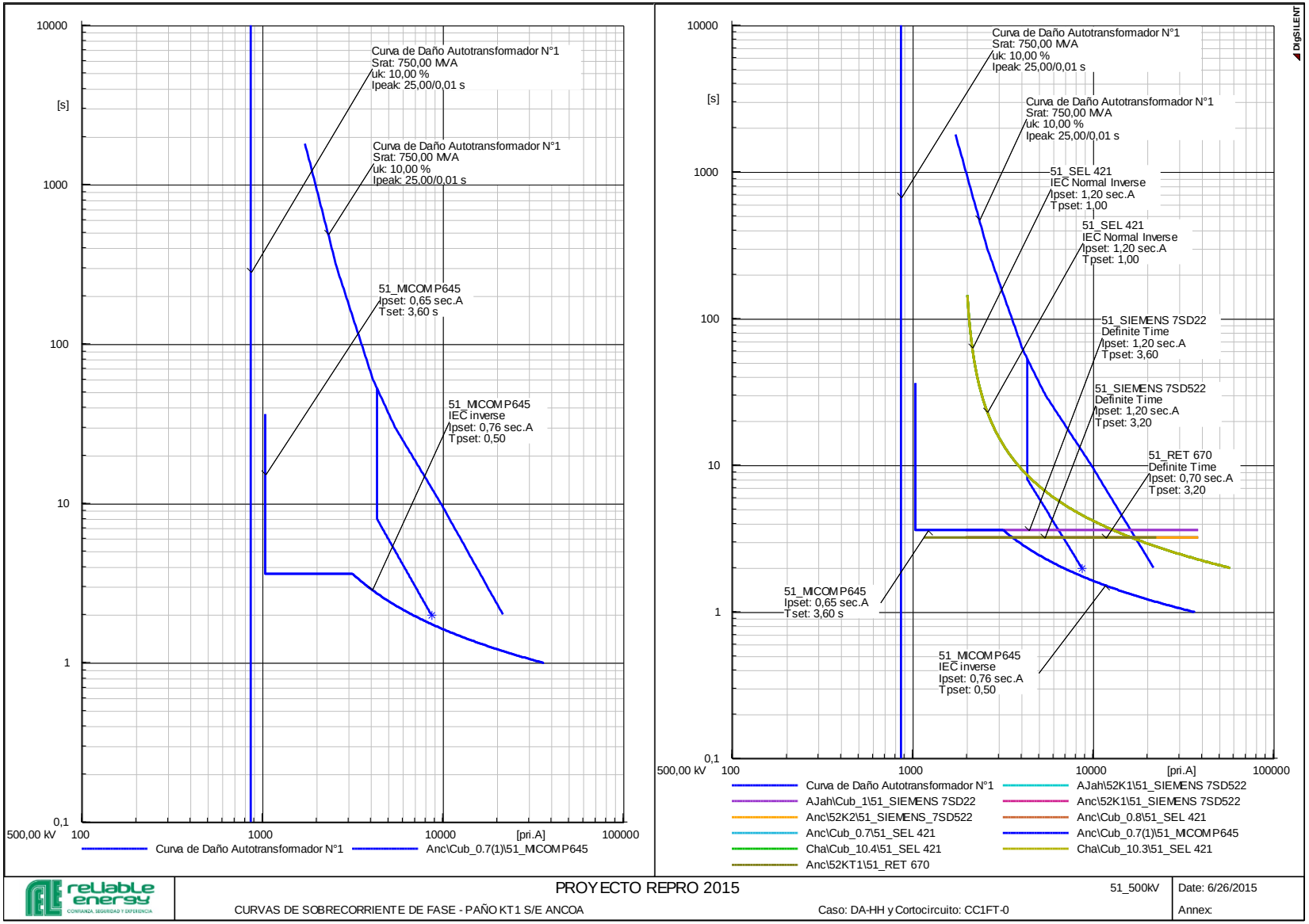

reliable energy	PROYECTO REPRO 2015	51_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-0	Annex:

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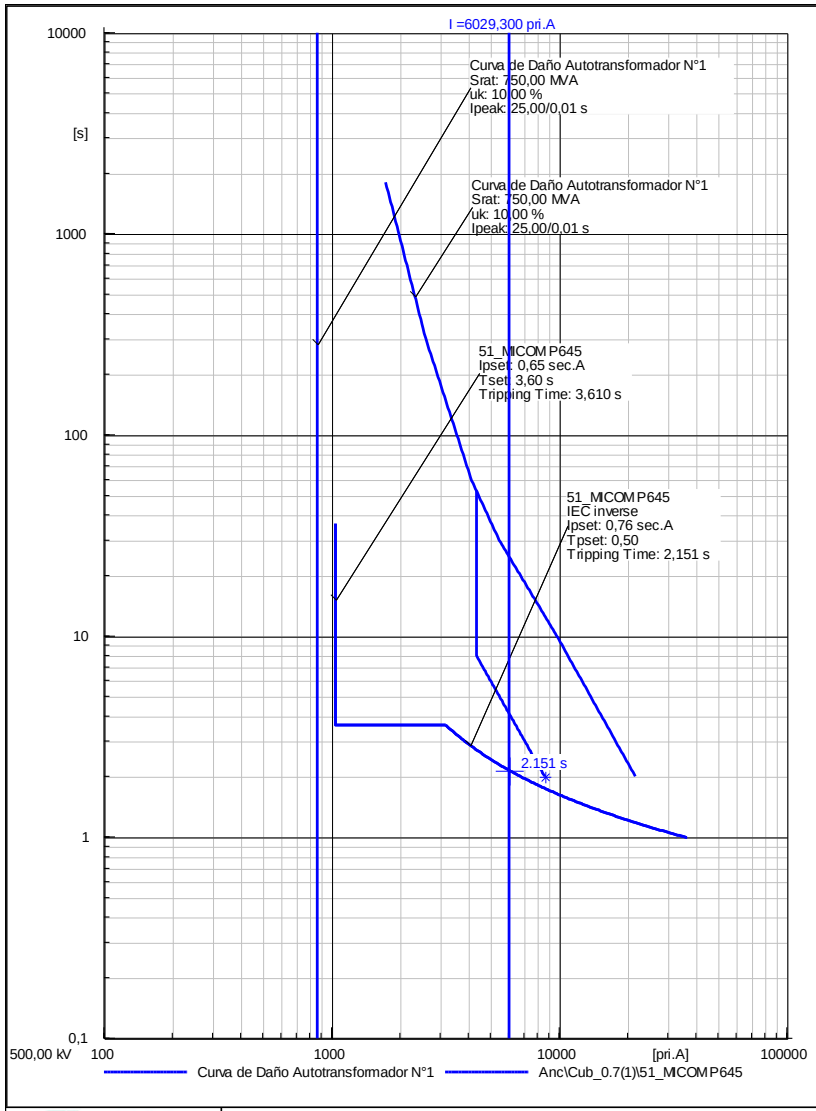

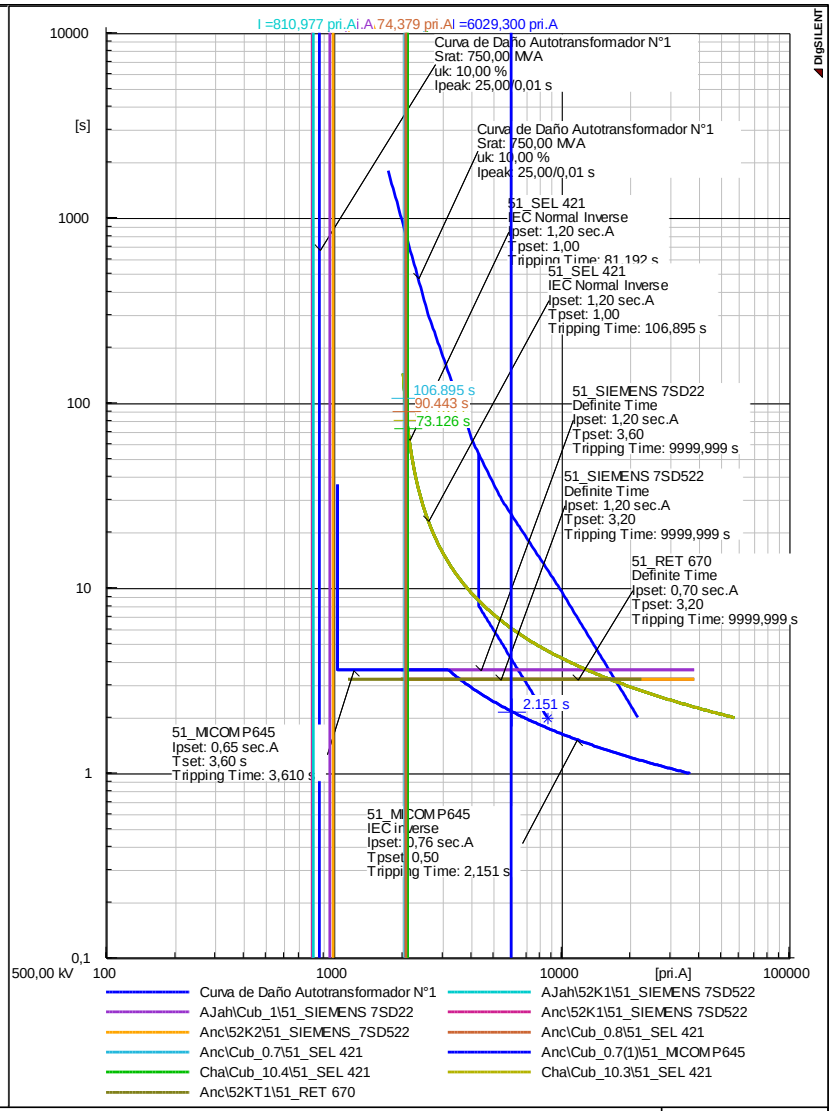

reliable energy	PROYECTO REPRO 2015	51_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-25	Annex:

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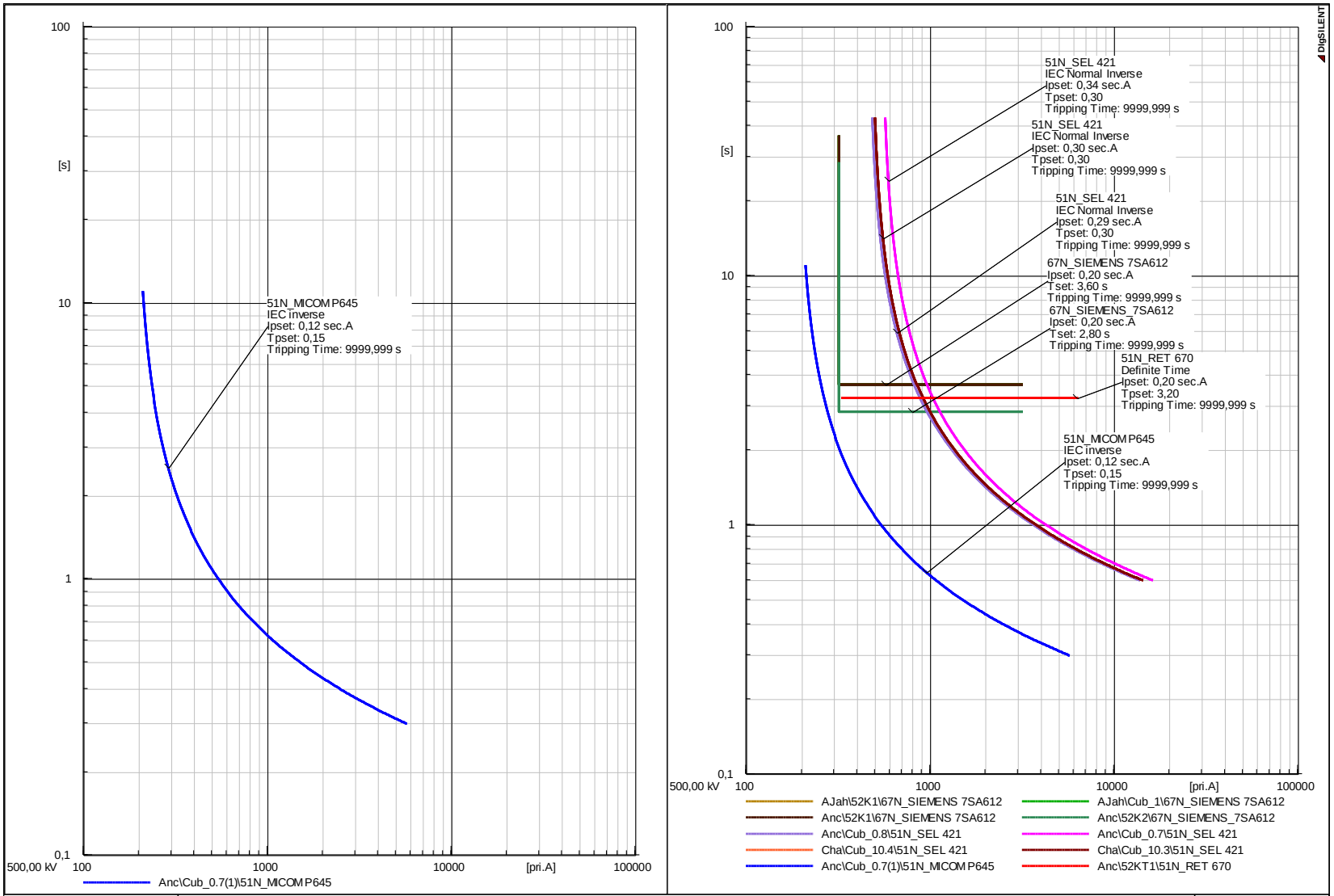
FUNCIÓN 51N LADO DE 500 KV



	PROYECTO REPRO 2015	51N_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC3F	Annex:

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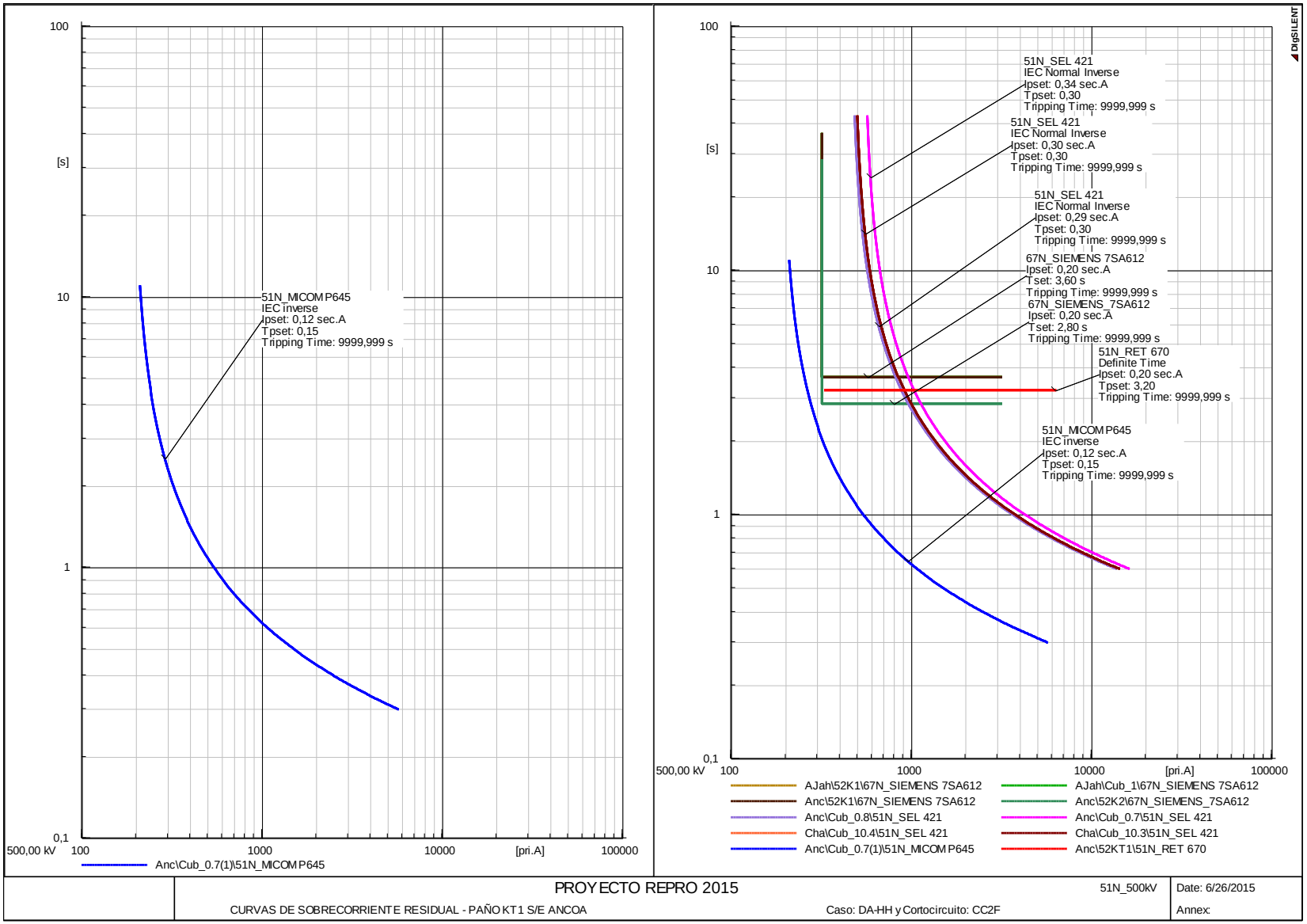

PROYECTO REPRO 2015

CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA

51N_500kV

Caso: DA-HH y Cortocircuito: CC2F

Date: 6/26/2015

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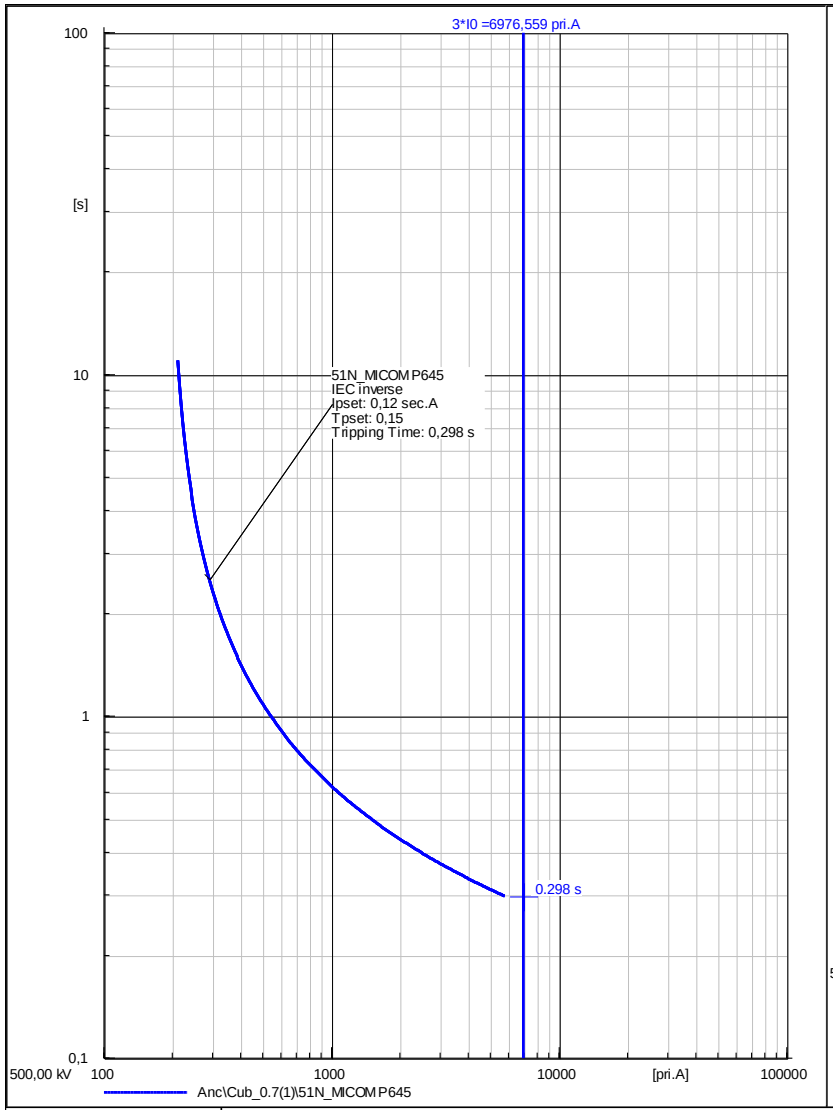

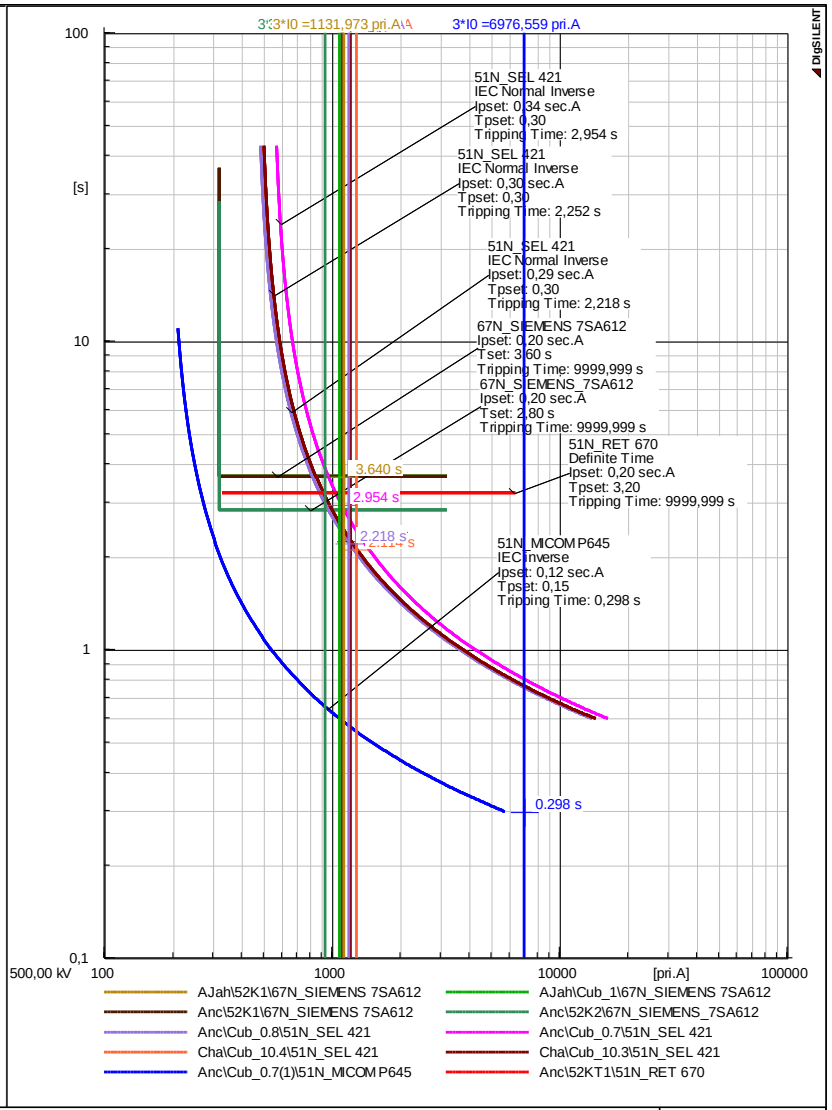

	PROYECTO REPRO 2015	51N_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2FT	Annex:

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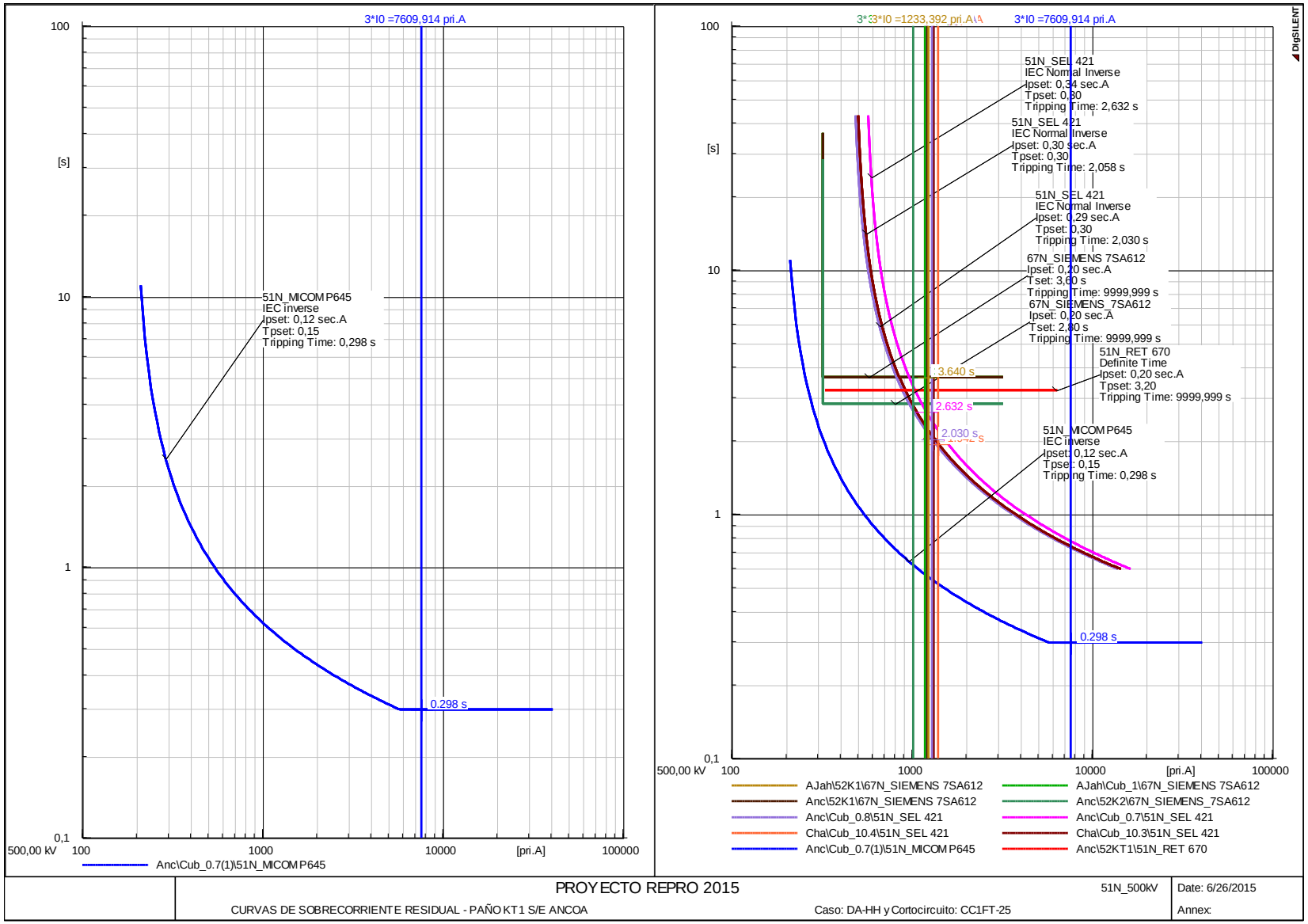

PROYECTO REPRO 2015

CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA

51N_500kV

Caso: DA-HH y Cortocircuito: CC1FT-25

Date: 6/26/2015

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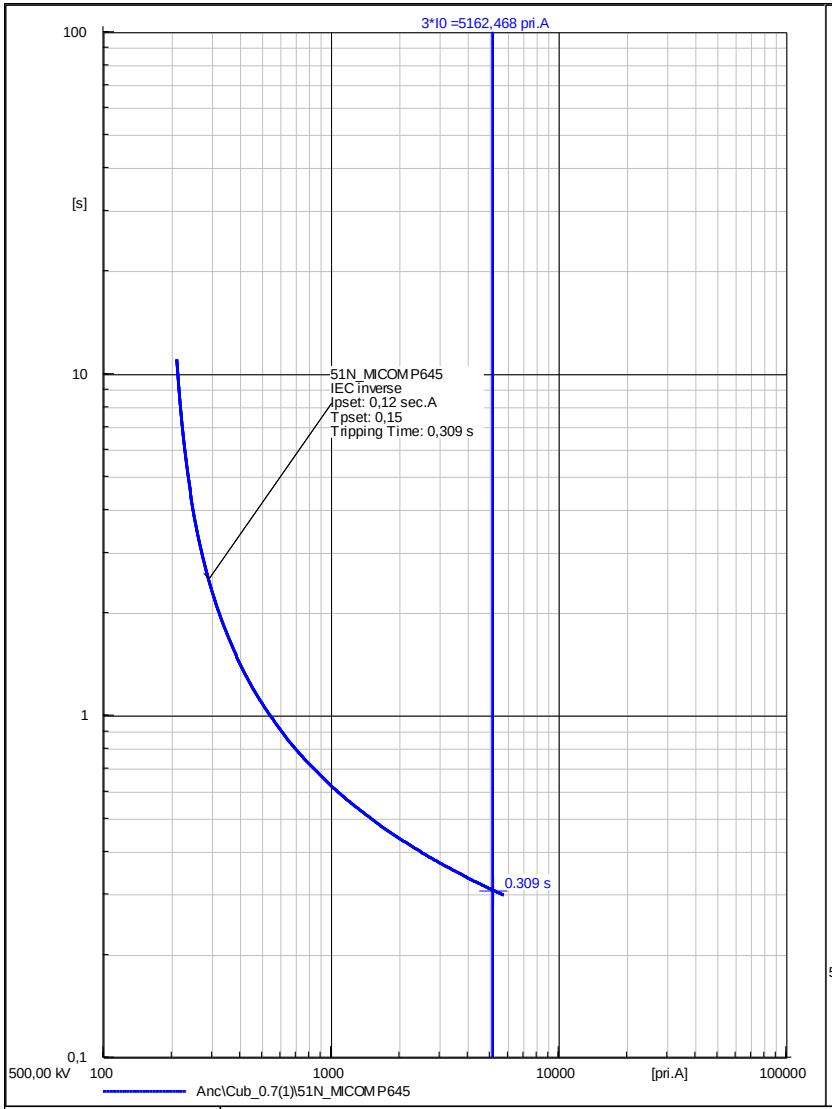

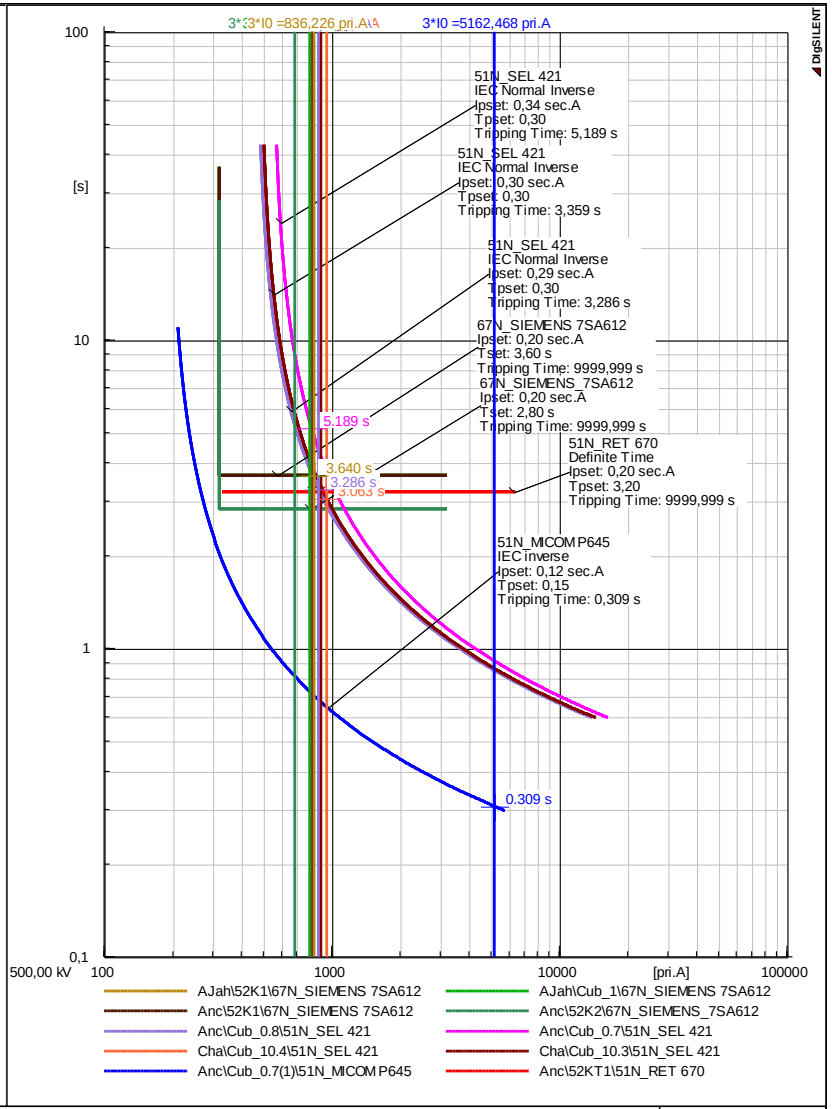

	PROYECTO REPRO 2015	51N_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-25	Annex:

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FALLA EN BARRA 220 KV S/E ANCOA

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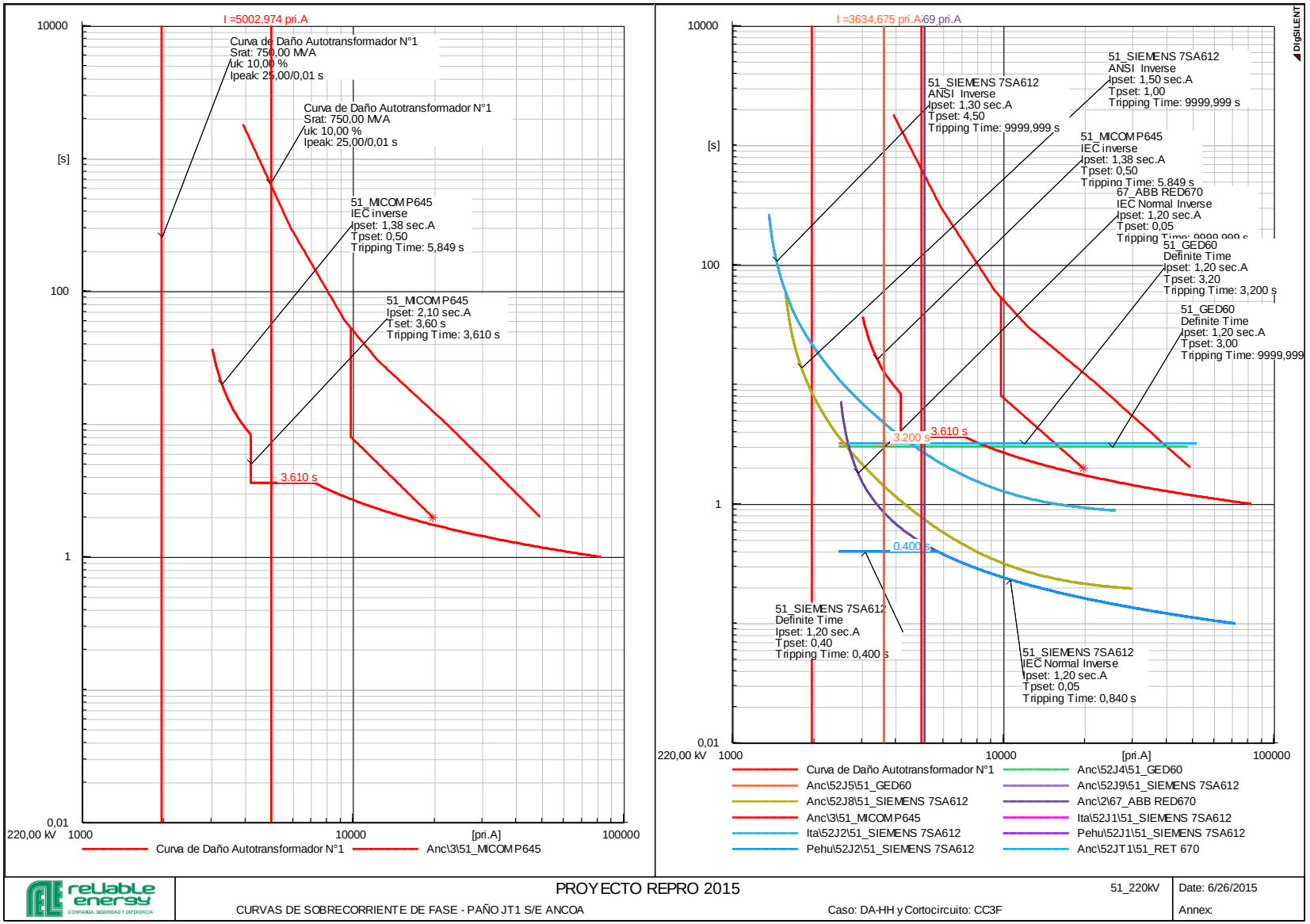
FUNCIÓN 51 LADO DE 220 KV



reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC3F	Annex:

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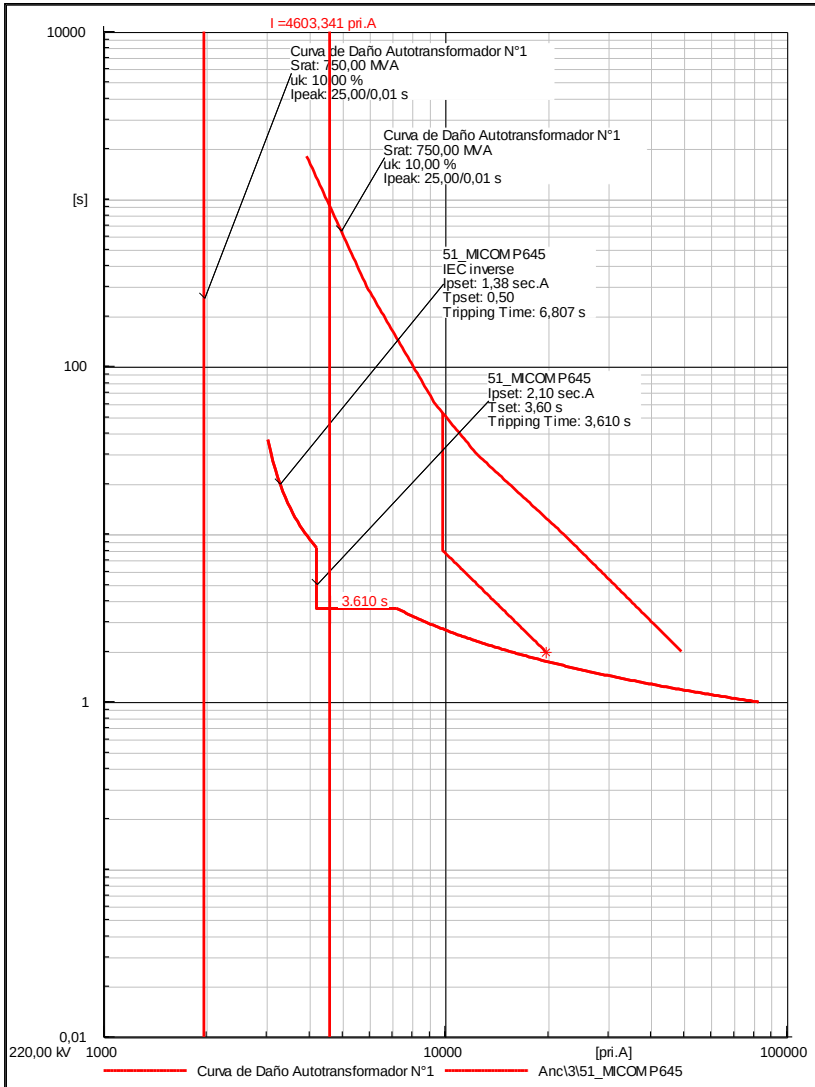

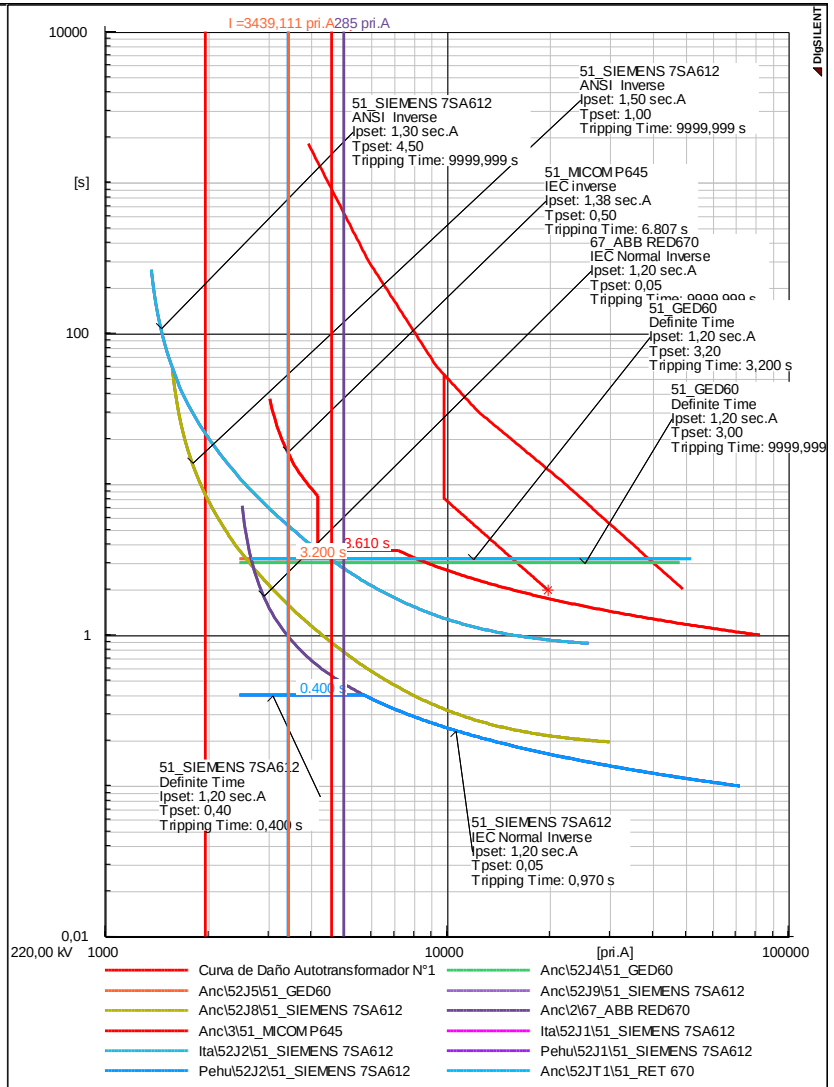

reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2F	Annex:

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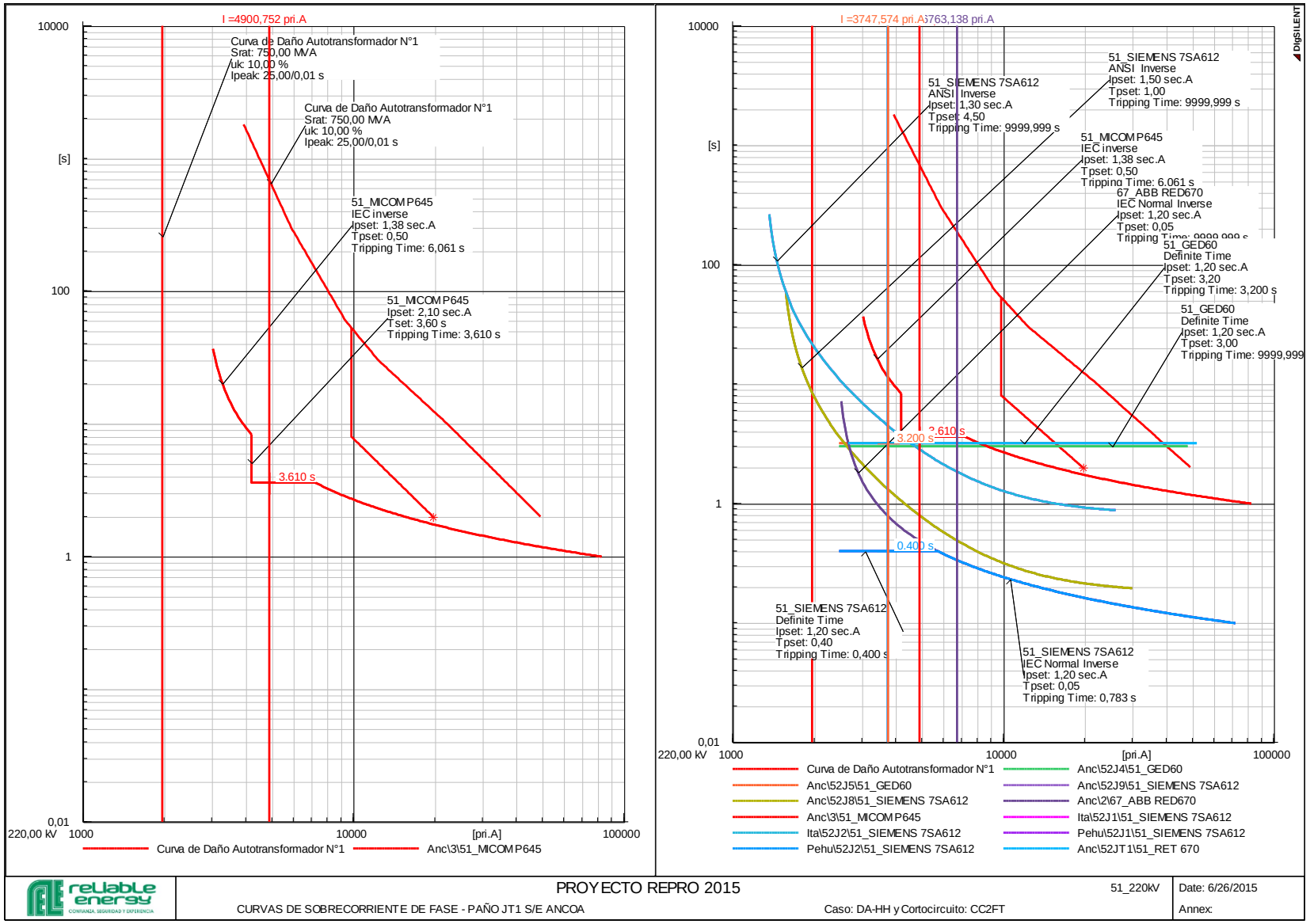

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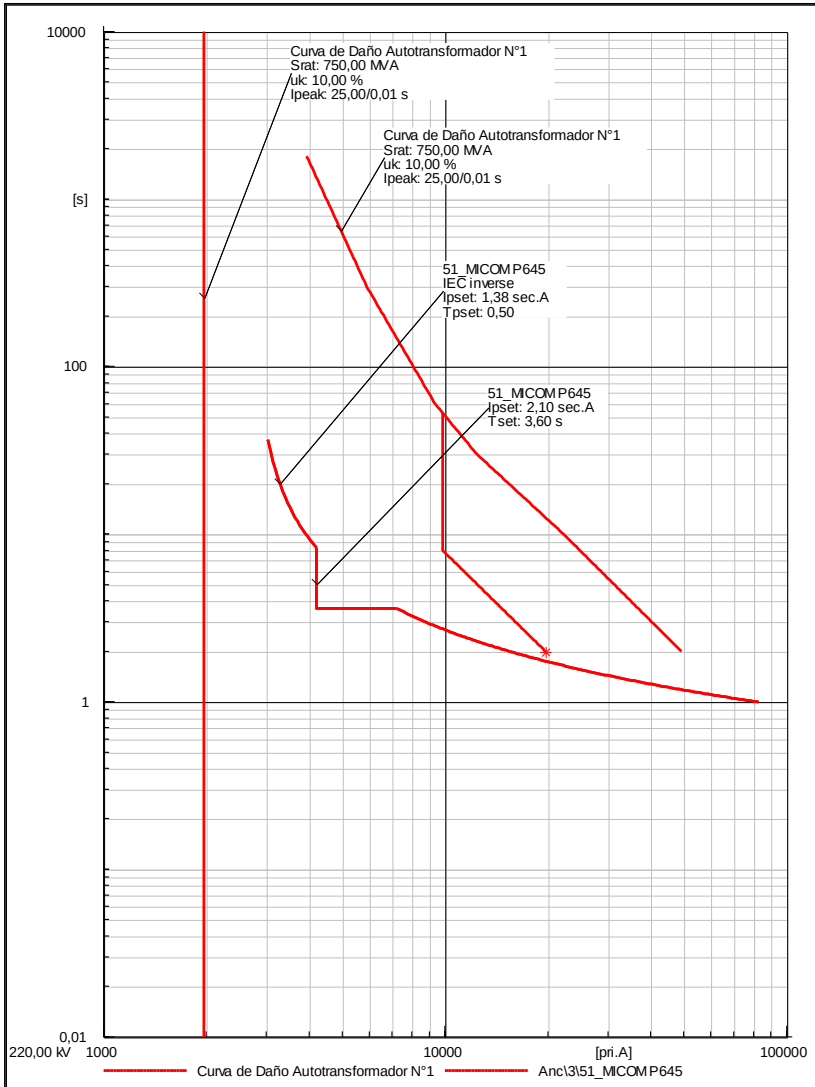

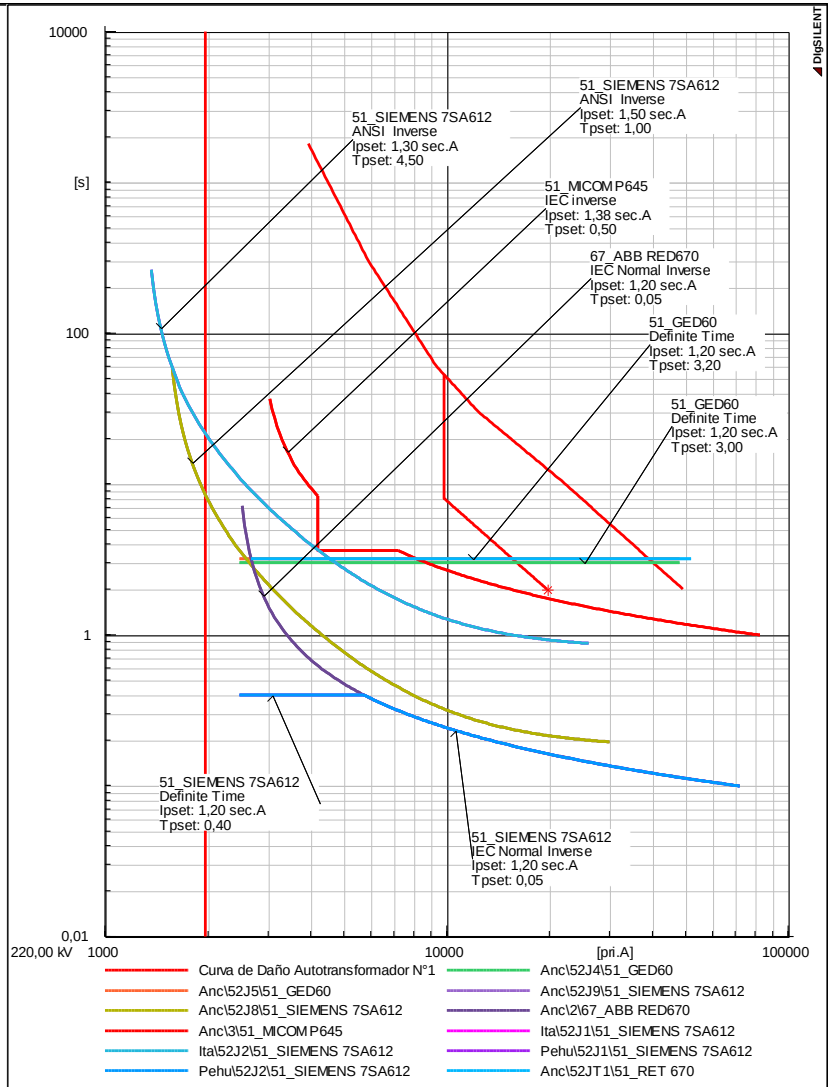

reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-0	Annex:

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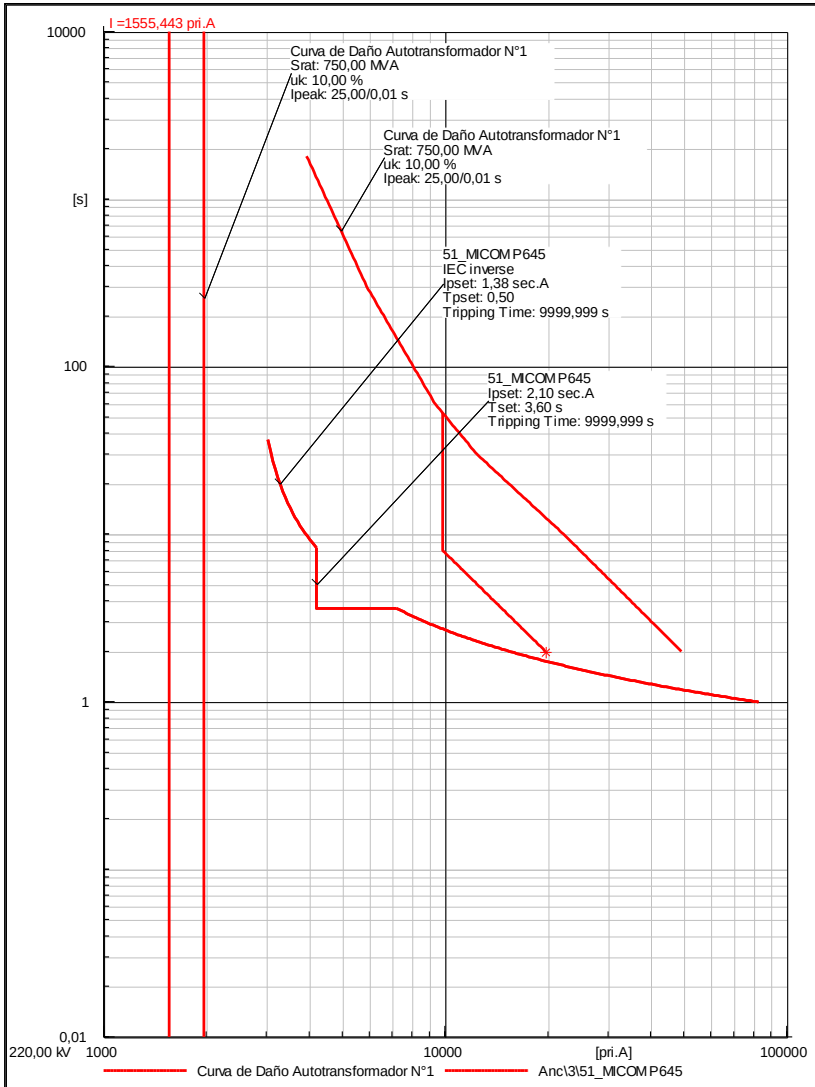

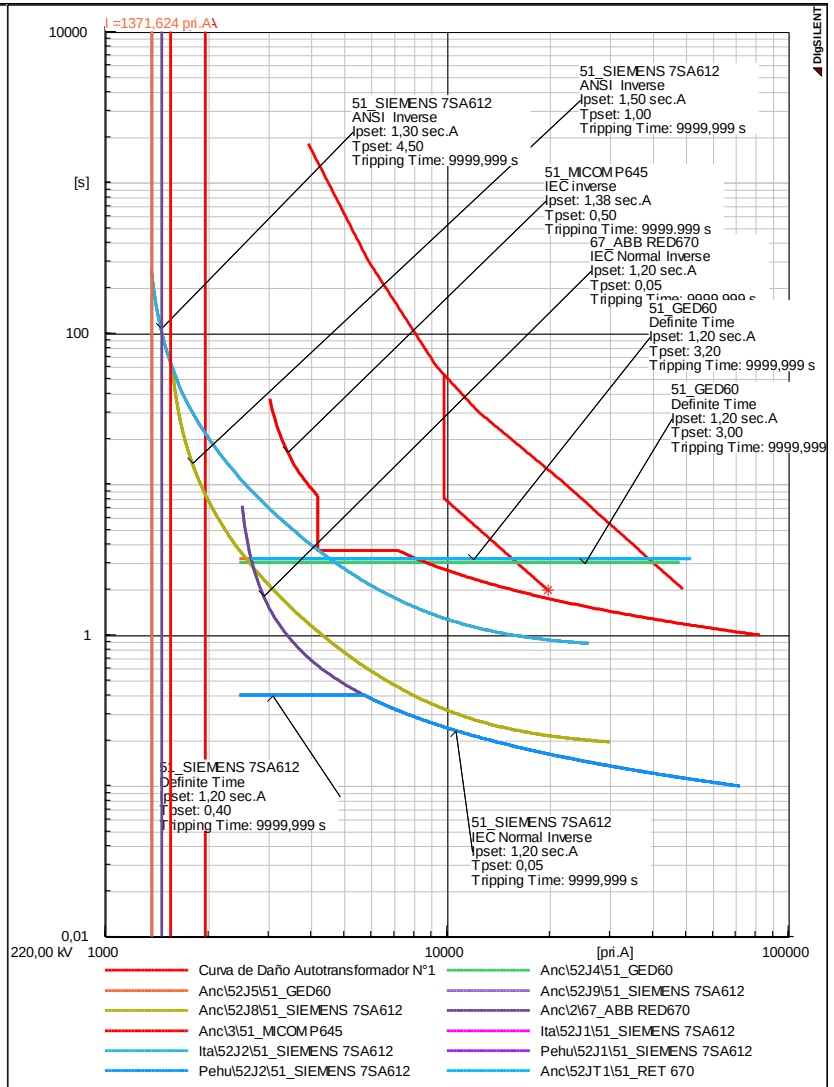

reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-25	Annex:

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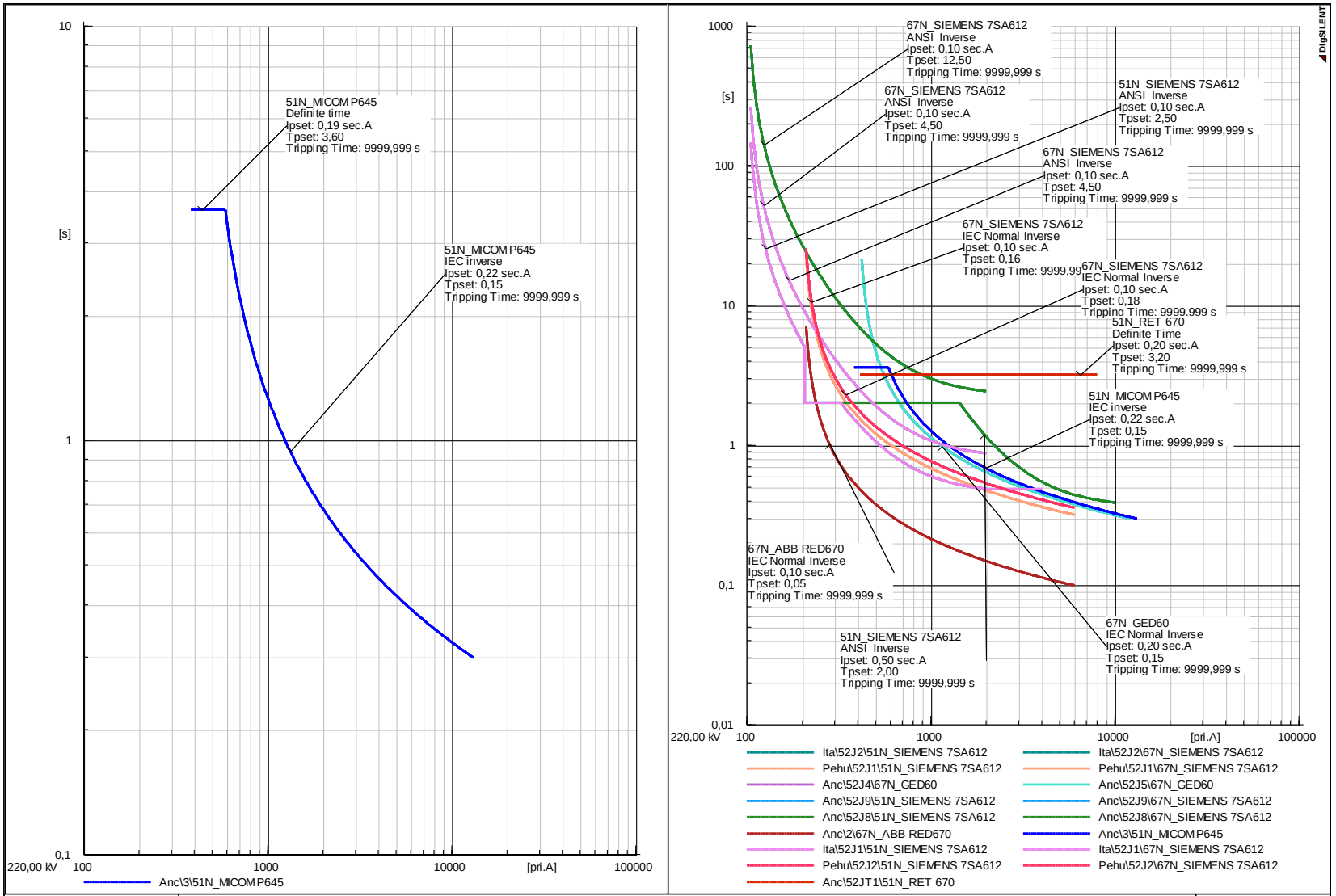
FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC3F	Annex:

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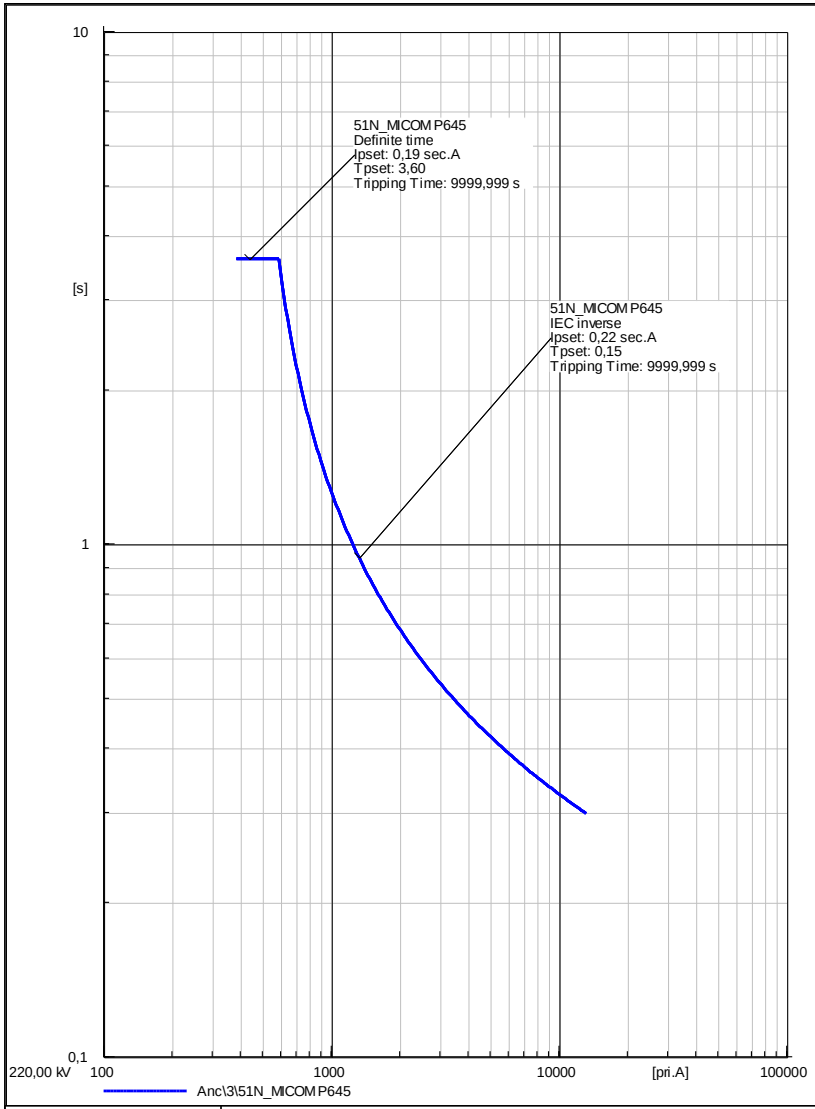

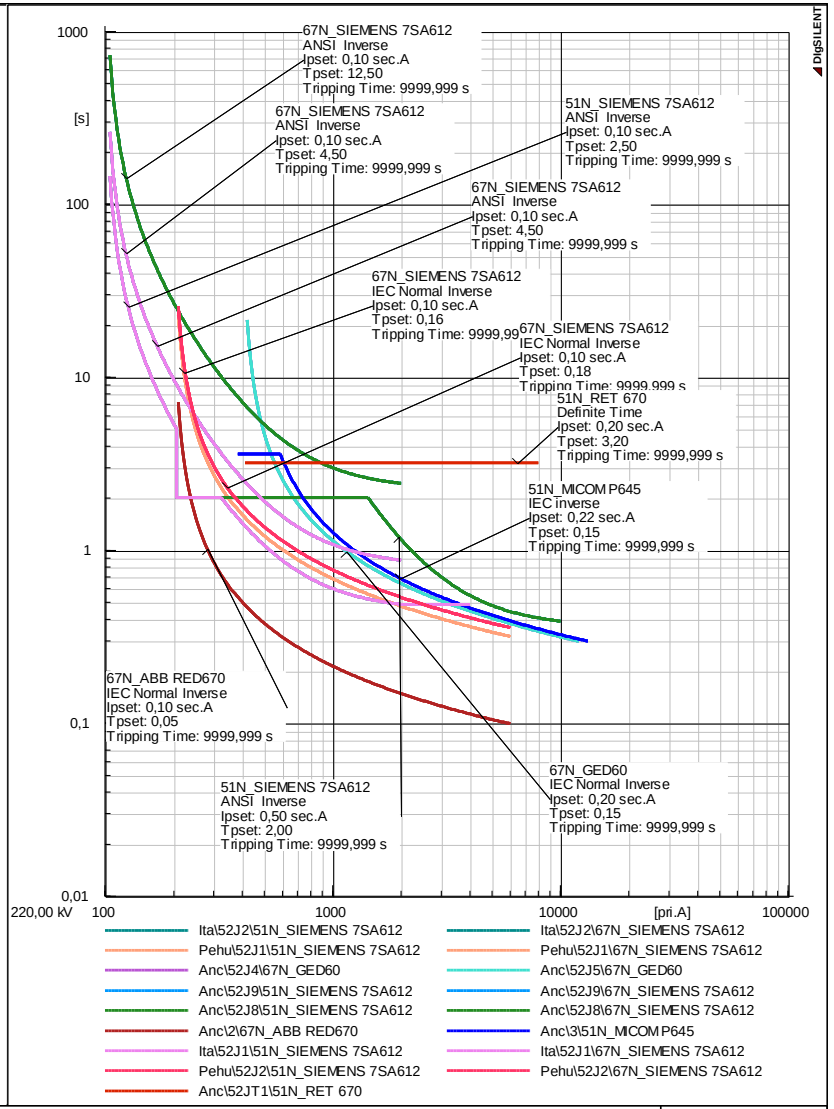

	PROYECTO REPRO 2015	51N_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2F	Annex:

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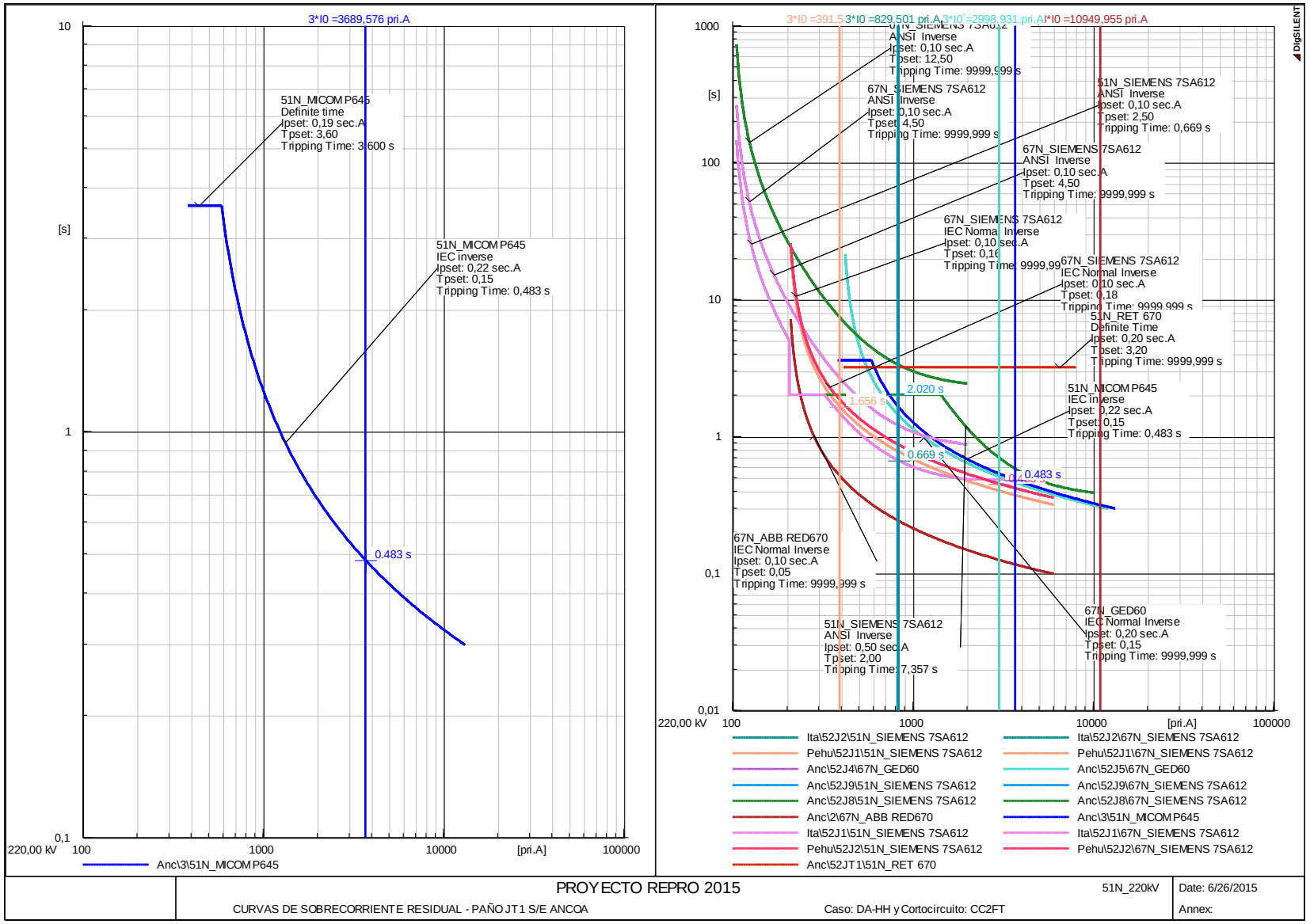

PROYECTO REPRO 2015

CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA

Caso: DA-HH y Cortocircuito: CC2FT

51N_220kV

Date: 6/26/2015

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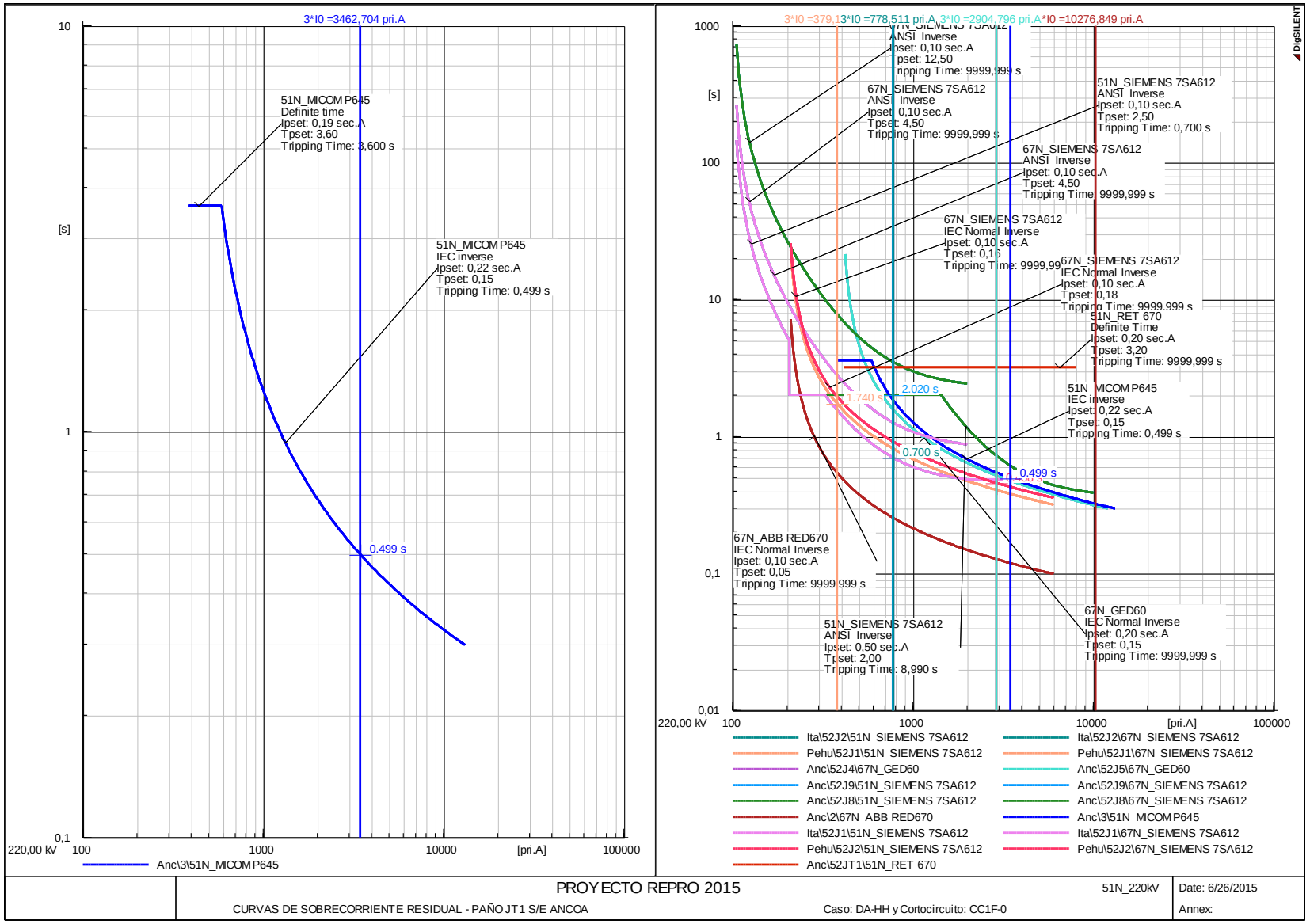

PROYECTO REPRO 2015

51N_220kV

Date: 6/26/2015

CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA

Caso: DA-HH y Cortocircuito: CC1F-0

Annex:

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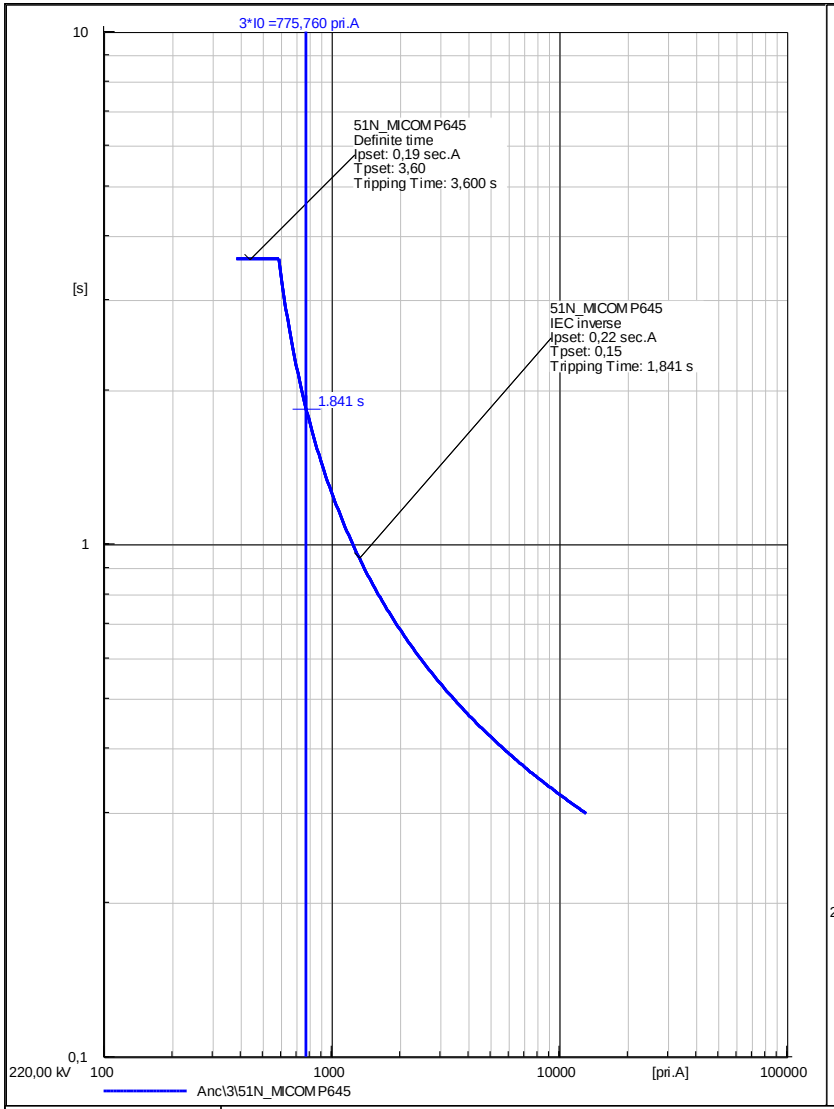

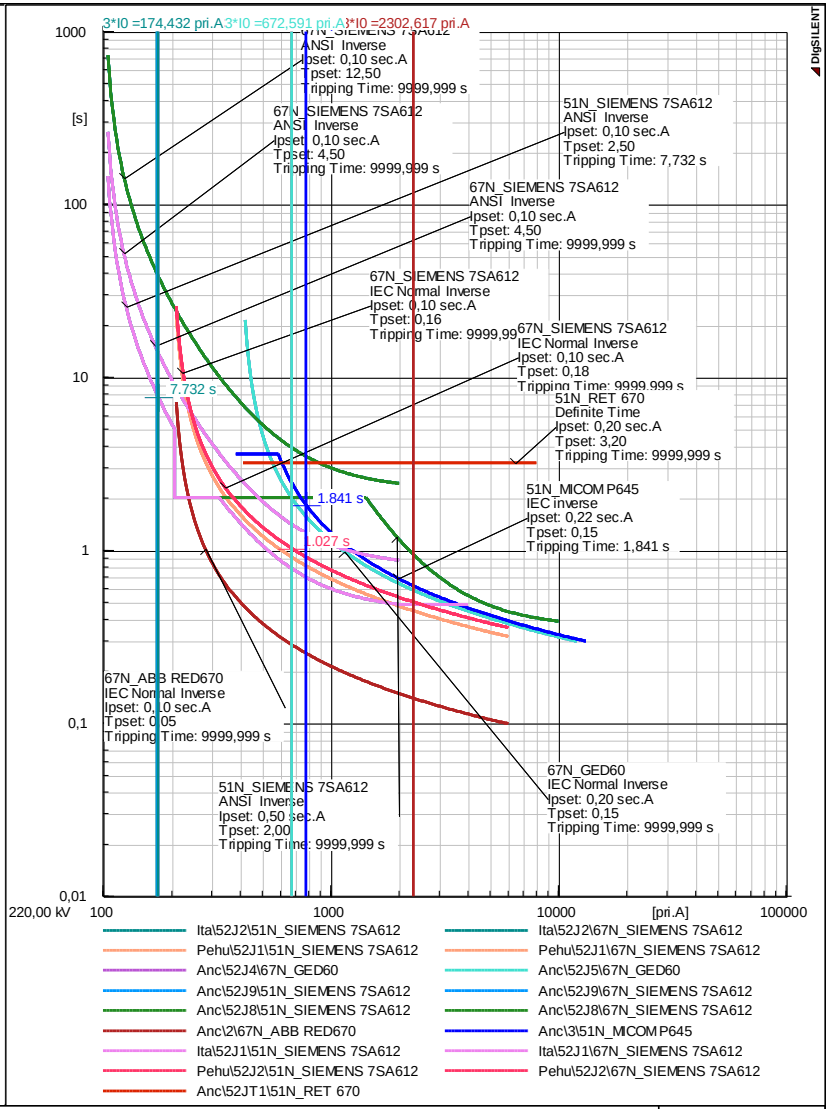

	PROYECTO REPRO 2015	51N_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-25	Annex:

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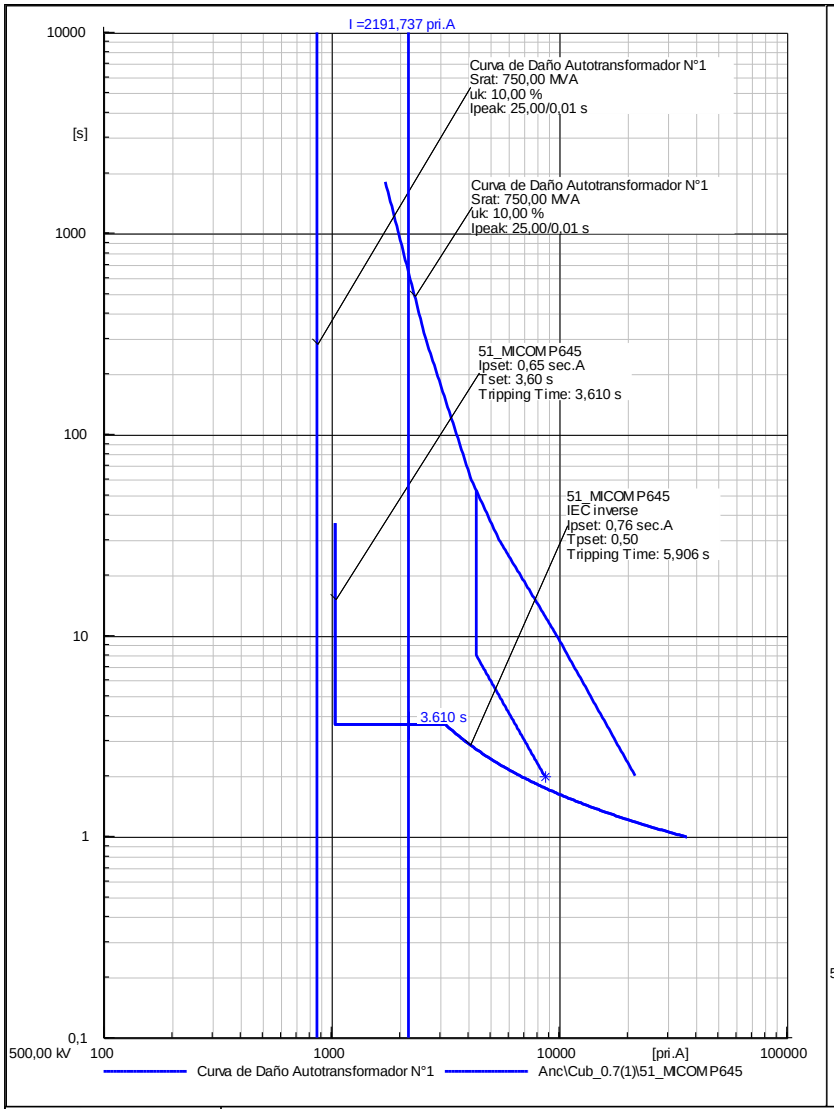
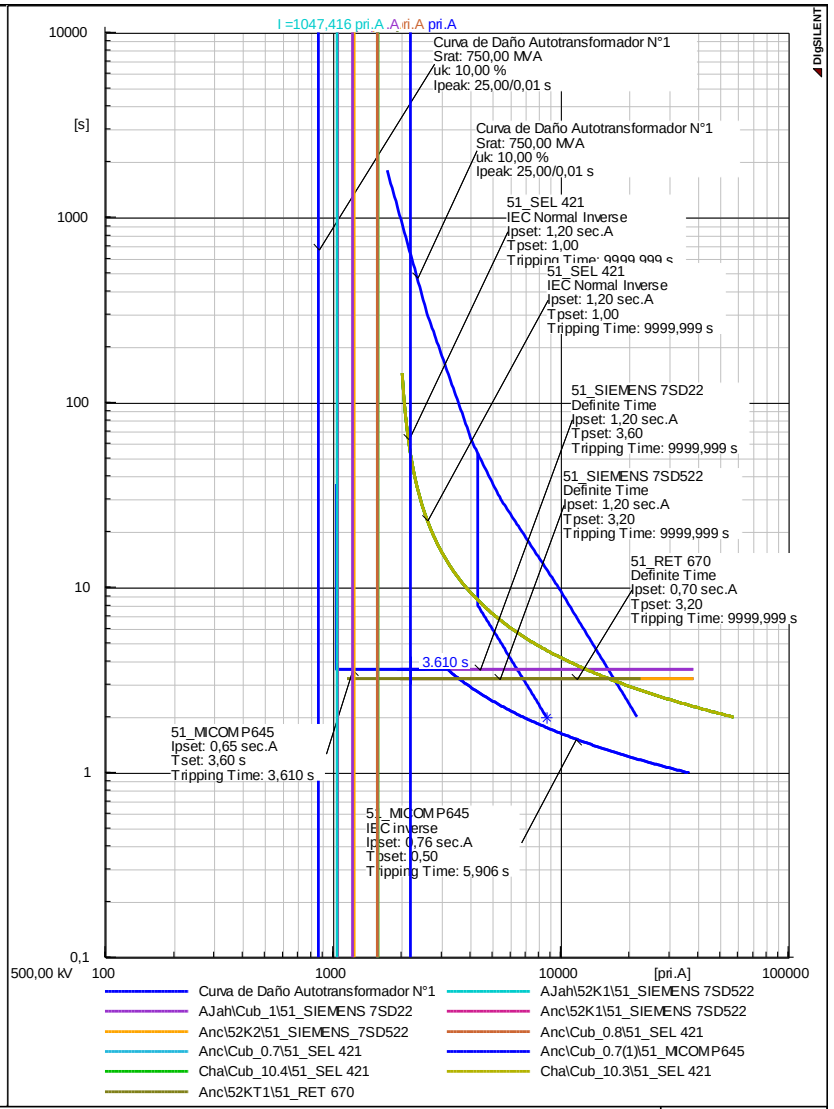
FUNCIÓN 51 LADO DE 500 KV





reliable energy	PROYECTO REPRO 2015	51_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC3F	Annex:

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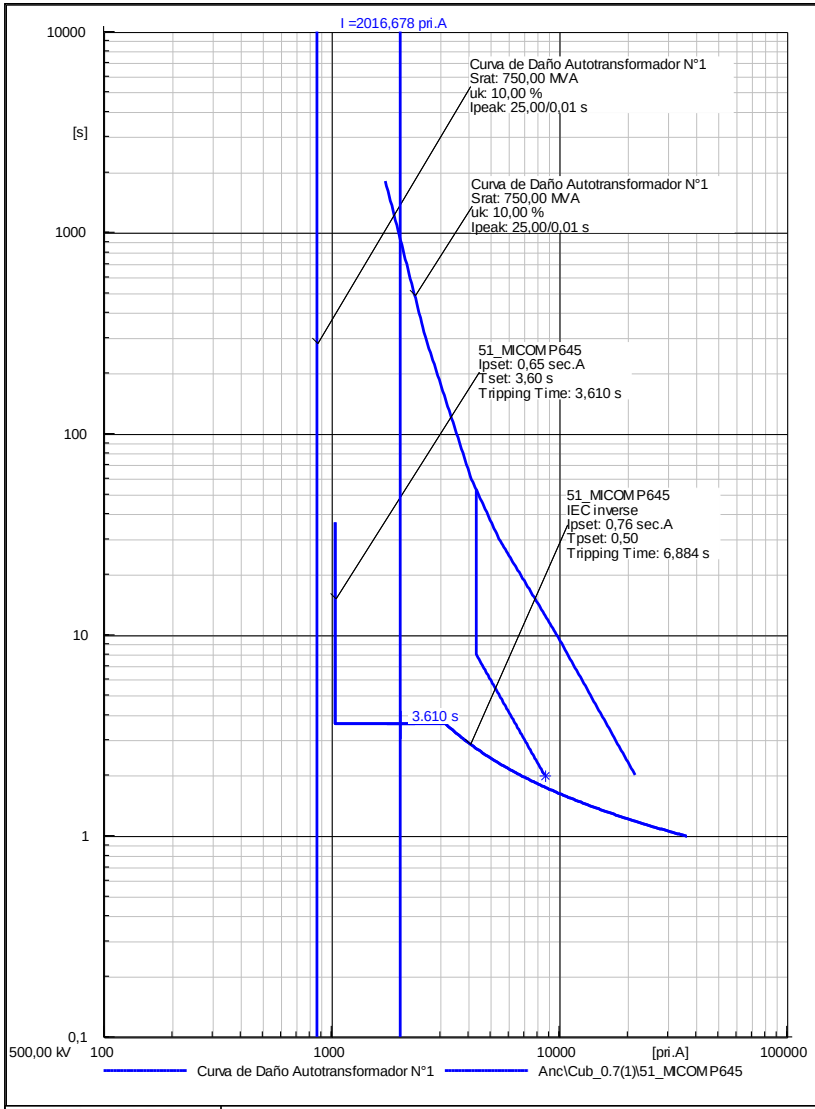

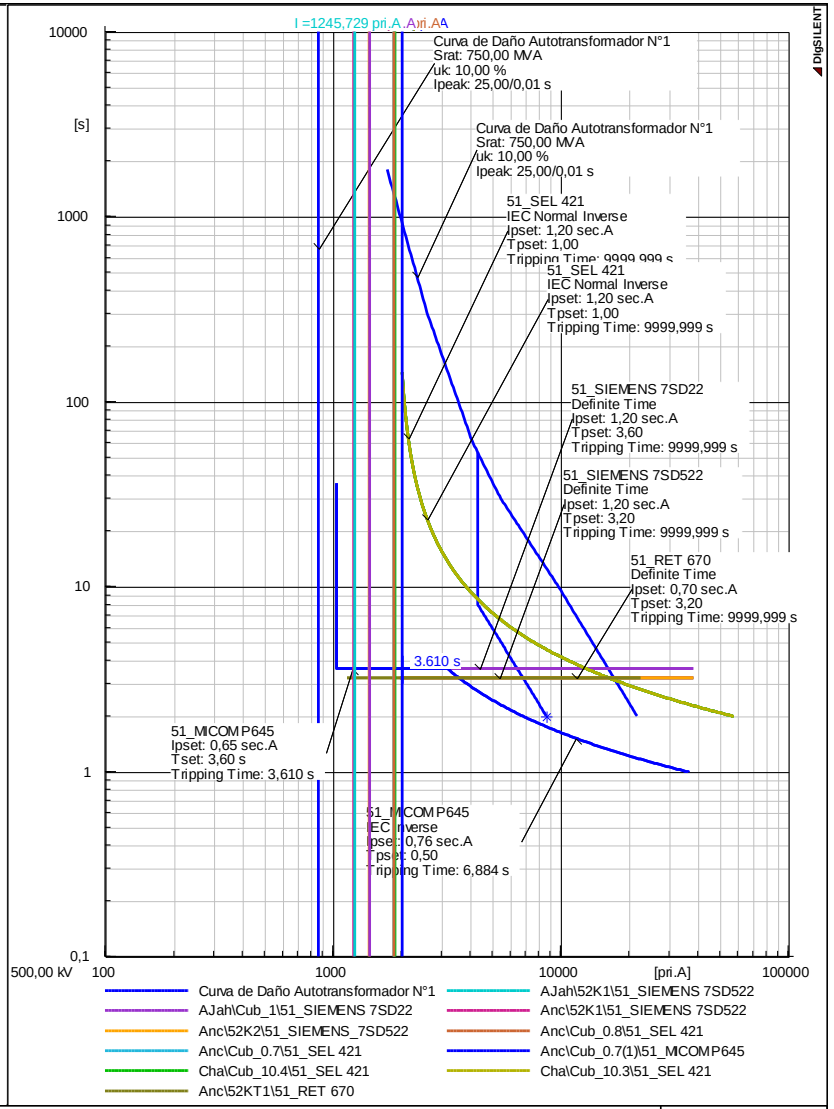

reliable energy	PROYECTO REPRO 2015	51_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2F	Annex:

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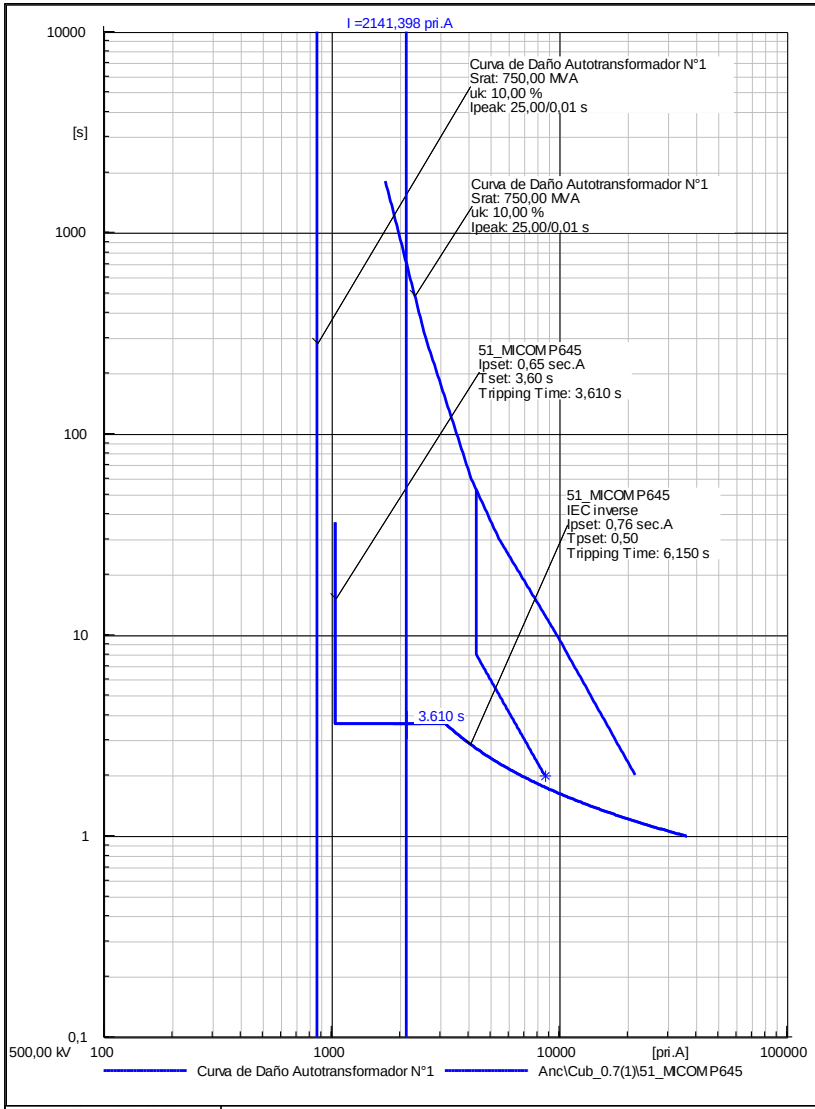

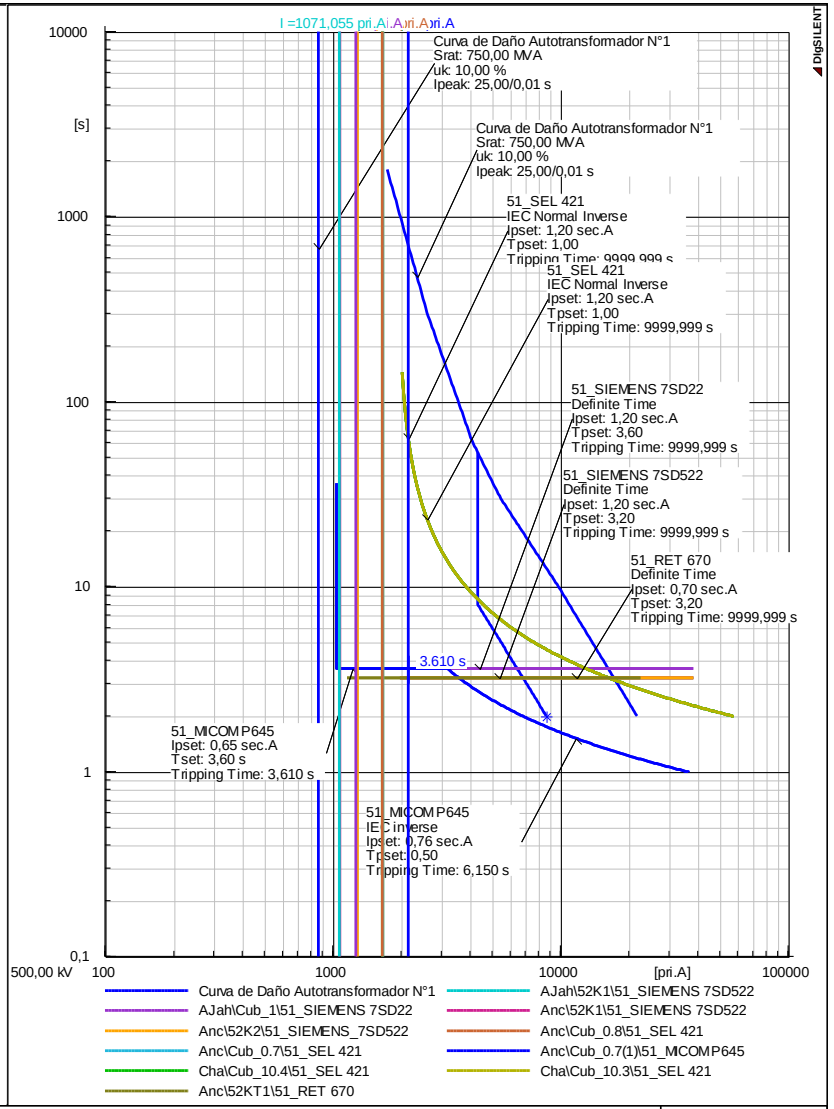

reliable energy	PROYECTO REPRO 2015	51_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2FT	Annex:

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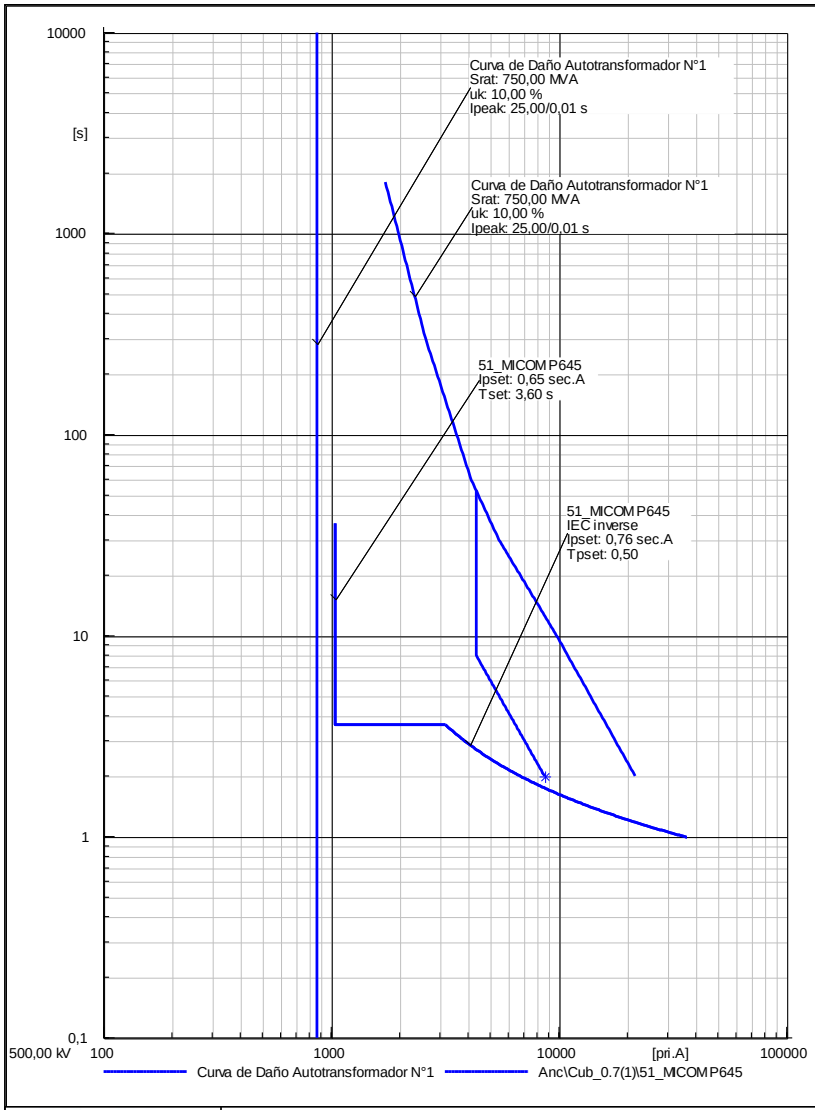

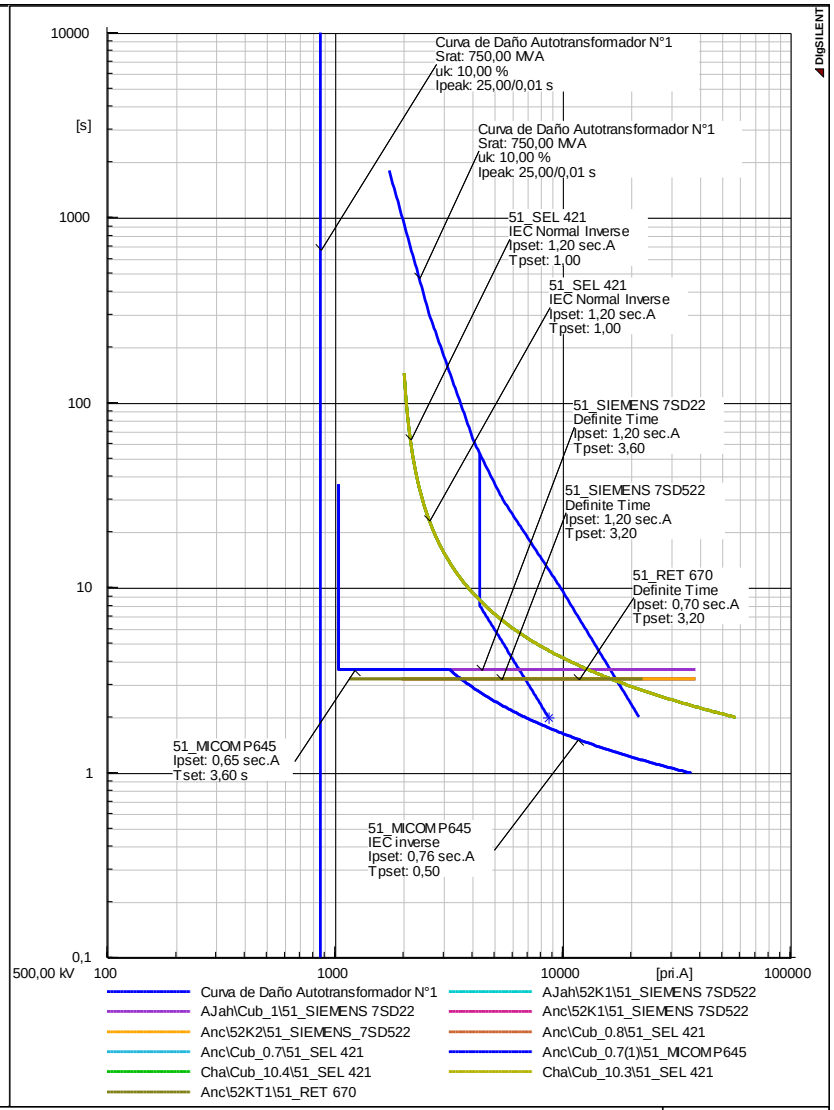

reliable energy	PROYECTO REPRO 2015	51_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-0	Annex:

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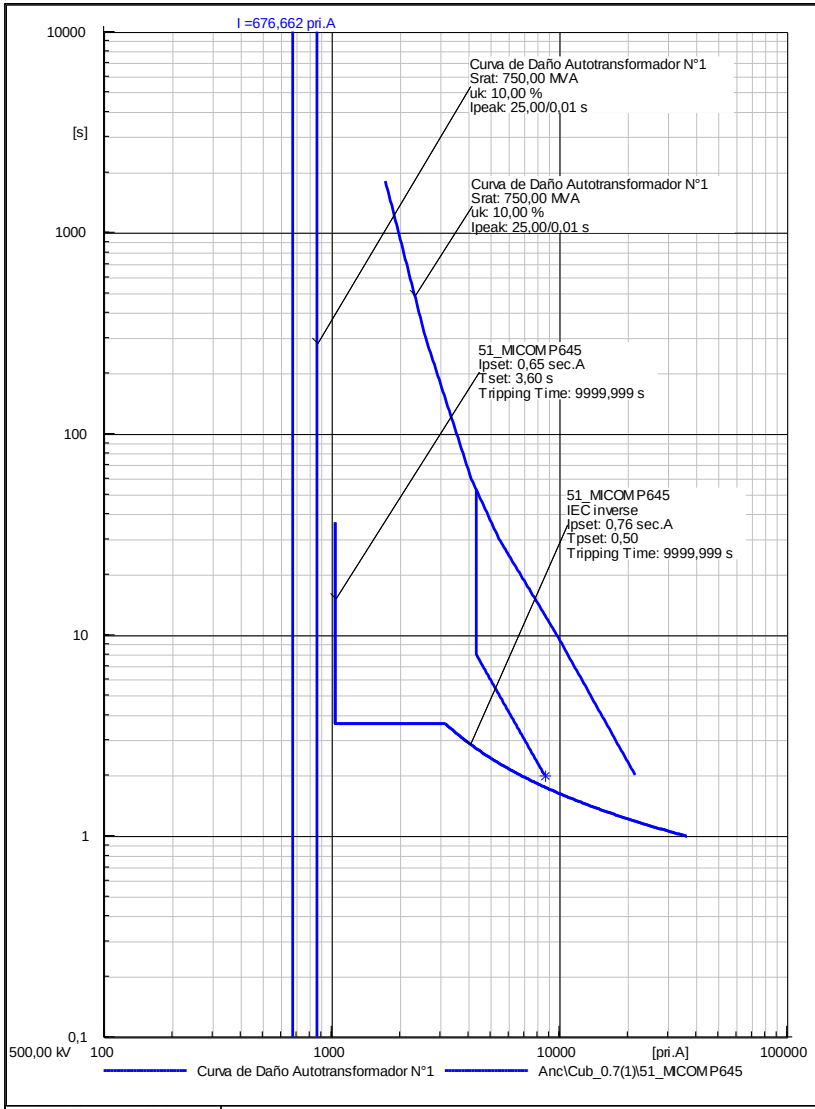

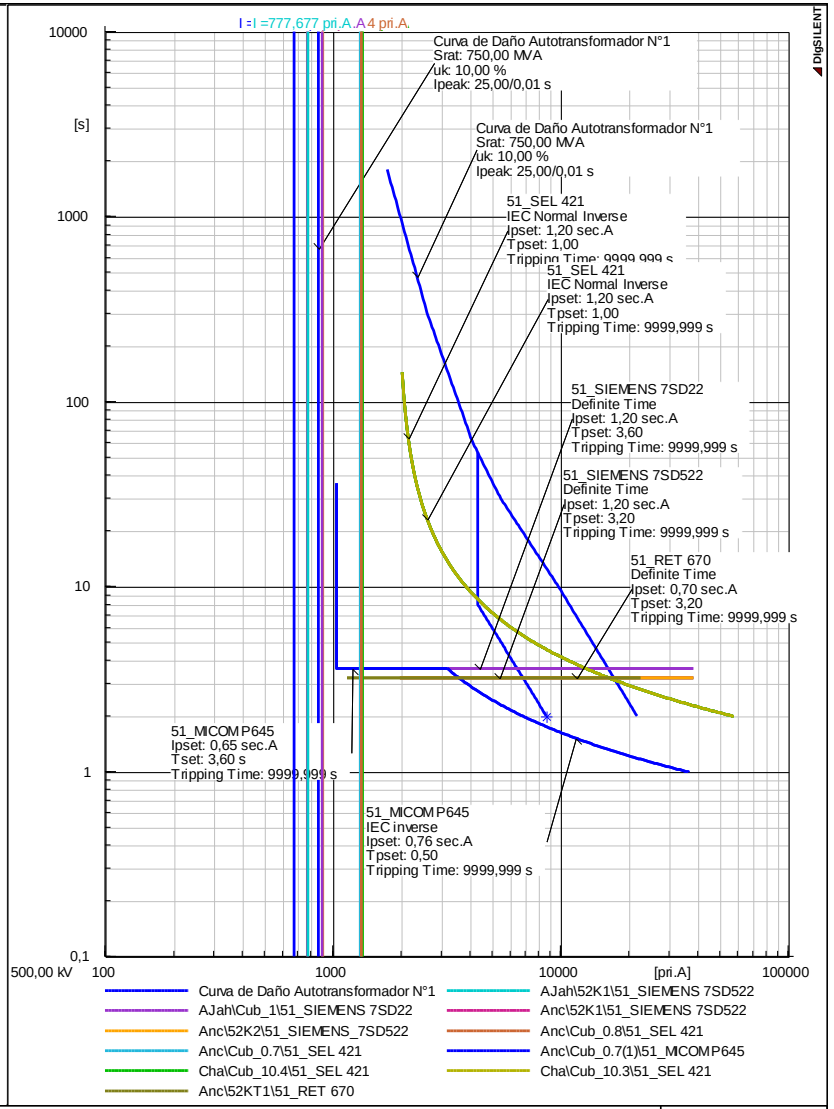

reliable energy	PROYECTO REPRO 2015	51_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-25	Annex:

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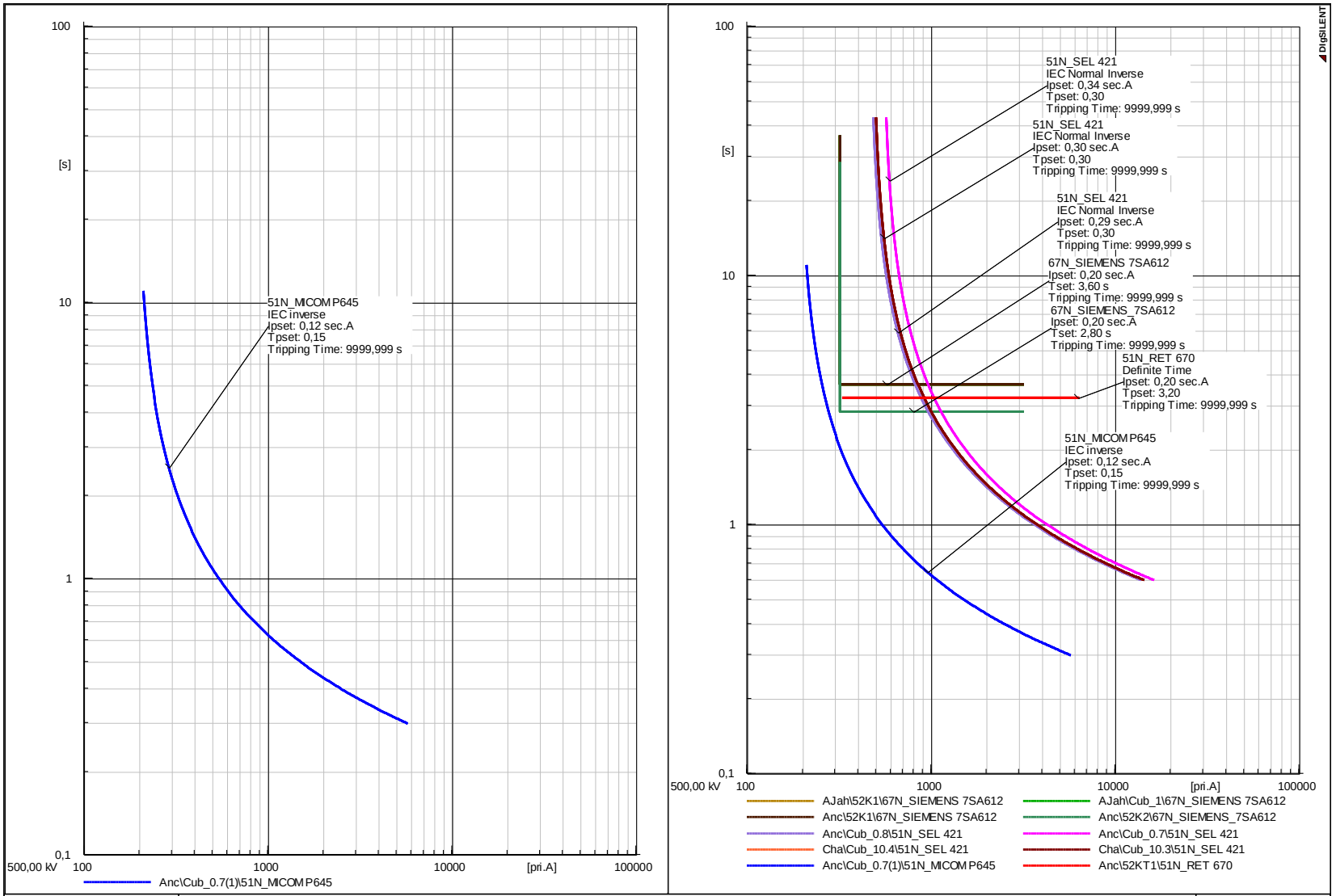
FUNCIÓN 51N LADO DE 500 KV



	PROYECTO REPRO 2015	51N_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC3F	Annex:

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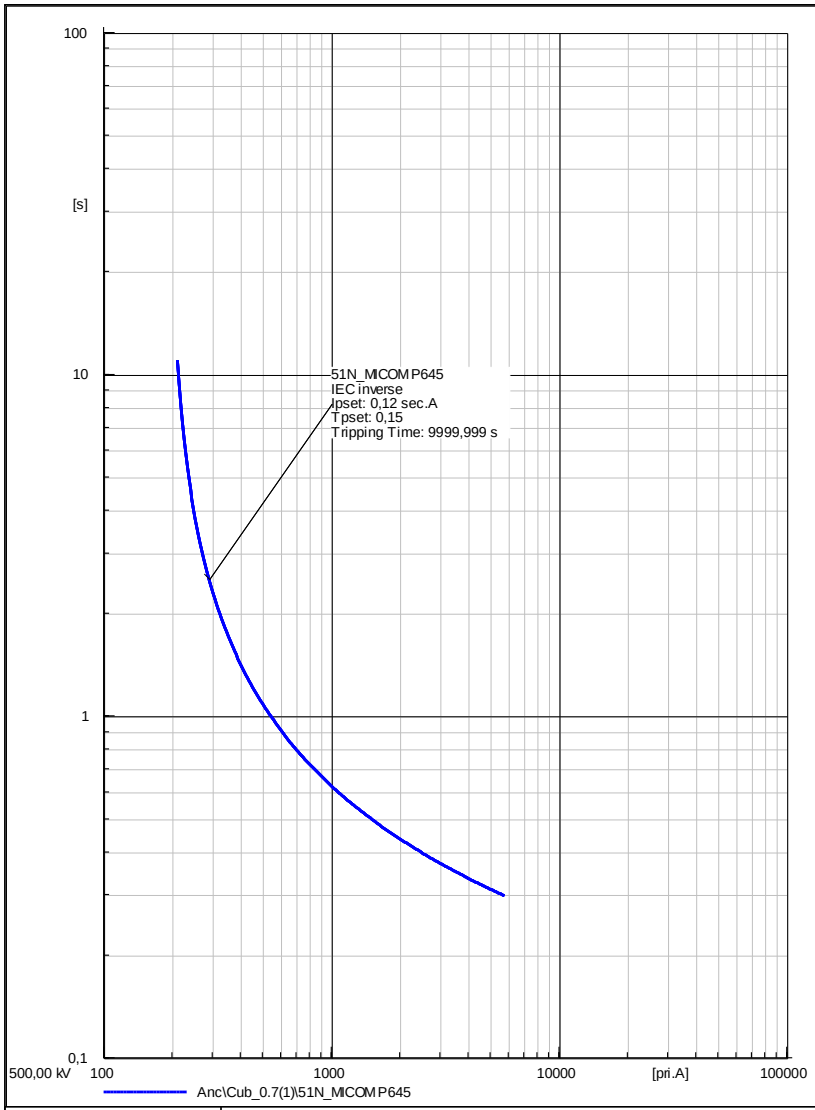

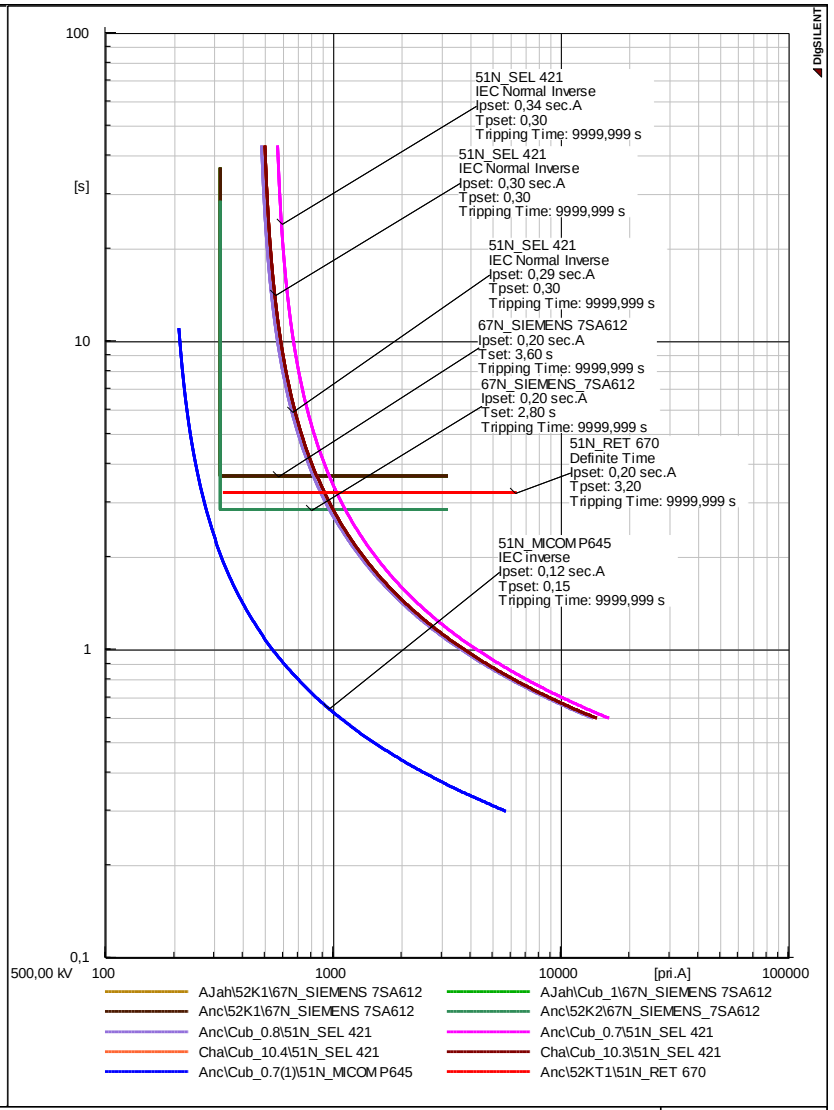

	PROYECTO REPRO 2015	51N_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2F	Annex:

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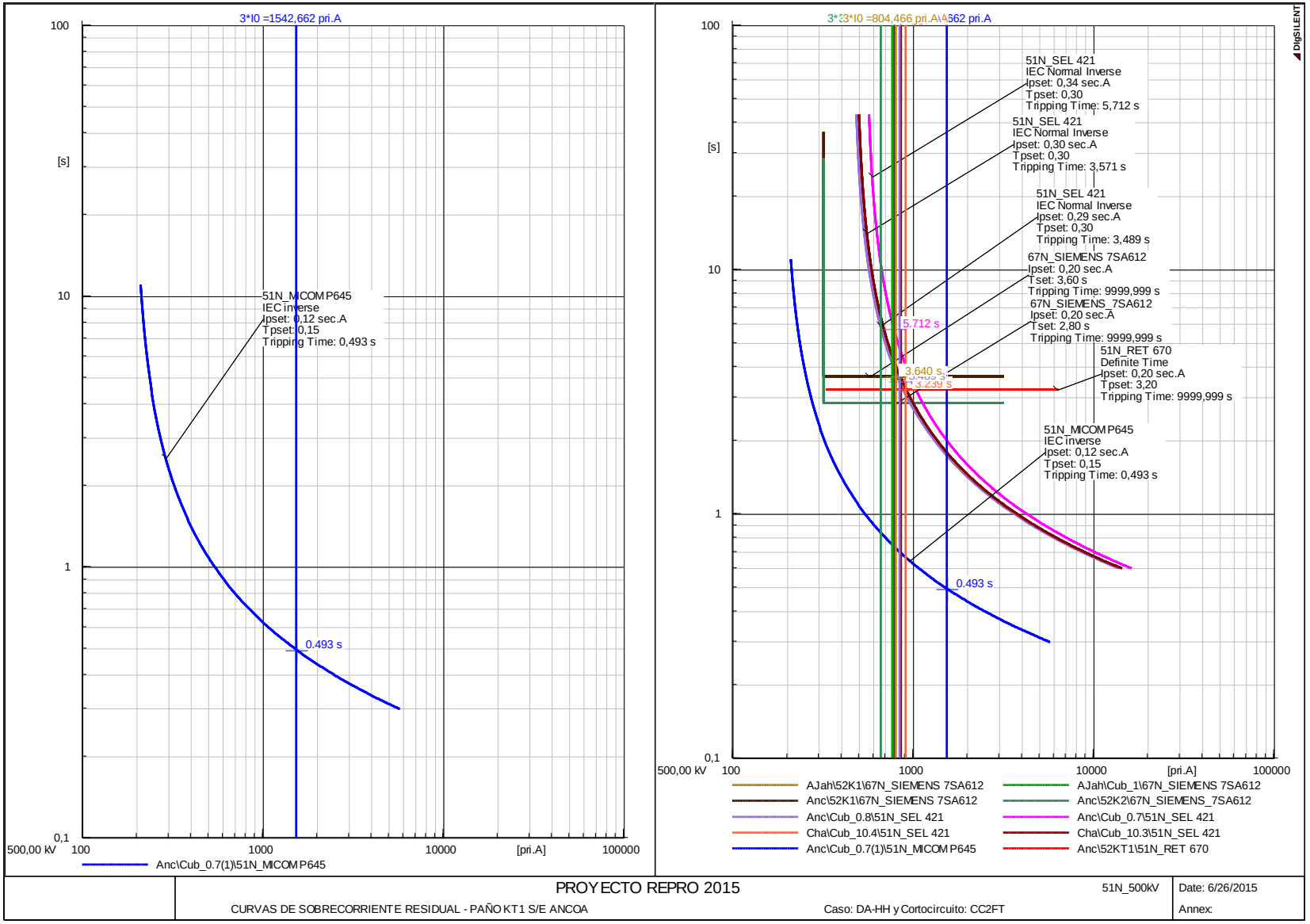

	PROYECTO REPRO 2015	51N_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2FT	Annex:

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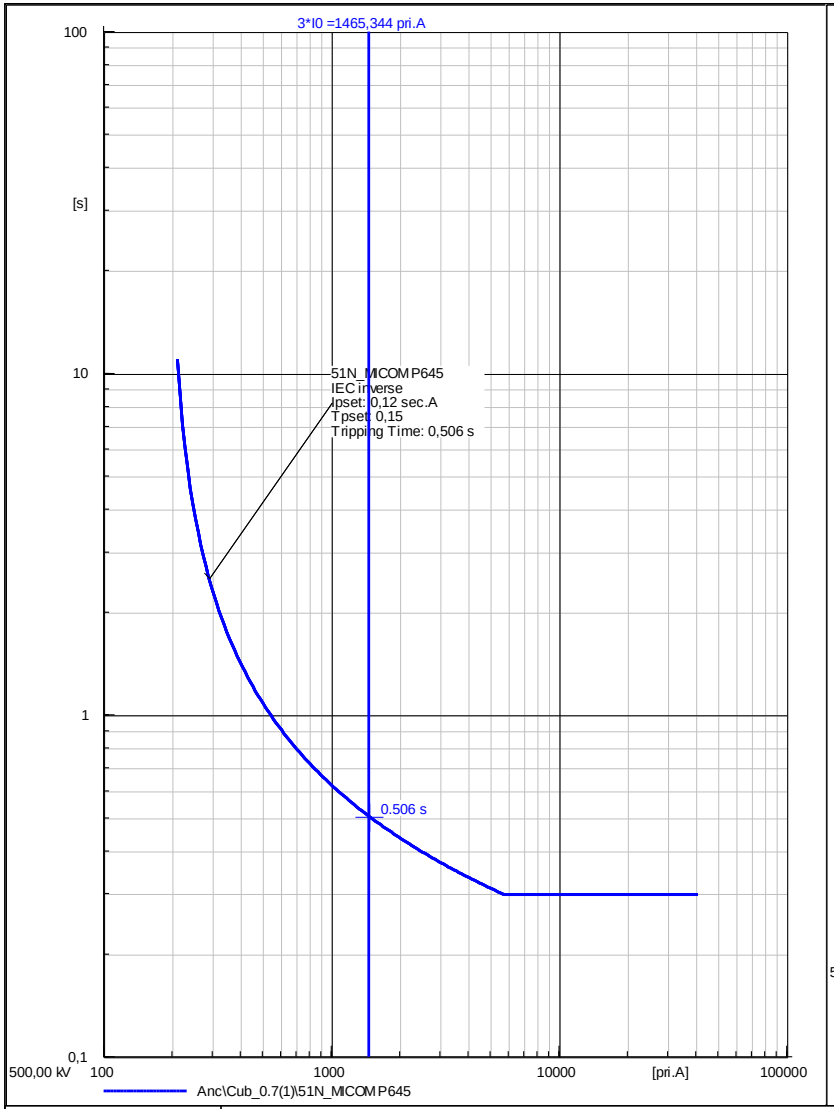

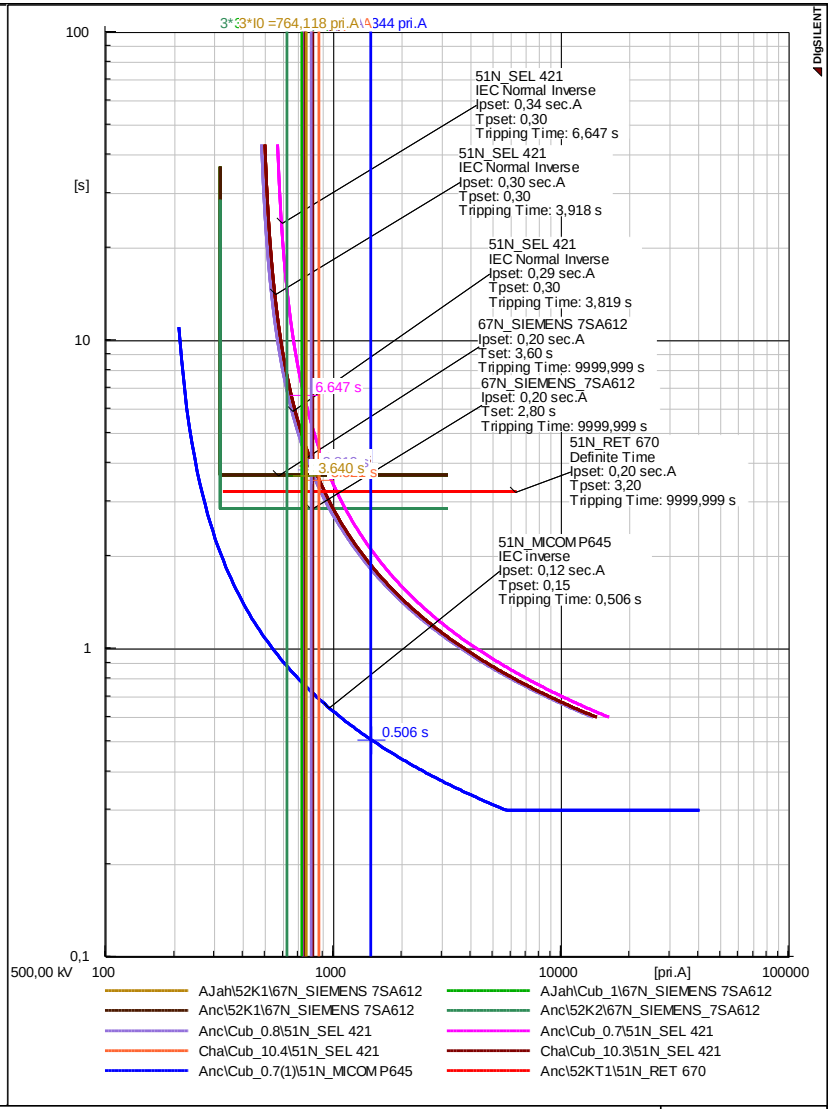

	PROYECTO REPRO 2015	51N_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT0	Annex:

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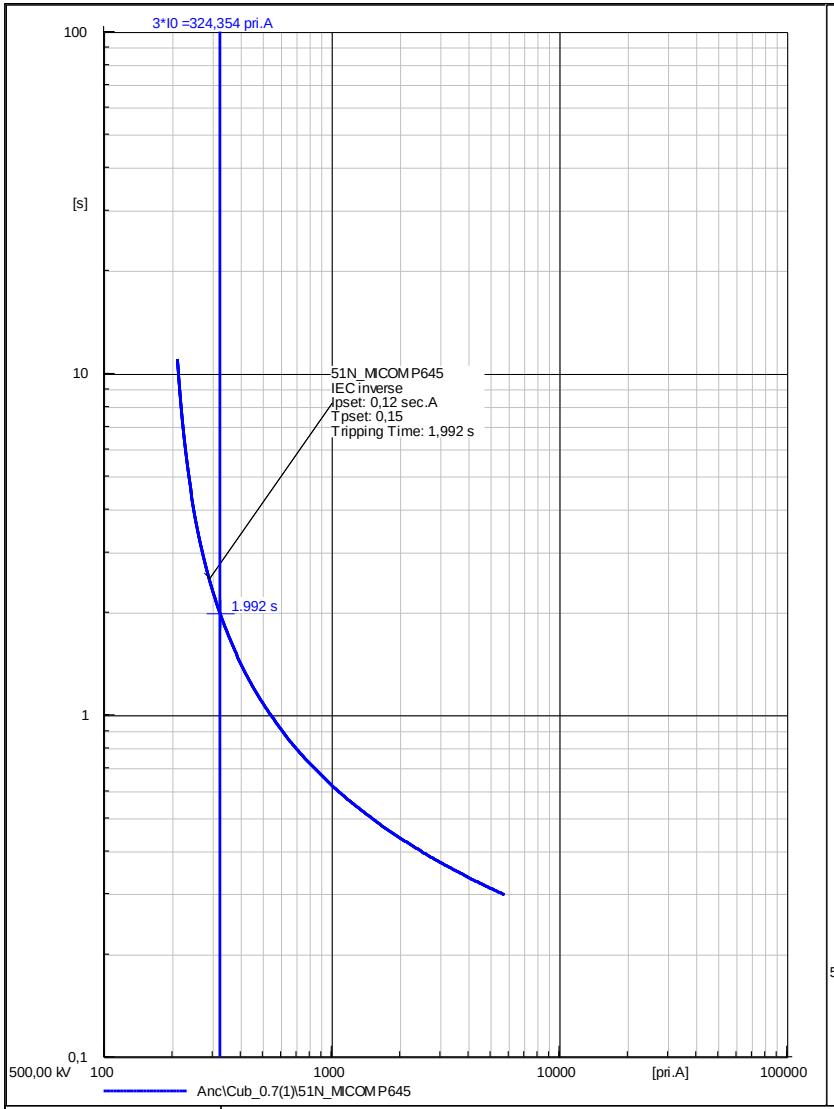

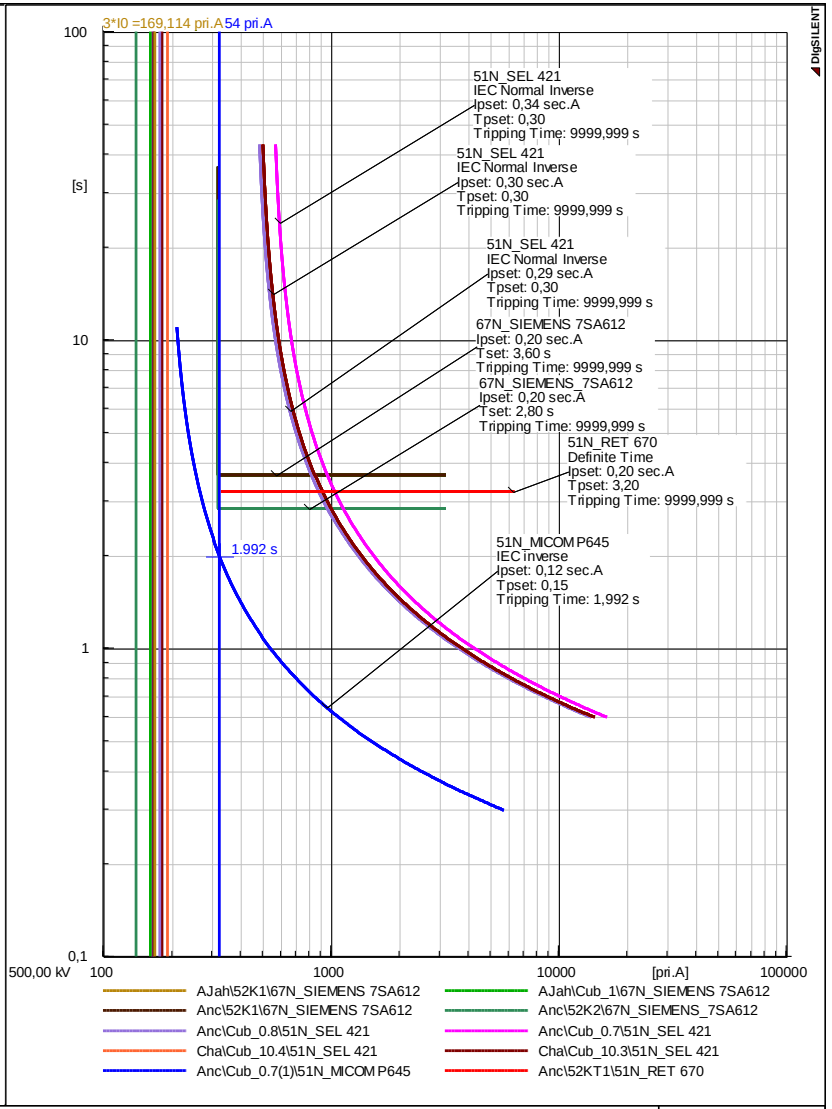

	PROYECTO REPRO 2015	51N_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-25	Annex:

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FALLA EN EL TERMINAL DE 230 KV DEL AUTOTRANSFORMADOR N°1

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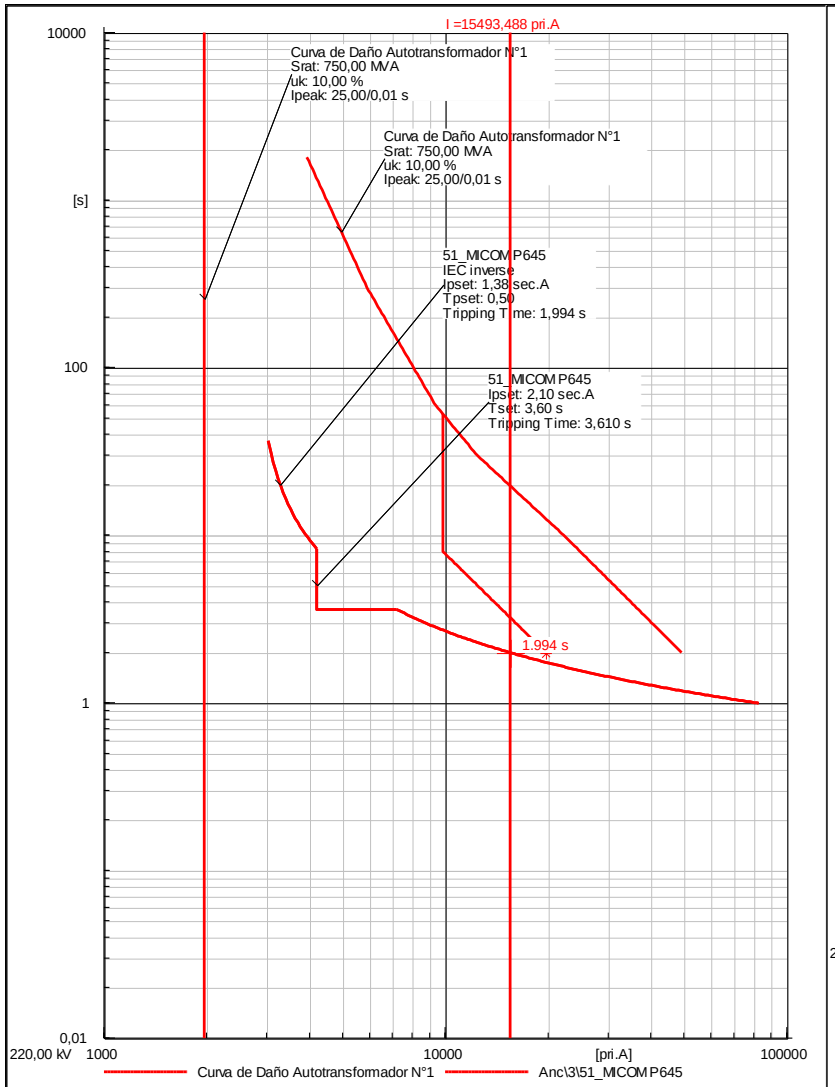
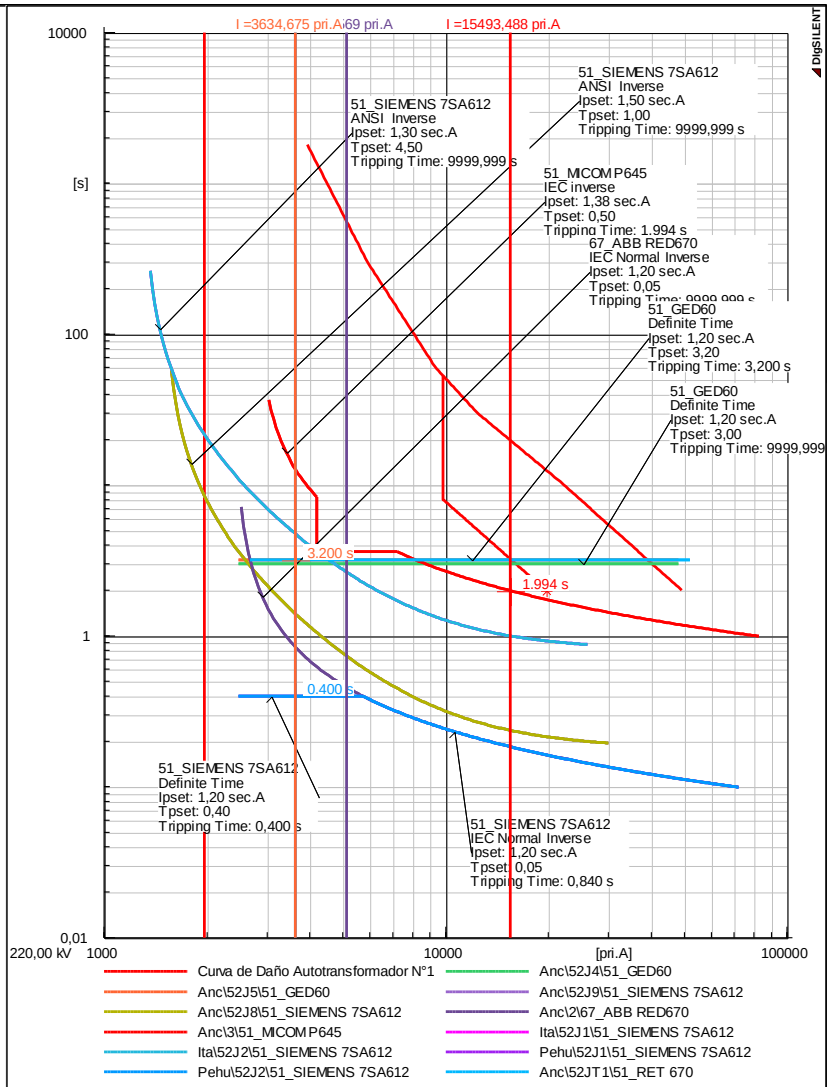
FUNCIÓN 51 LADO DE 220 KV





reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC3F	Annex:

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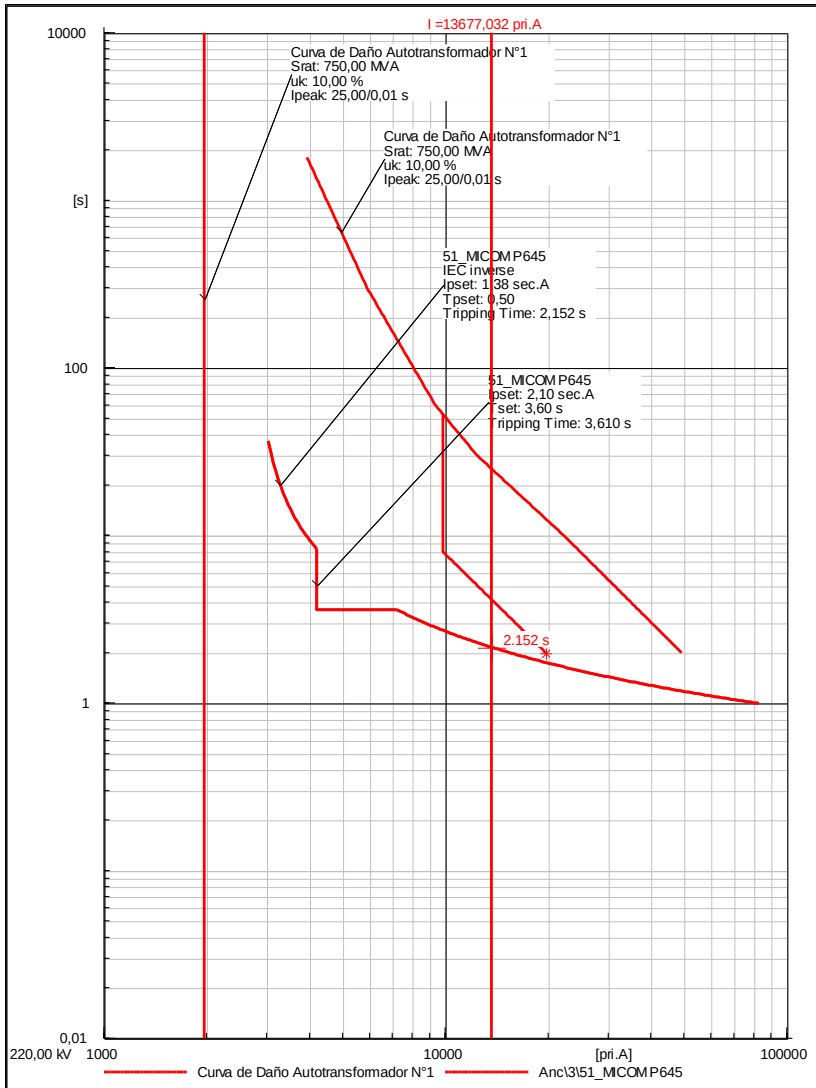

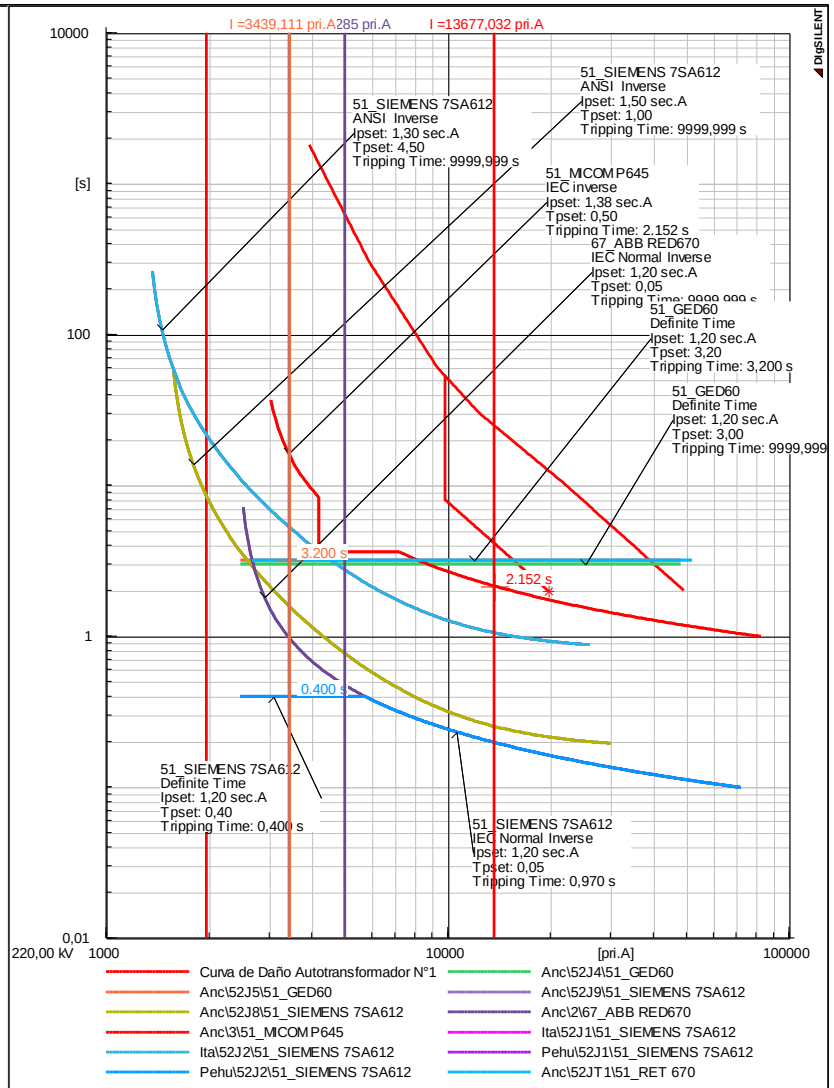

reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2F	Annex:

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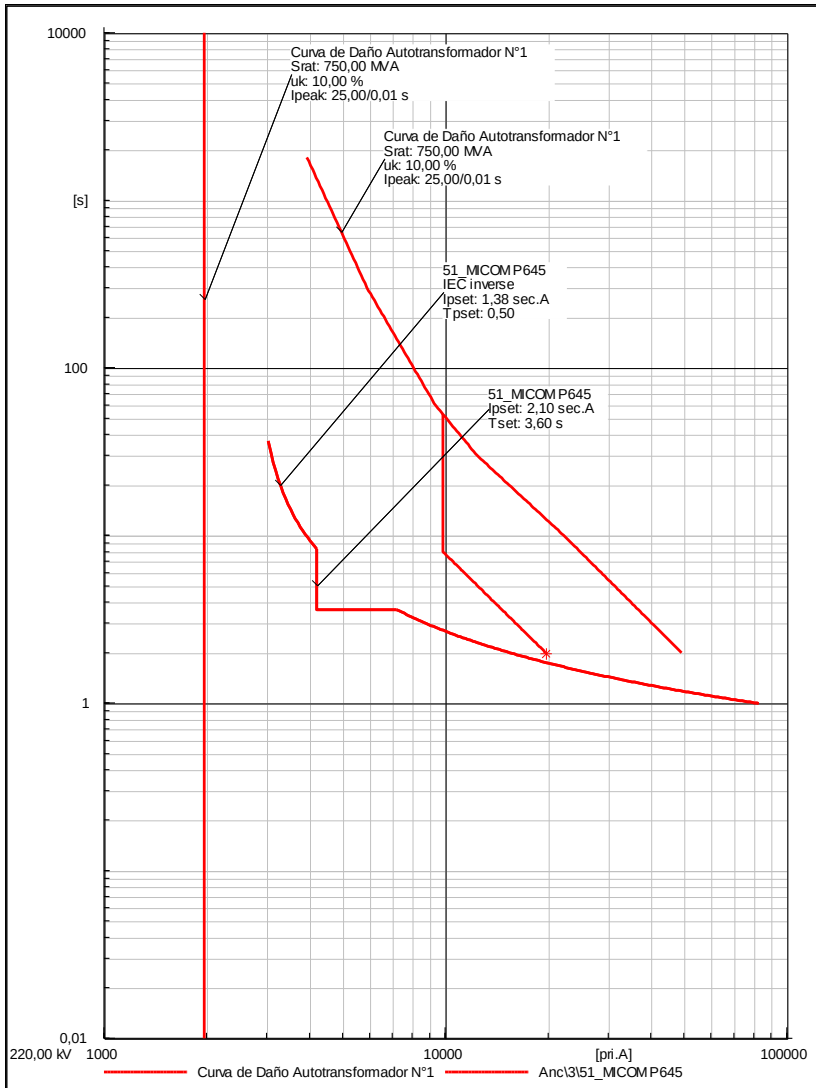

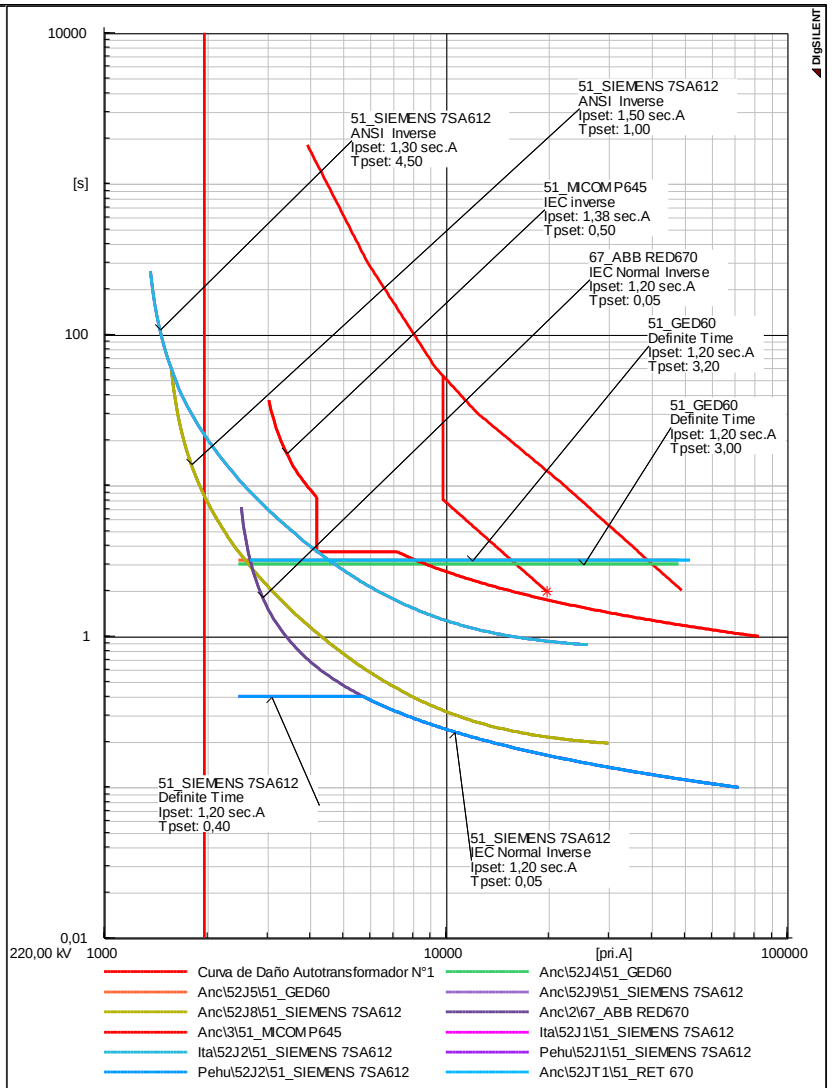

reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2FT	Annex:

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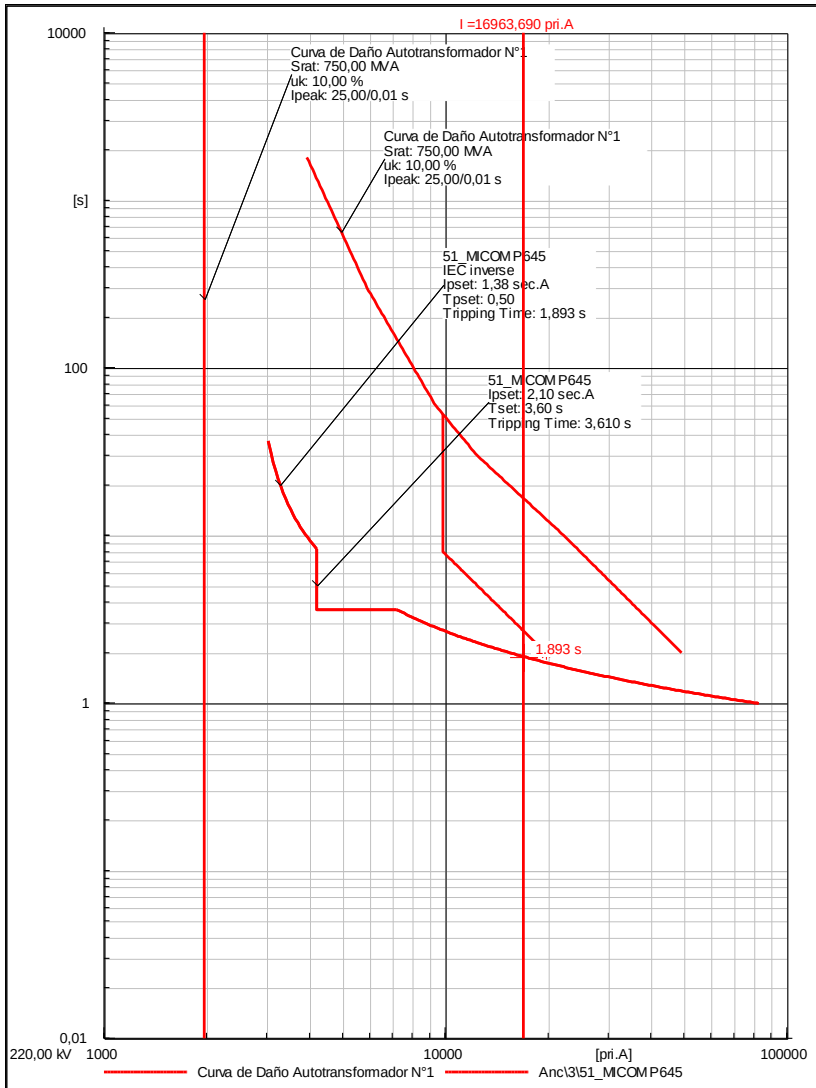

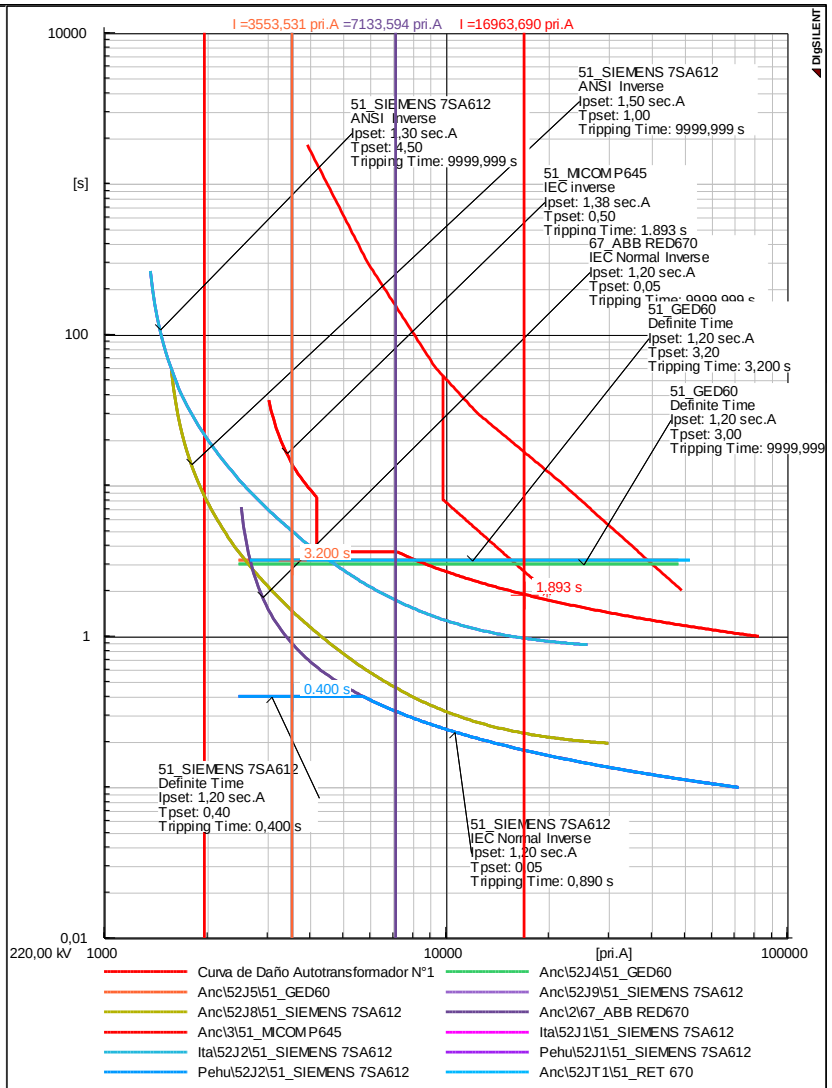

reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-0	Annex:

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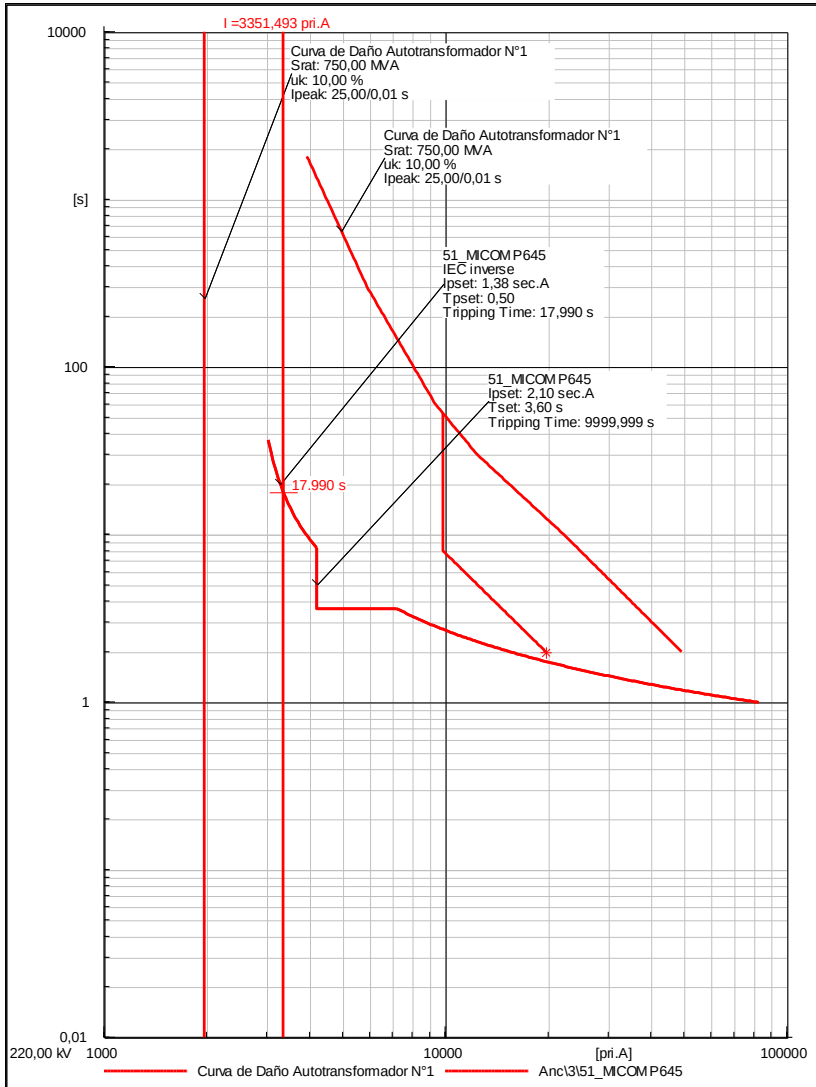

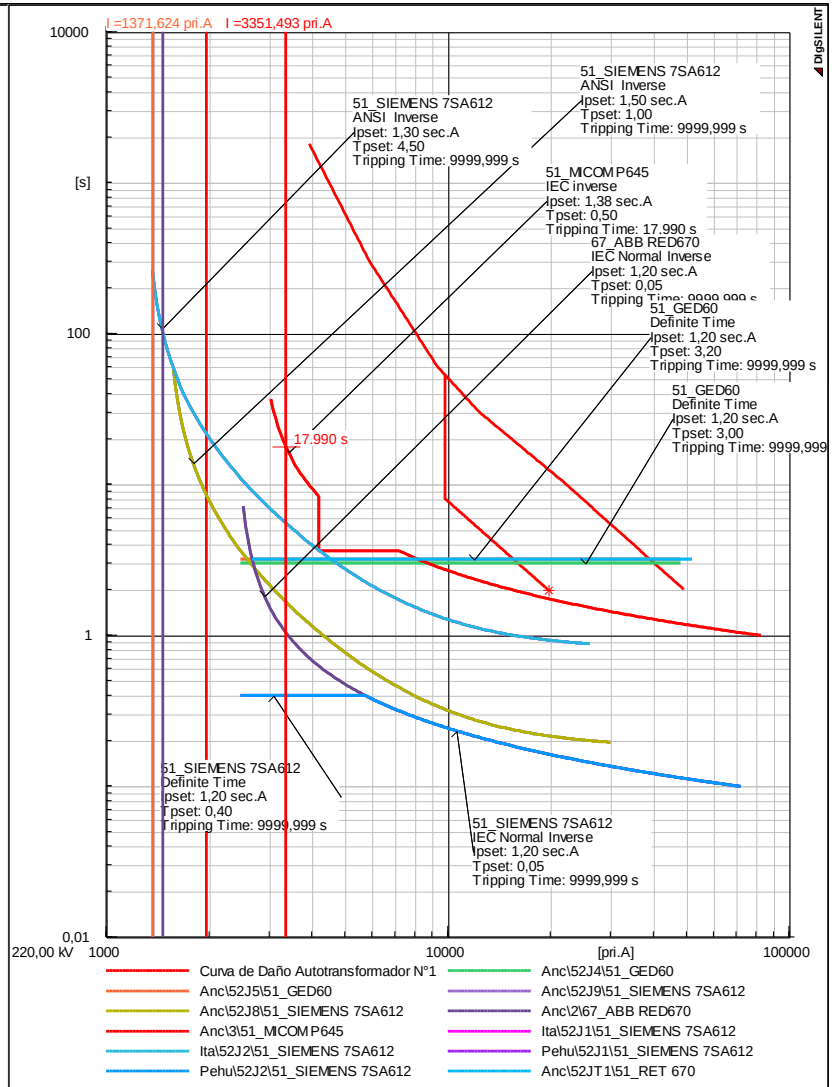

reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-25	Annex:

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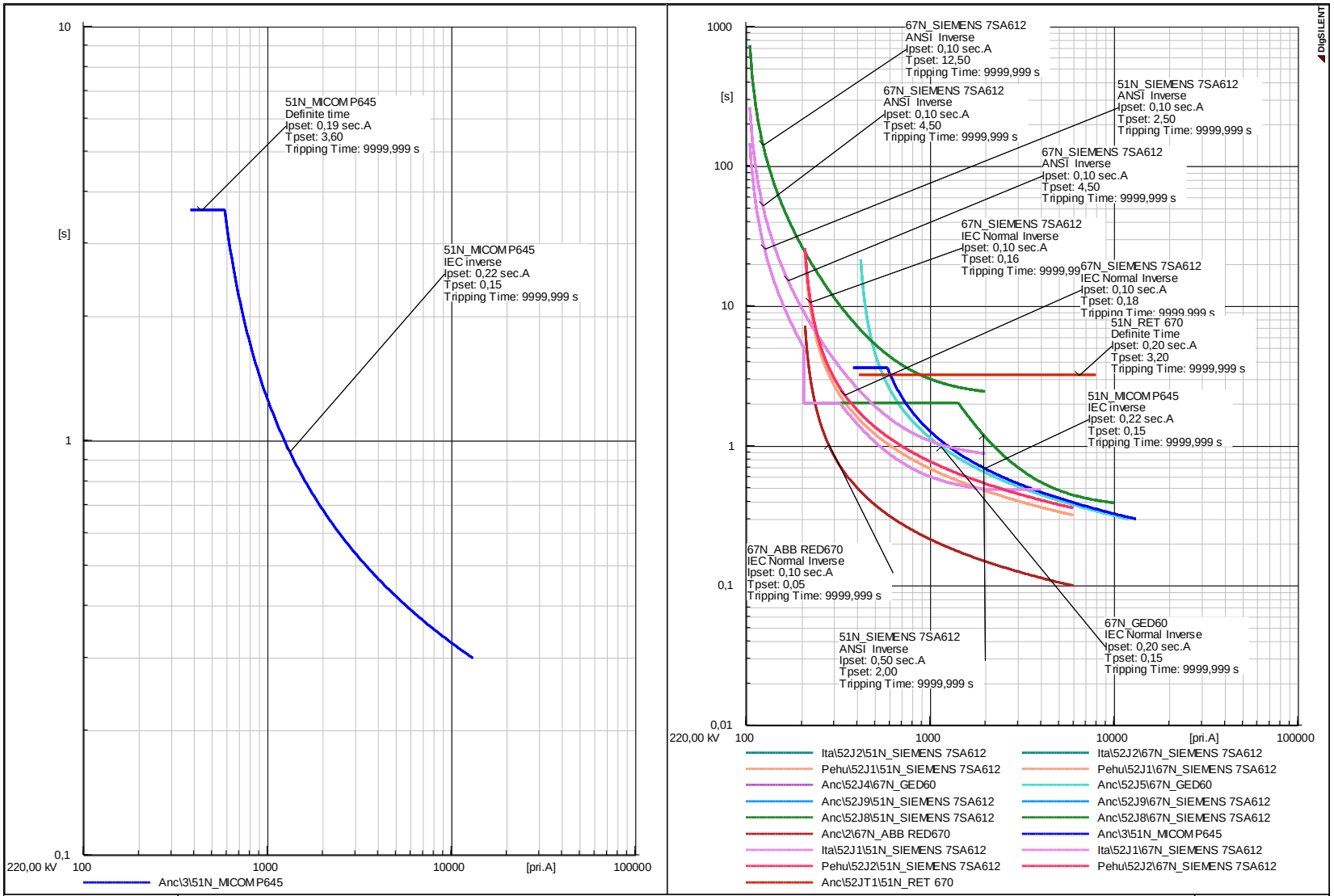
FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC3F	Annex:

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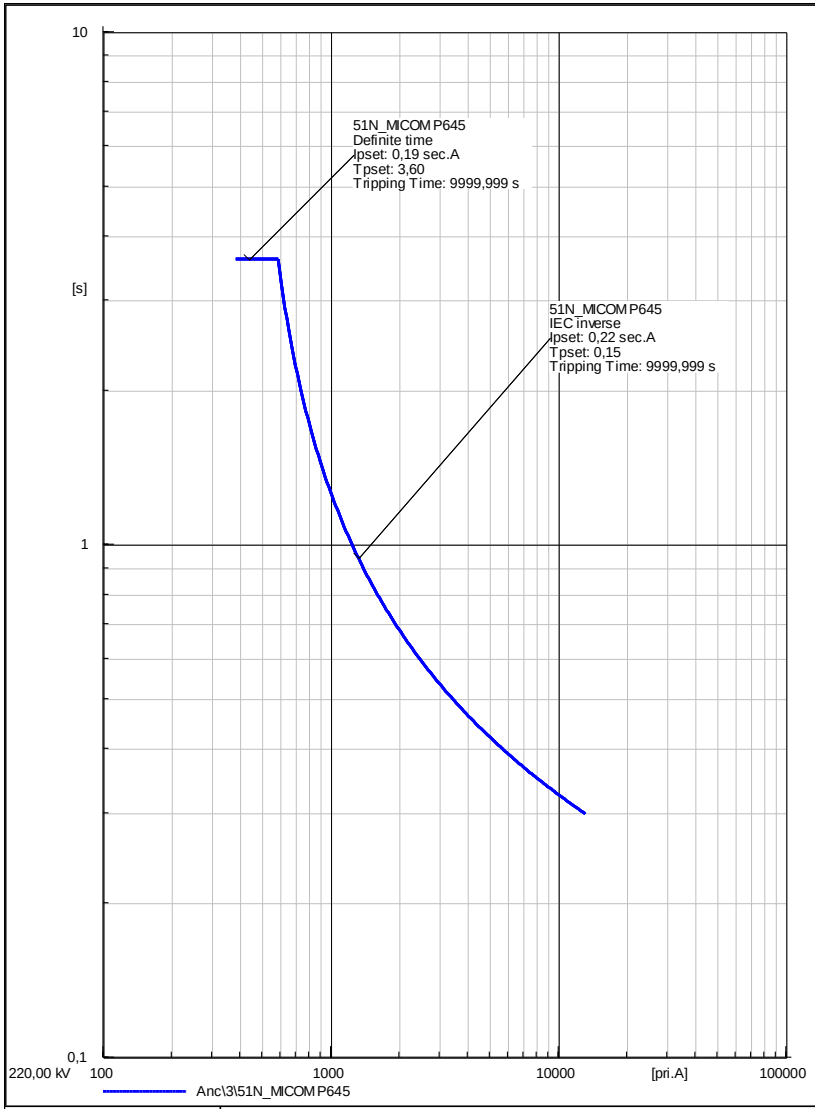

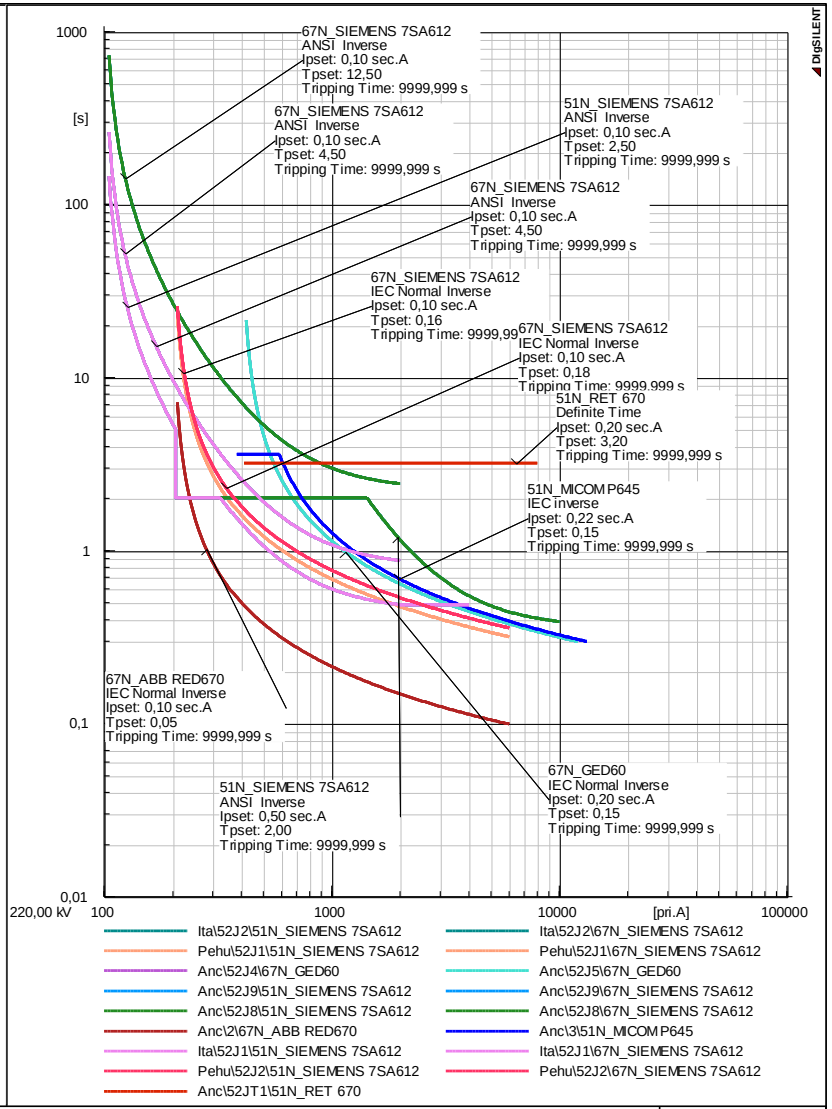

	PROYECTO REPRO 2015	51N_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2F	Annex:

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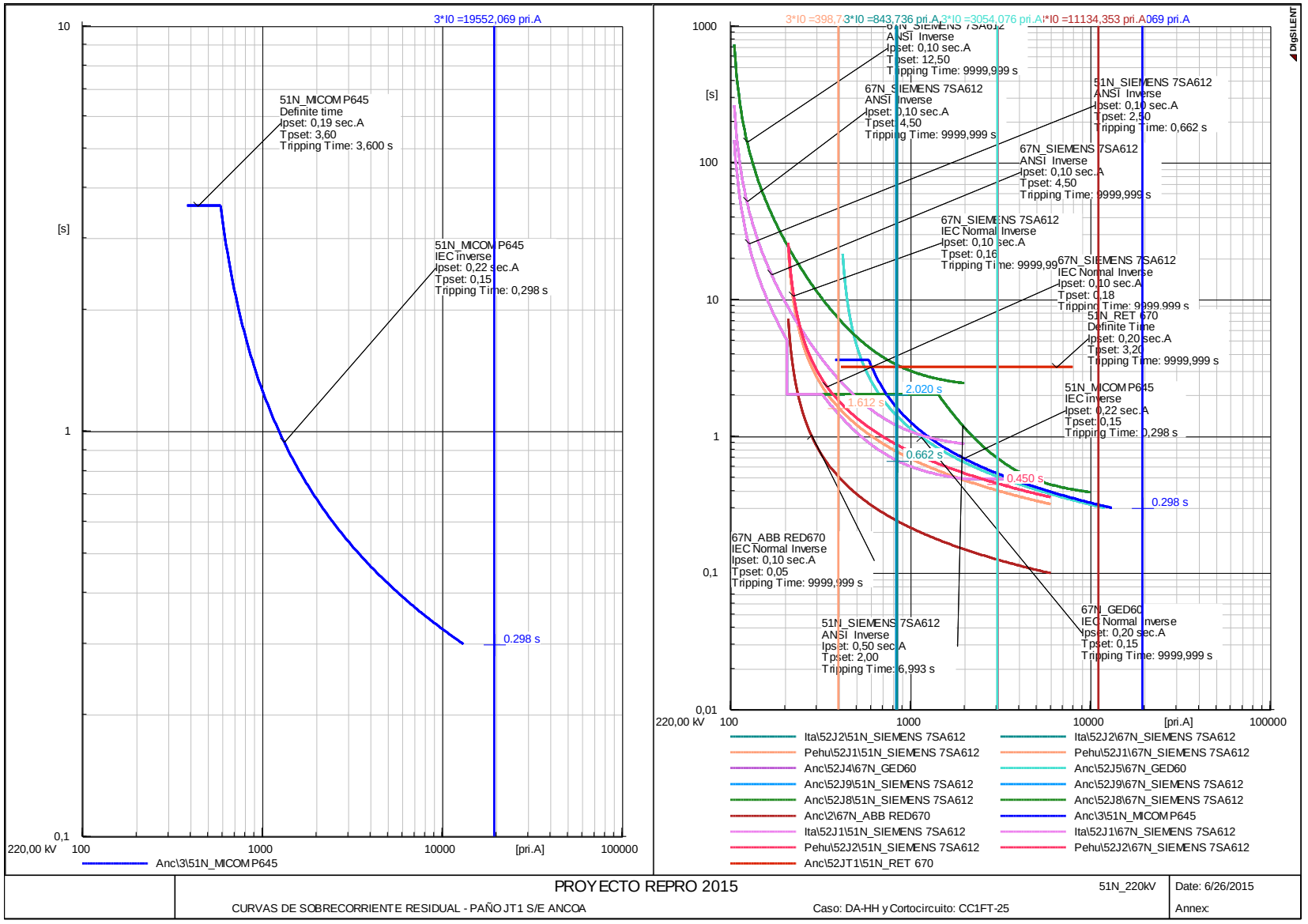
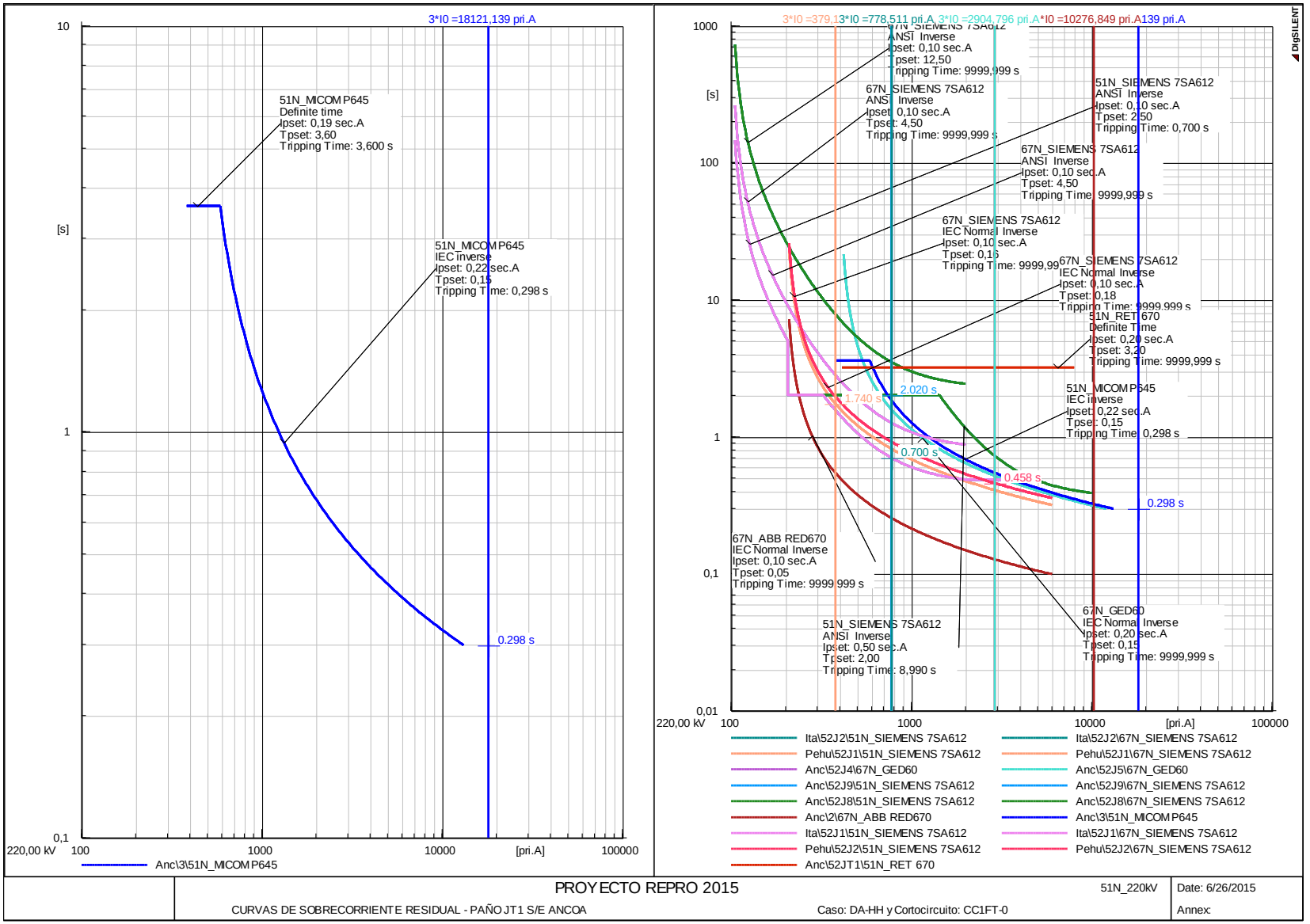


	PROYECTO REPRO 2015	51N_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-25	Annex:



PROYECTO REPRO 2015

51N_220kV

Date: 6/26/2015

CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA

Caso: DA-HH y Cortocircuito: CC1FT-0

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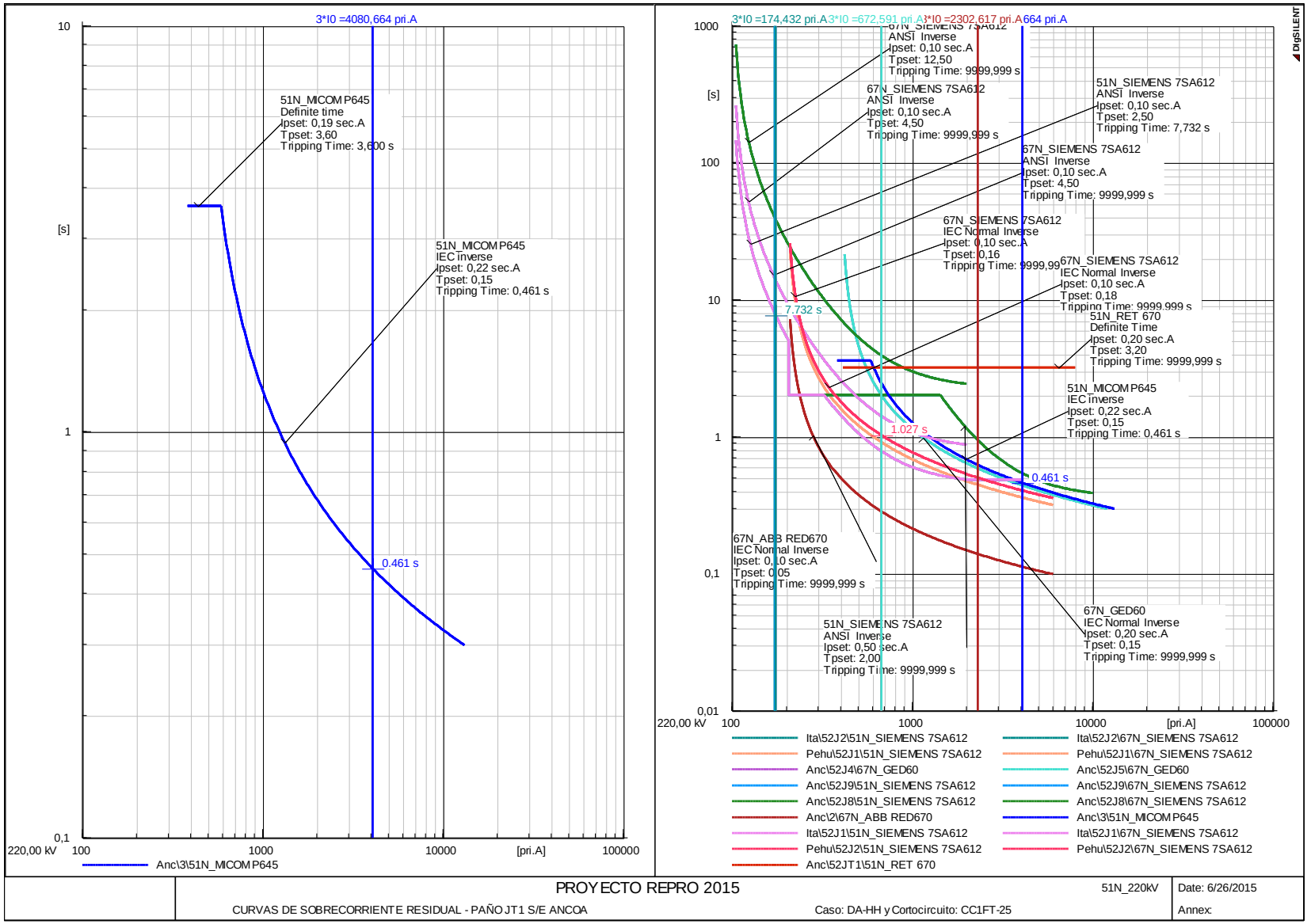
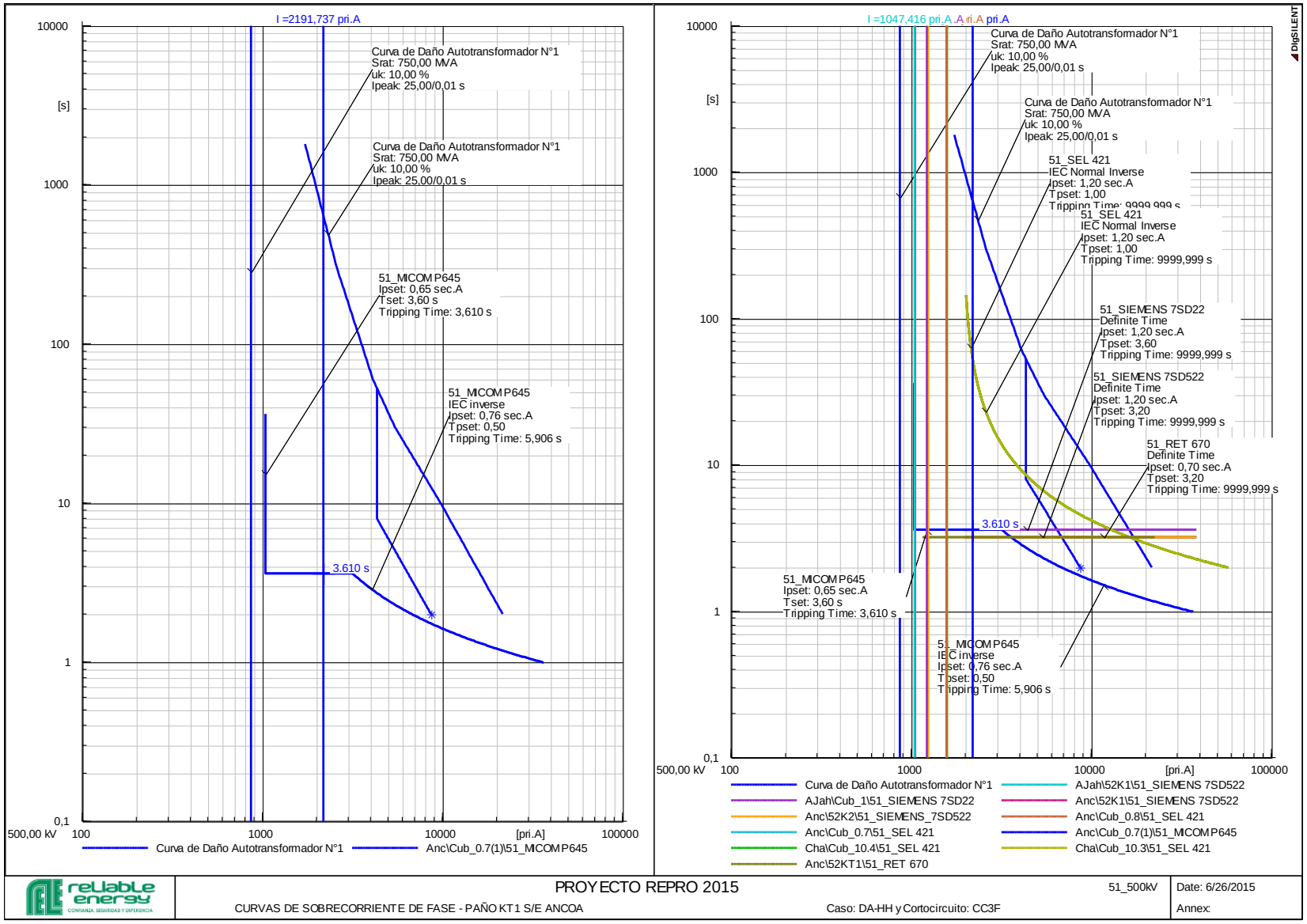


	PROYECTO REPRO 2015	51N_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-25	Annex:

FUNCIÓN 51 LADO DE 500 KV



reliable energy	PROYECTO REPRO 2015	51_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC3F	Annex:

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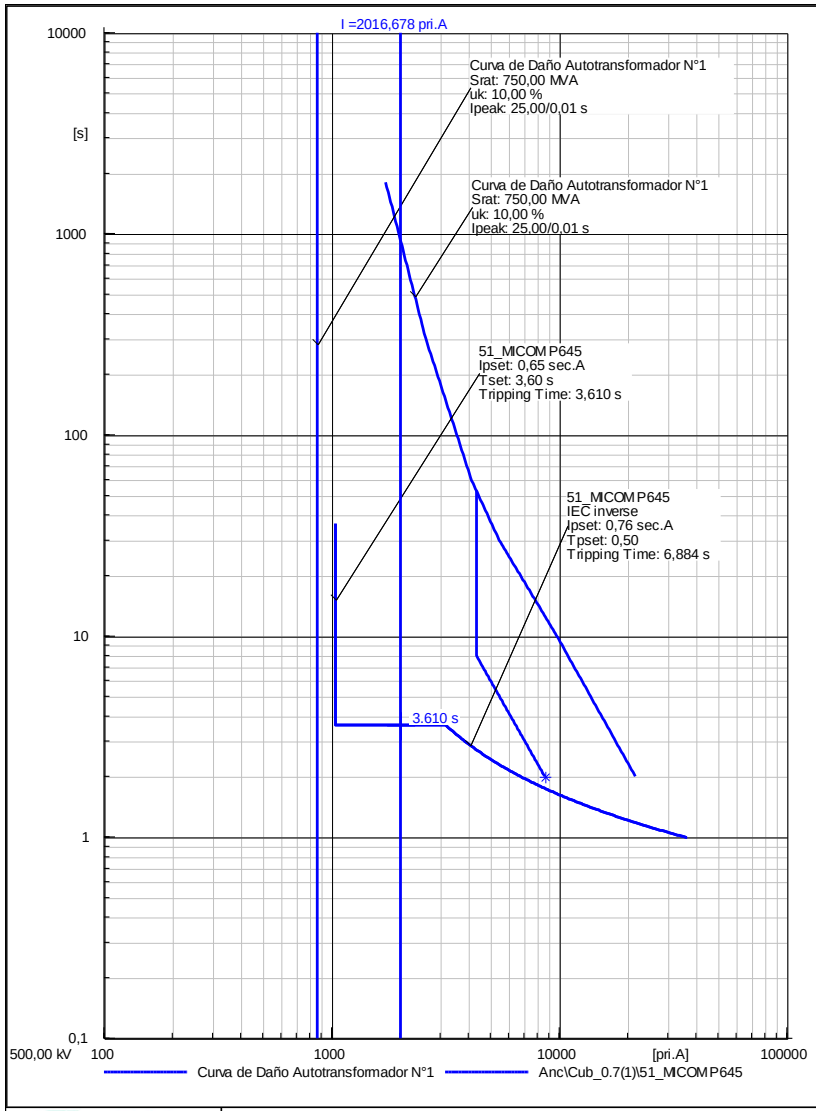

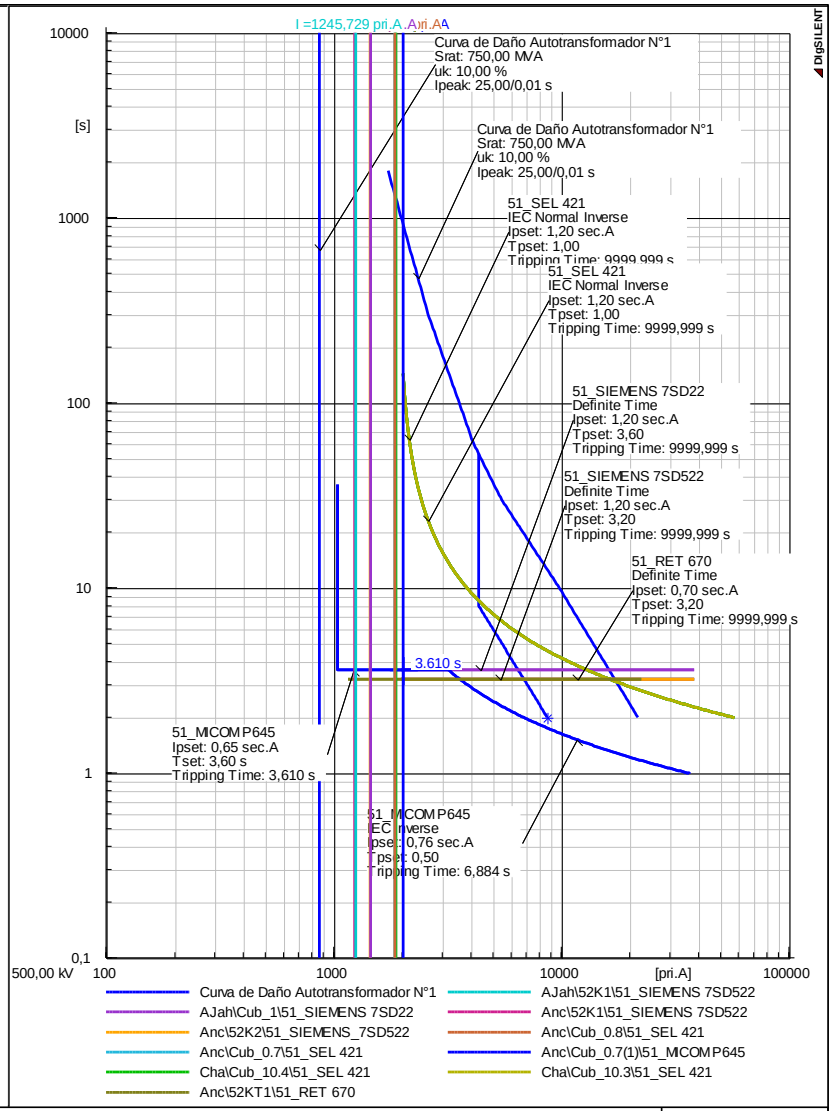

reliable energy	PROYECTO REPRO 2015	51_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2F	Annex:

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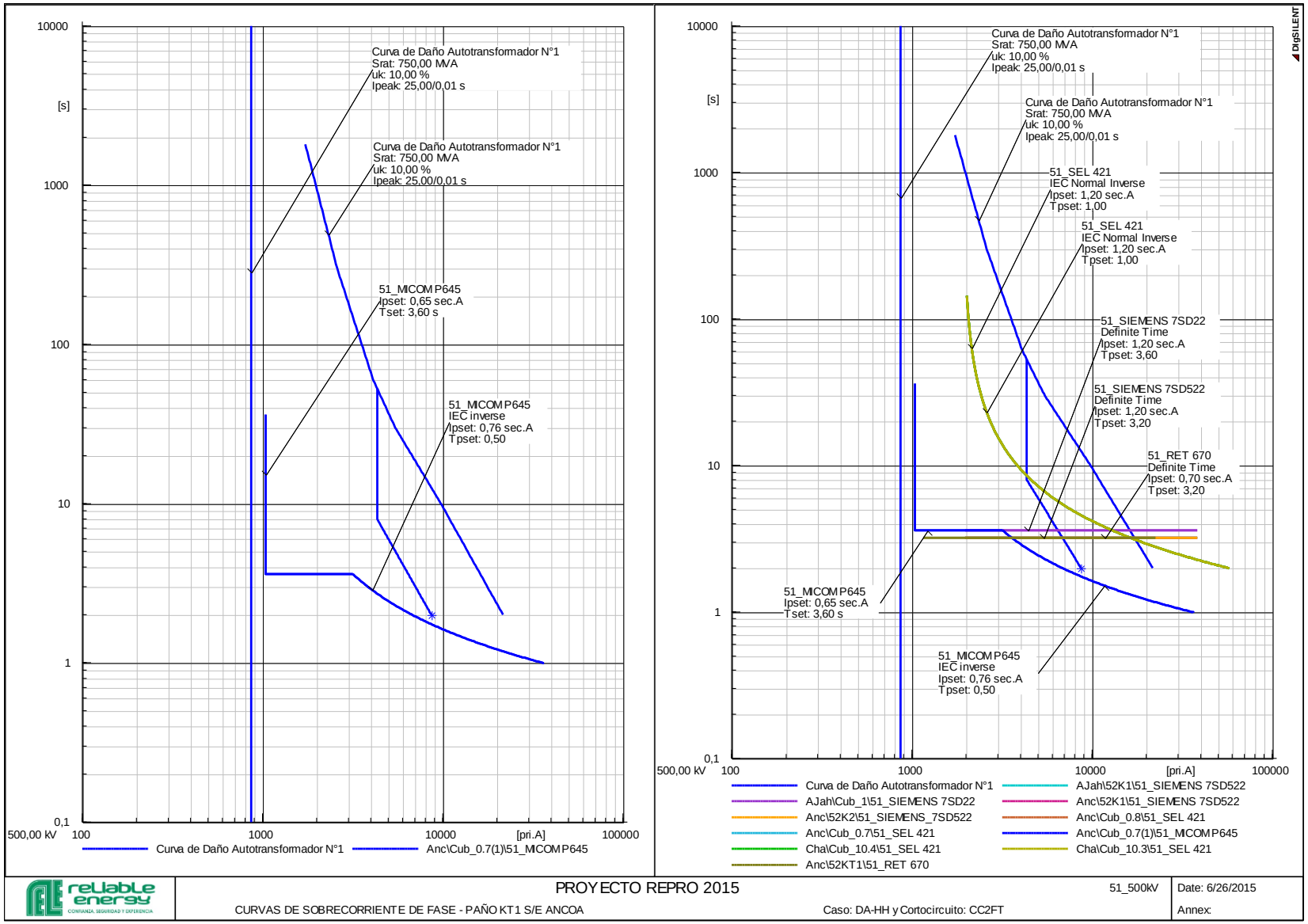

PROYECTO REPRO 2015

CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA

51_500kV

Caso: DA-HH y Cortocircuito: CC2FT

Date: 6/26/2015

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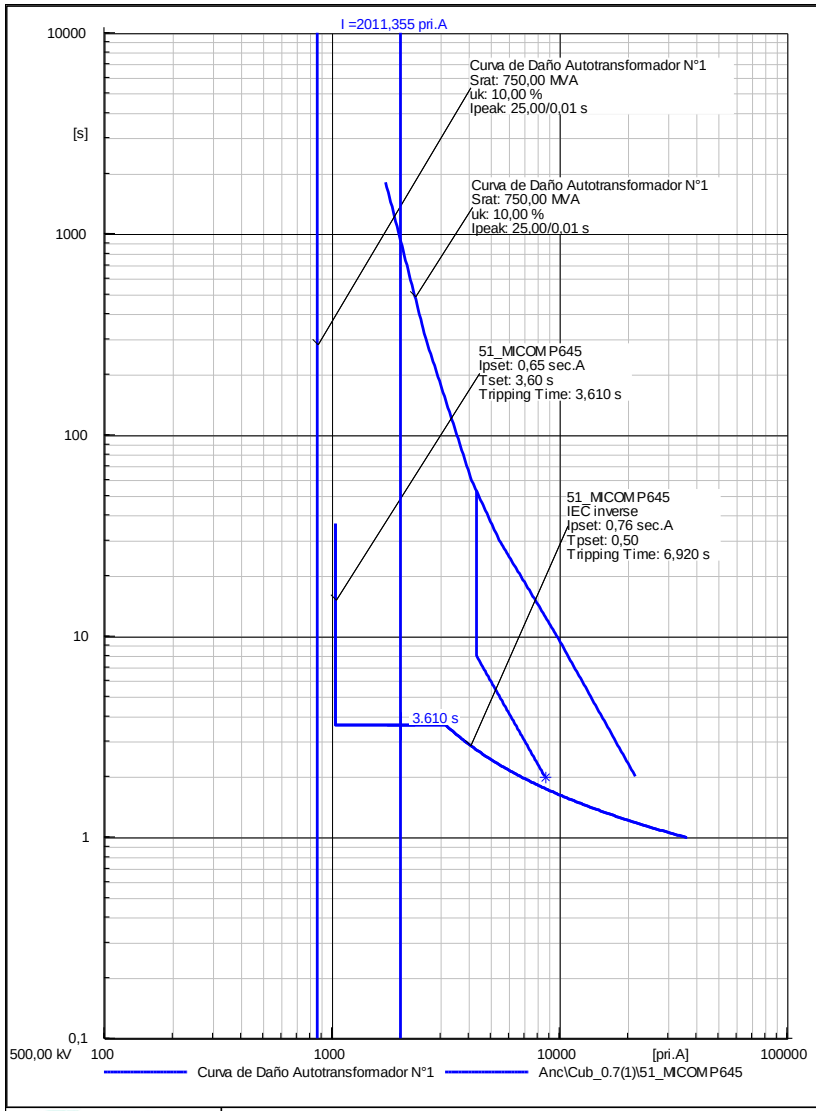

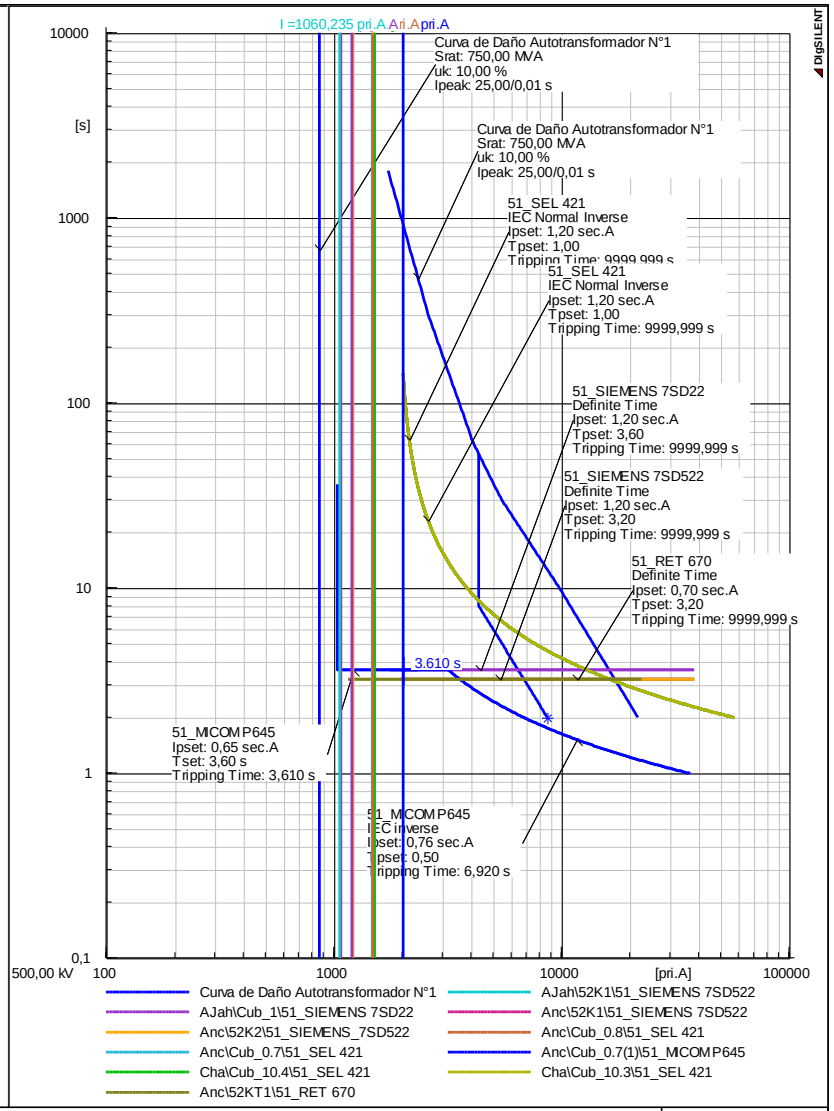

reliable energy	PROYECTO REPRO 2015	51_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-0	Annex:

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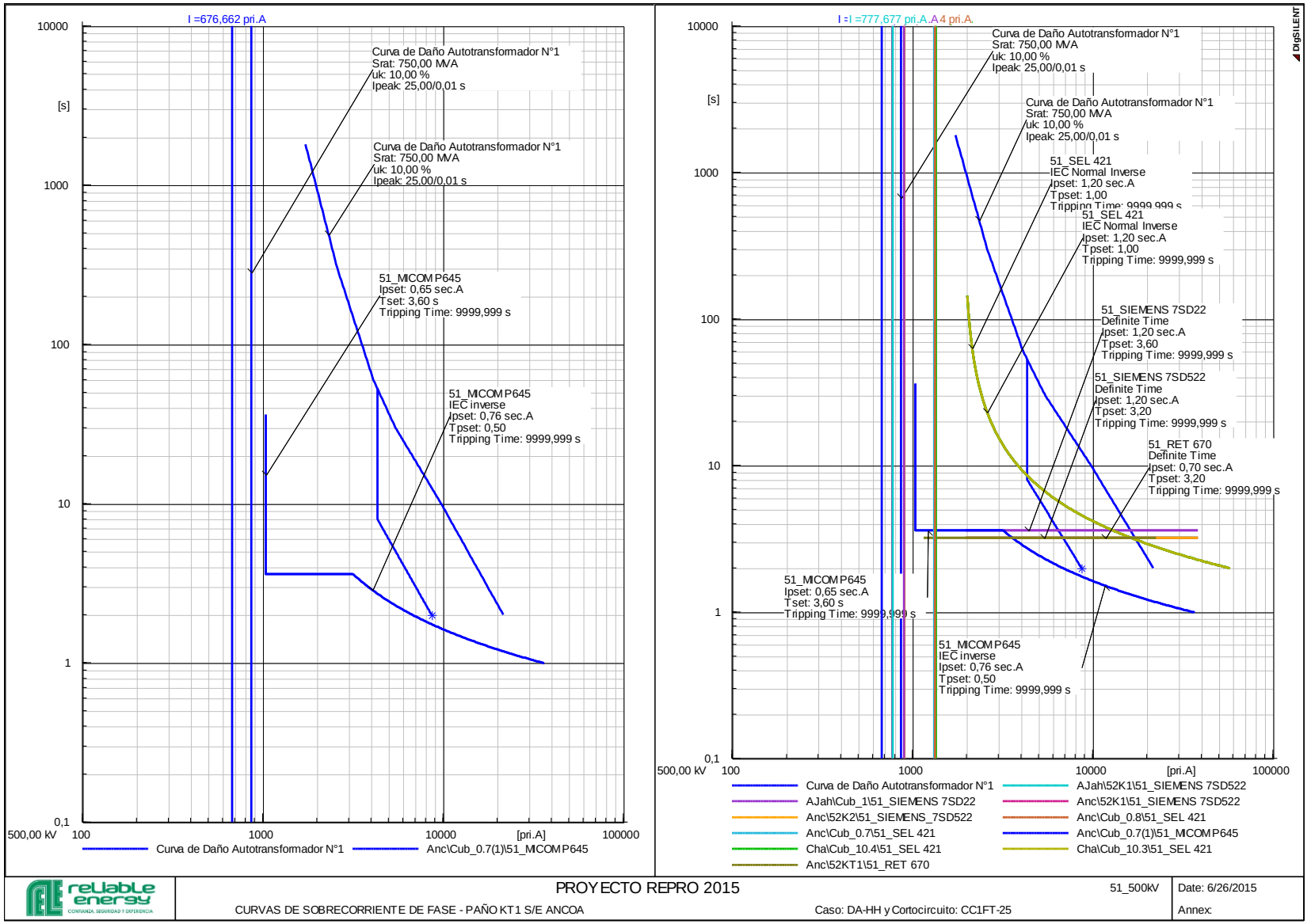

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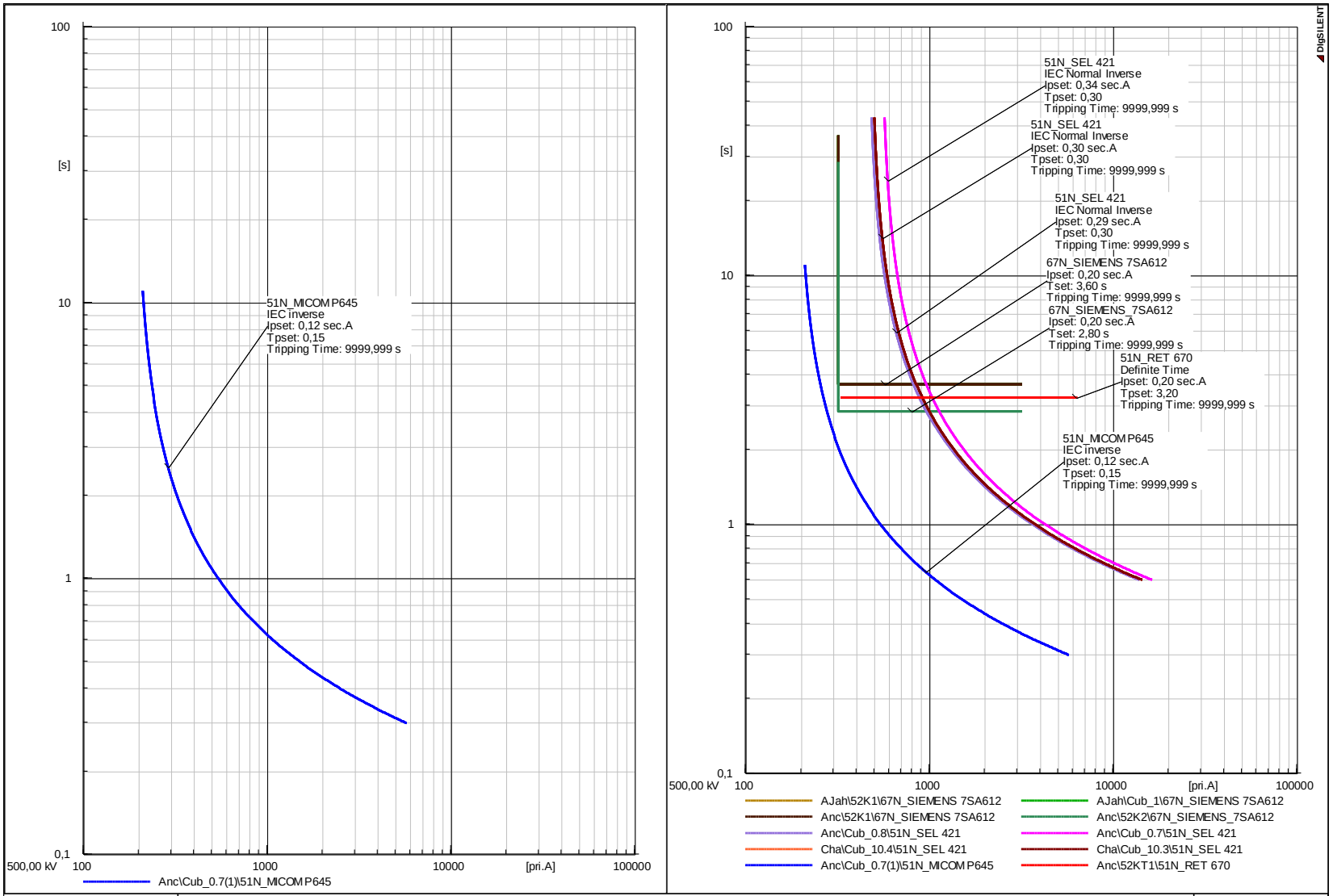
FUNCIÓN 51N LADO DE 500 KV



	PROYECTO REPRO 2015	51N_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC3F	Annex:

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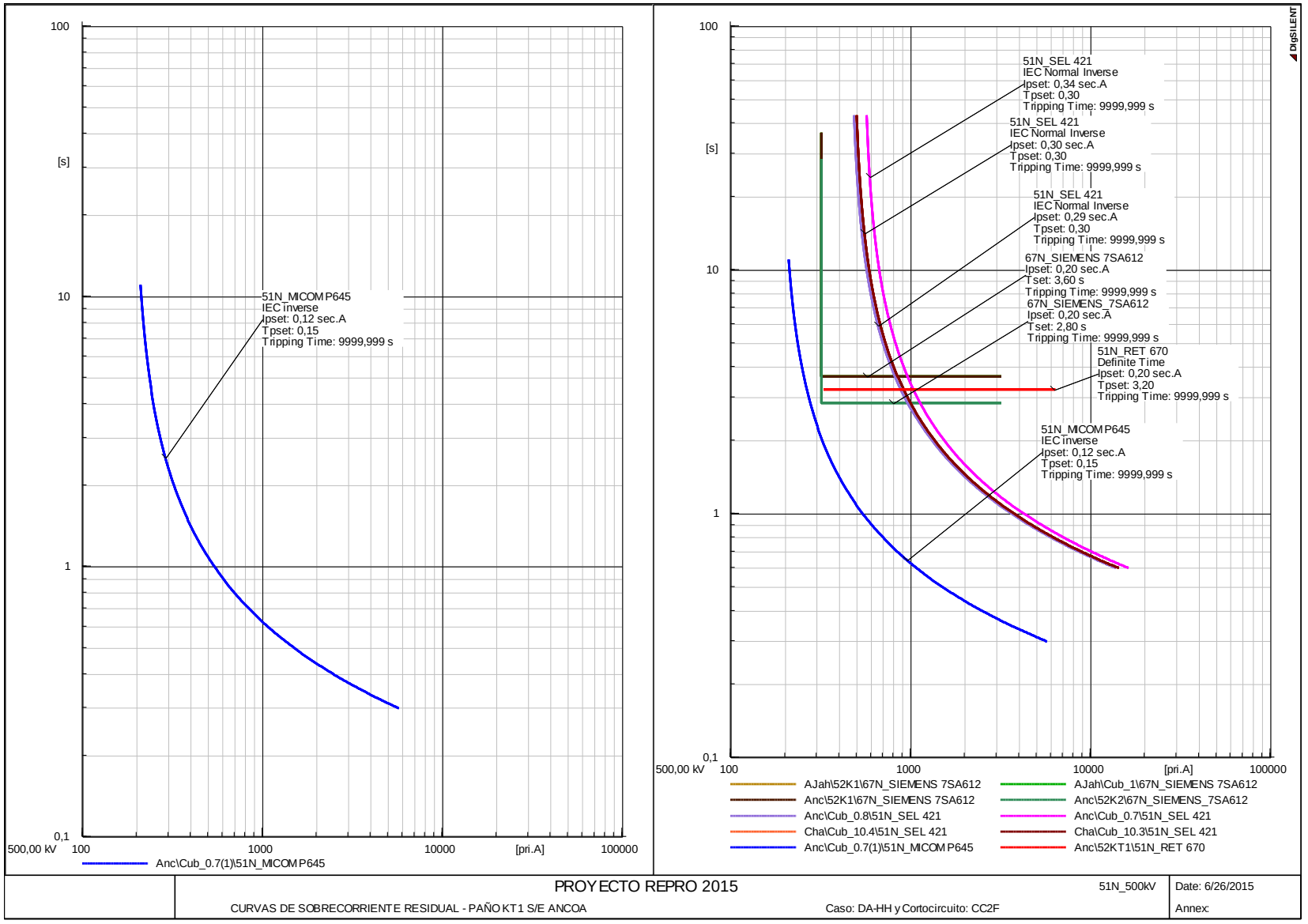

	PROYECTO REPRO 2015	51N_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC2F	Annex:

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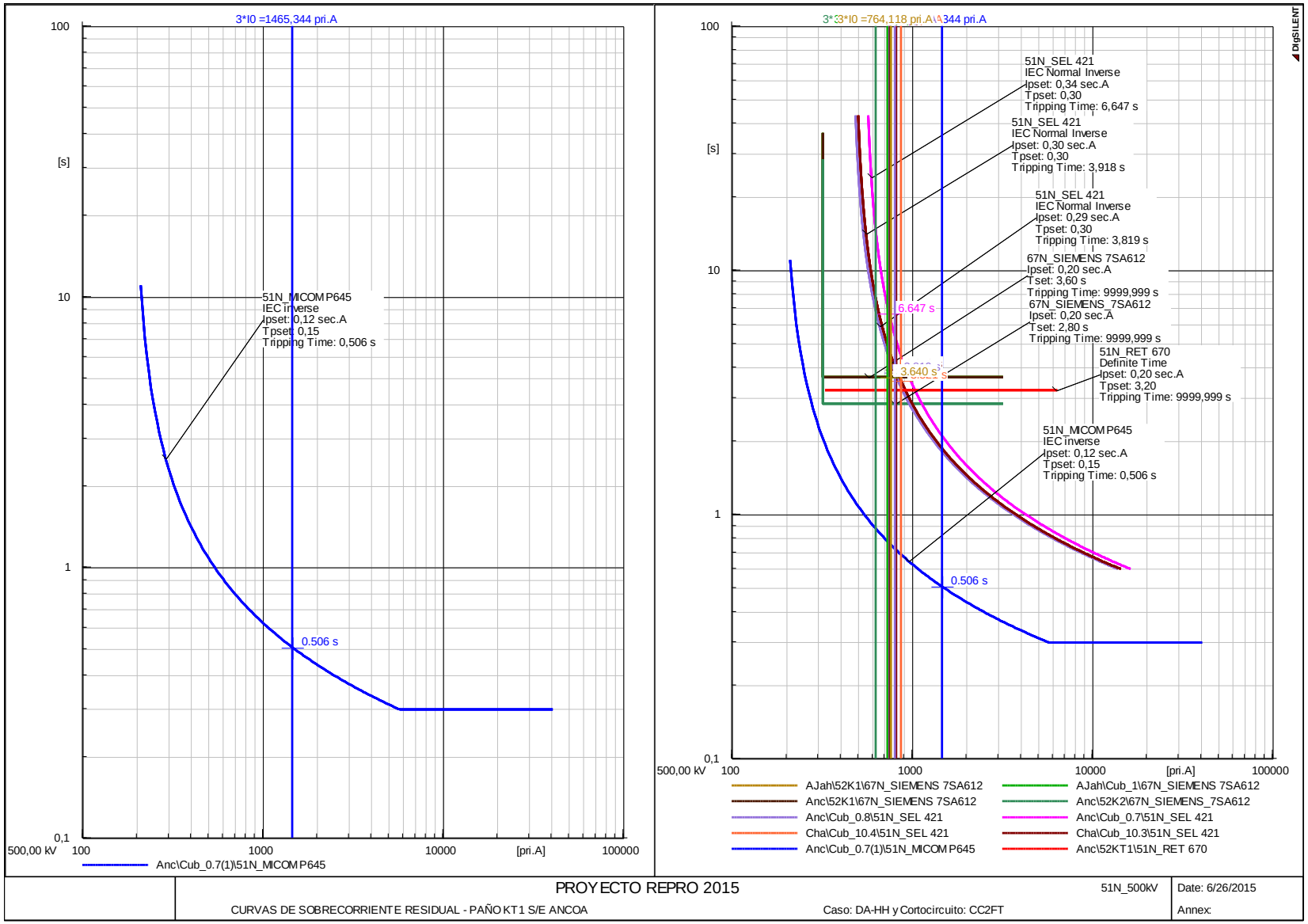

PROYECTO REPRO 2015 | 51N_500kV | Date: 6/26/2015

CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA | Caso: DA-HH y Cortocircuito: CC2FT | Annex:

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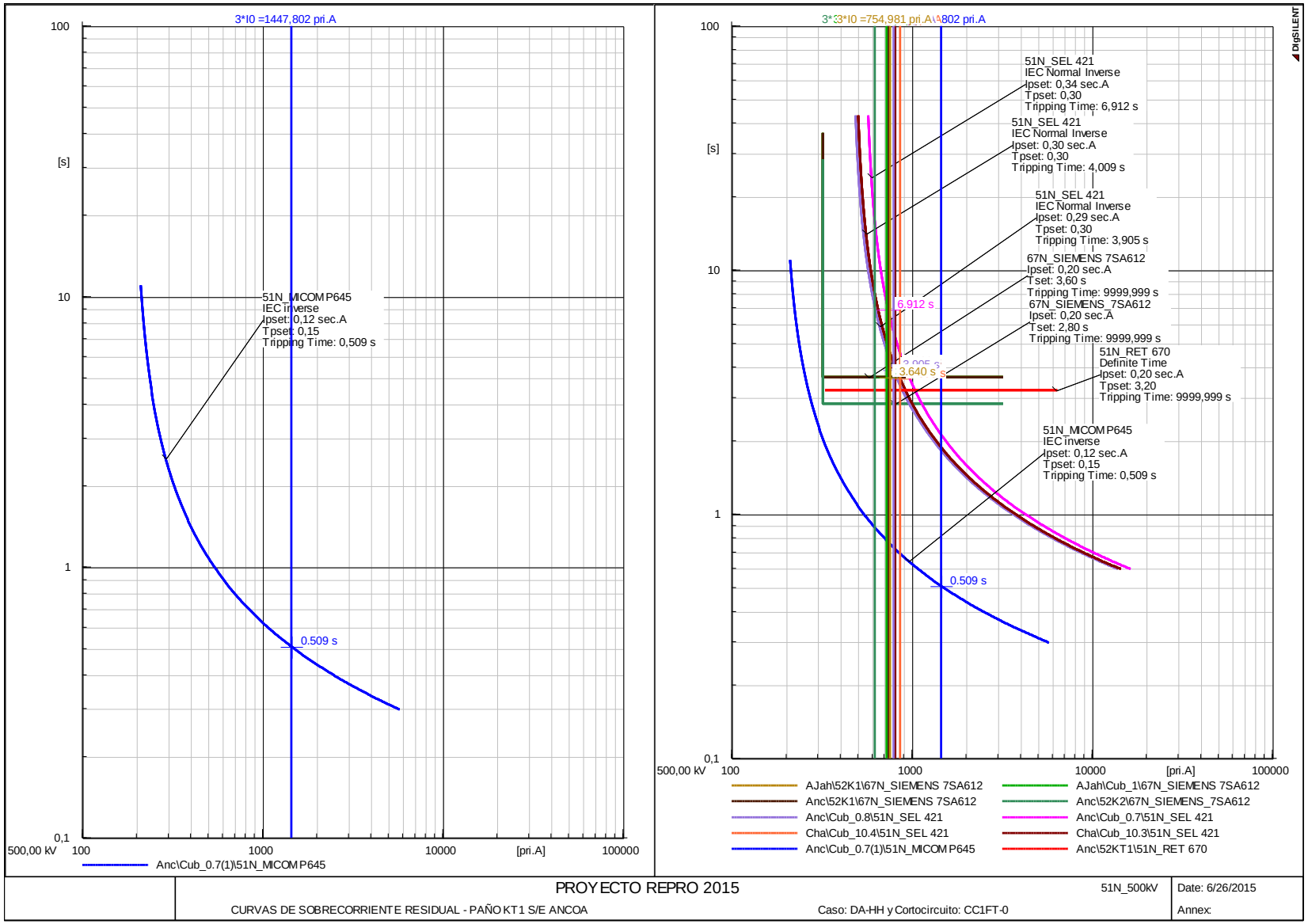

	PROYECTO REPRO 2015	51N_500kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH y Cortocircuito: CC1FT-0	Annex:

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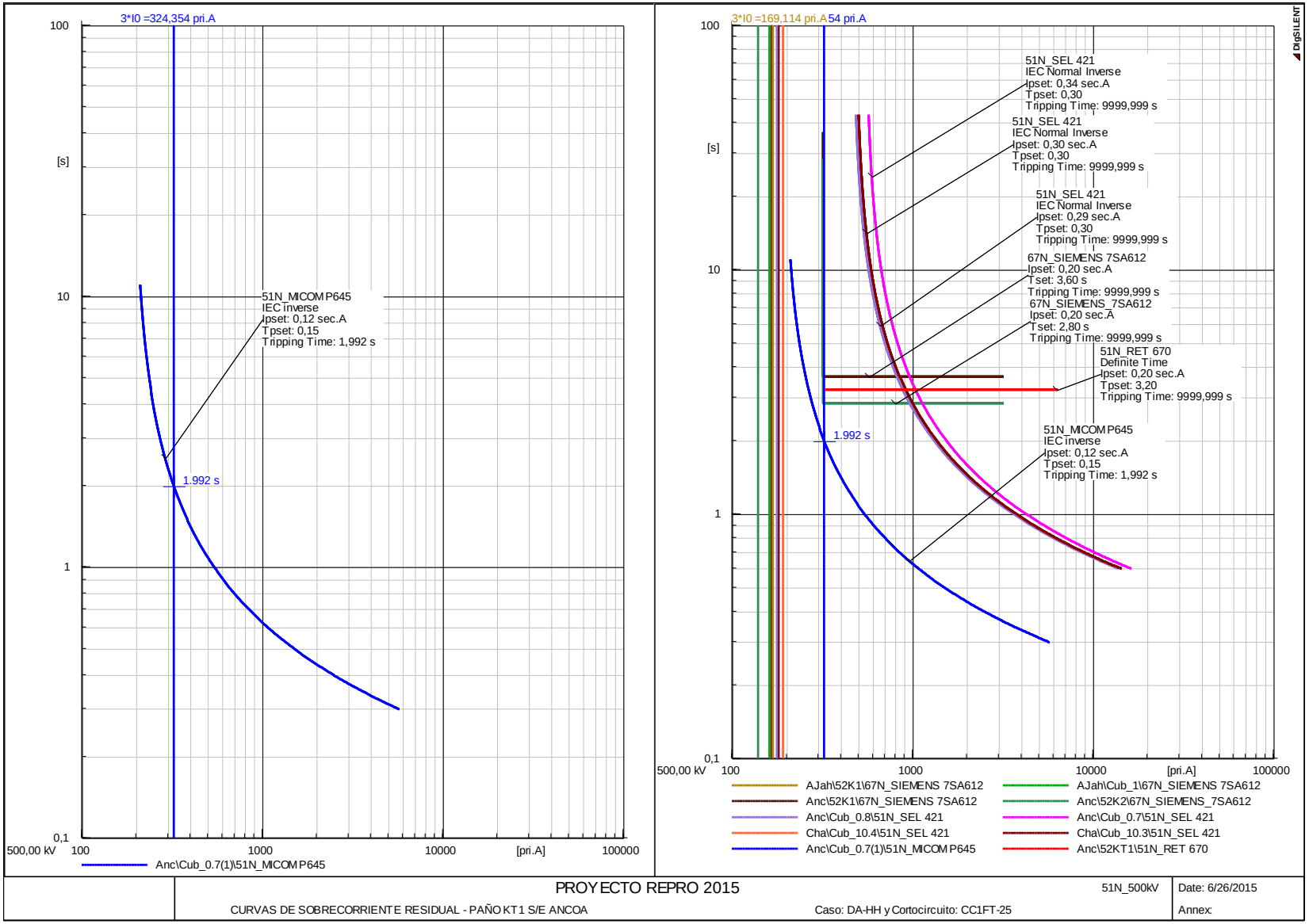

PROYECTO REPRO 2015 | 51N_500kV | Date: 6/26/2015

CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA | Caso: DA-HH y Cortocircuito: CC1FT-25 | Annex:

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SIMULACIONES EN DEMANDA ALTA – HIDROLOGÍA SECA

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FALLA EN BARRA 500 KV S/E ANCOA

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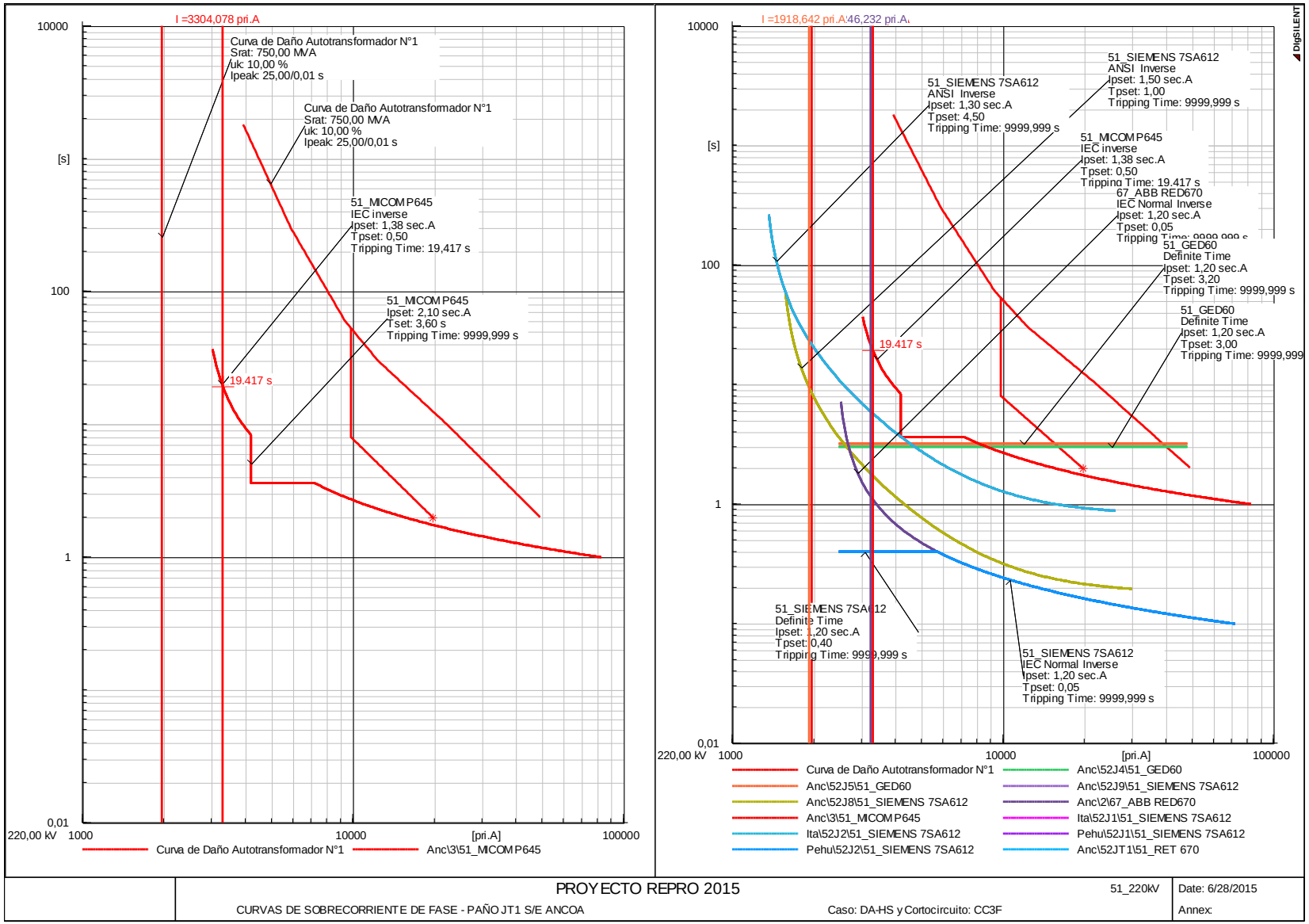
FUNCIÓN 51 LADO DE 220 KV



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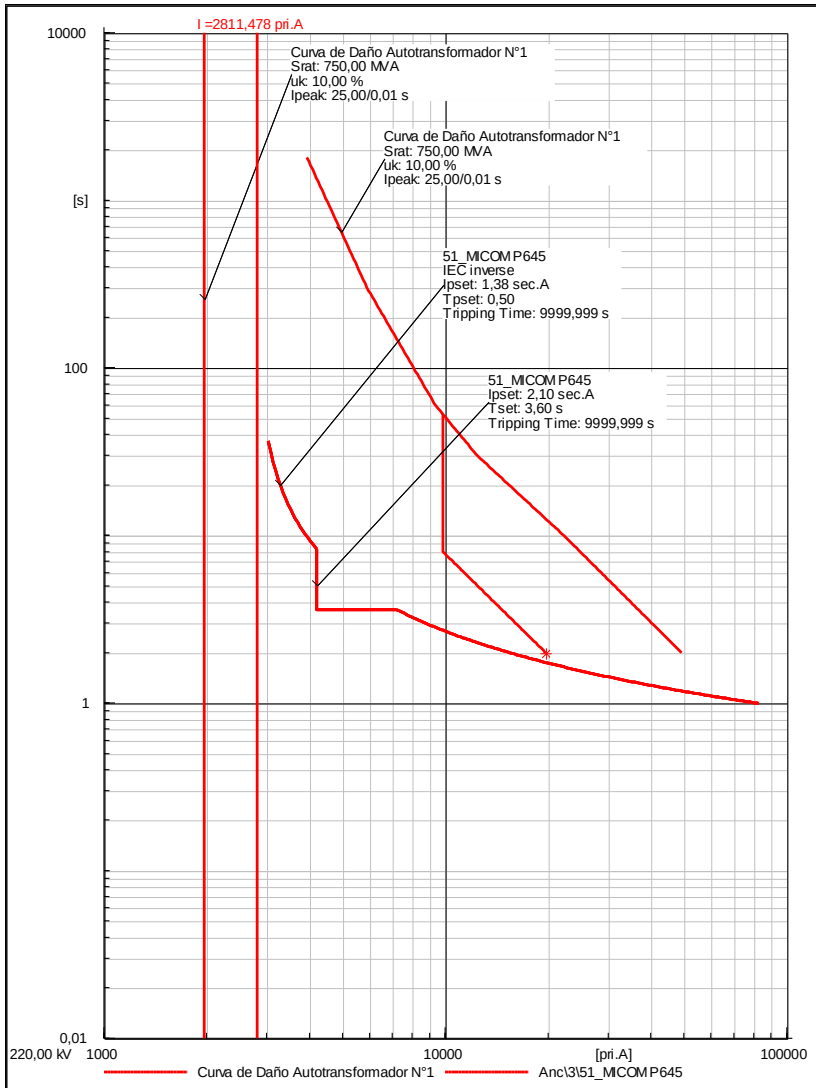

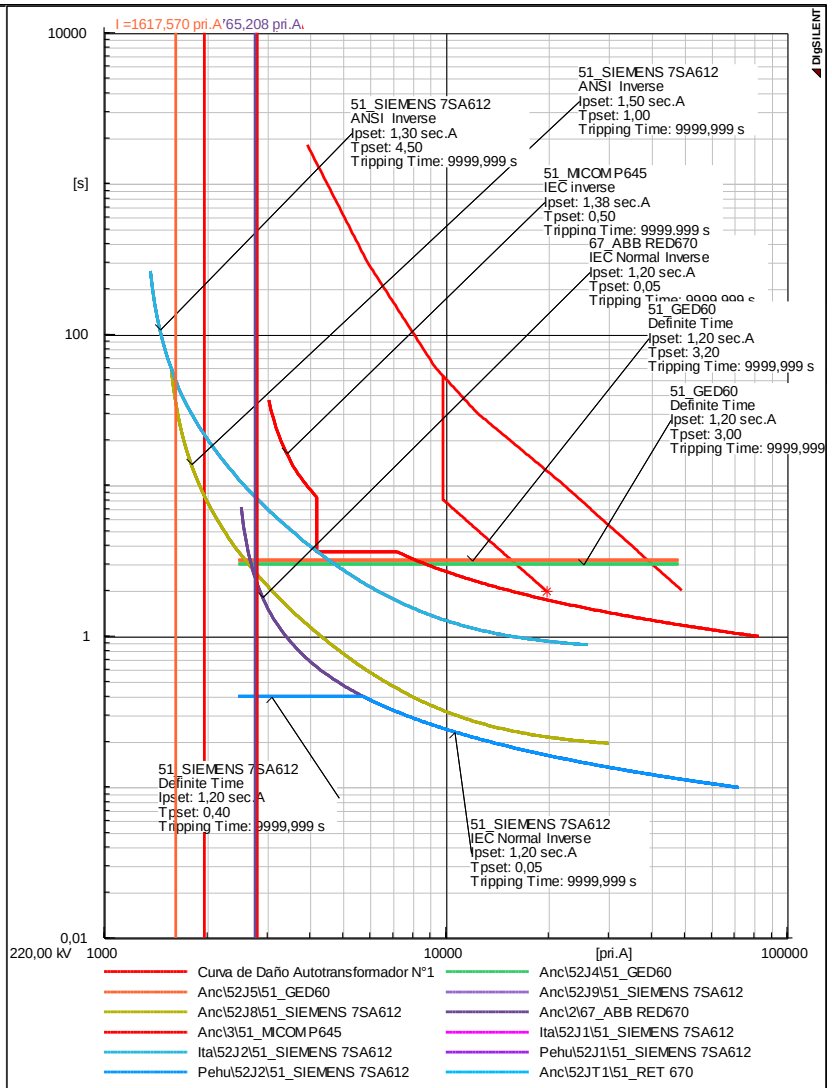

	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2F	Annex:

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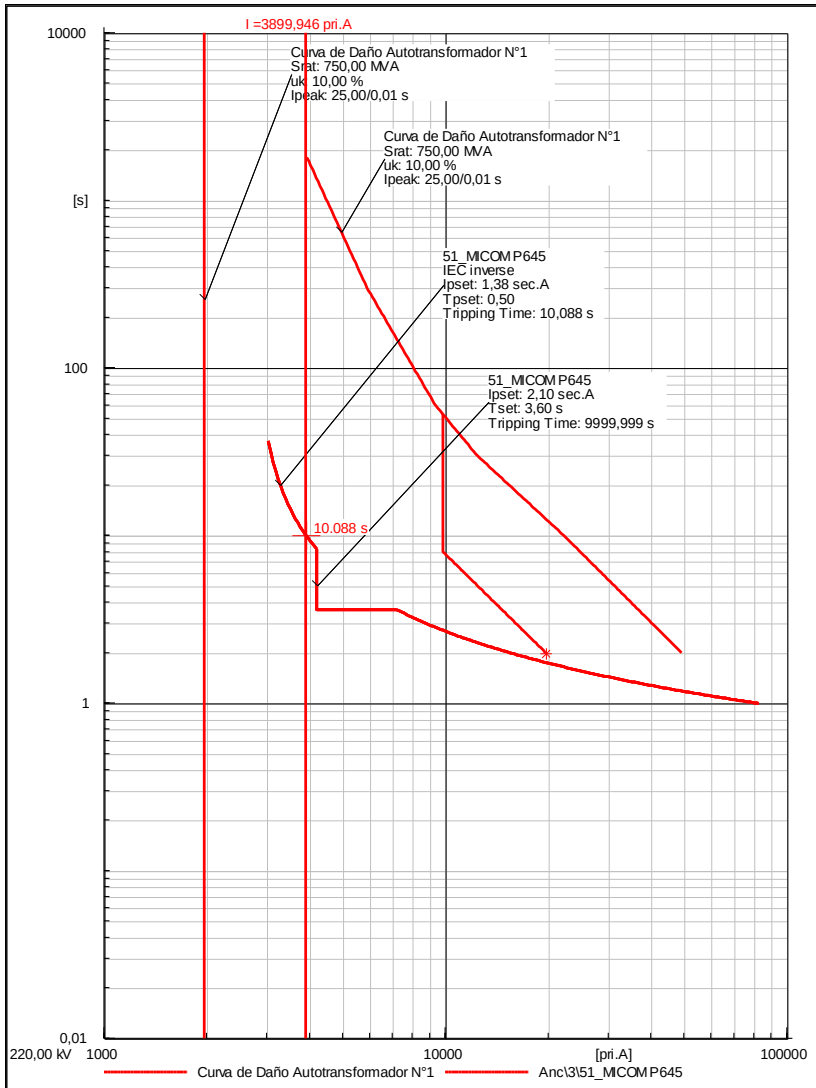

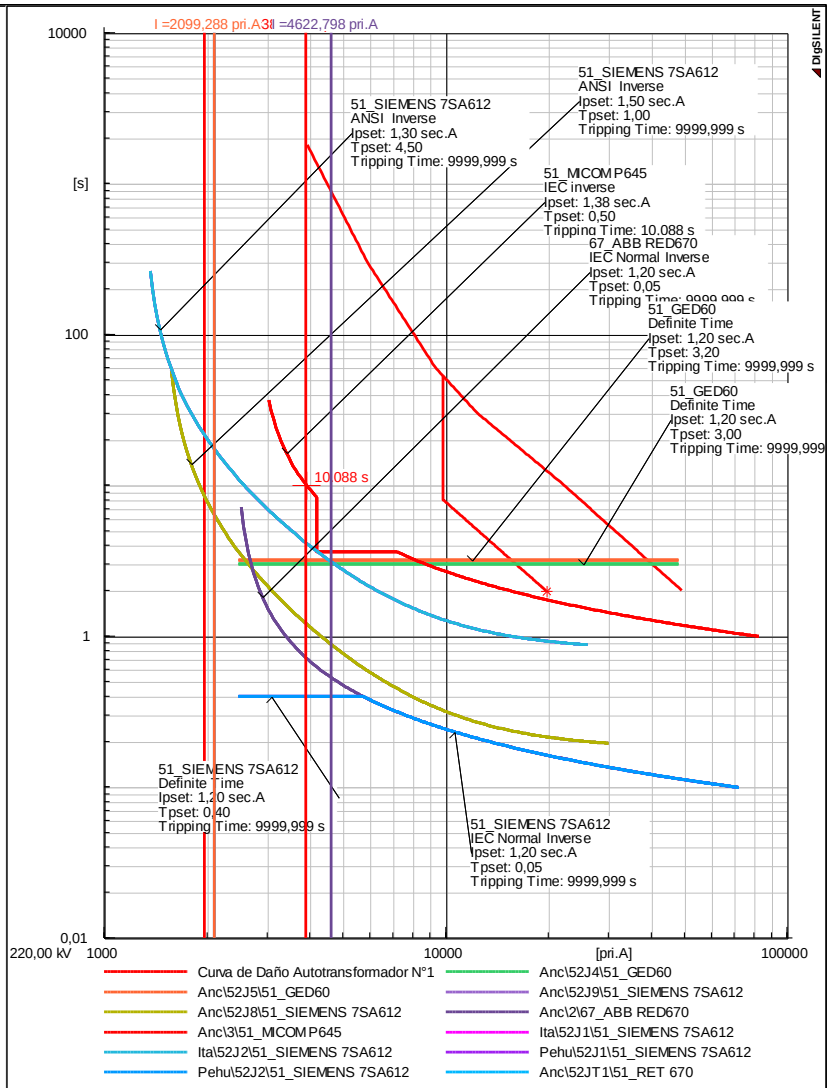

	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2FT	Annex:

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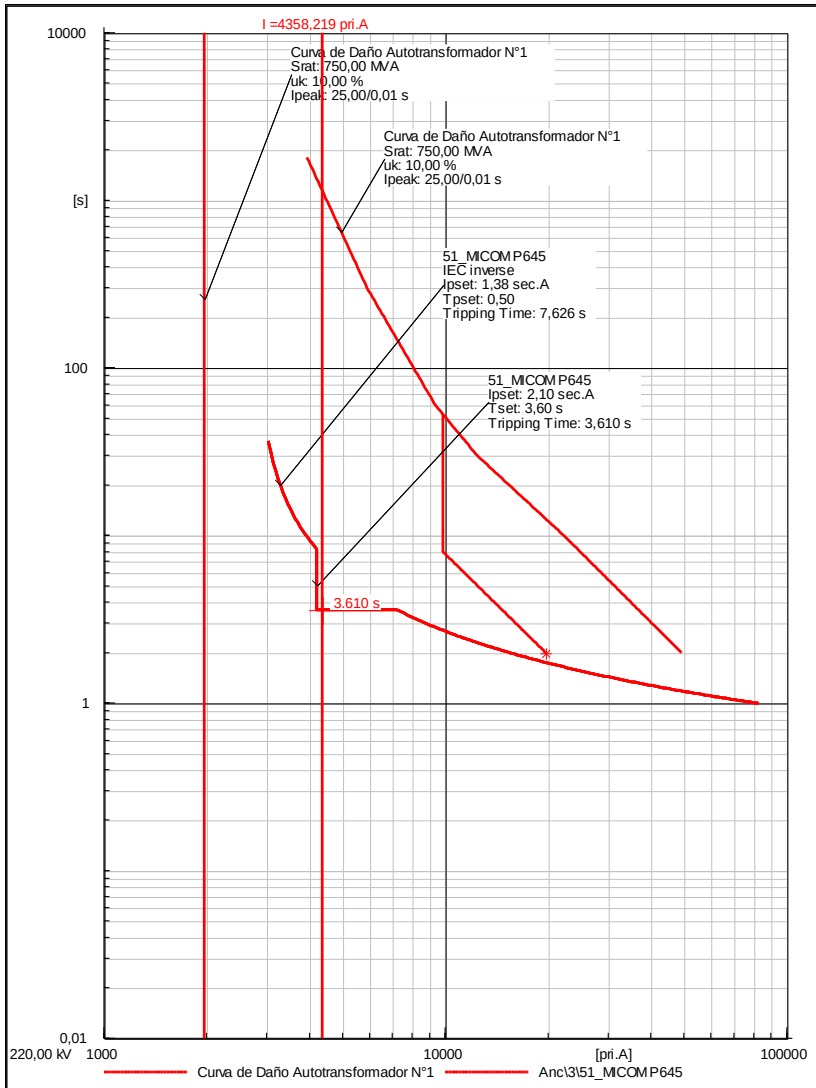
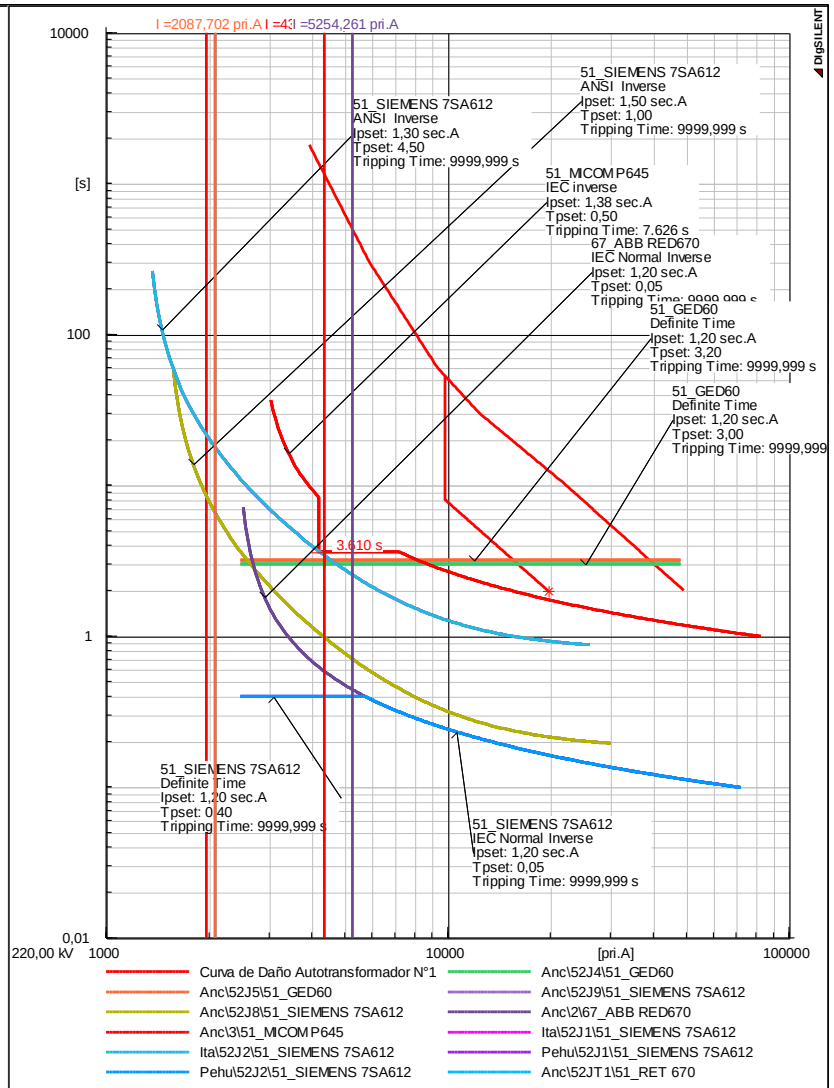
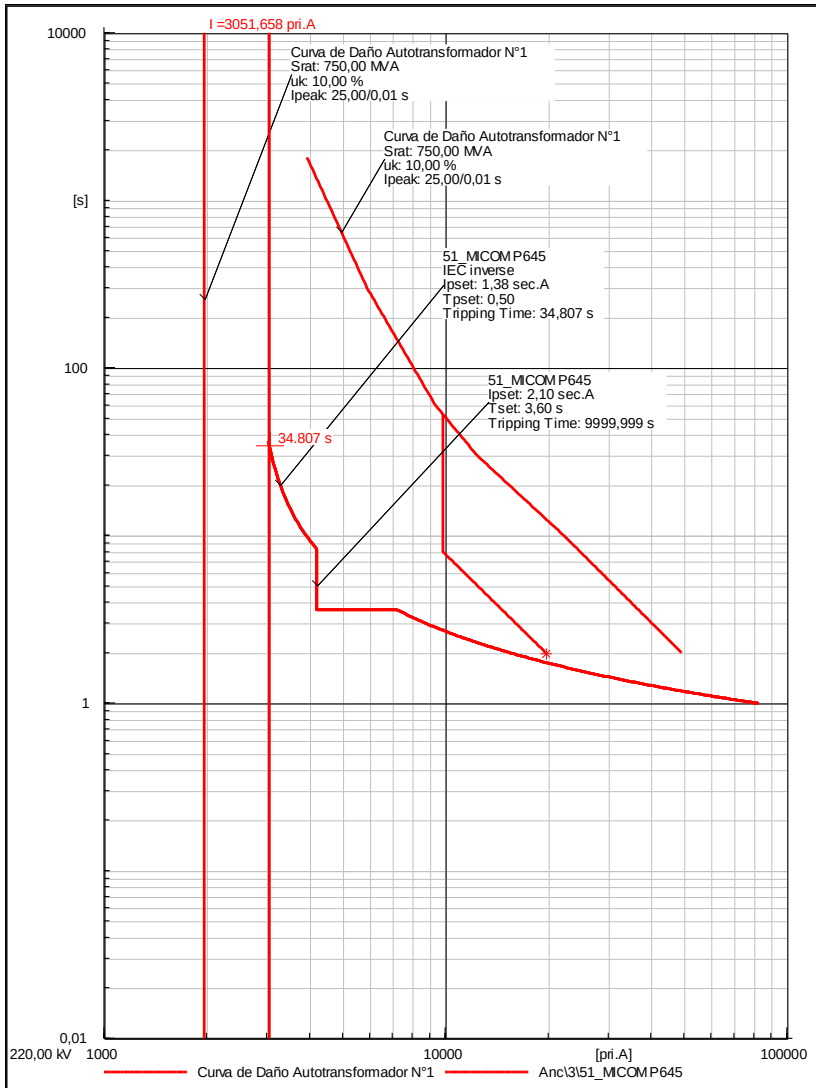
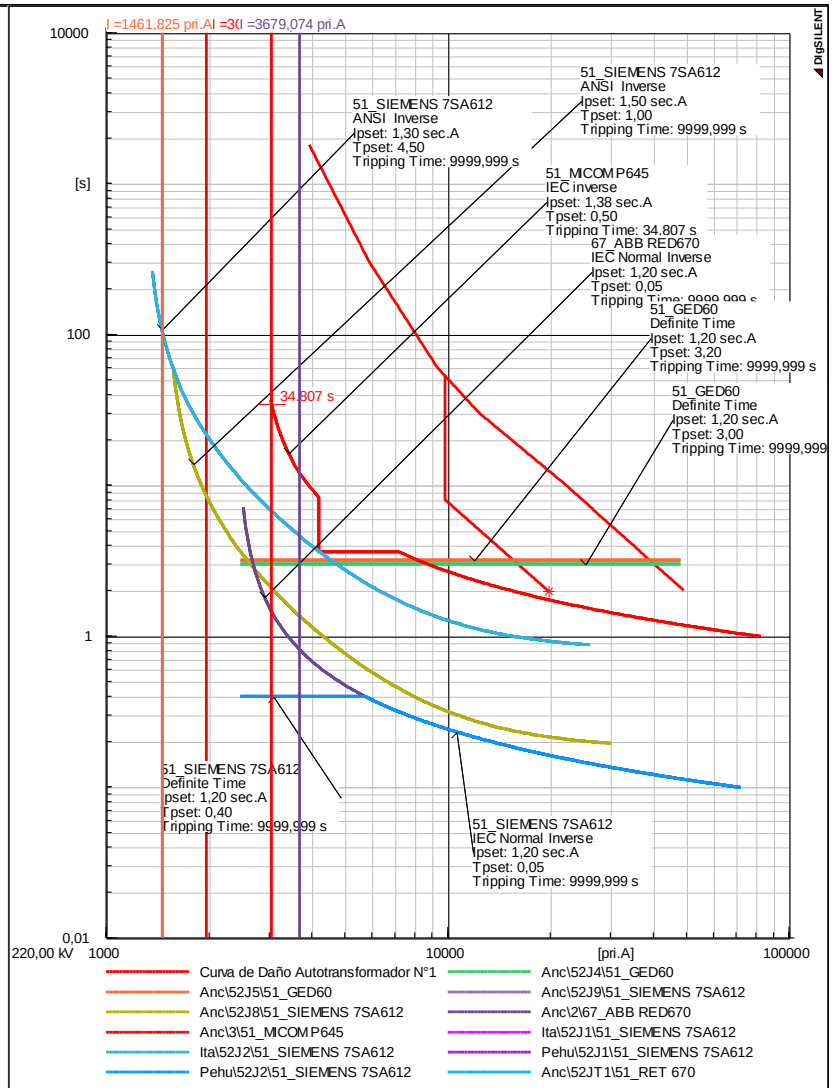




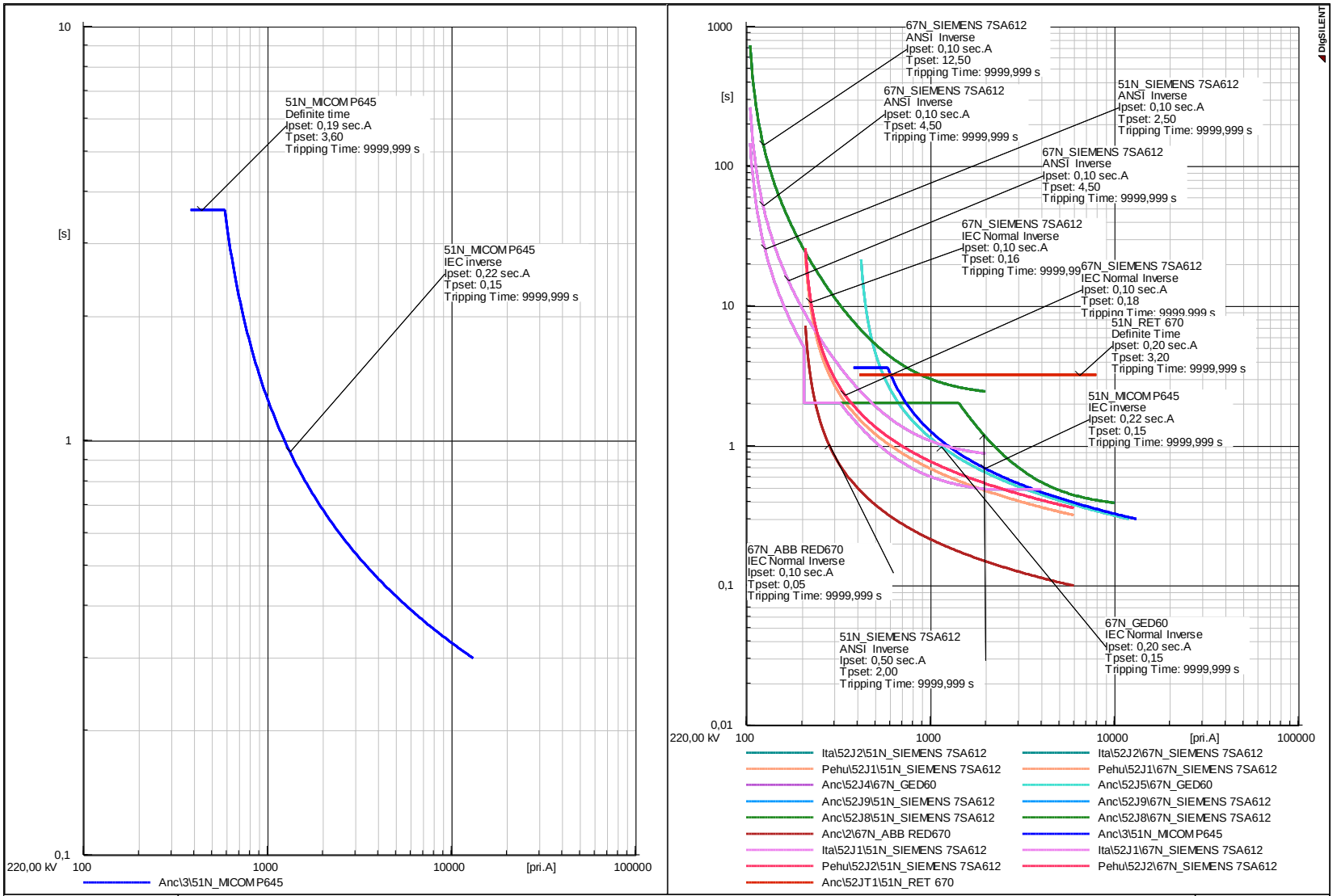
	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-0	Annex:





	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-25	Annex:

FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC3F	Annex:

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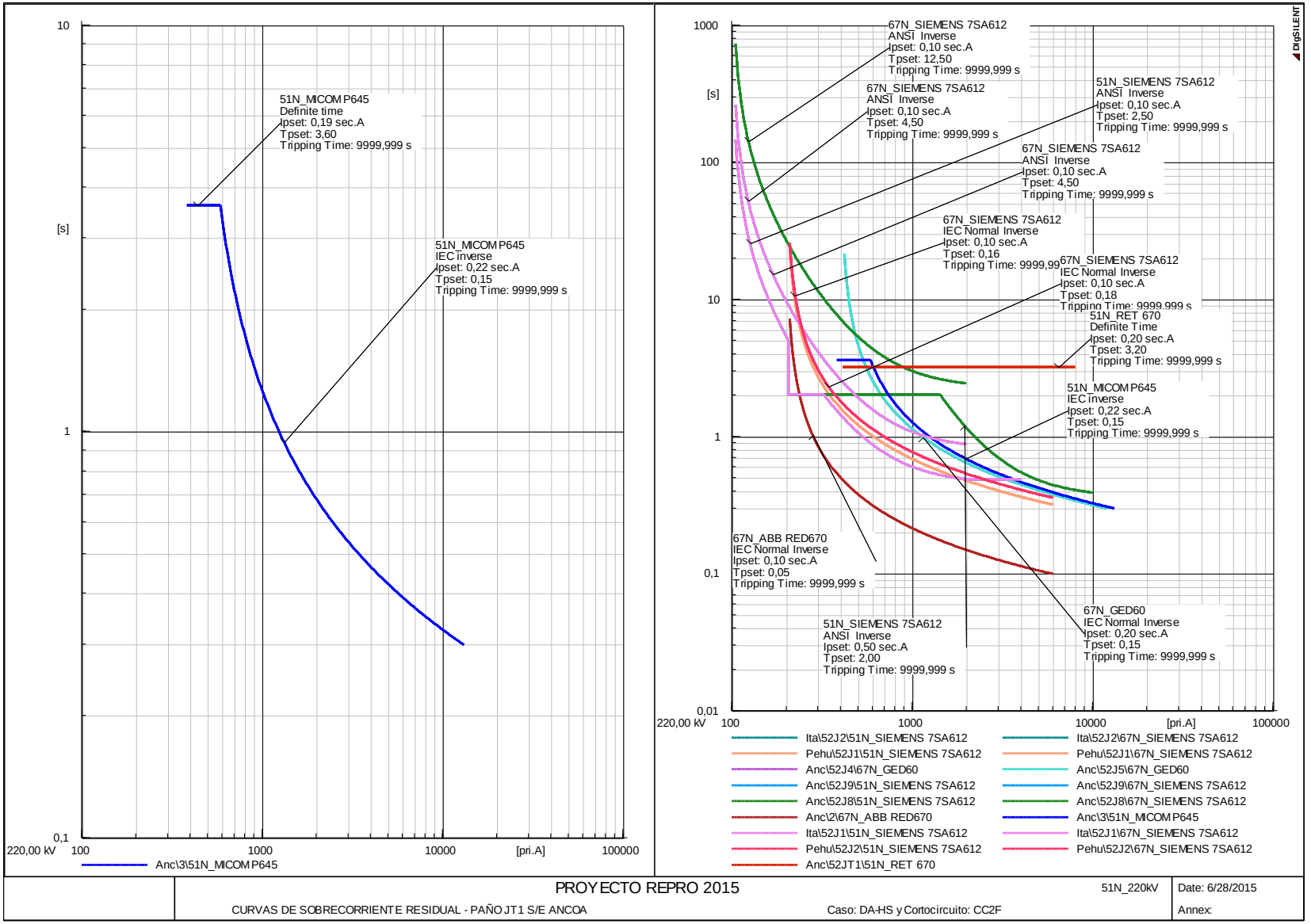

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2F	Annex:

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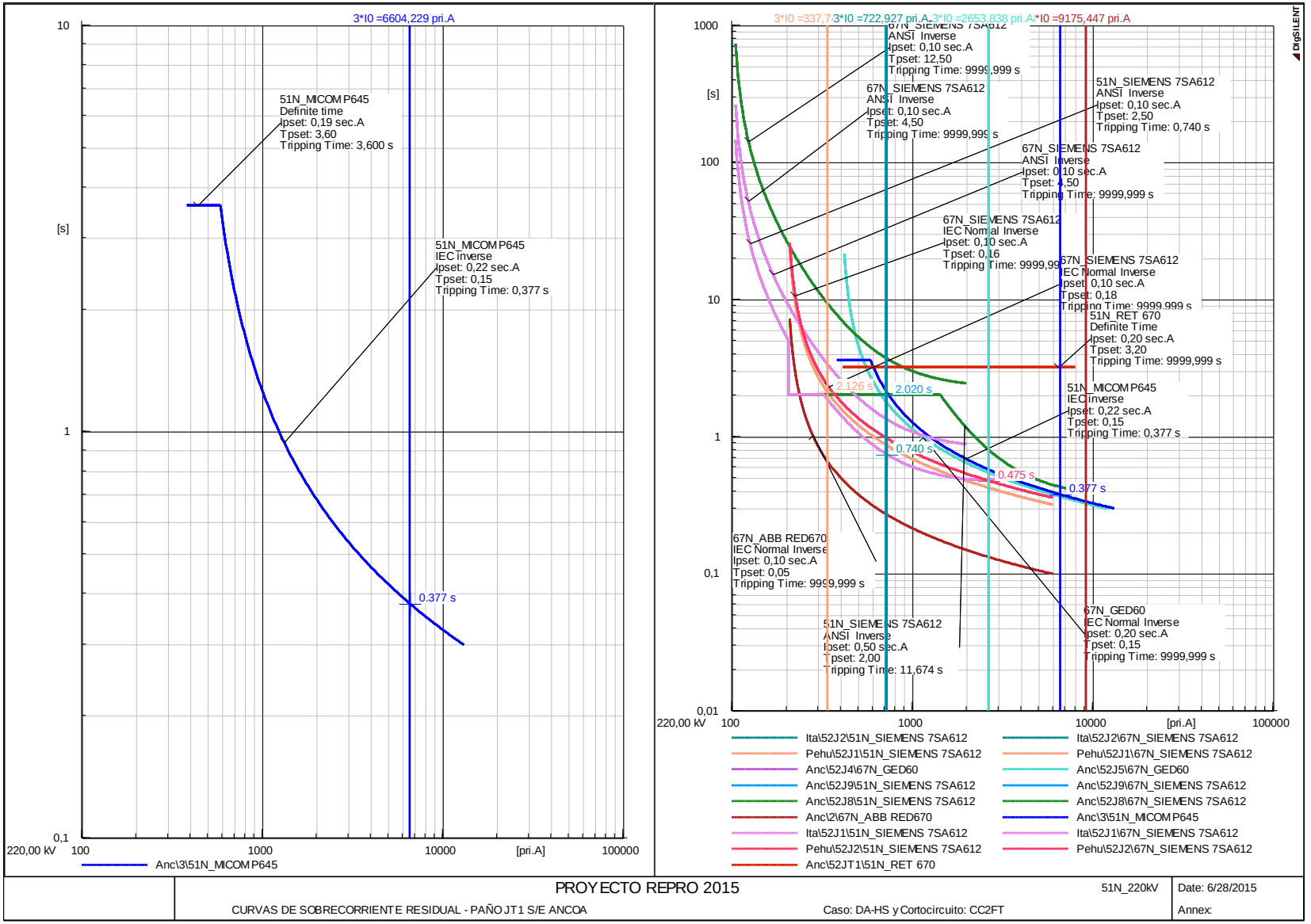

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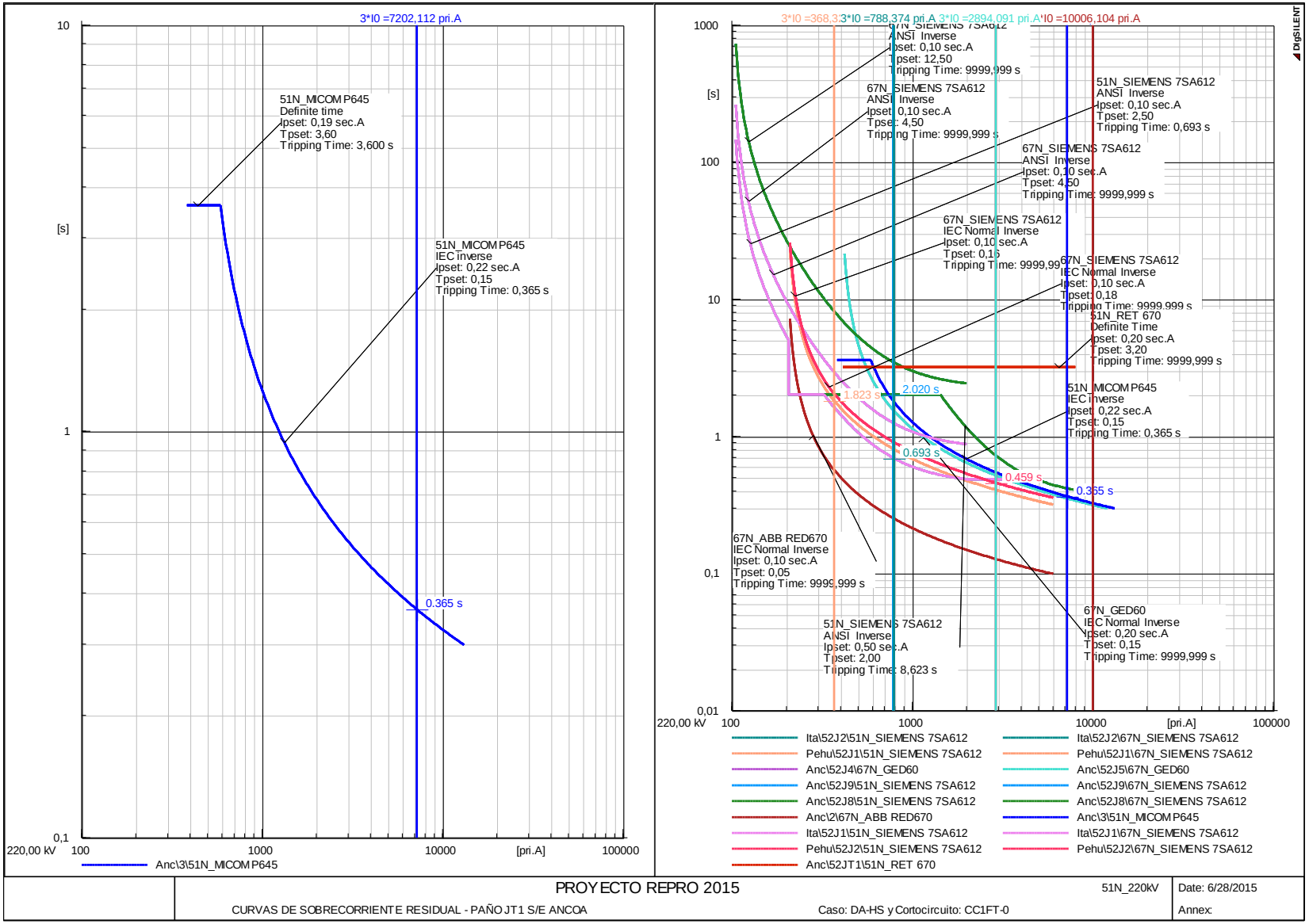

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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-0	Annex:

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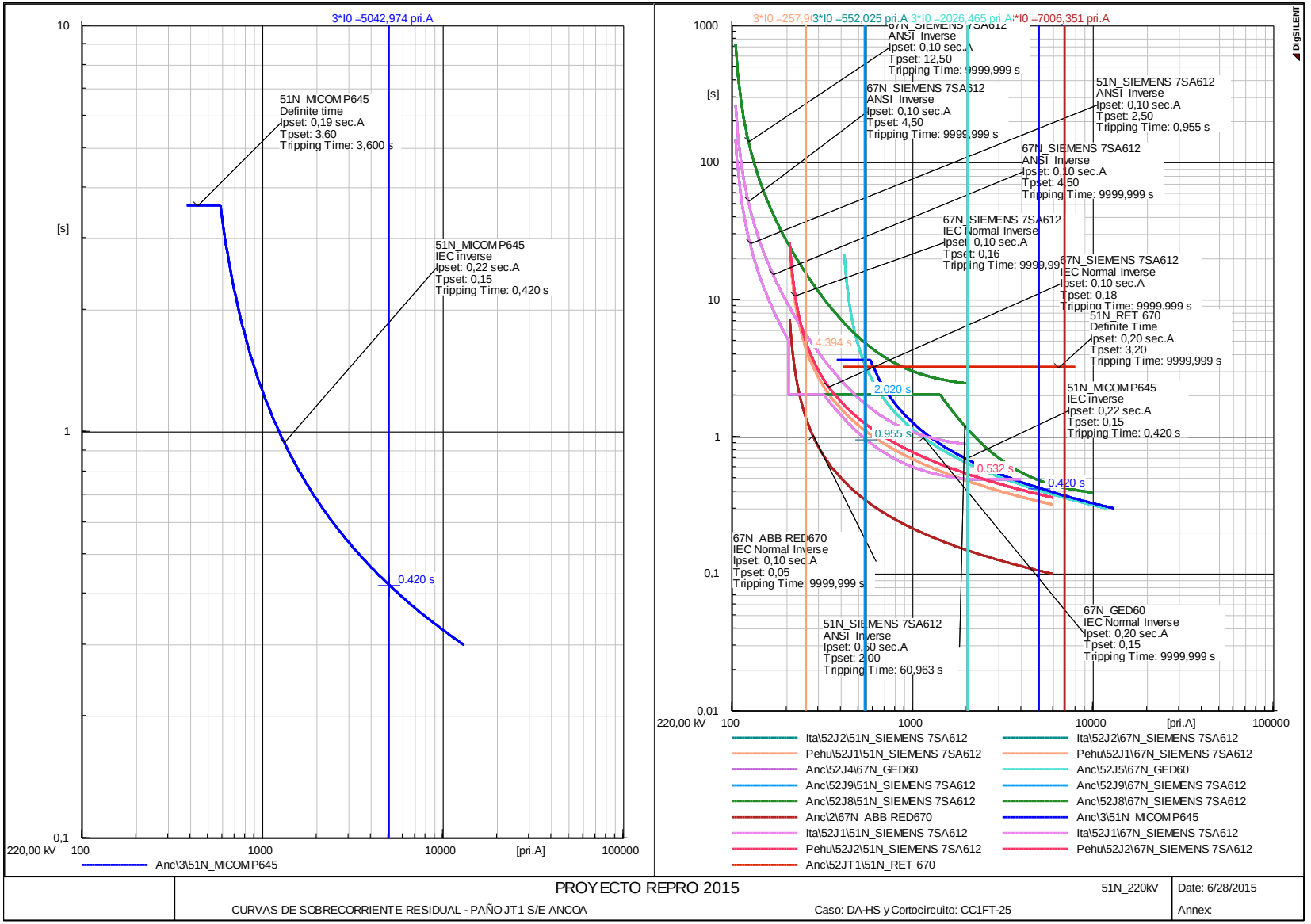

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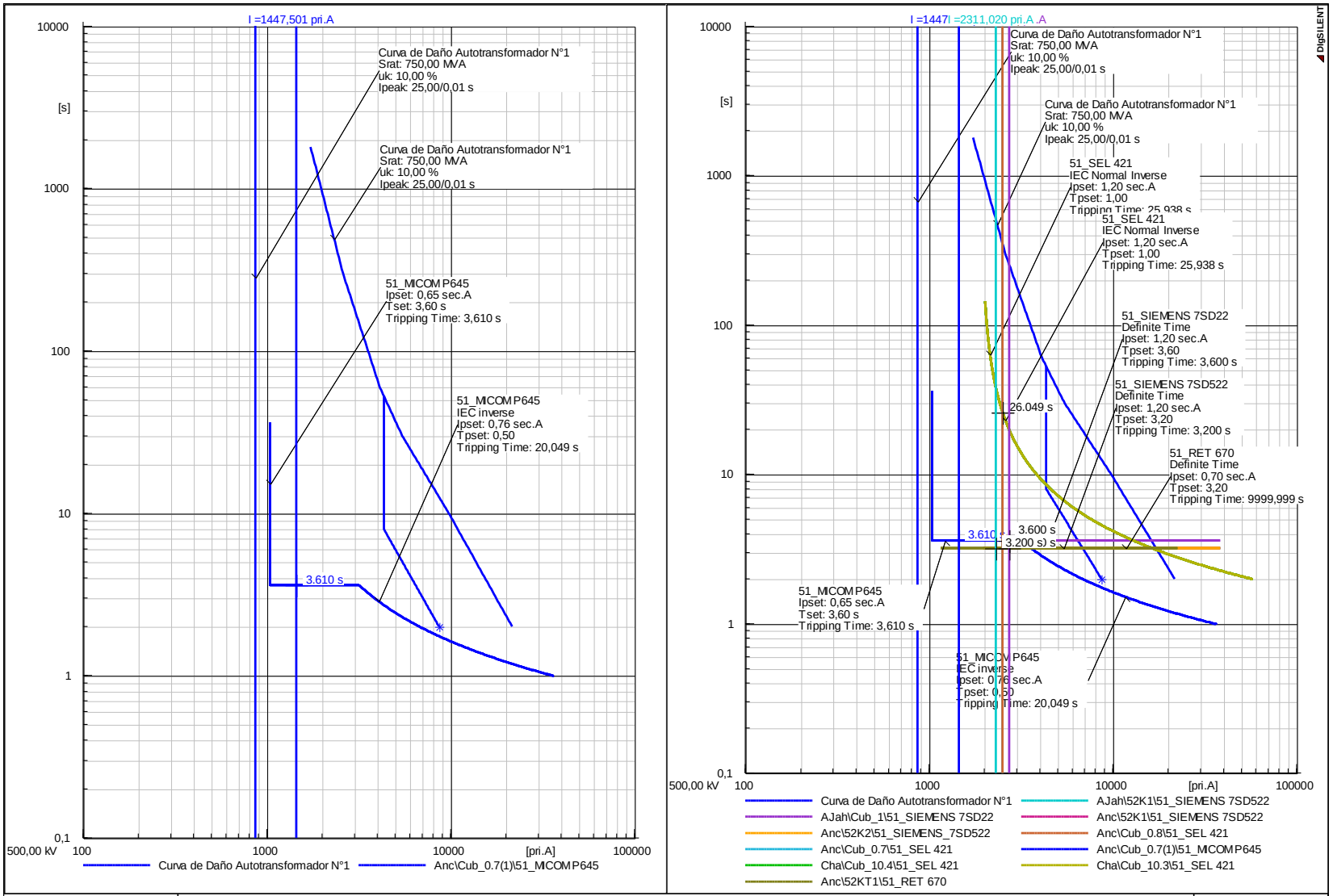
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-25	Annex:

FUNCIÓN 51 LADO DE 500 KV



	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC3F	Annex:

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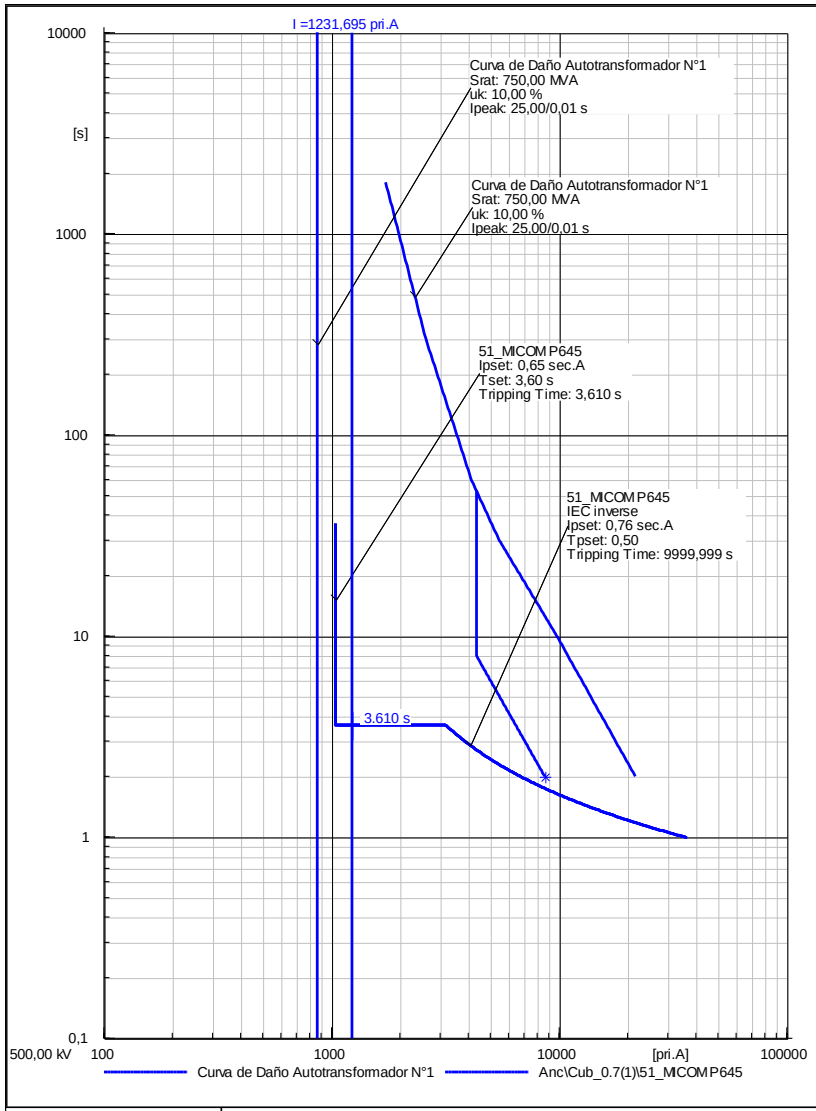

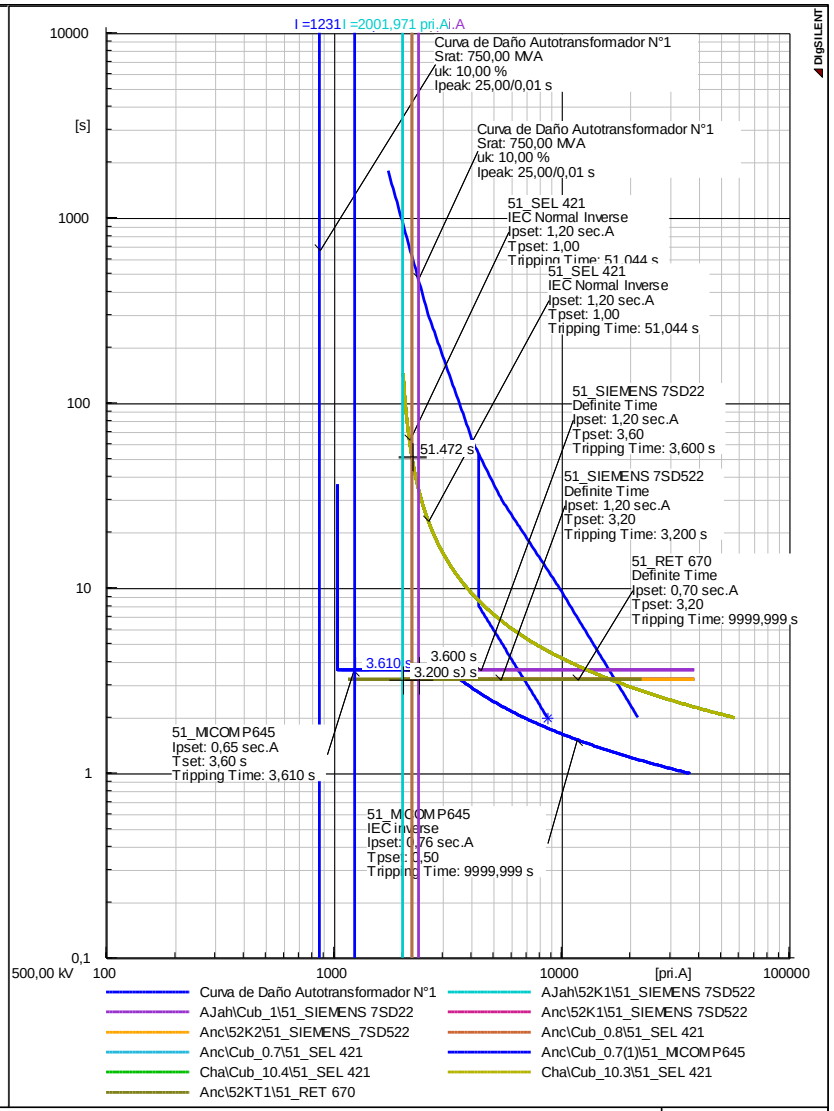

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2F	Annex:

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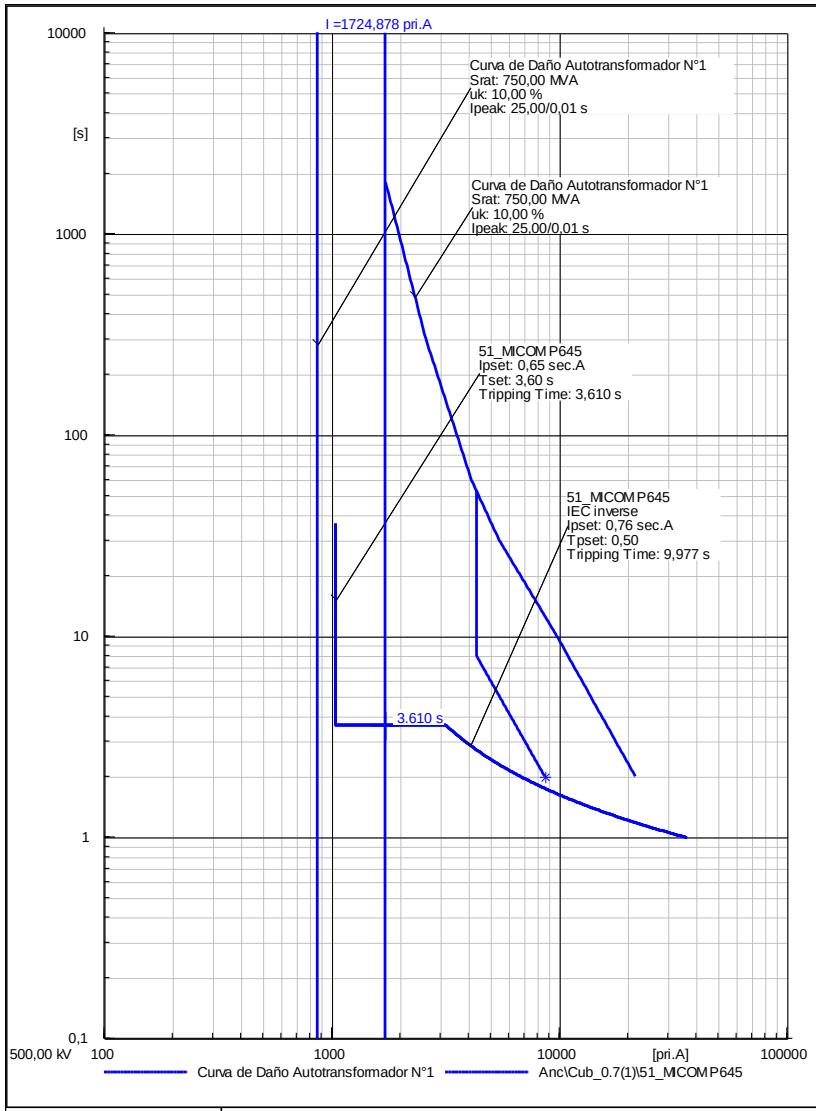

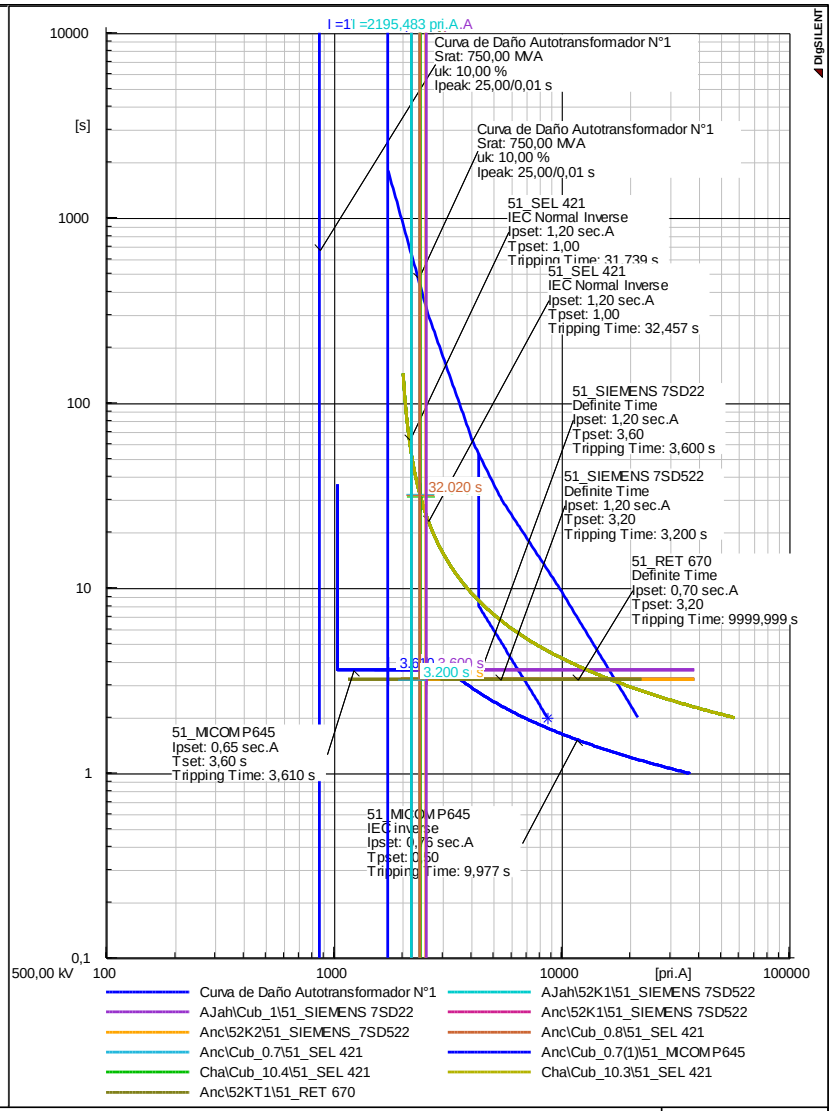

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2FT	Annex:

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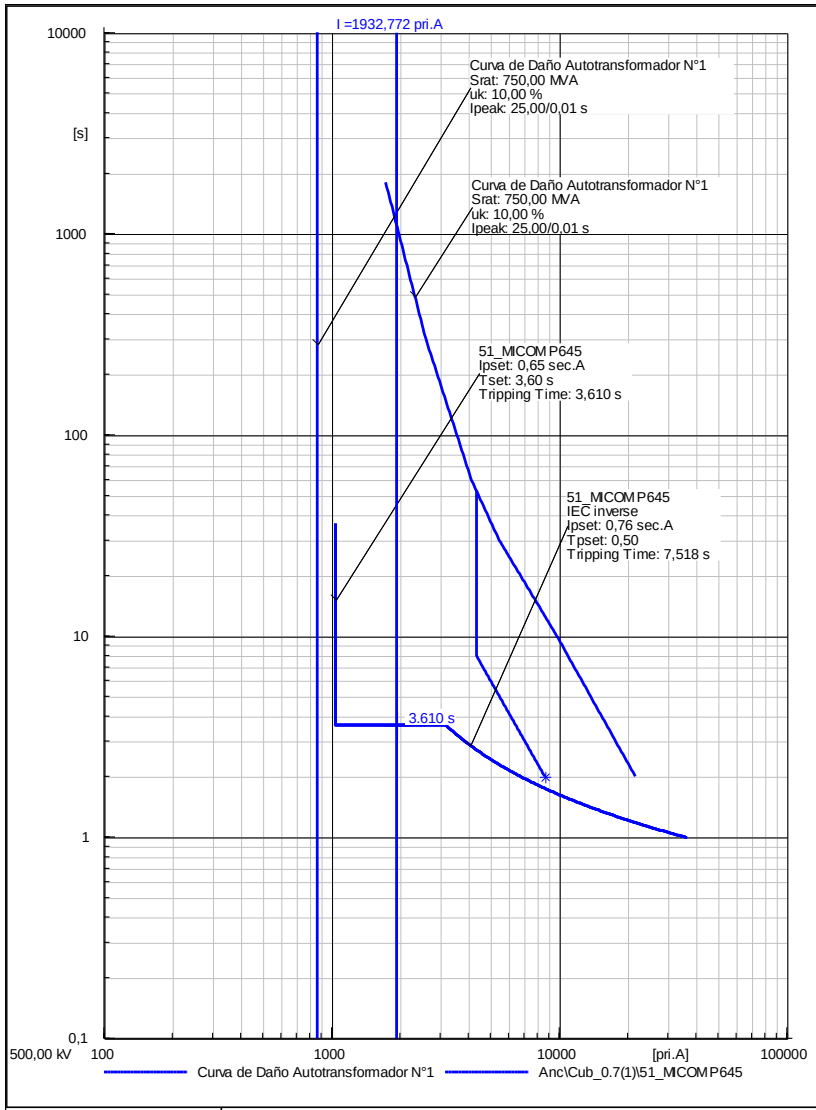

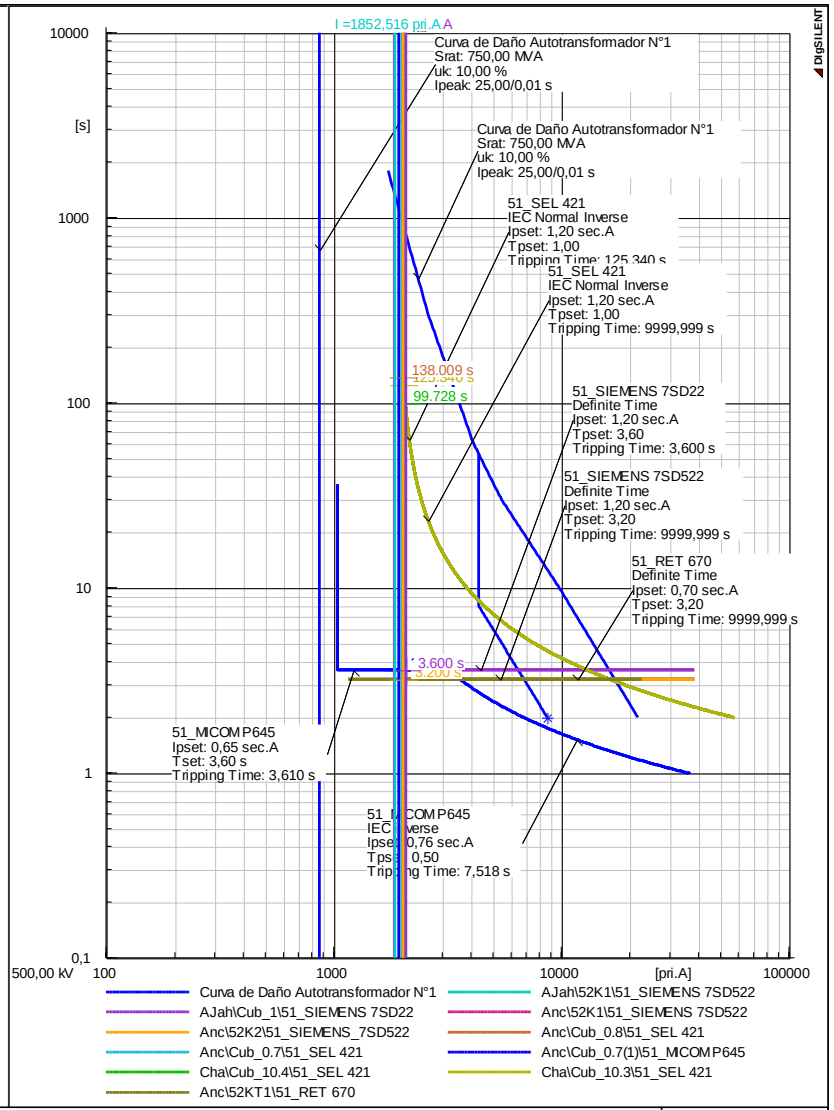

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-0	Annex:

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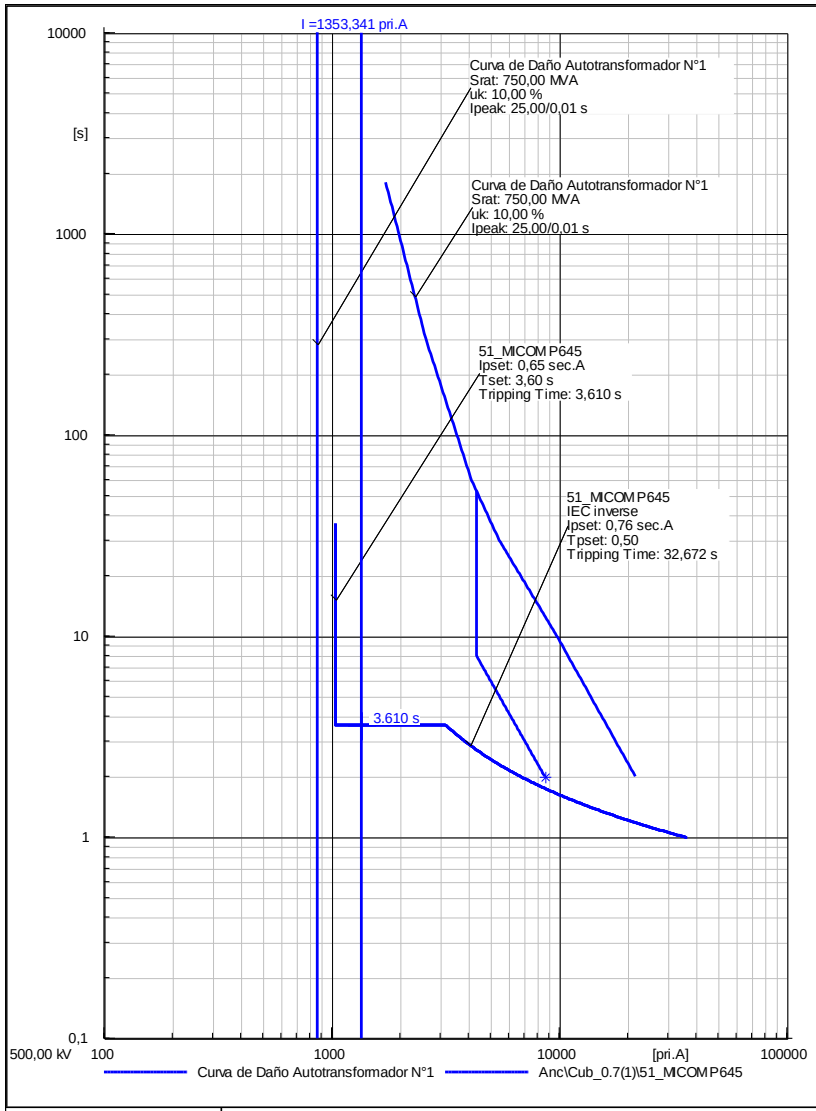

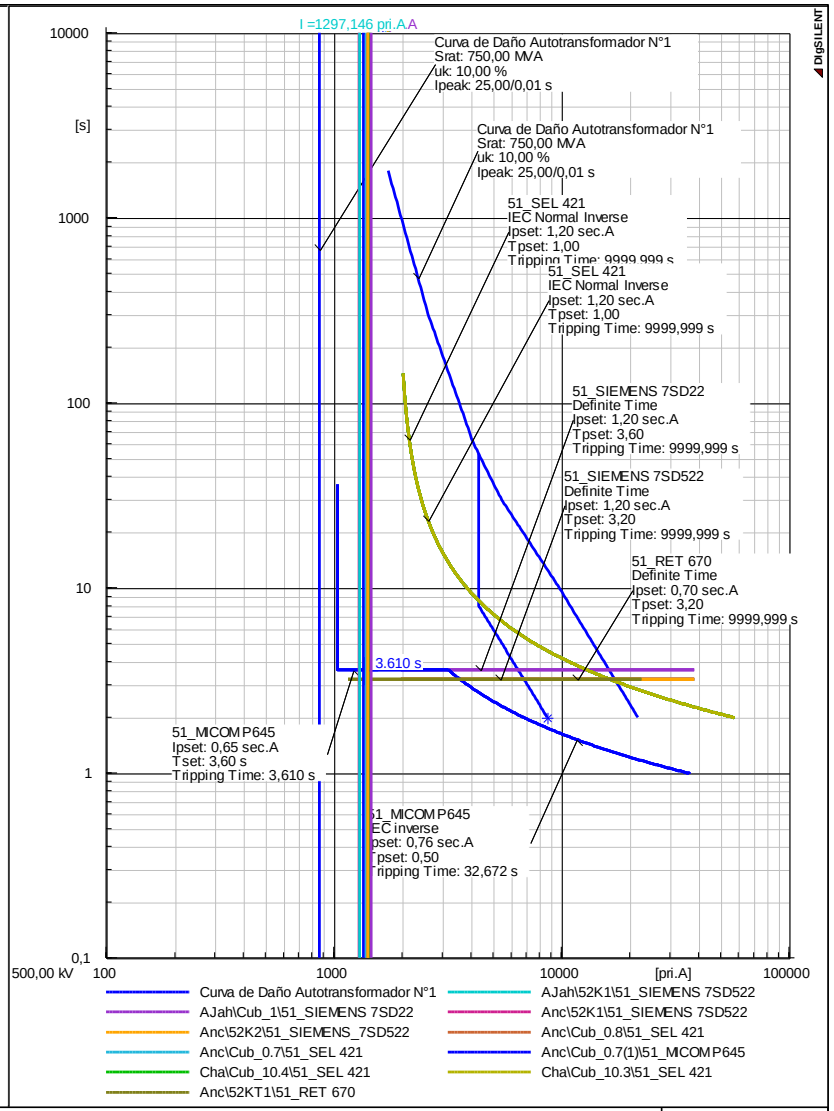

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
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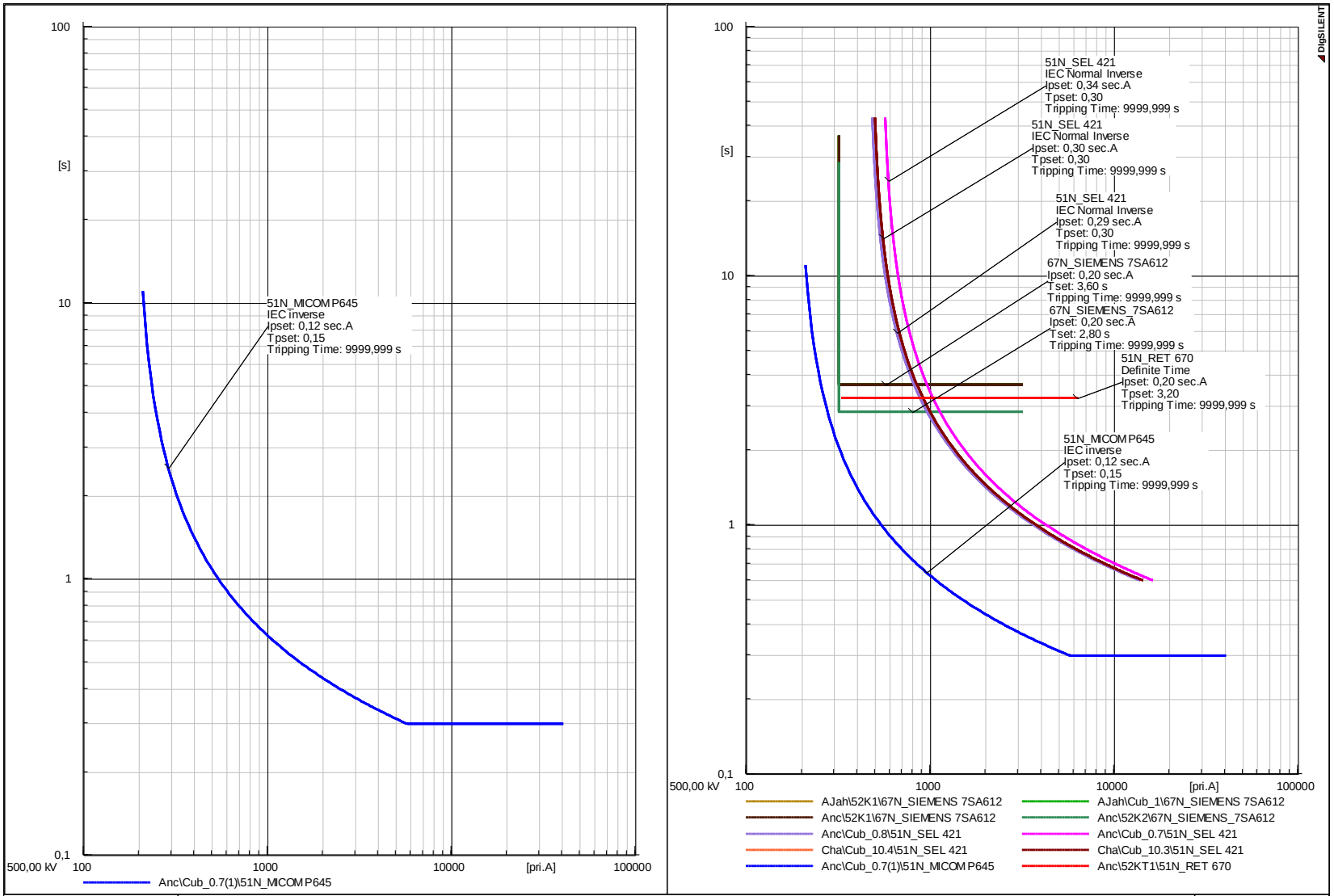
FUNCIÓN 51N LADO DE 500 KV



	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC3F	Annex:

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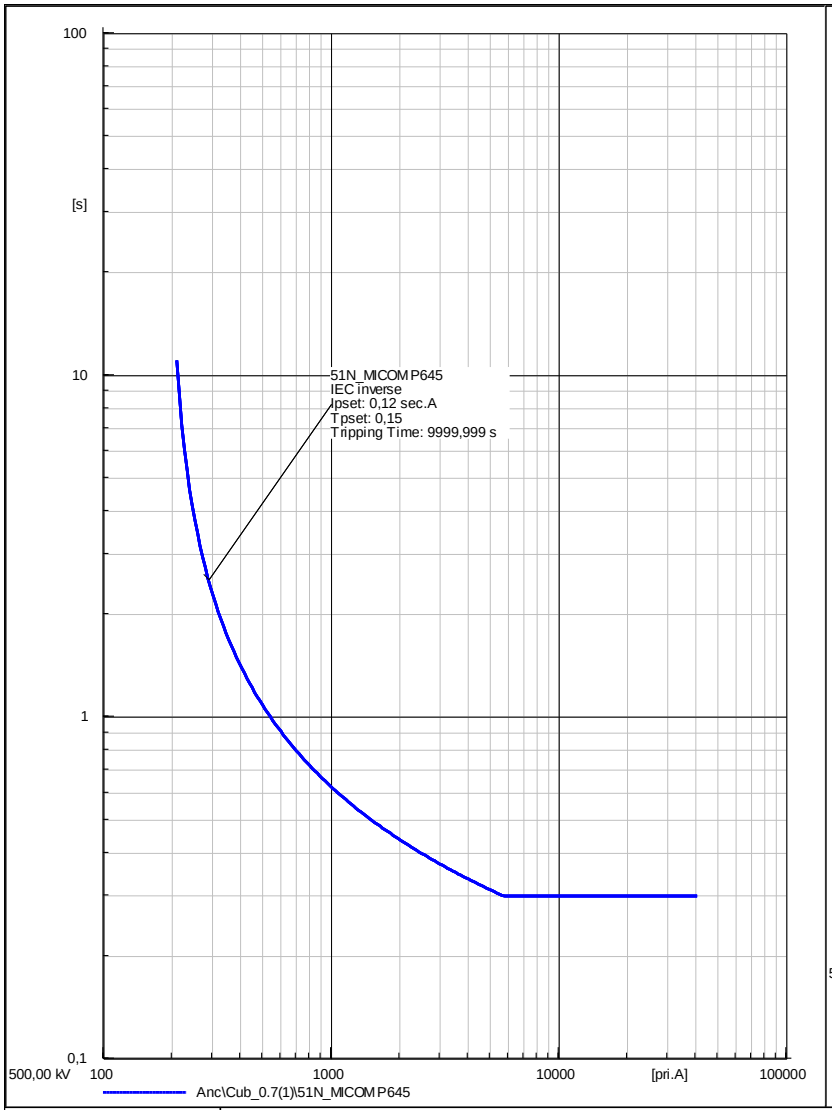

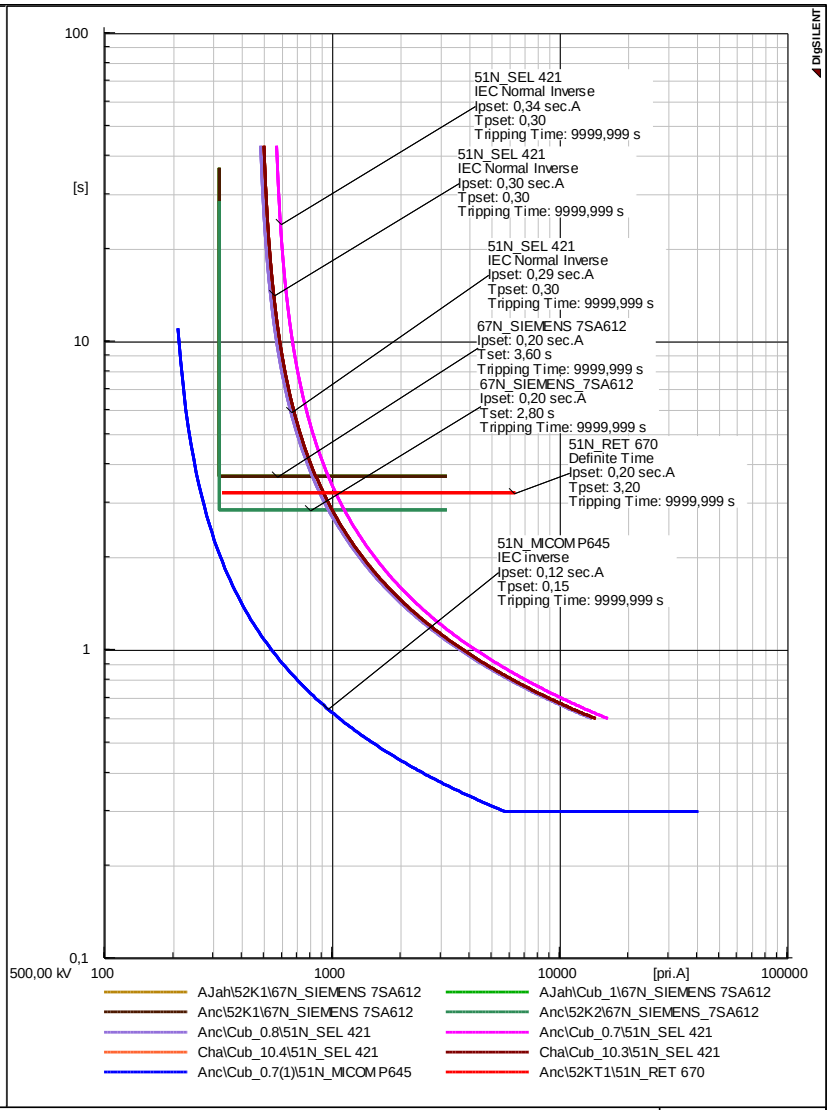

	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2F	Annex:

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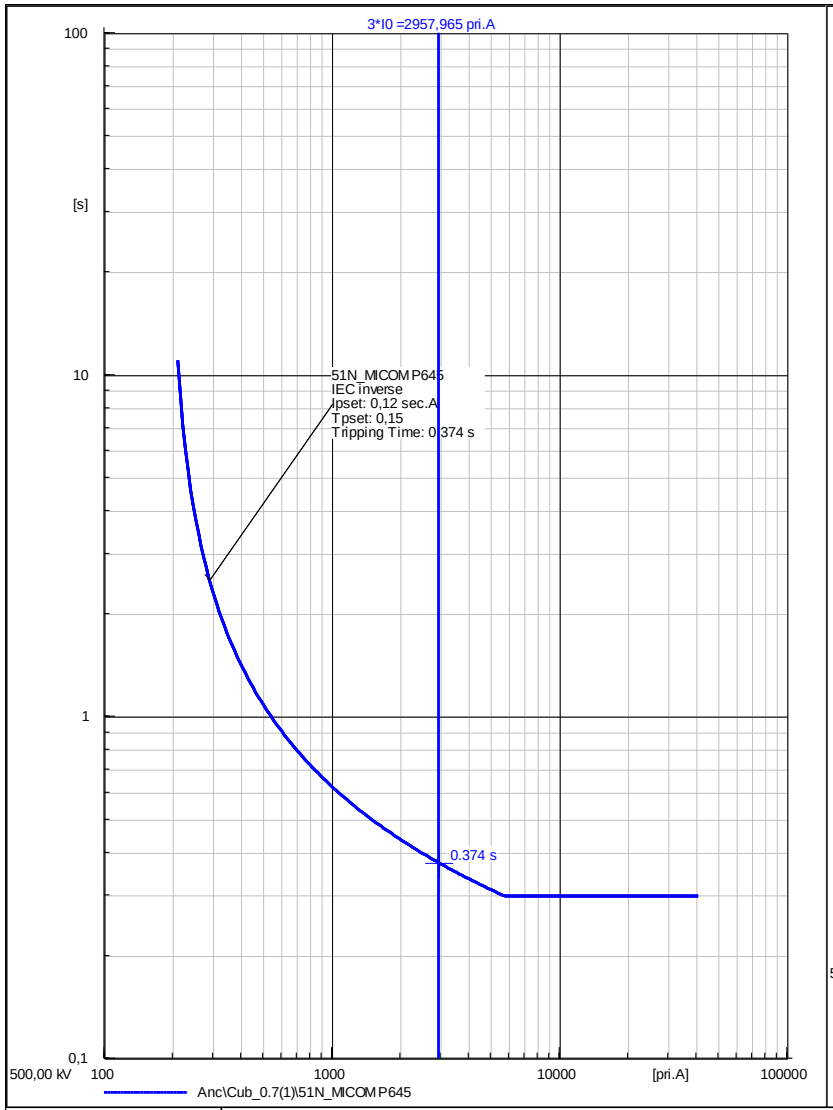

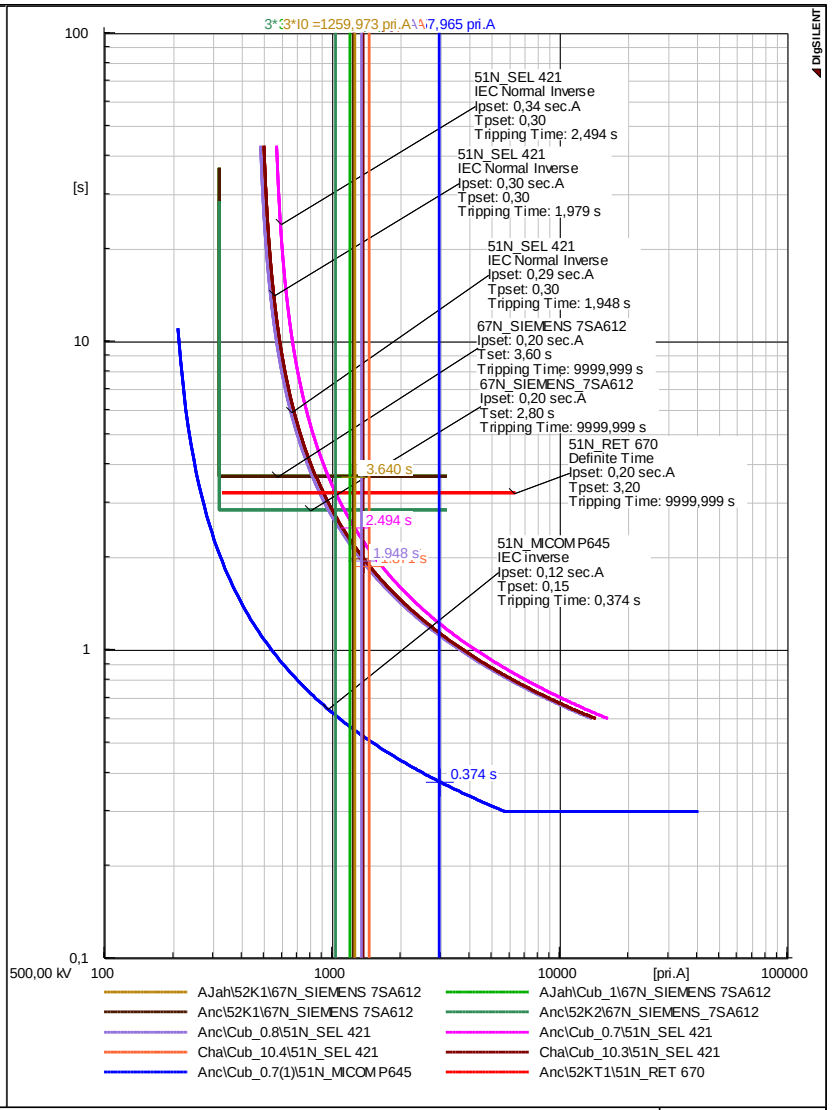

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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2FT	Annex:

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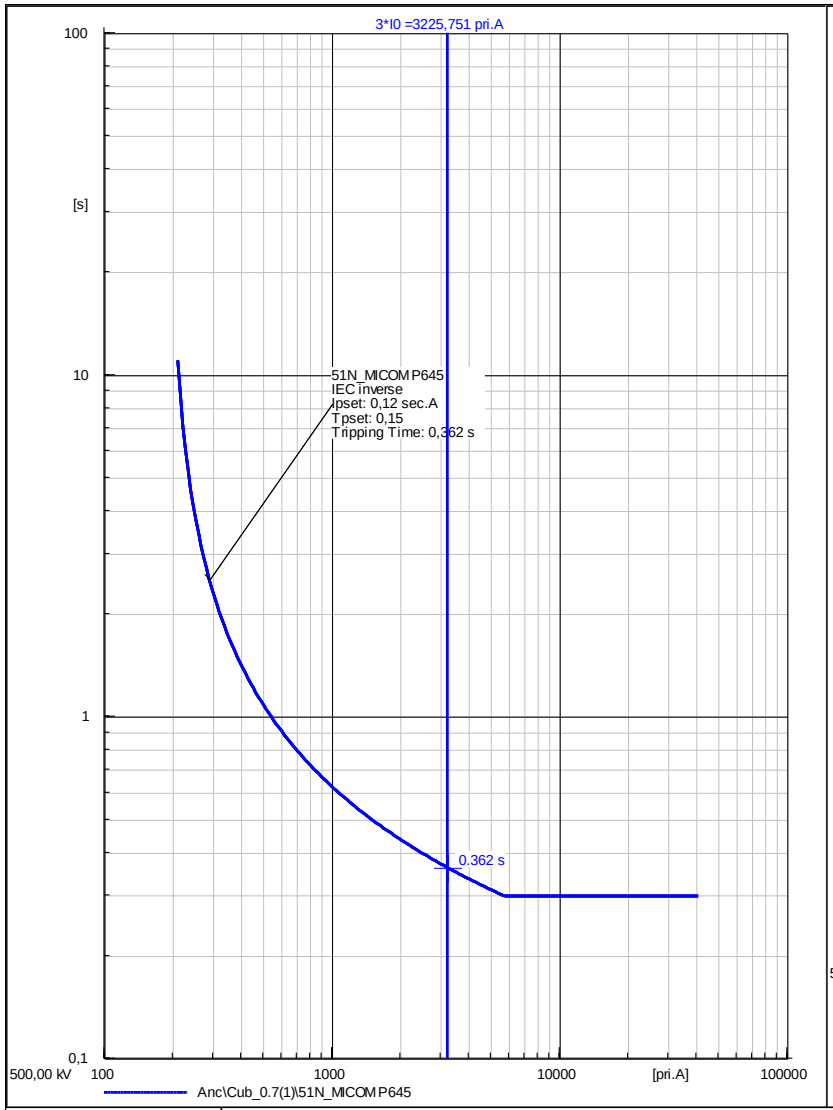

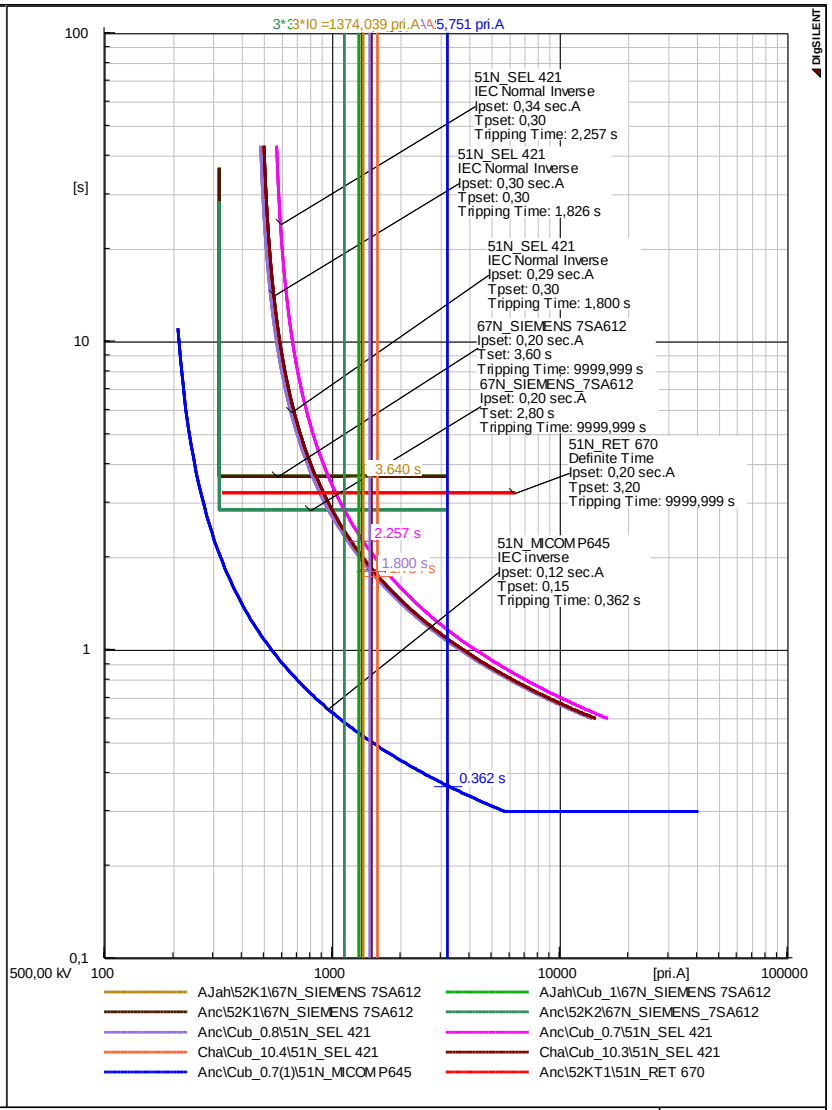

	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-0	Annex:

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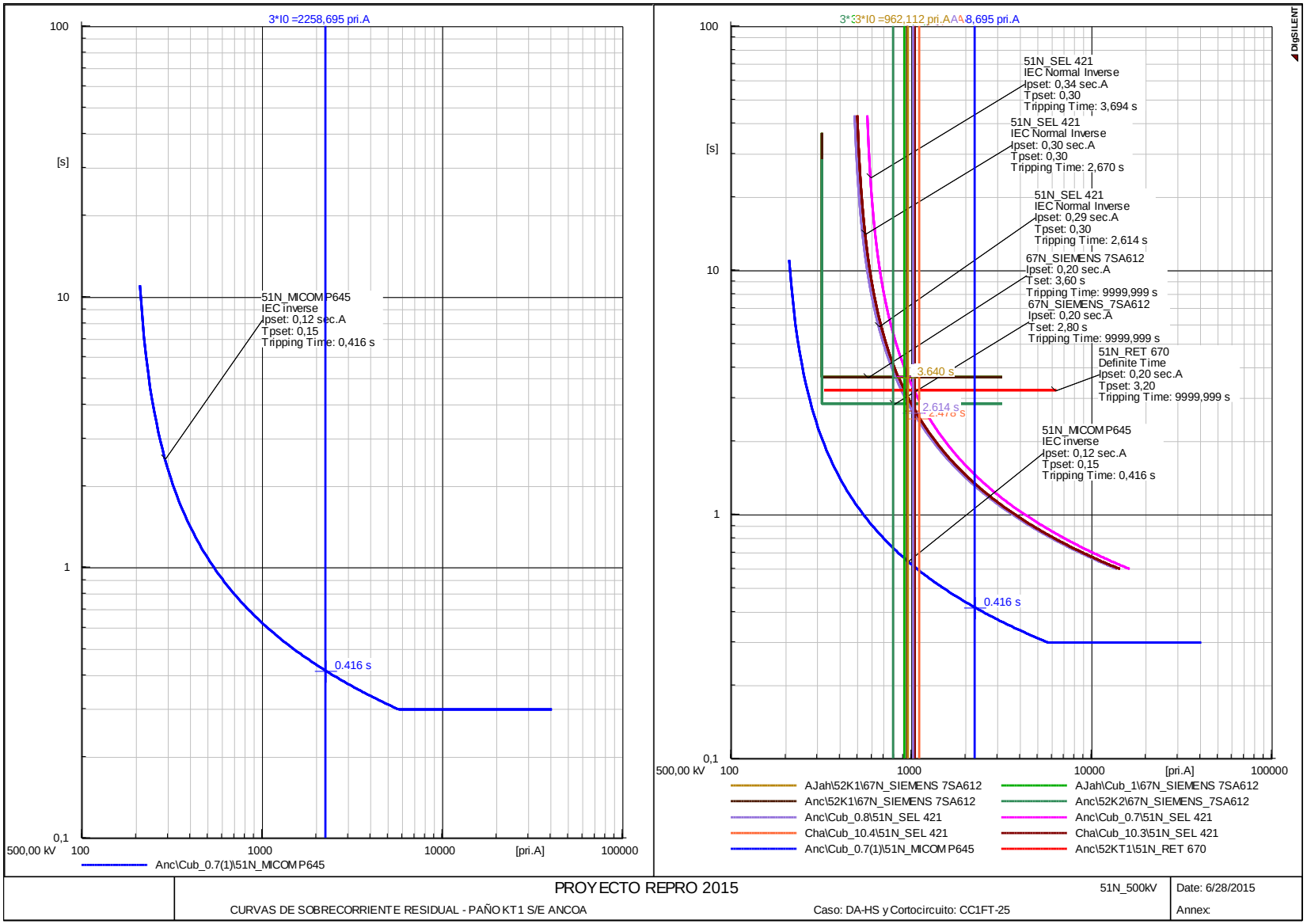

	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-25	Annex:

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FALLA EN EL TERMINAL DE 525 KV DEL AUTOTRANSFORMADOR N°1

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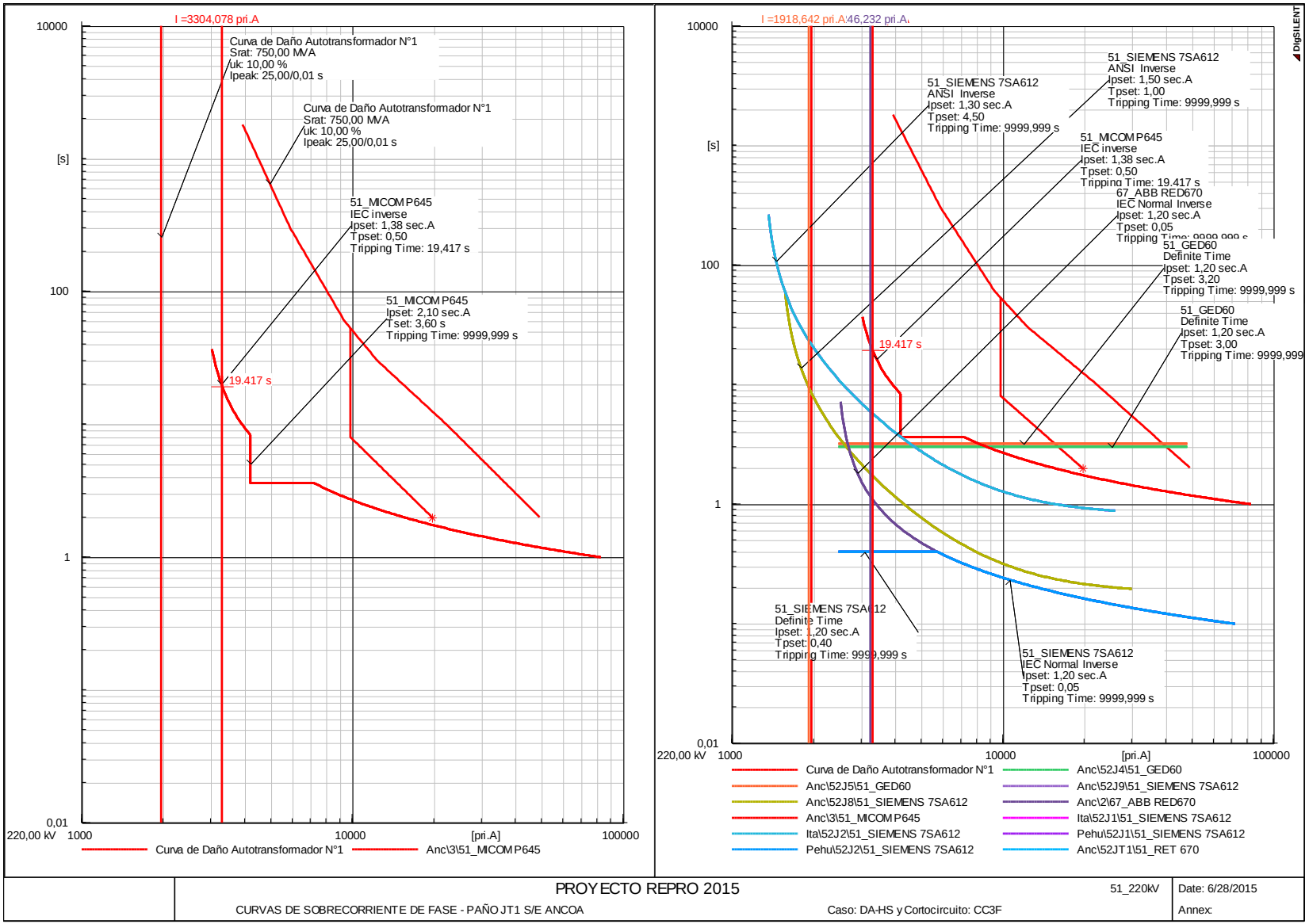
FUNCIÓN 51 LADO DE 220 KV



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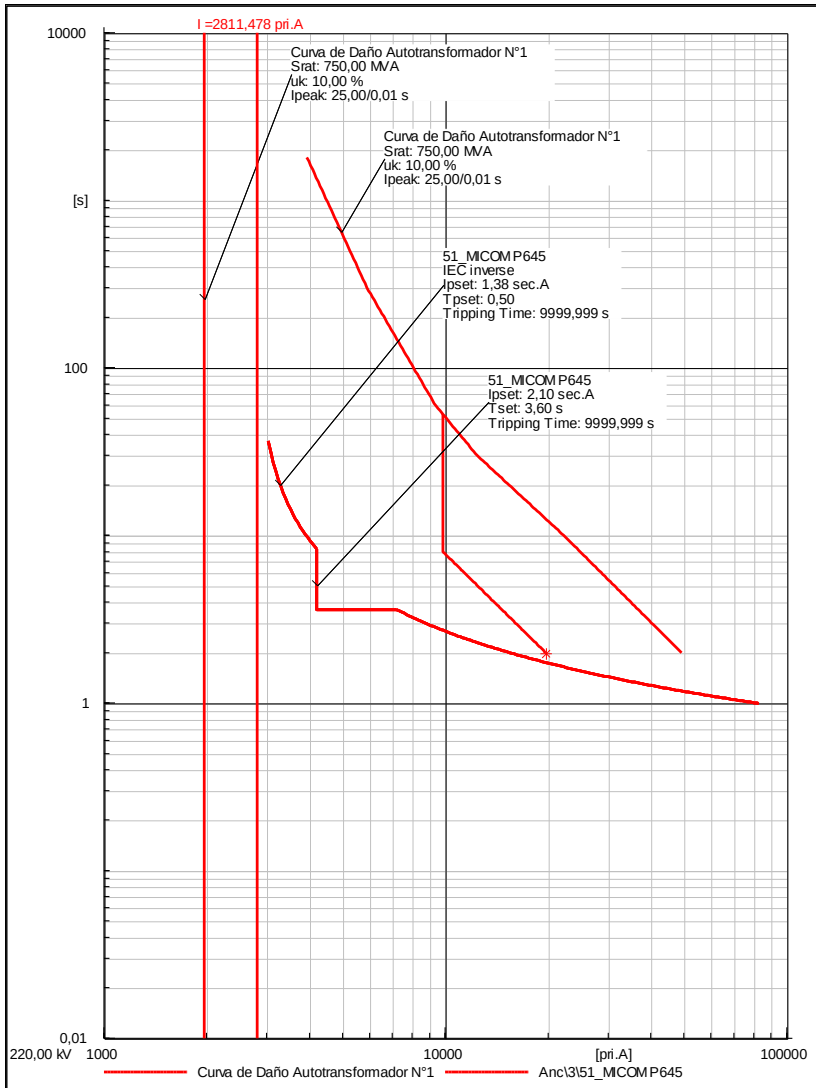

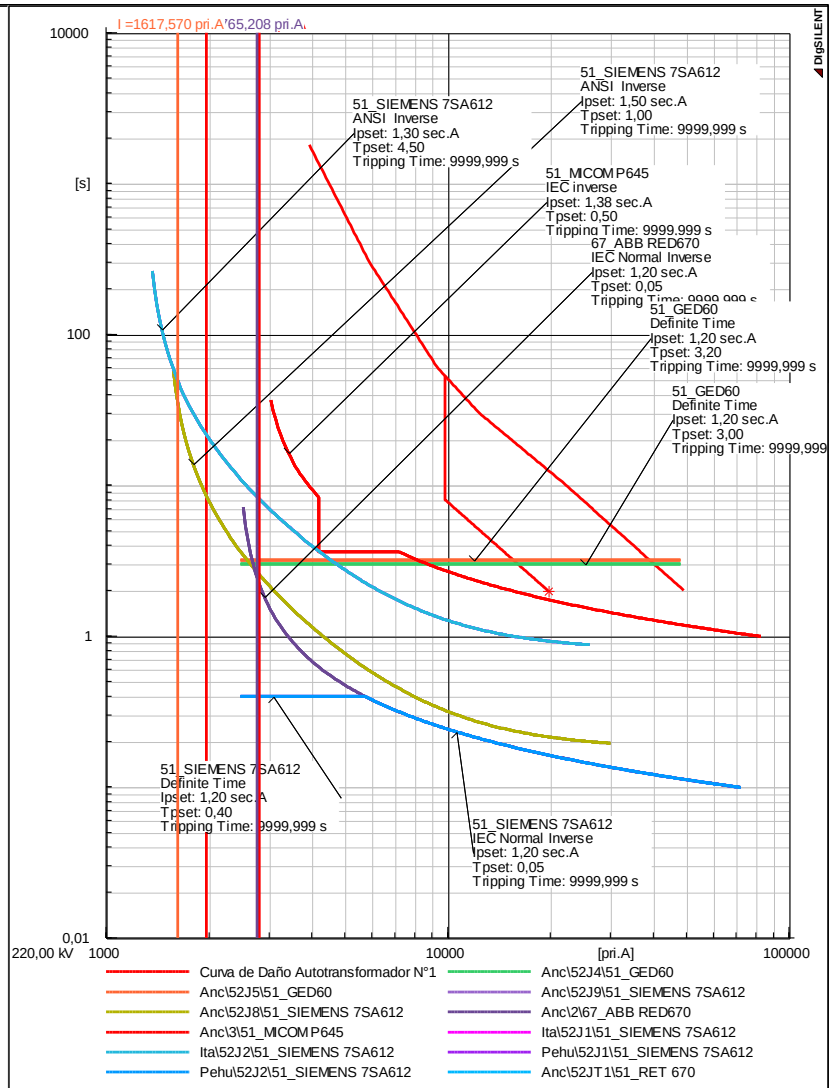

	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2F	Annex:

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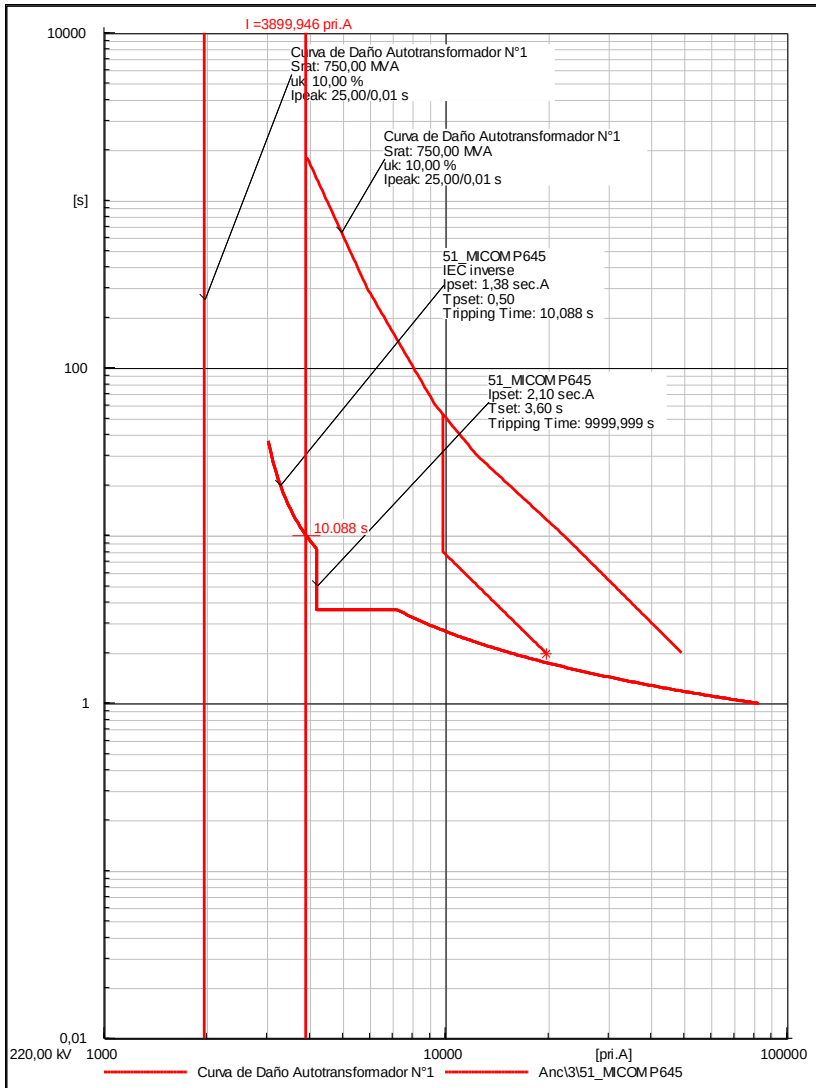

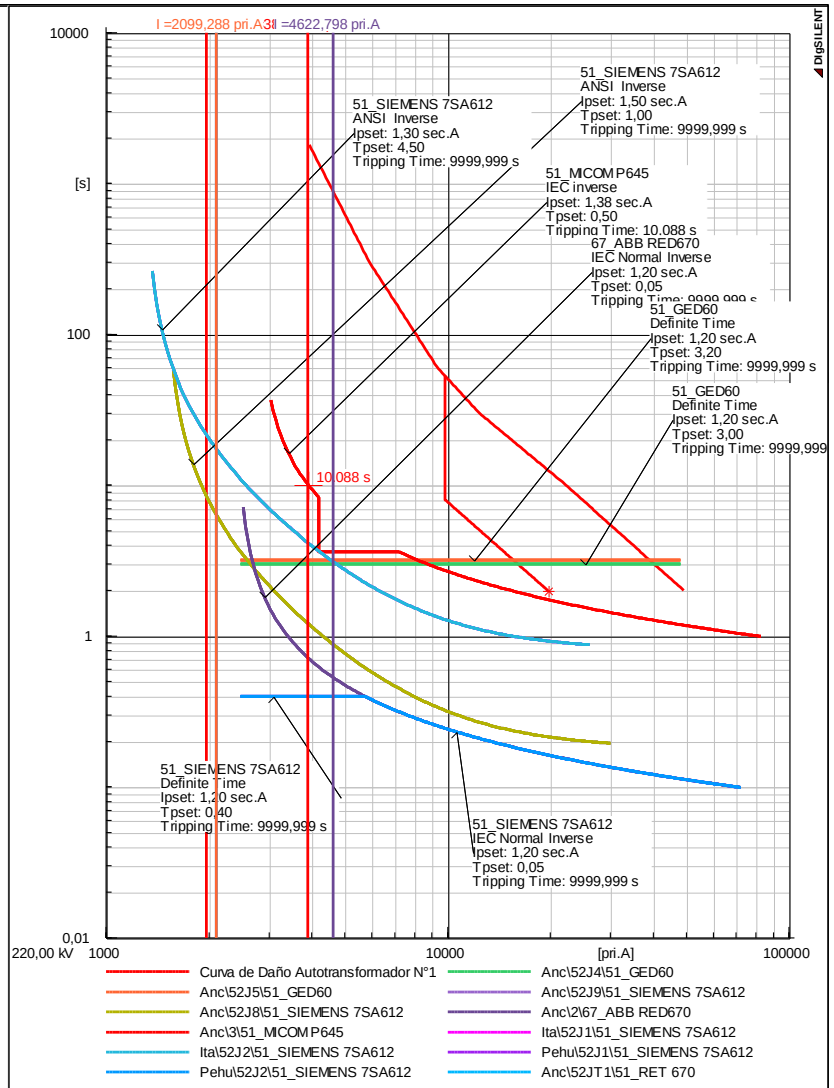

	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2FT	Annex:

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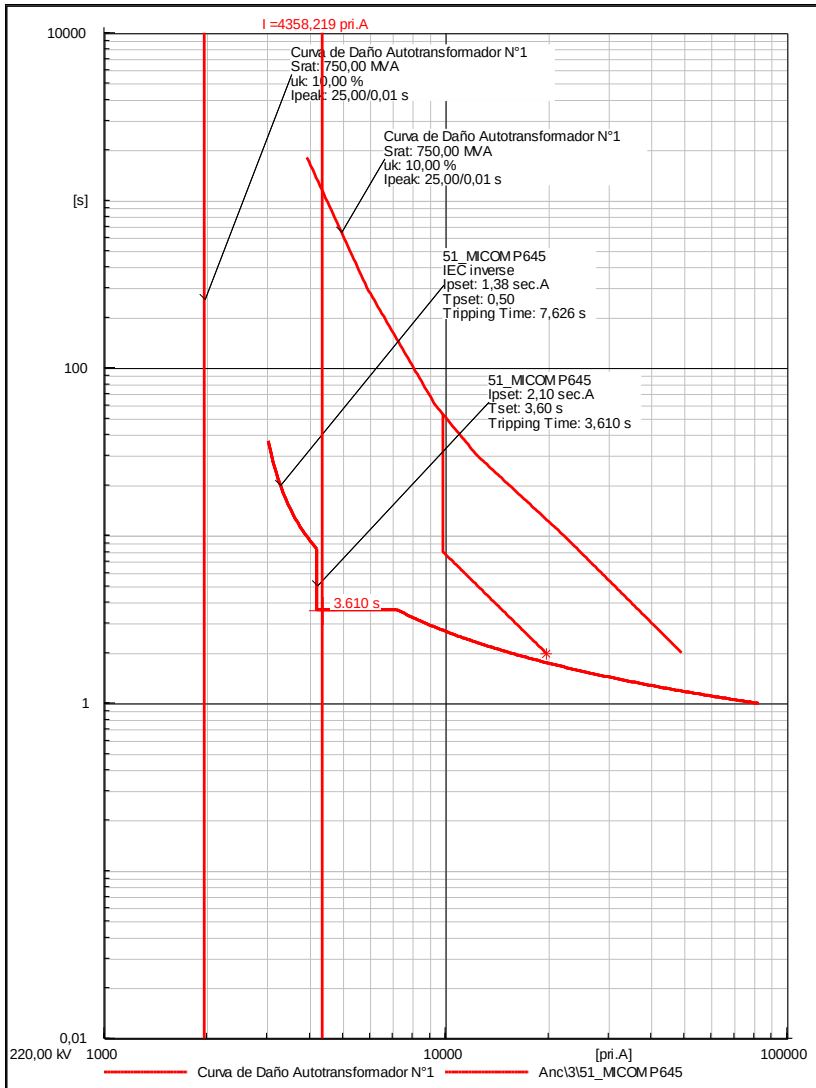

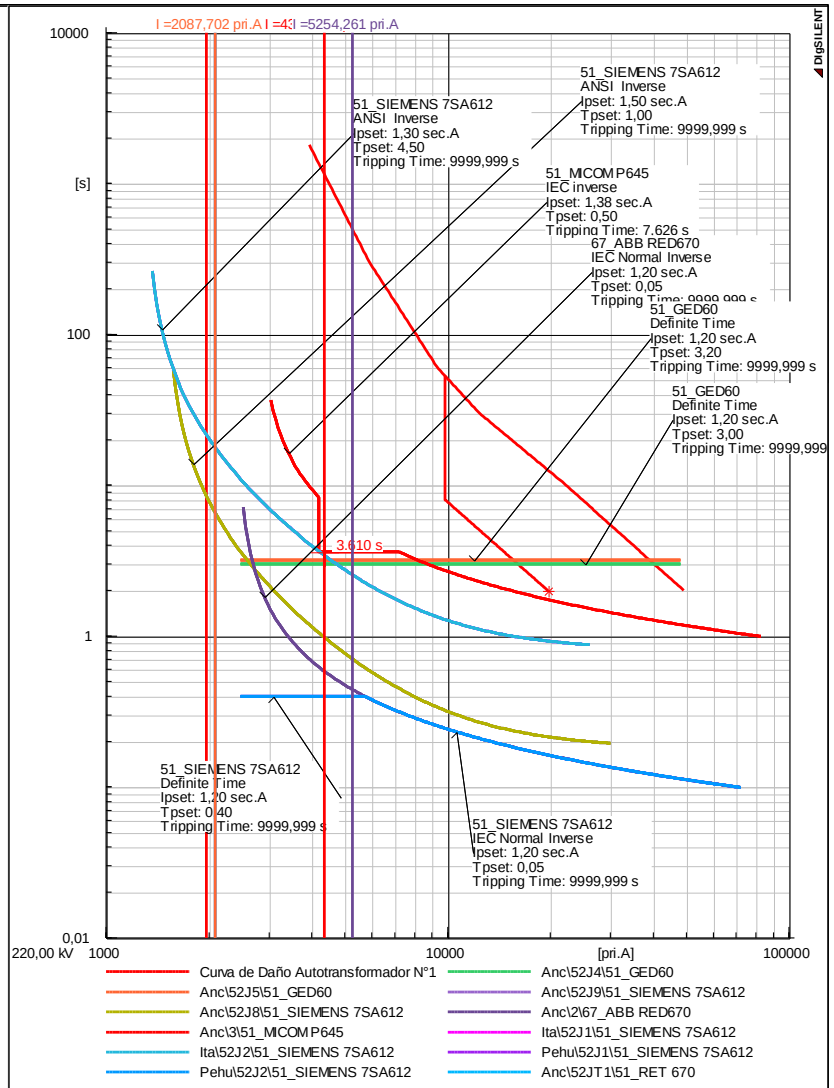

	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-0	Annex:

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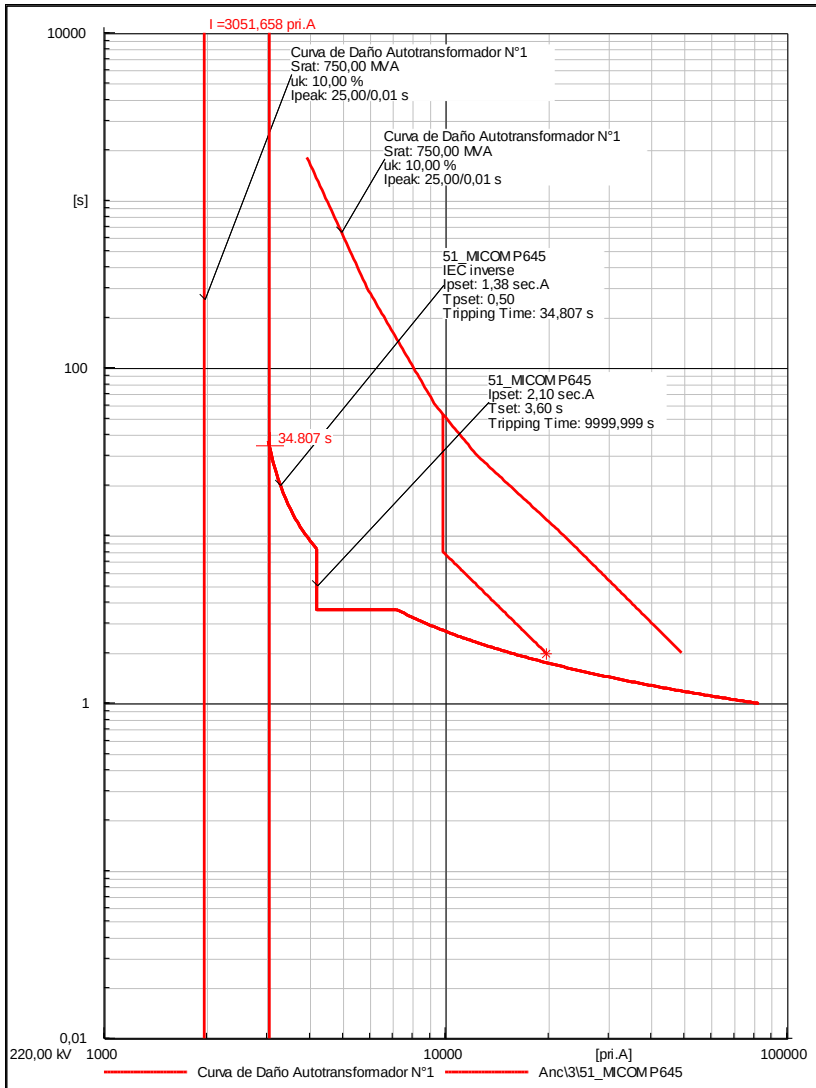

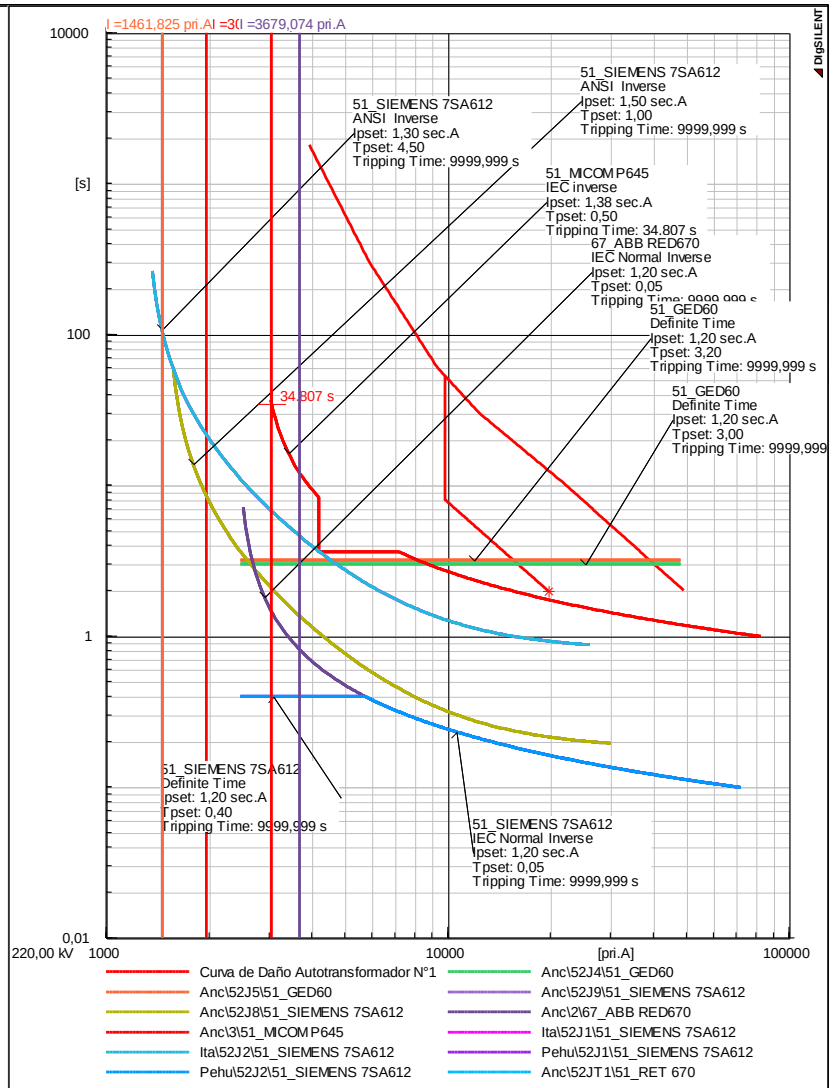

	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-25	Annex:

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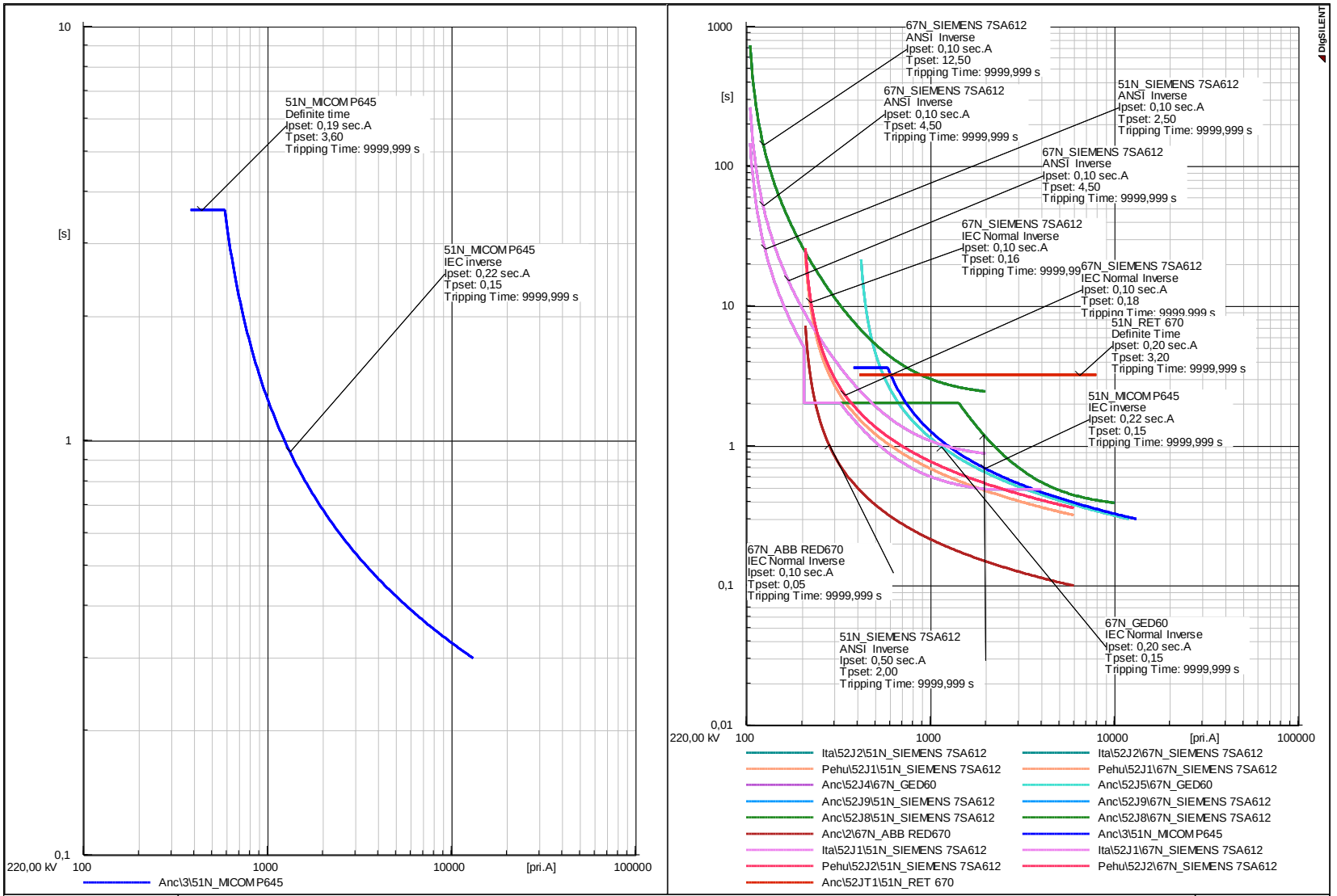
FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC3F	Annex:

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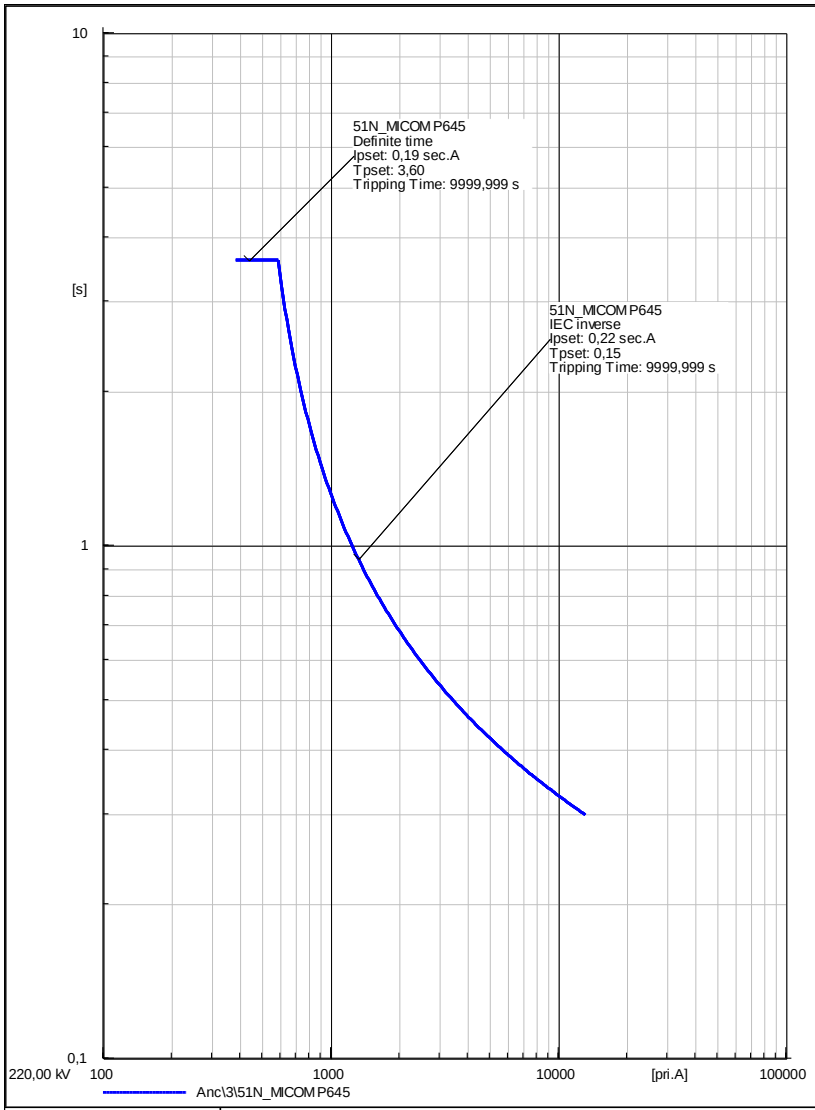

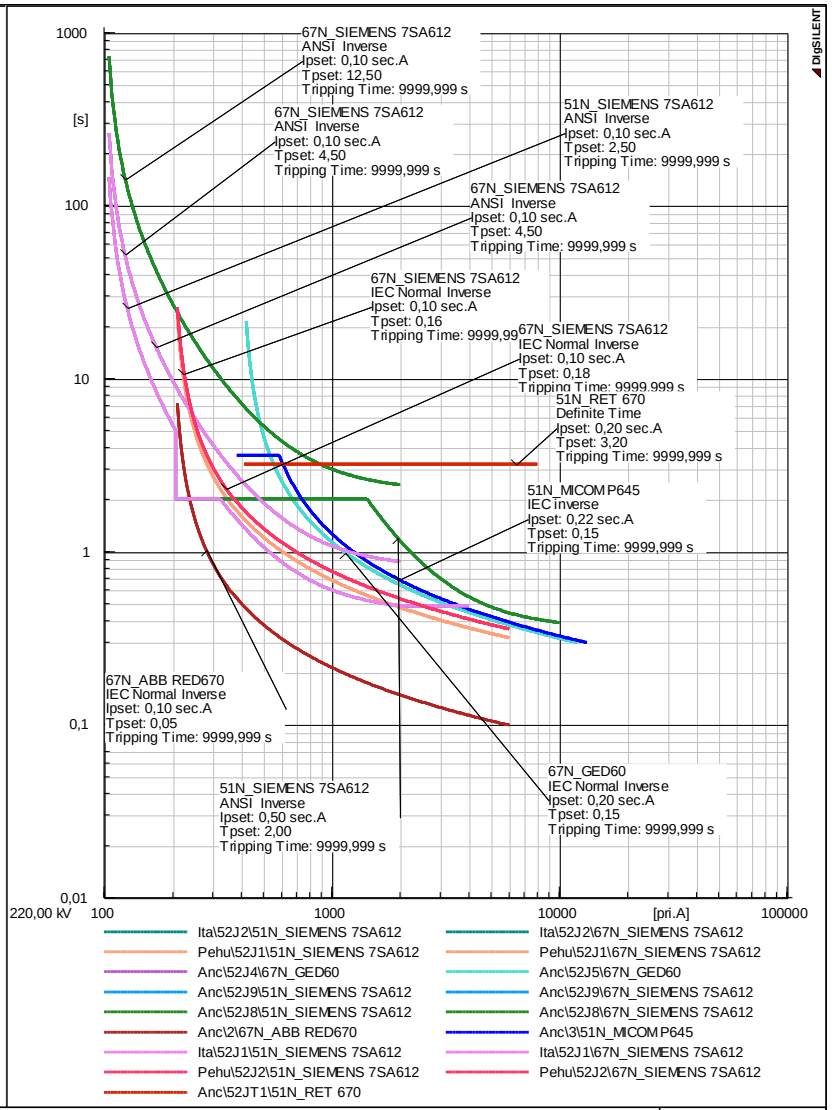

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2F	Annex:

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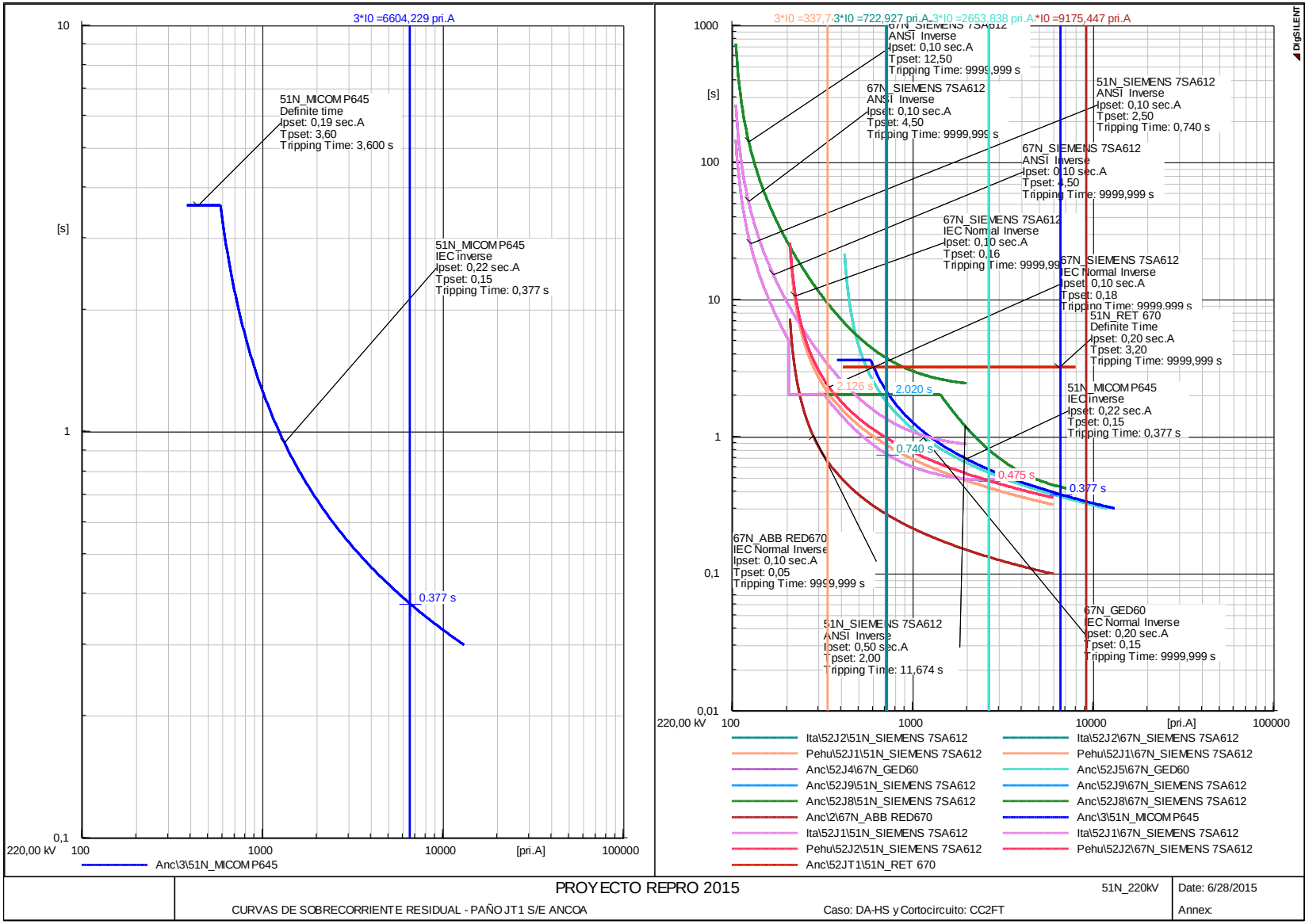

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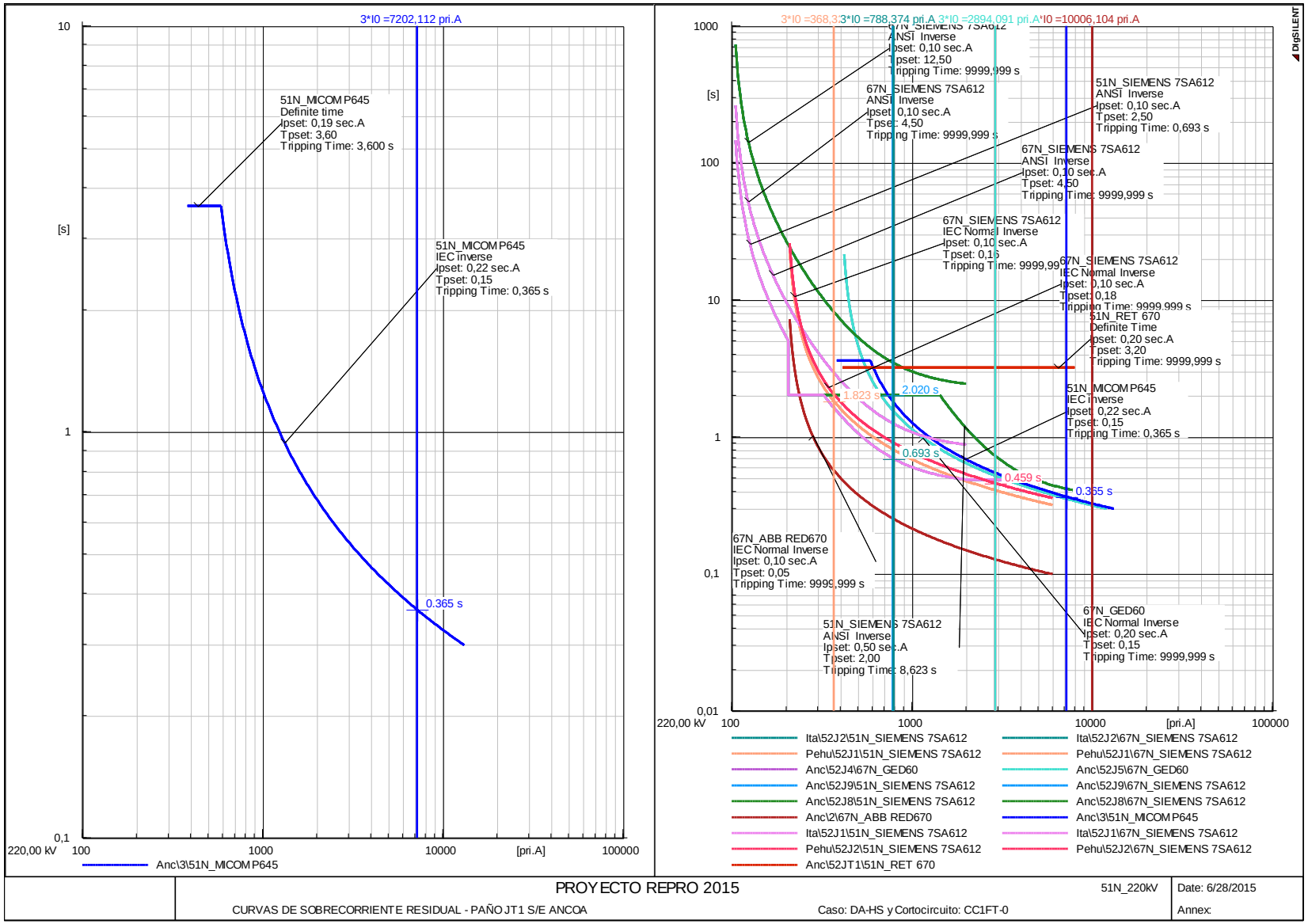

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-0	Annex:

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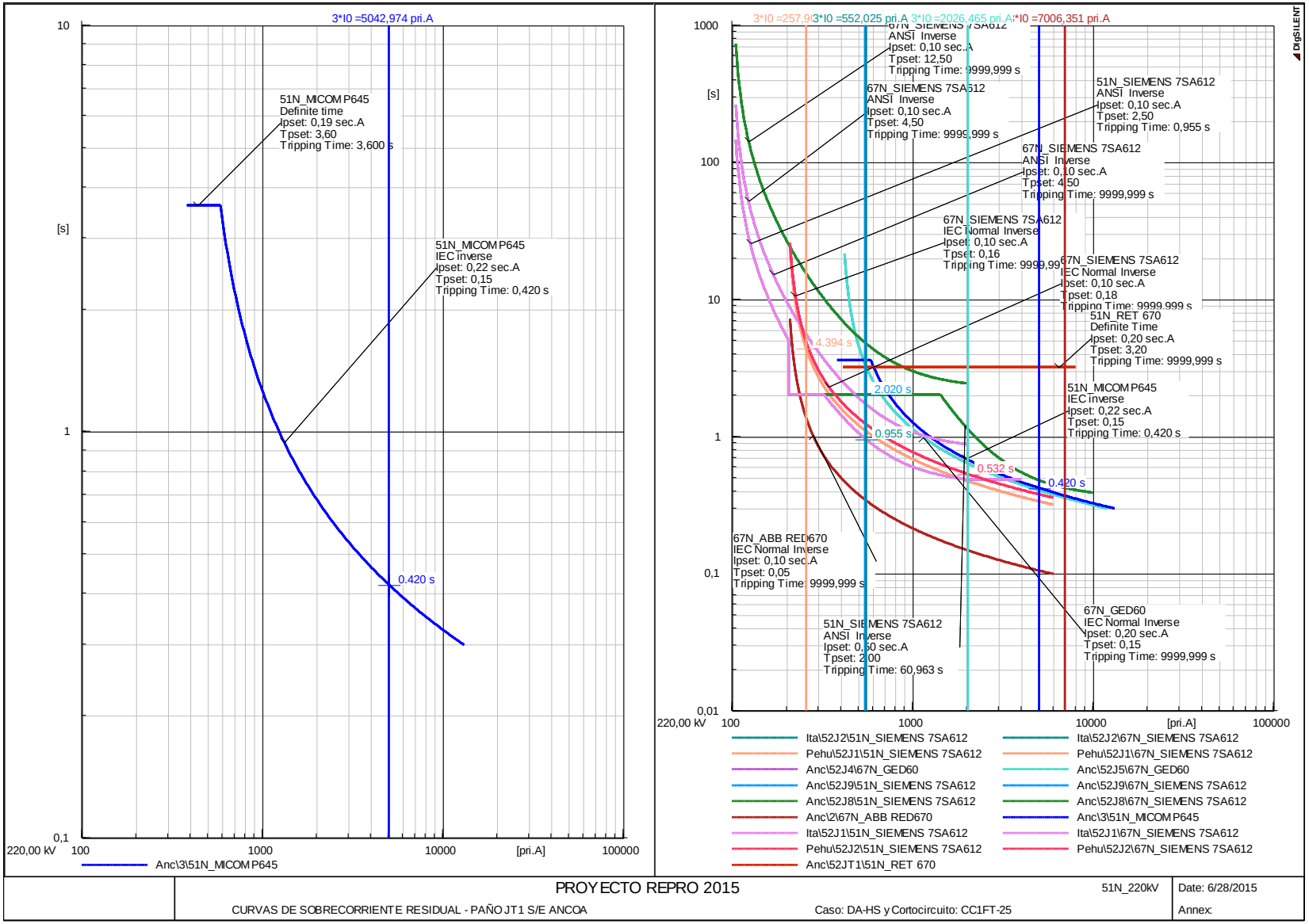

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-25	Annex:

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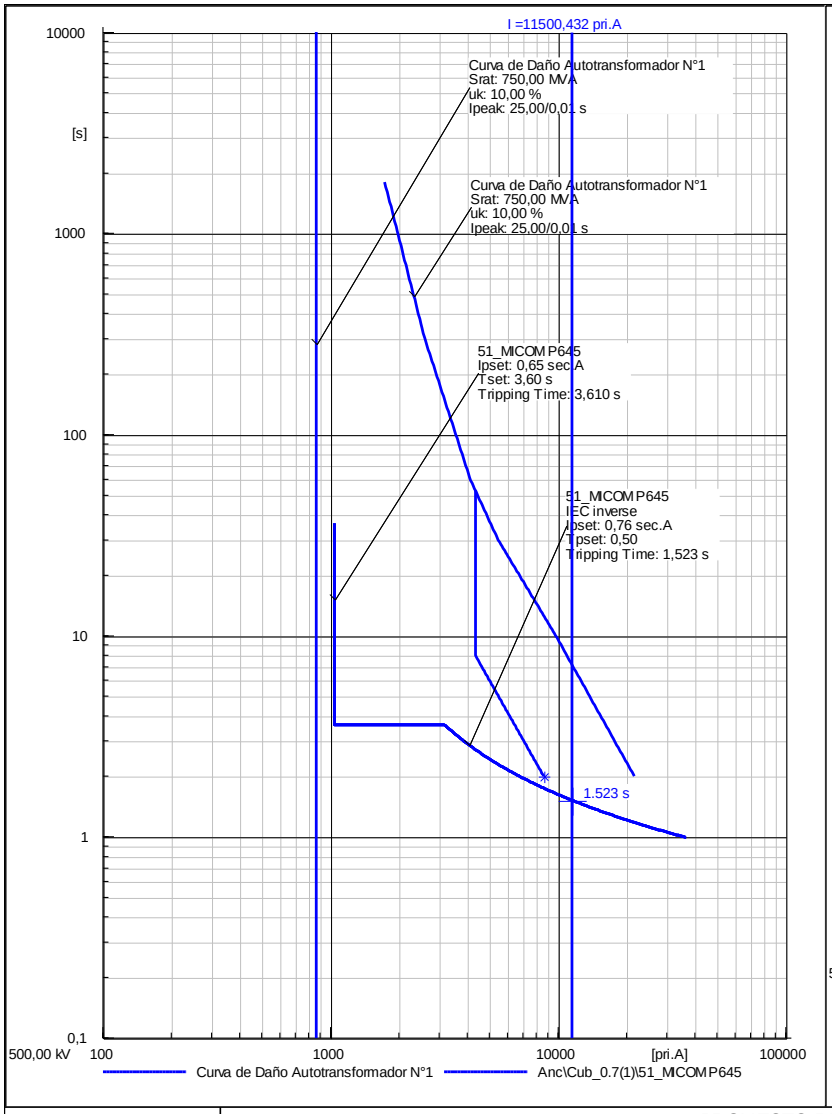
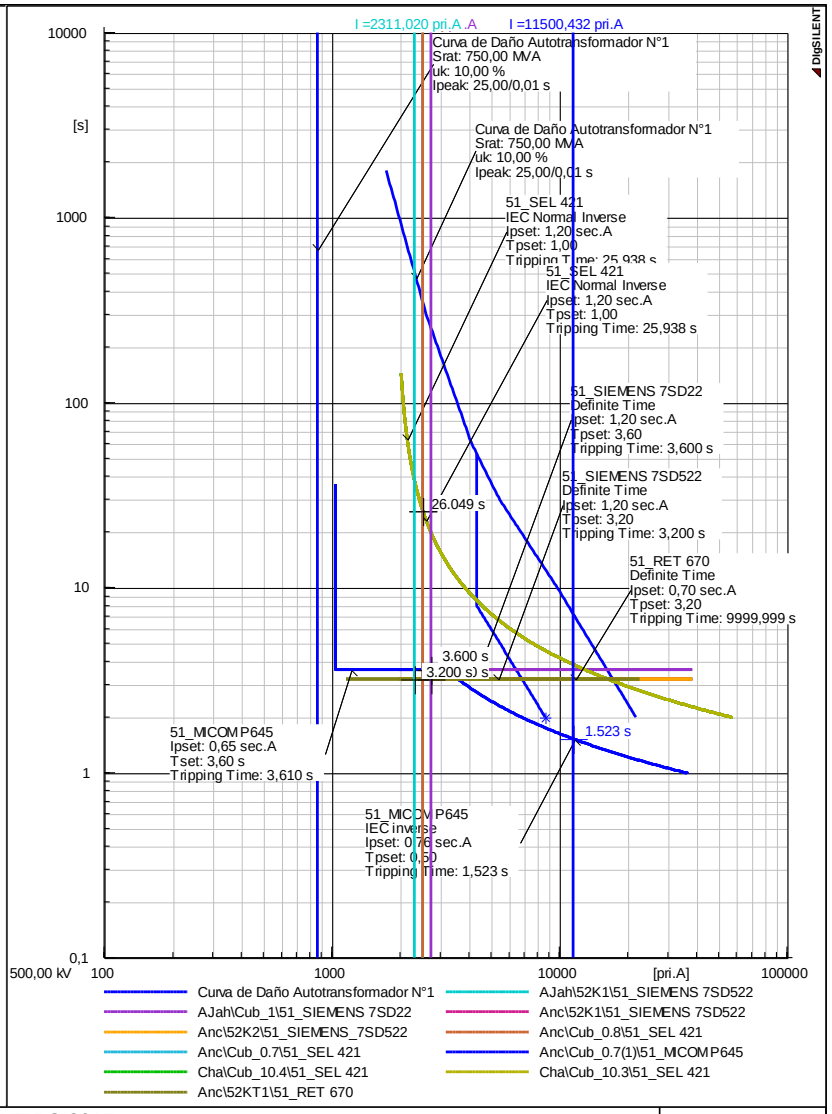
FUNCIÓN 51 LADO DE 500 KV





	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC3F	Annex:

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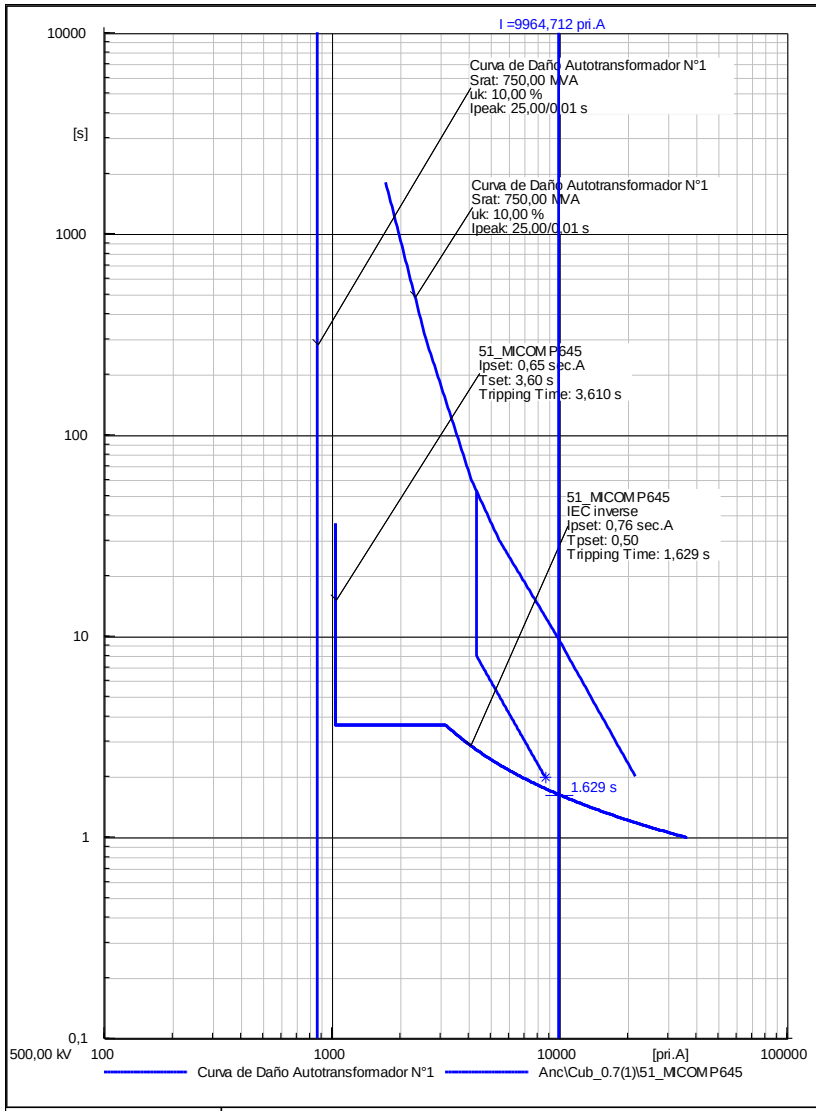

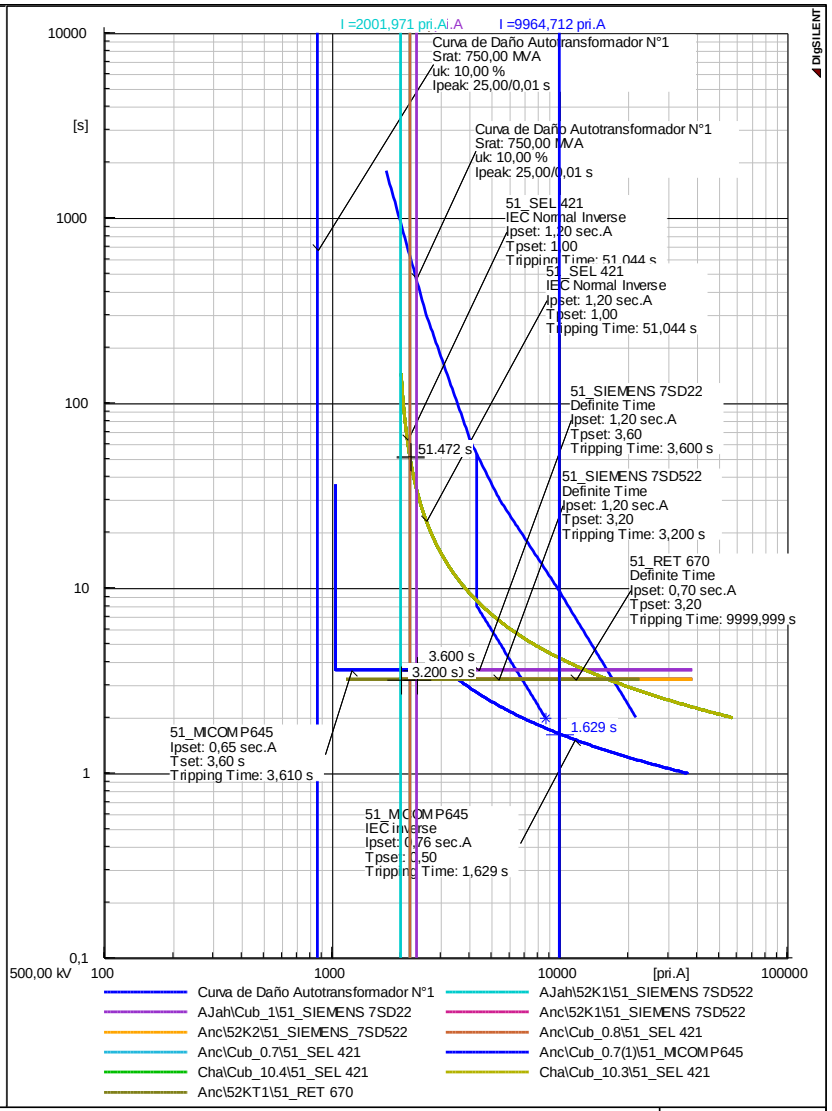

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2F	Annex:

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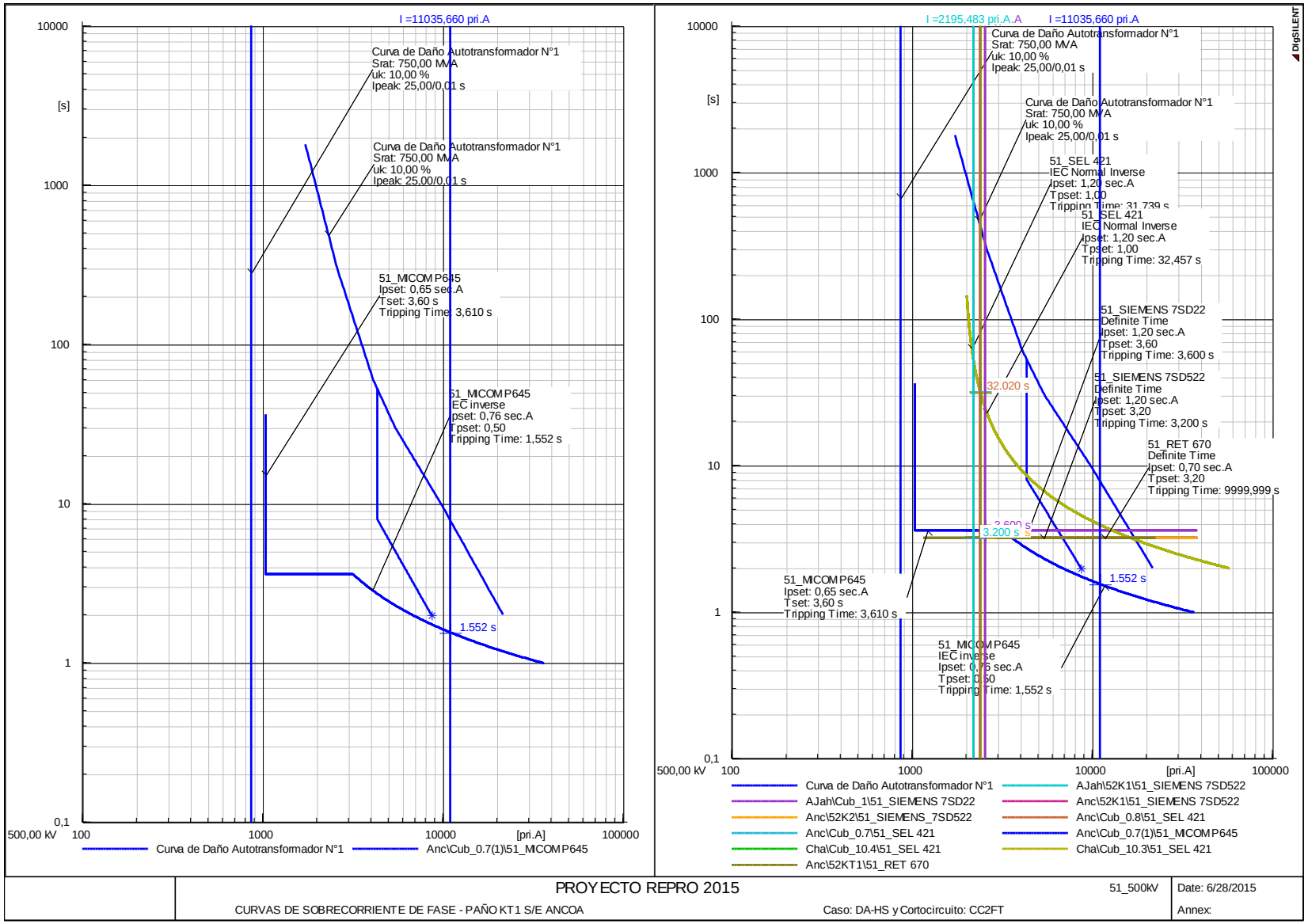
I =11035,660 pri.A
Curva de Daño Autotransformador N°1
Srat: 750,00 MVA
uk: 10,00 %
Ipeak: 25,00/0,01 s
Curva de Daño Autotransformador N°1
Srat: 750,00 MVA
uk: 10,00 %
Ipeak: 25,00/0,01 s
51_MICOM P645
Ipset: 0,65 sec.A
Tset: 3,60 s
Tripping Time: 3,610 s
51_MICOM P645
IEC inverse
Ipset: 0,76 sec.A
Tpset: 0,50
Tripping Time: 1,552 s
1.552 s
10000
[s]
1000
100
10
1
0,1
500,00 kV
100
1000
10000
[pri.A]
100000
Curva de Daño Autotransformador N°1
Anc\Cub_0.7(1)\51_MICOM P645
I =2195,483 pri.A.A
I =11035,660 pri.A
Curva de Daño Autotransformador N°1
Srat: 750,00 MVA
uk: 10,00 %
Ipeak: 25,00/0,01 s
Curva de Daño Autotransformador N°1
Srat: 750,00 MVA
uk: 10,00 %
Ipeak: 25,00/0,01 s
51_SEL 421
IEC Normal Inverse
Ipset: 1,20 sec.A
Tpset: 1,00
Tripping Time: 31,739 s
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IEC Normal Inverse
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Tpset: 1,00
Tripping Time: 32,457 s
51_SIEMENS 7SD22
Definite Time
Ipset: 1,20 sec.A
Tpset: 3,60
Tripping Time: 3,600 s
51_SIEMENS 7SD522
Definite Time
Ipset: 1,20 sec.A
Tpset: 3,20
Tripping Time: 3,200 s
51_RET 670
Definite Time
Ipset: 0,70 sec.A
Tpset: 3,20
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3,600 s
3,200 s
1.552 s
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Tset: 3,60 s
Tripping Time: 3,610 s
51_MICOM P645
IEC inverse
Ipset: 0,76 sec.A
Tpset: 0,50
Tripping Time: 1,552 s
DIgSILENT
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0,1
500,00 kV
100
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Curva de Daño Autotransformador N°1
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Anc\52K2\51_SIEMENS_7SD522
Anc\Cub_0.7\51_SEL 421
Cha\Cub_10.4\51_SEL 421
Anc\52KT1\51_RET 670
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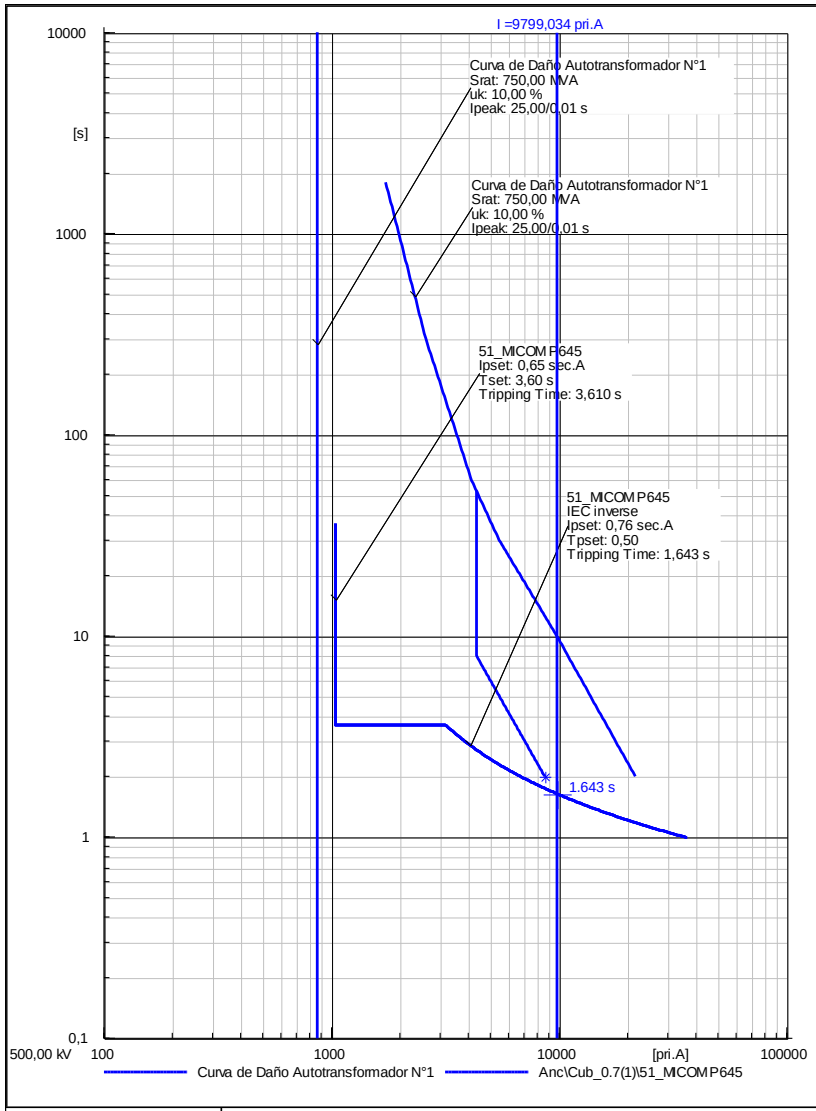
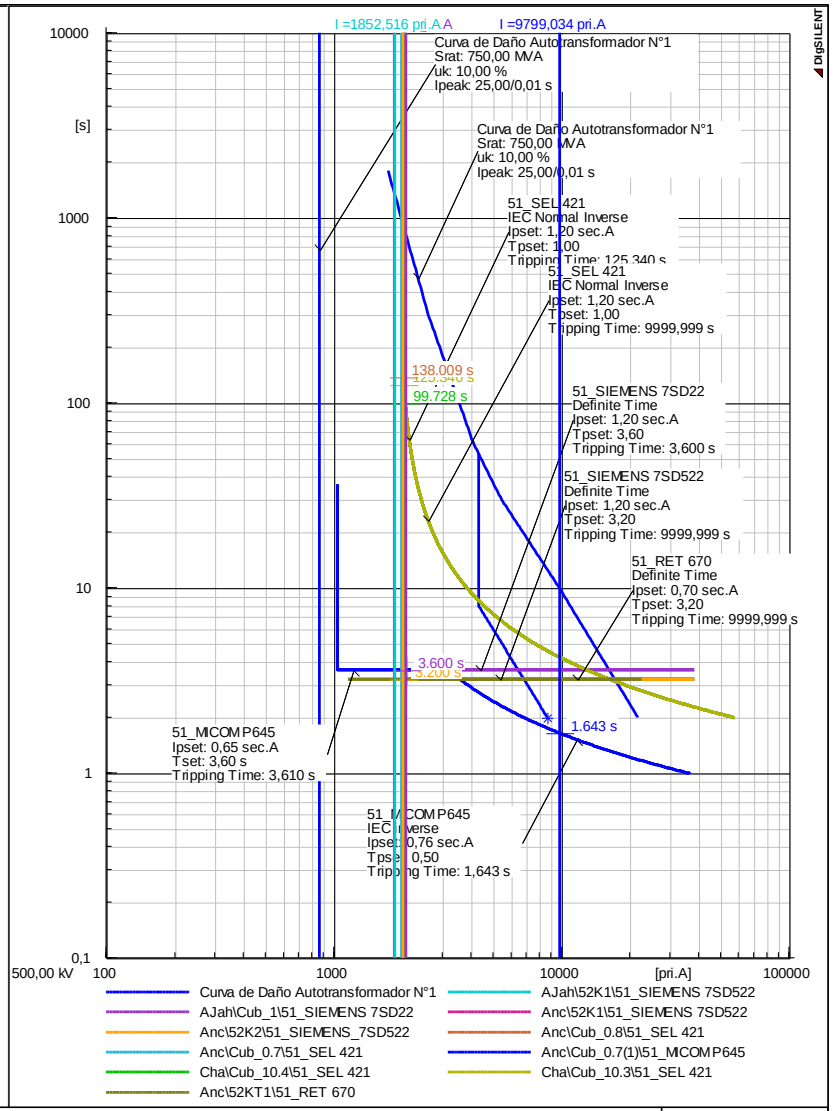
Anc\Cub_0.7(1)\51_MICOM P645
Cha\Cub_10.3\51_SEL 421
PROYECTO REPRO 2015
51_500kV
Date: 6/28/2015
CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA
Caso: DA-HS y Cortocircuito: CC2FT
Annex:





	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-0	Annex:

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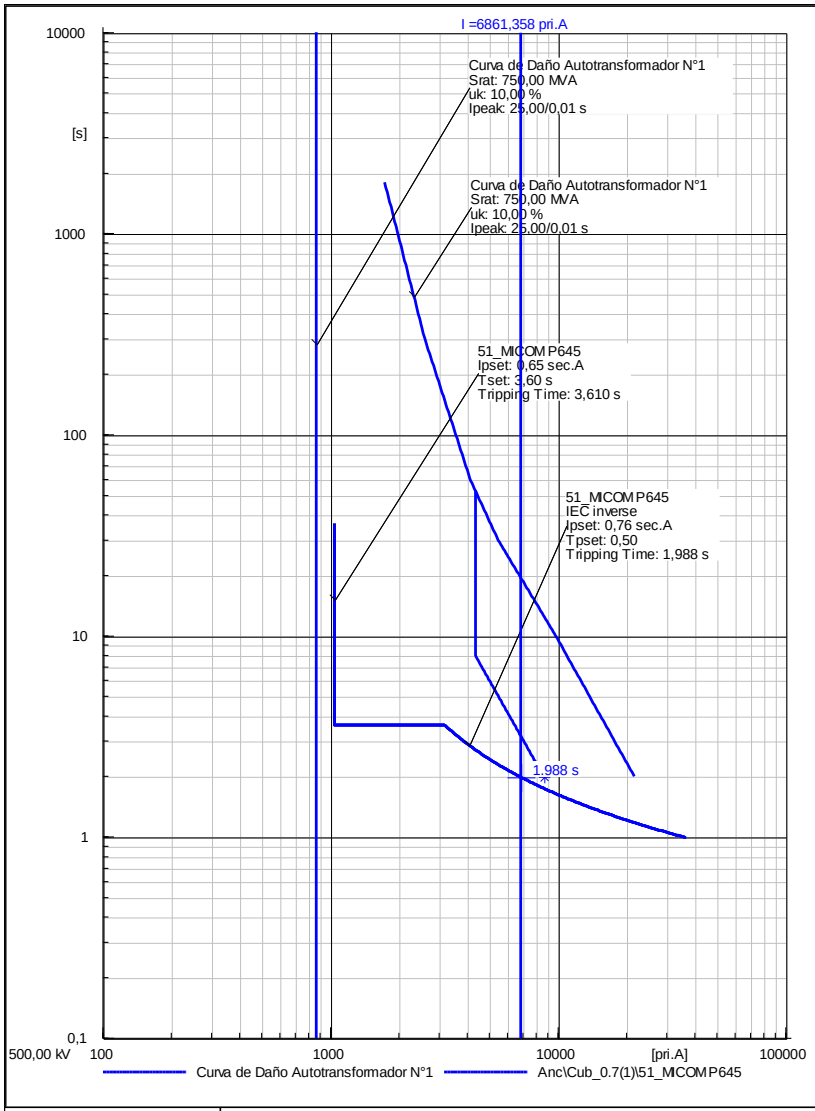
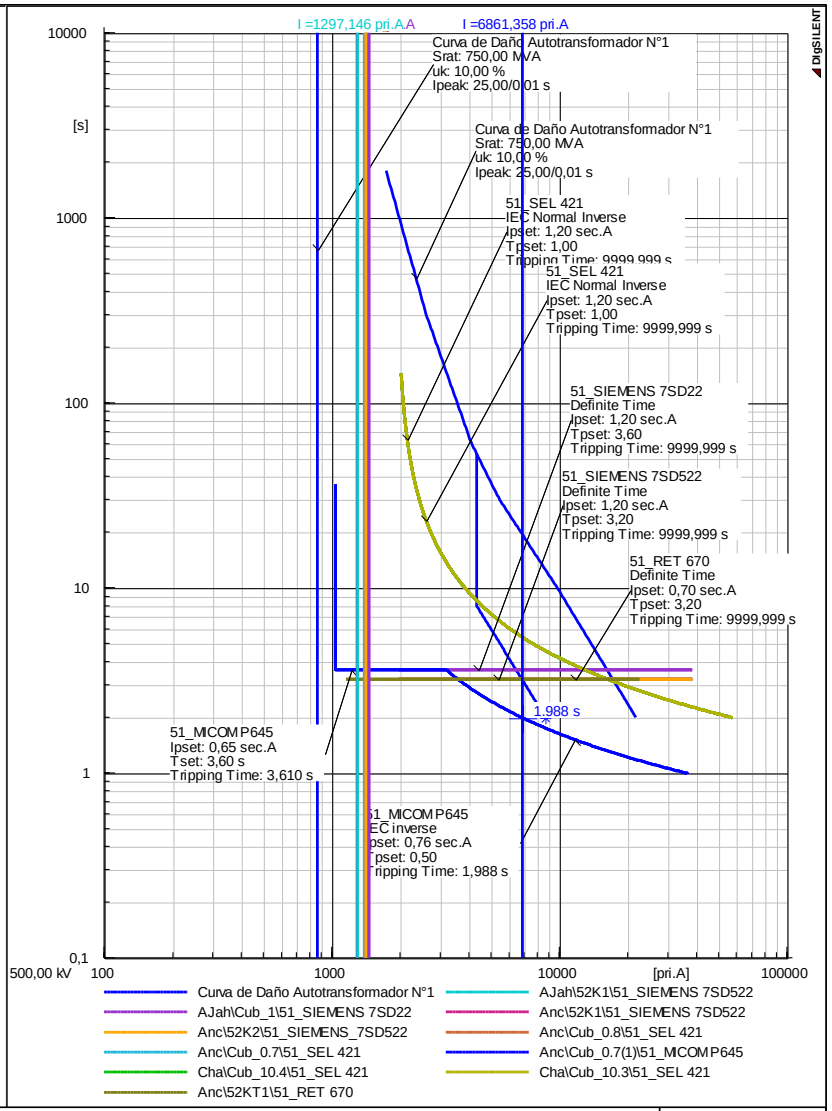
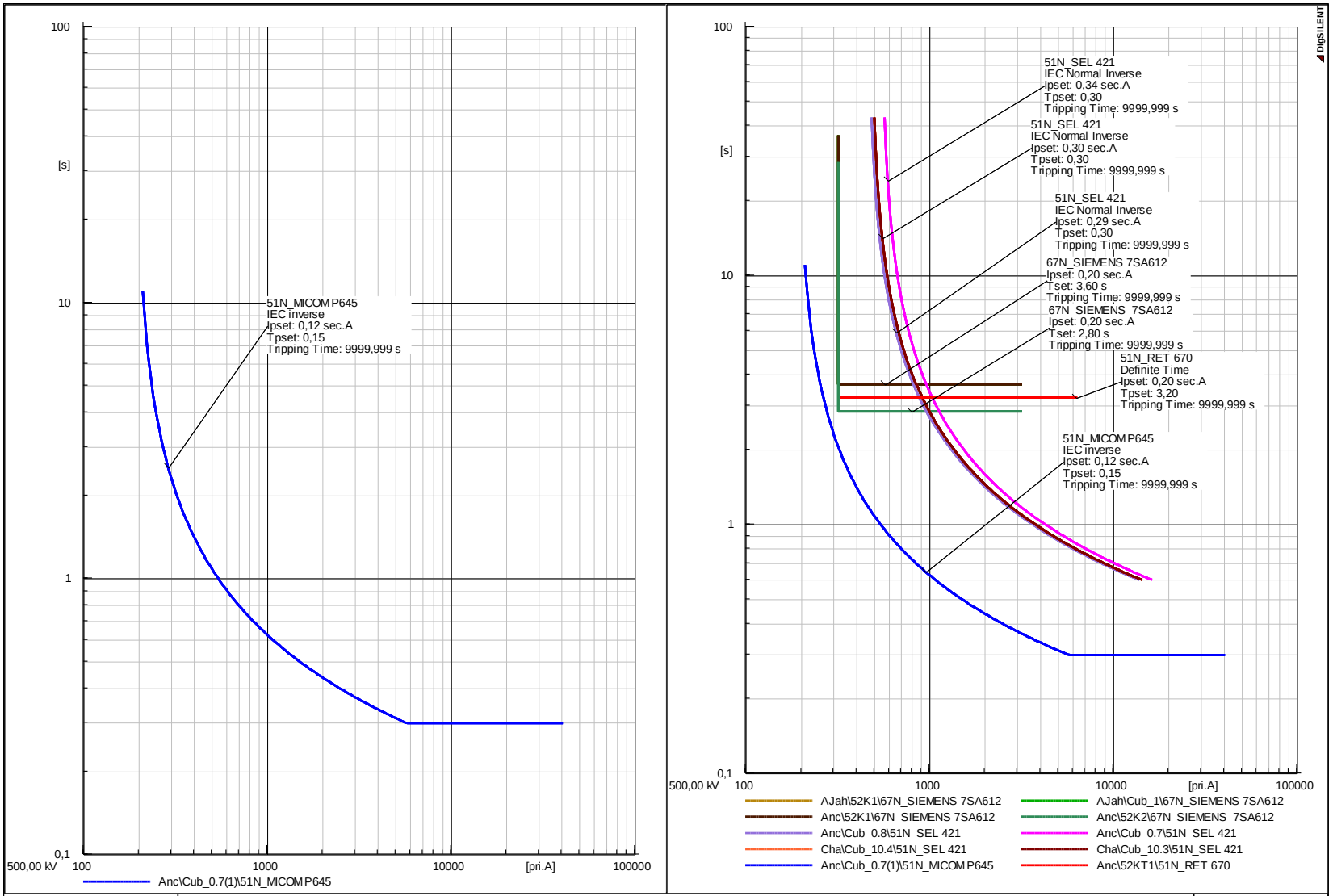




	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-25	Annex:

FUNCIÓN 51N LADO DE 500 KV



	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC3F	Annex:

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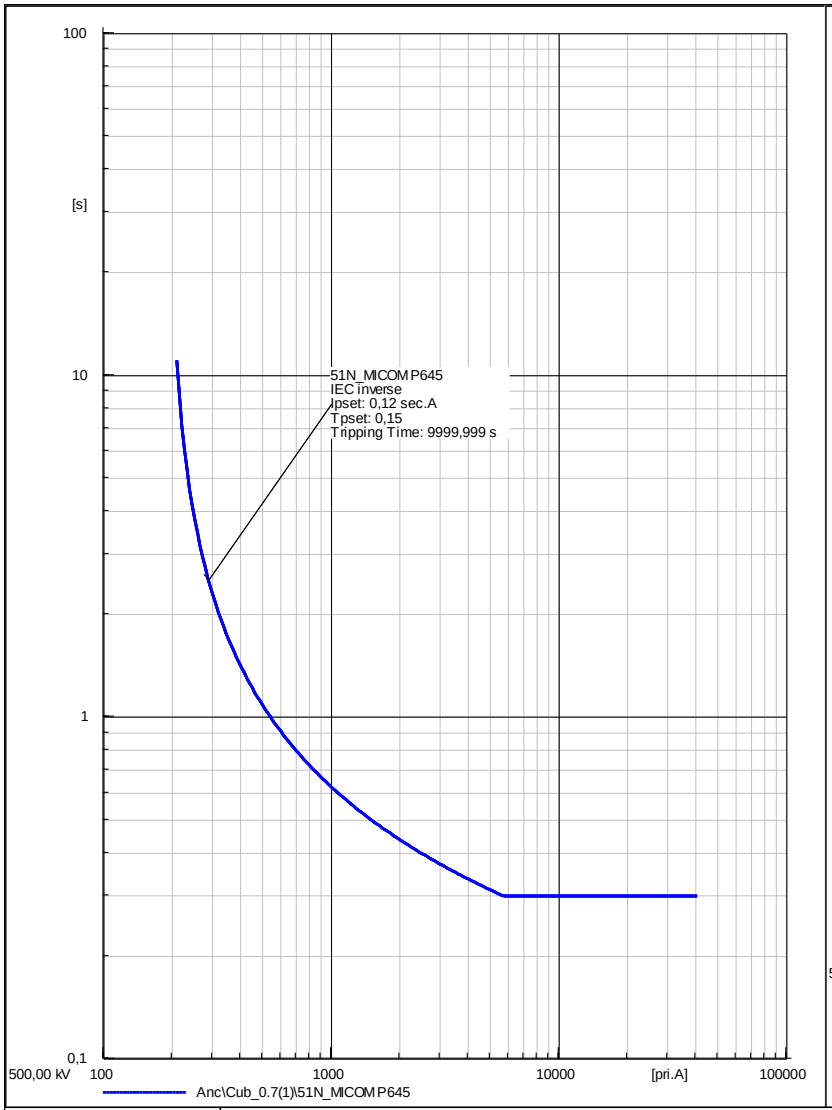

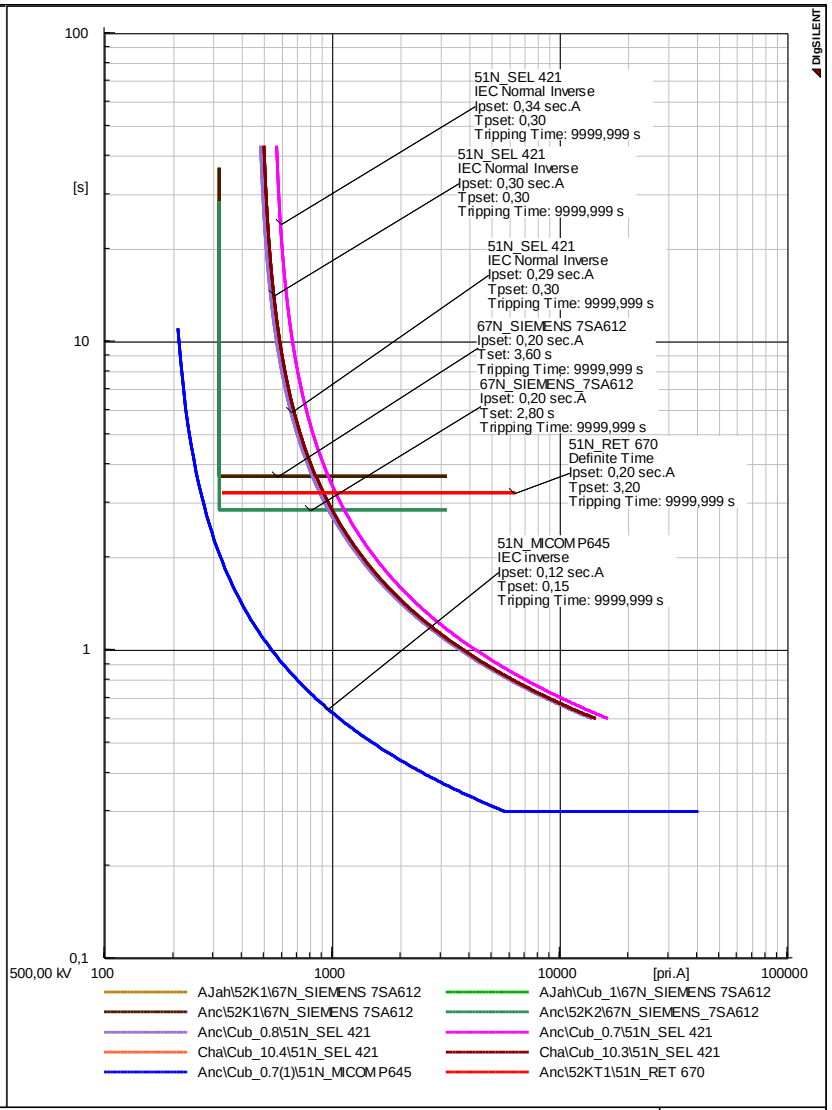

	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2F	Annex:

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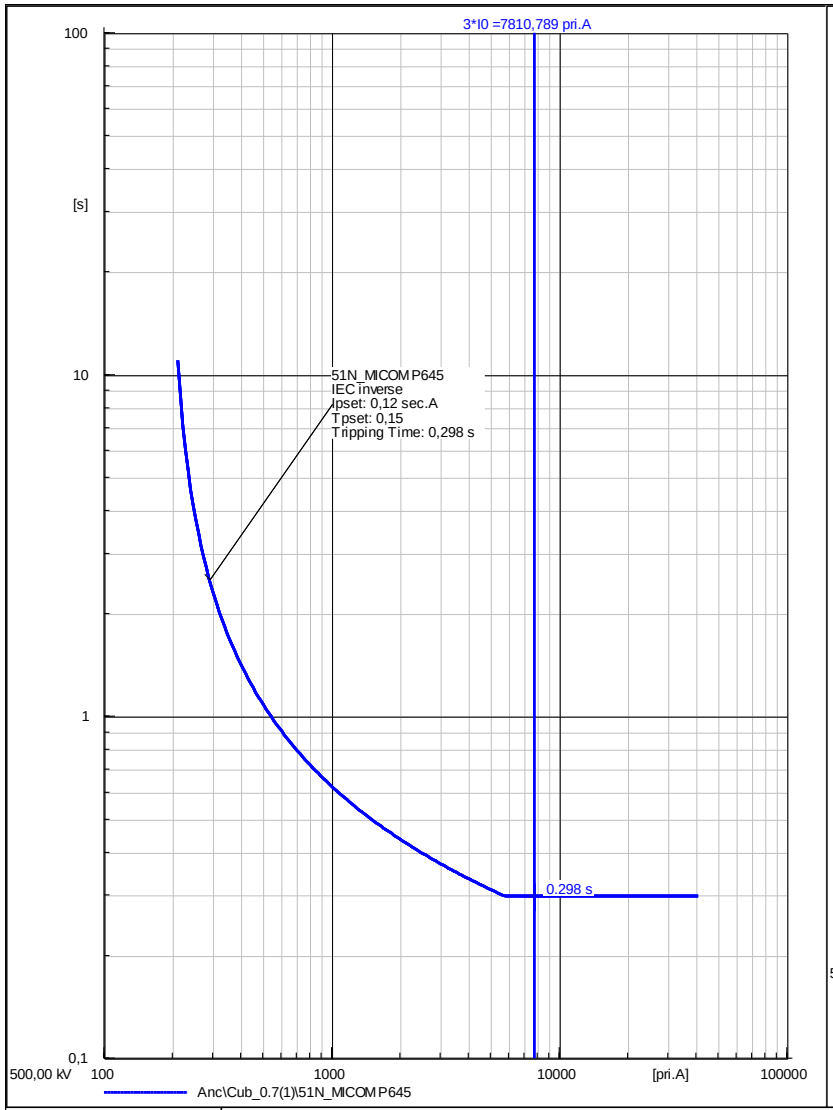

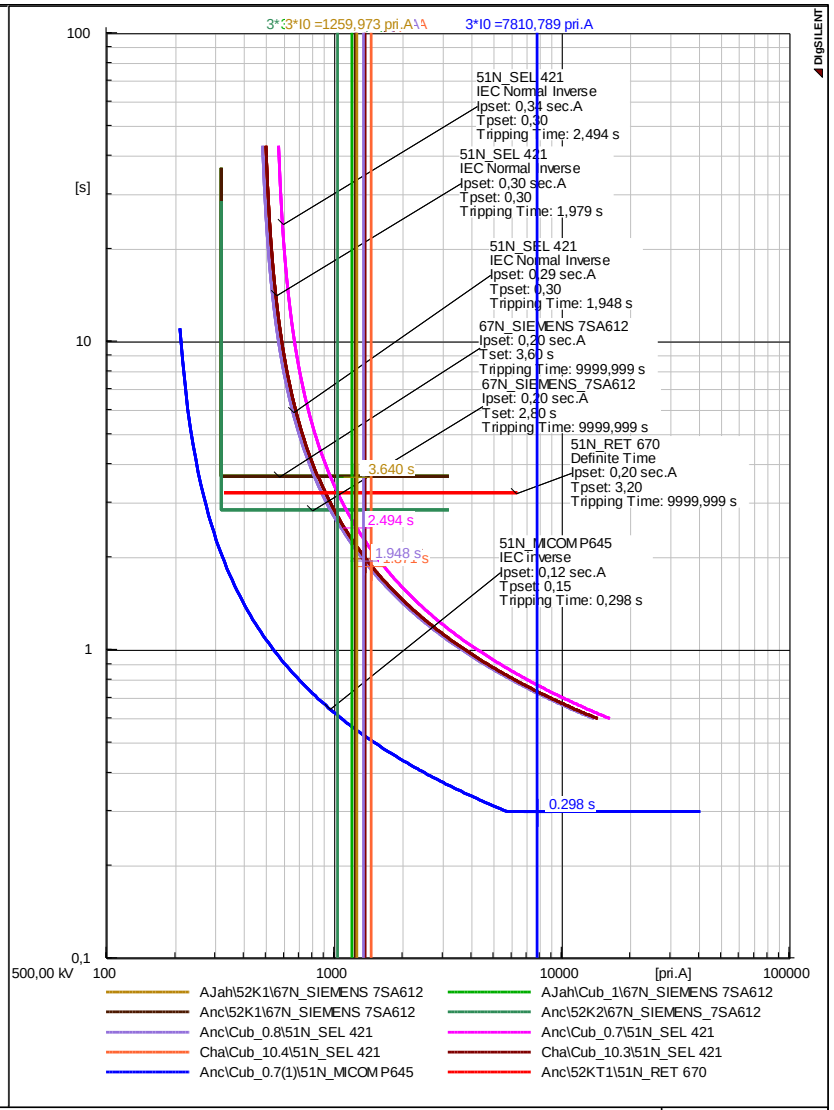

	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2FT	Annex:

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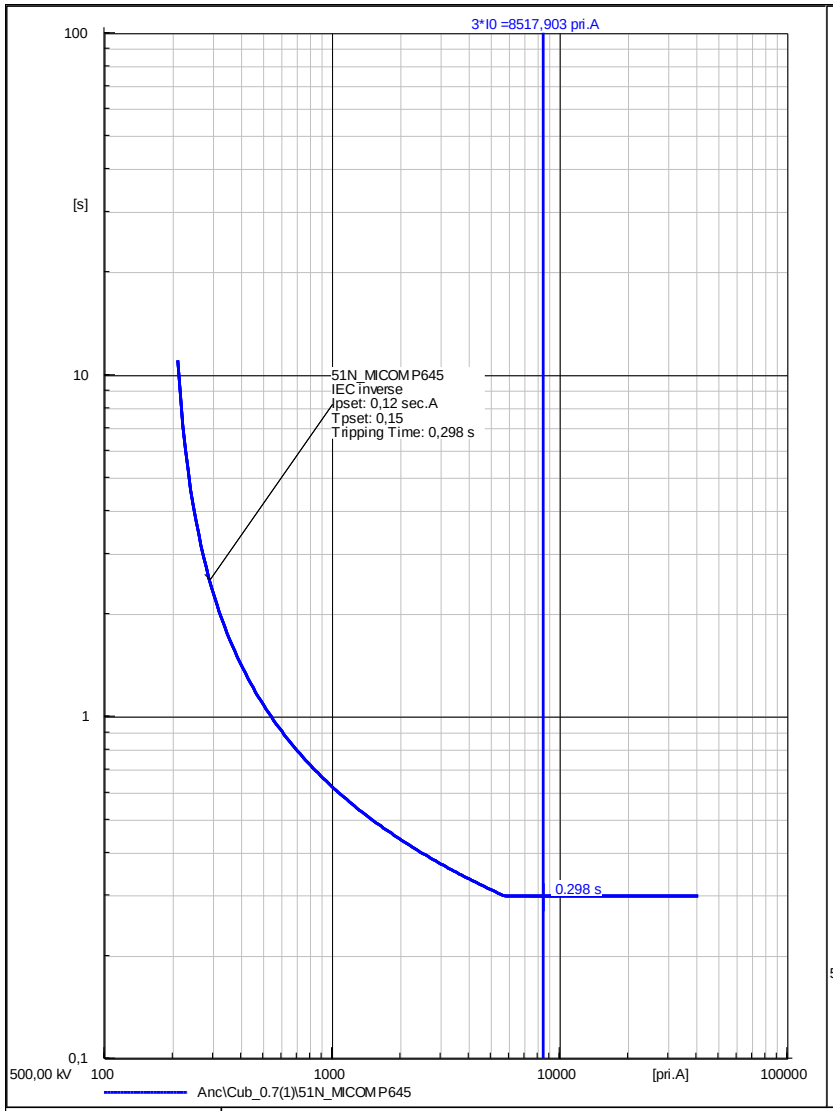

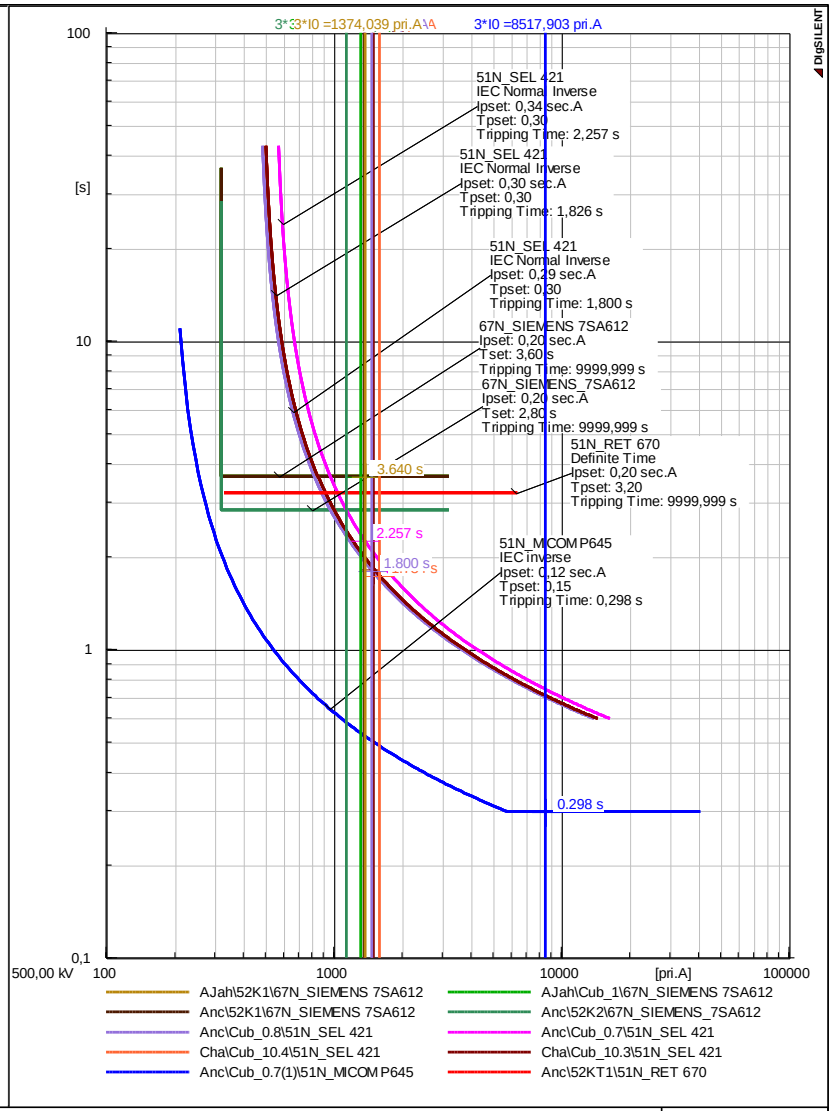

	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-0	Annex:

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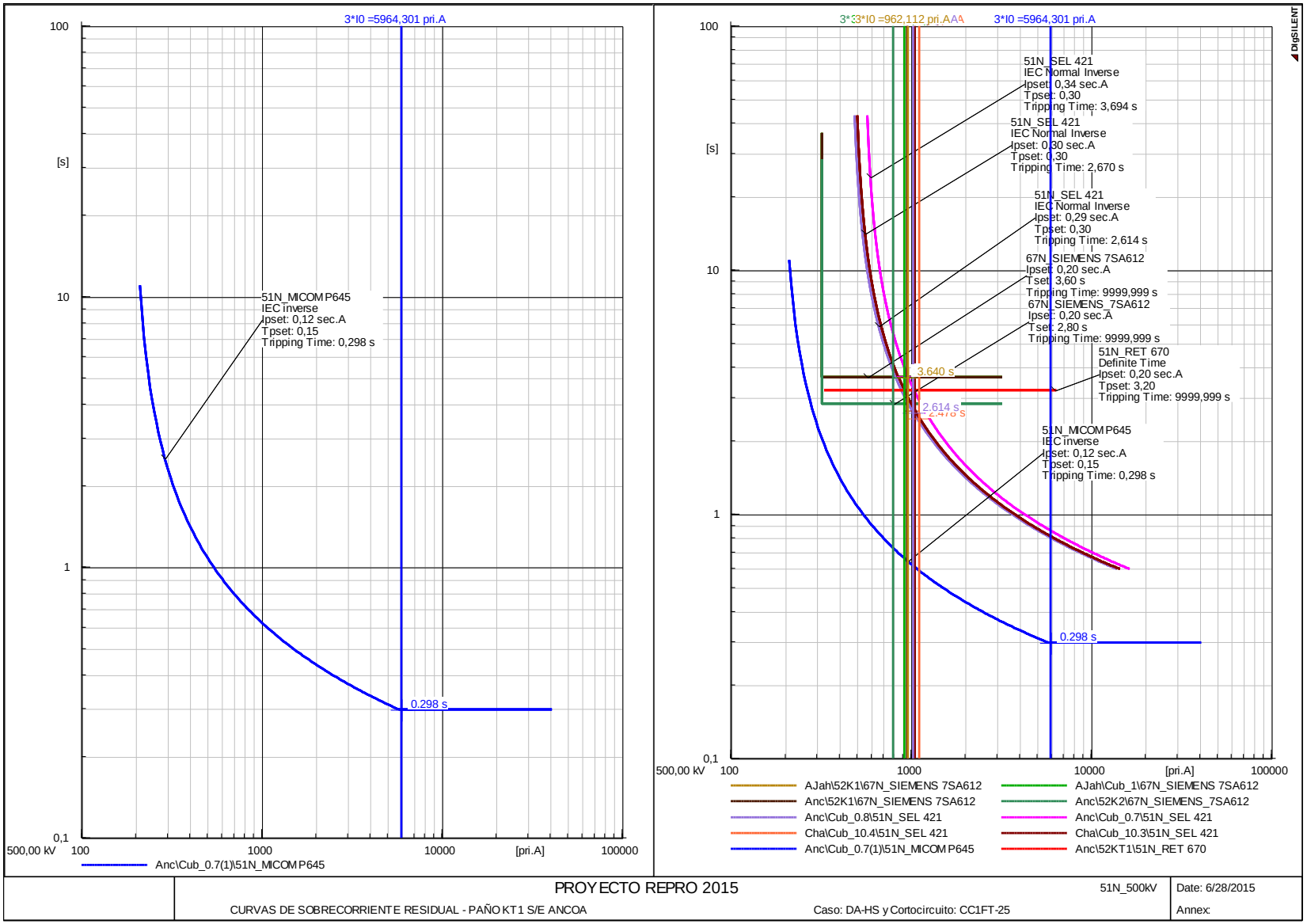

	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-25	Annex:

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FALLA EN BARRA 220 KV S/E ANCOA

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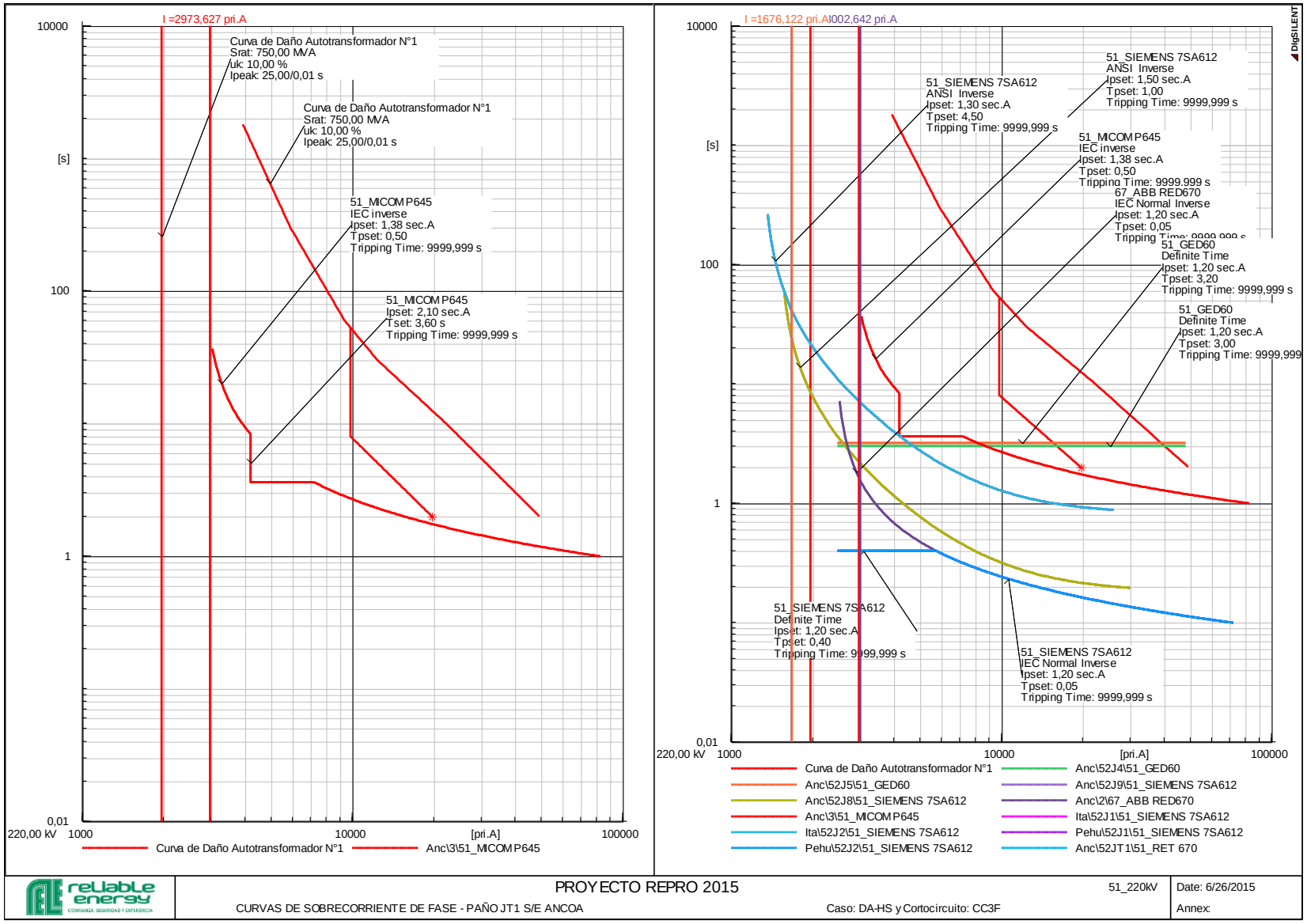
FUNCIÓN 51 LADO DE 220 KV



reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC3F	Annex:

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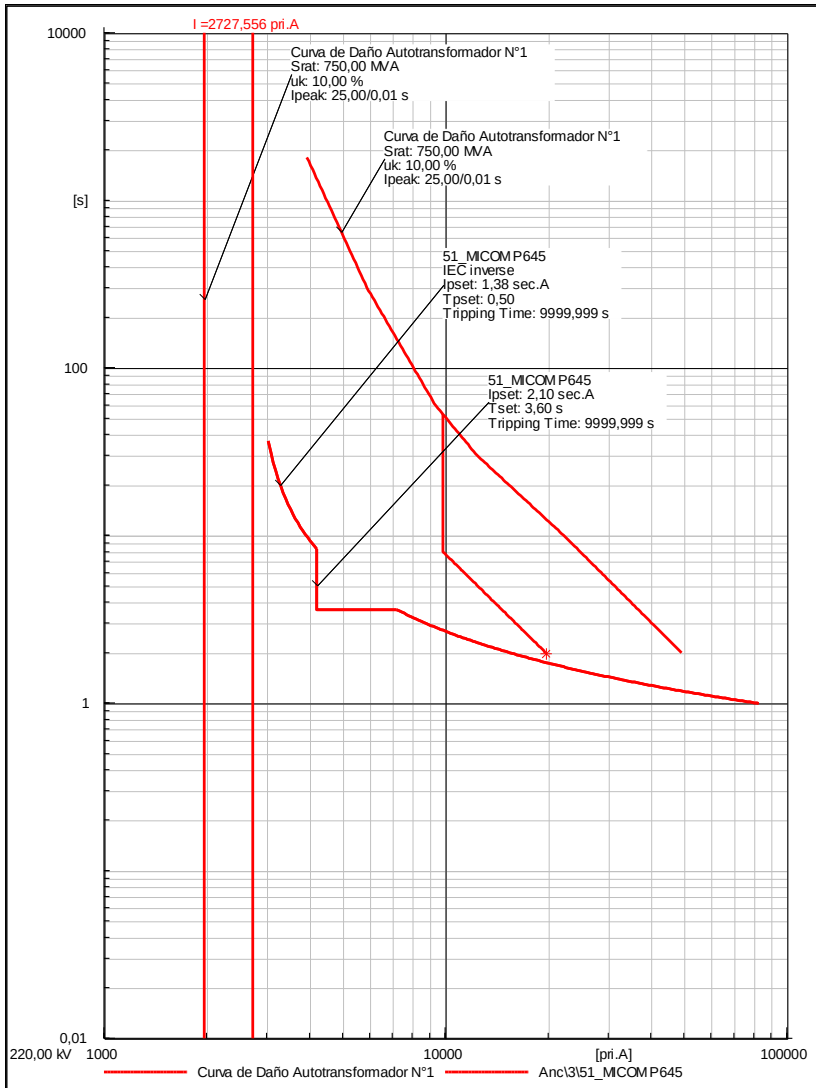

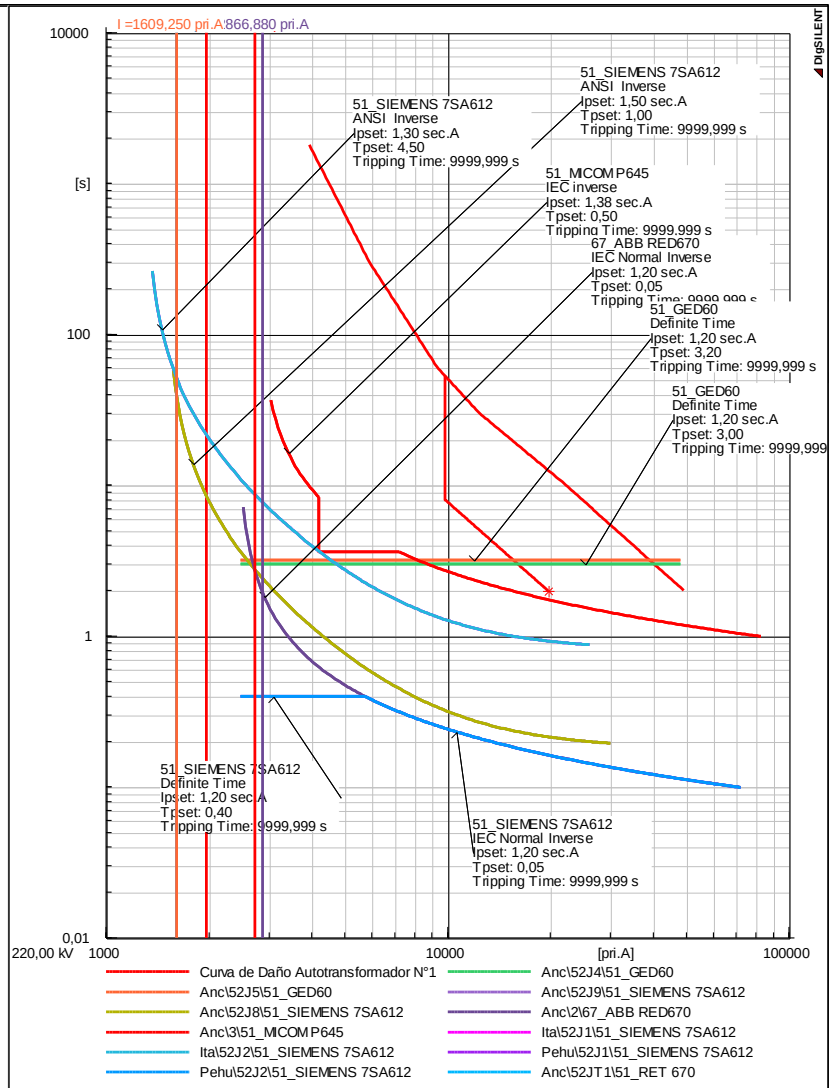

reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2F	Annex:

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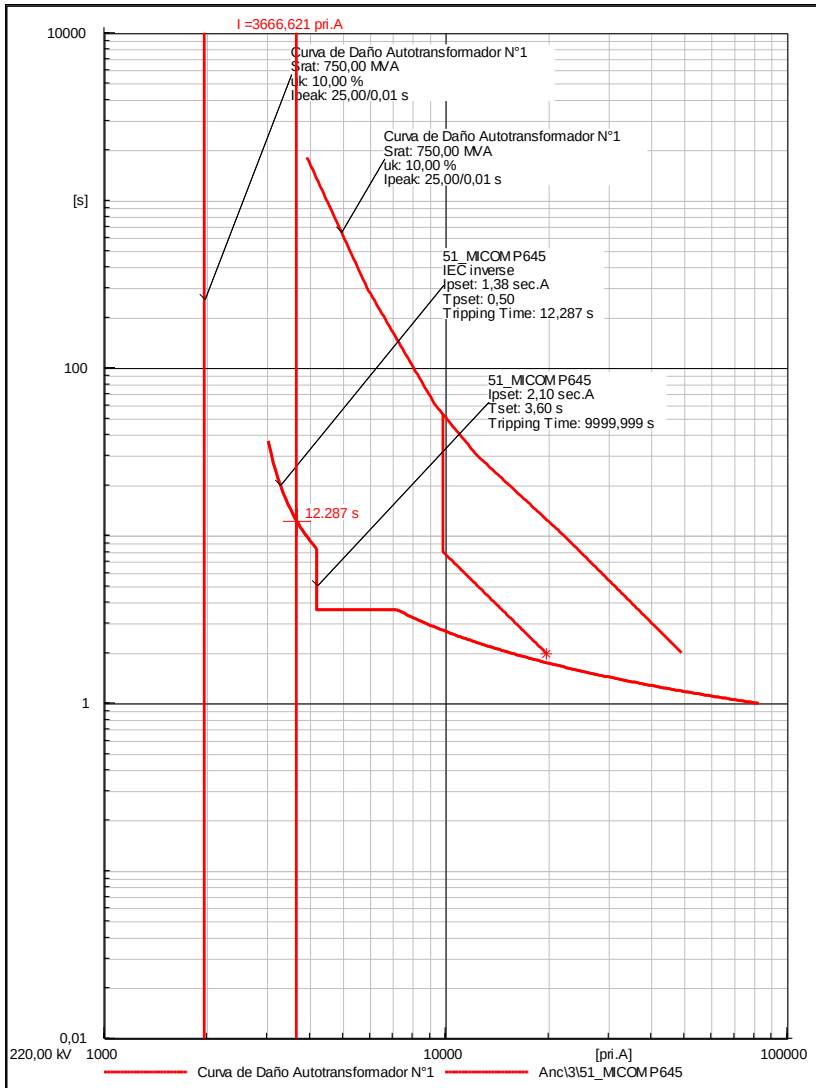

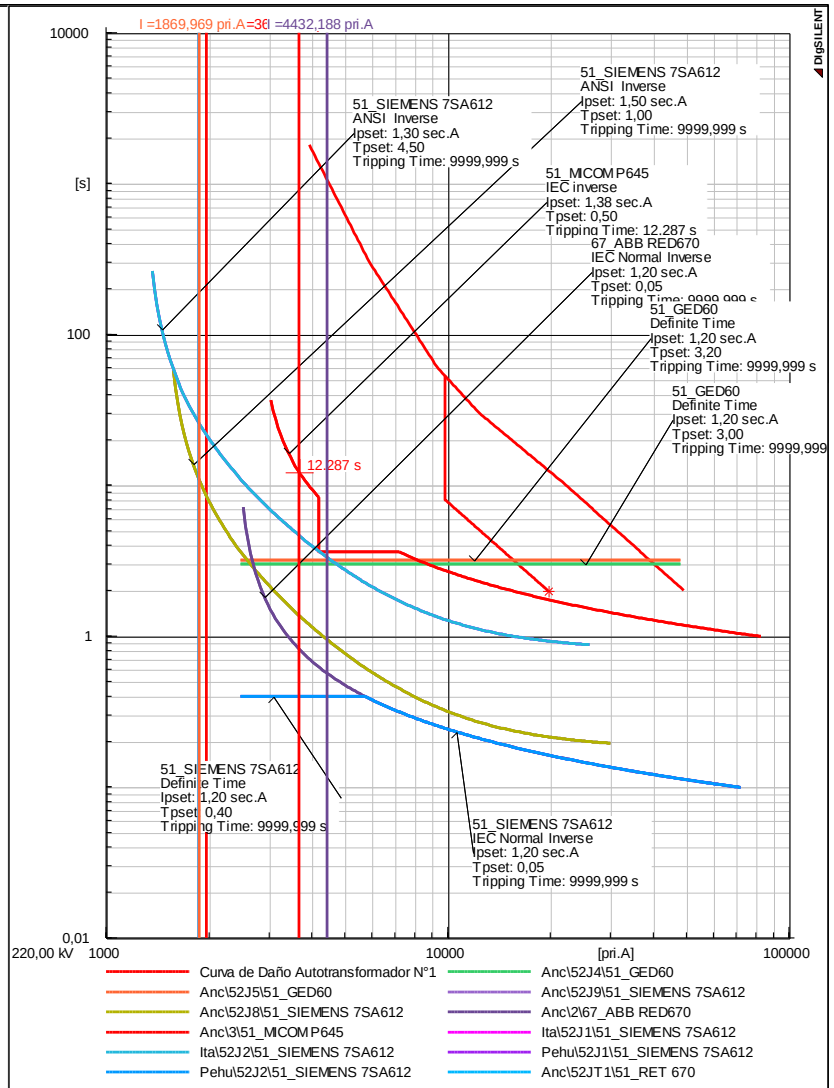

reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2FT	Annex:

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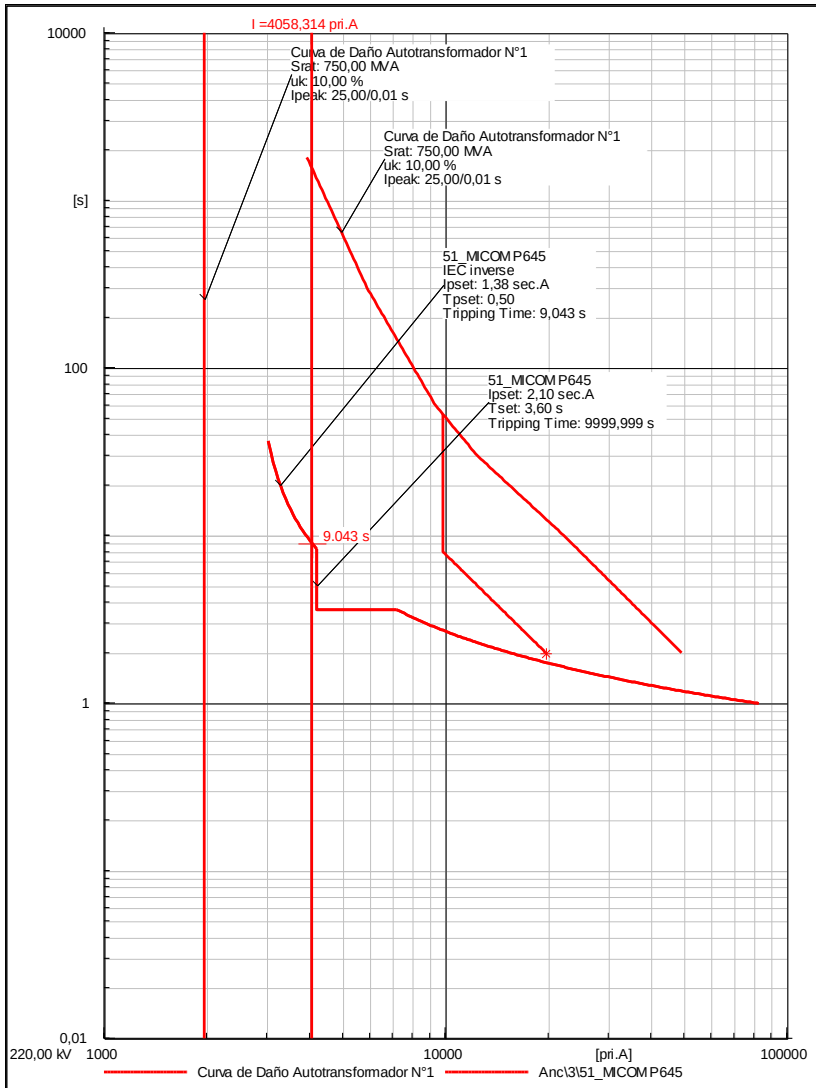

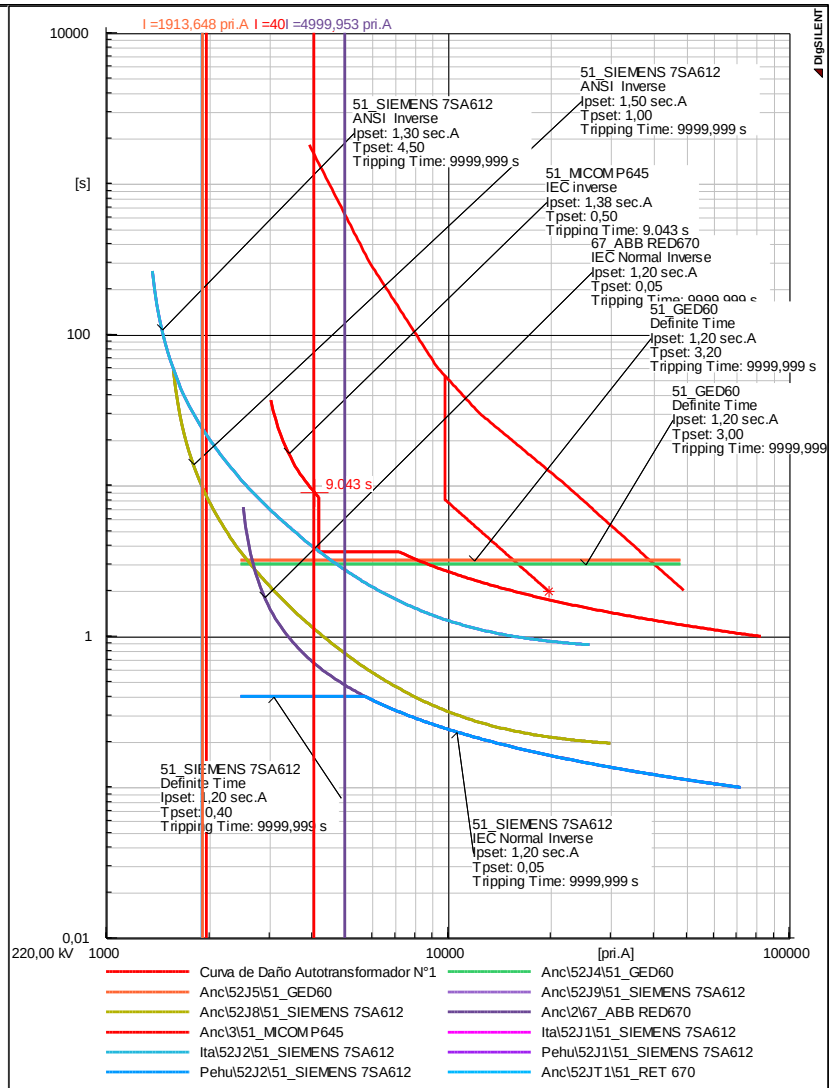

reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-0	Annex:

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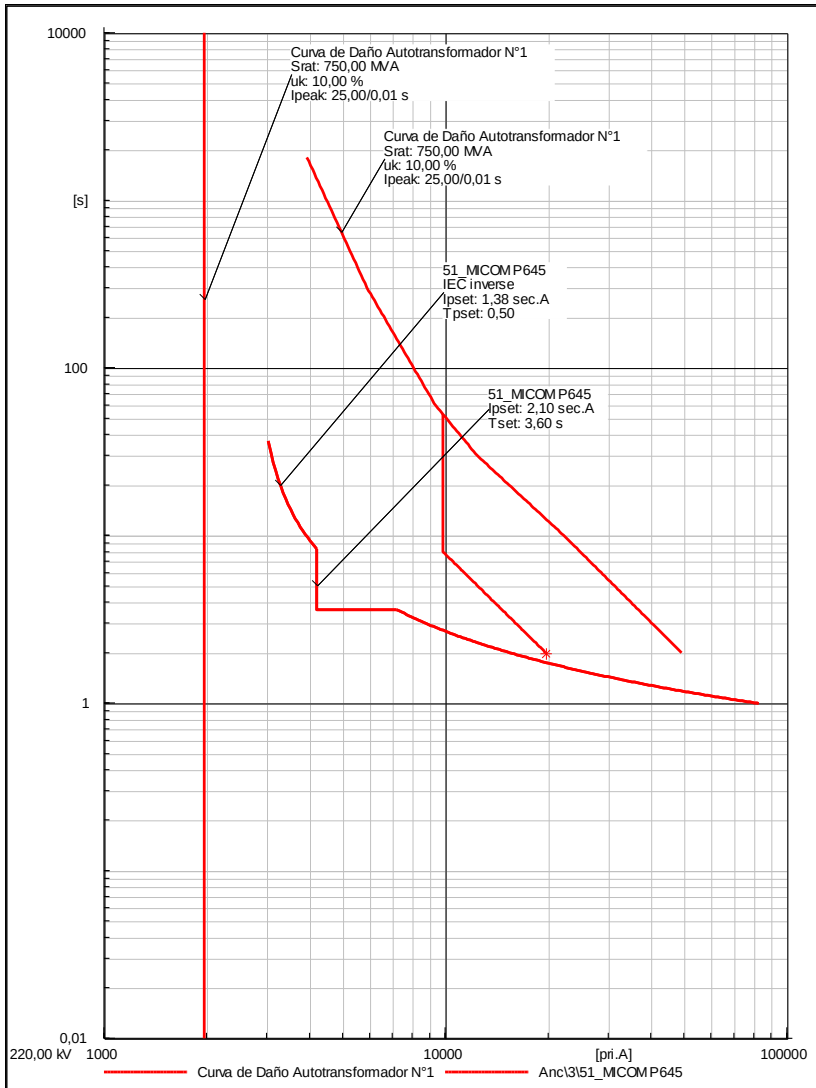

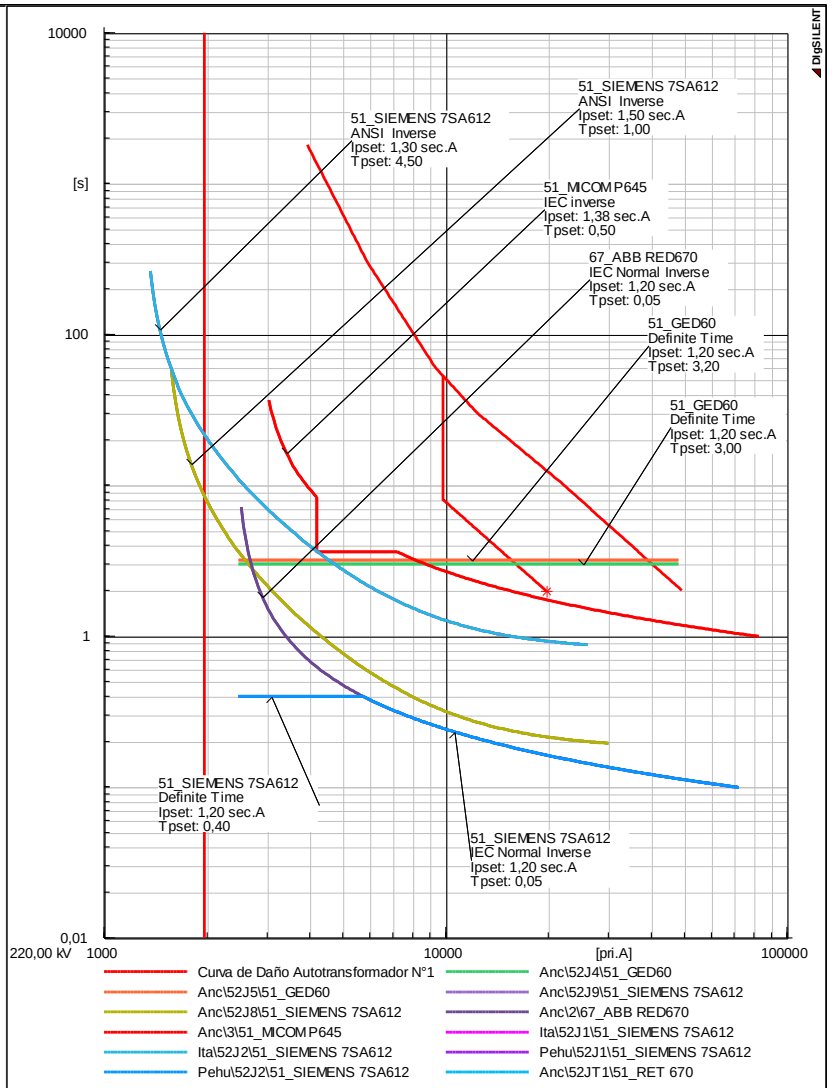

reliable energy	PROYECTO REPRO 2015	51_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-25	Annex:

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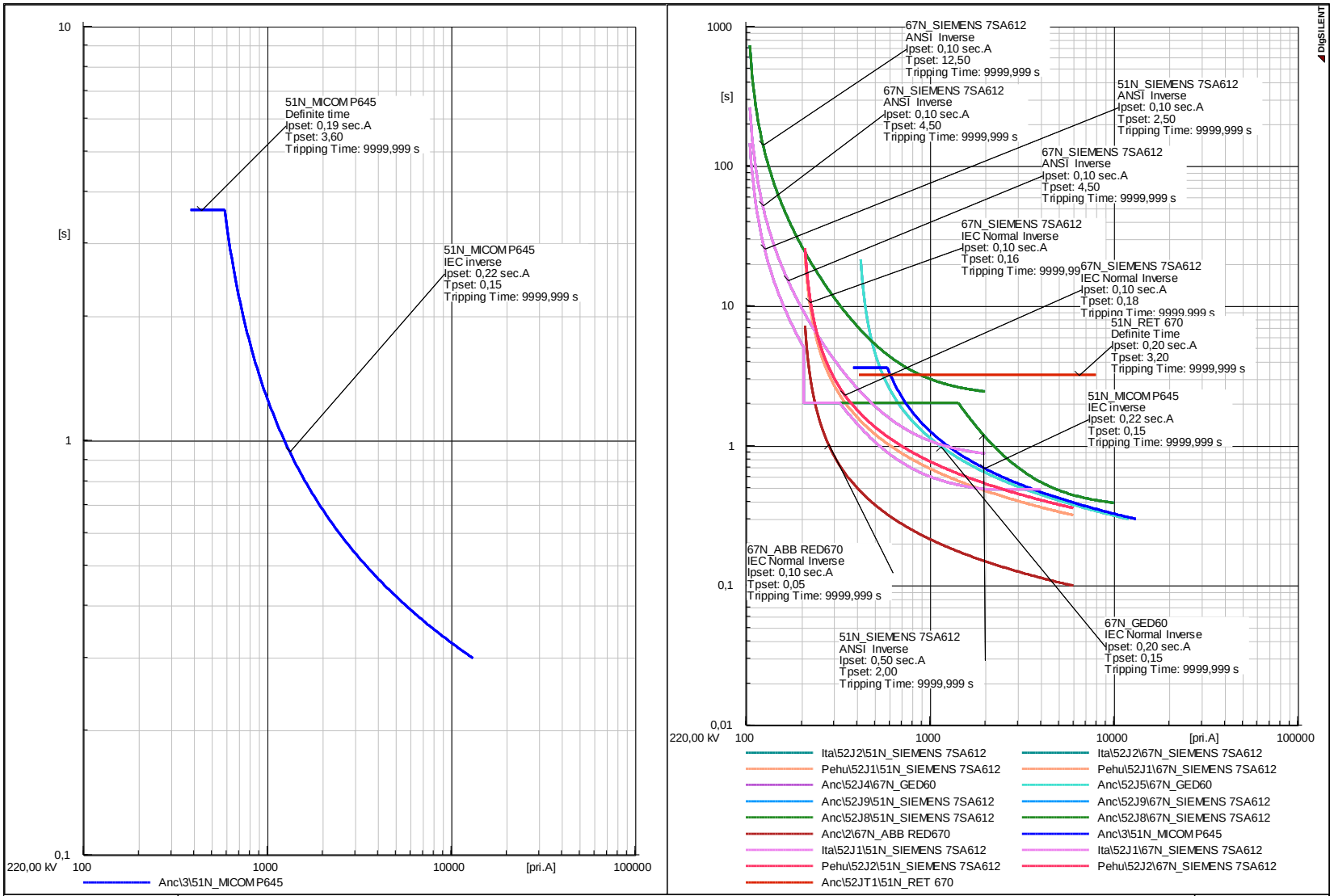
FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC3F	Annex:

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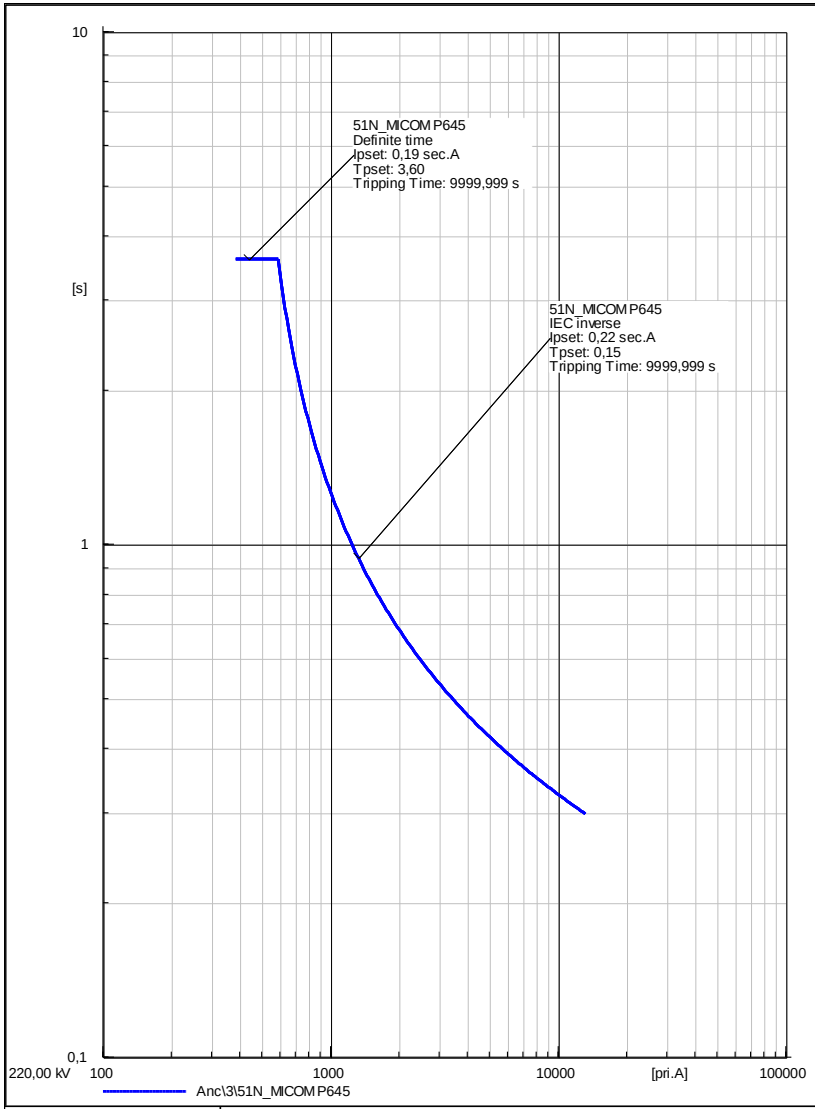

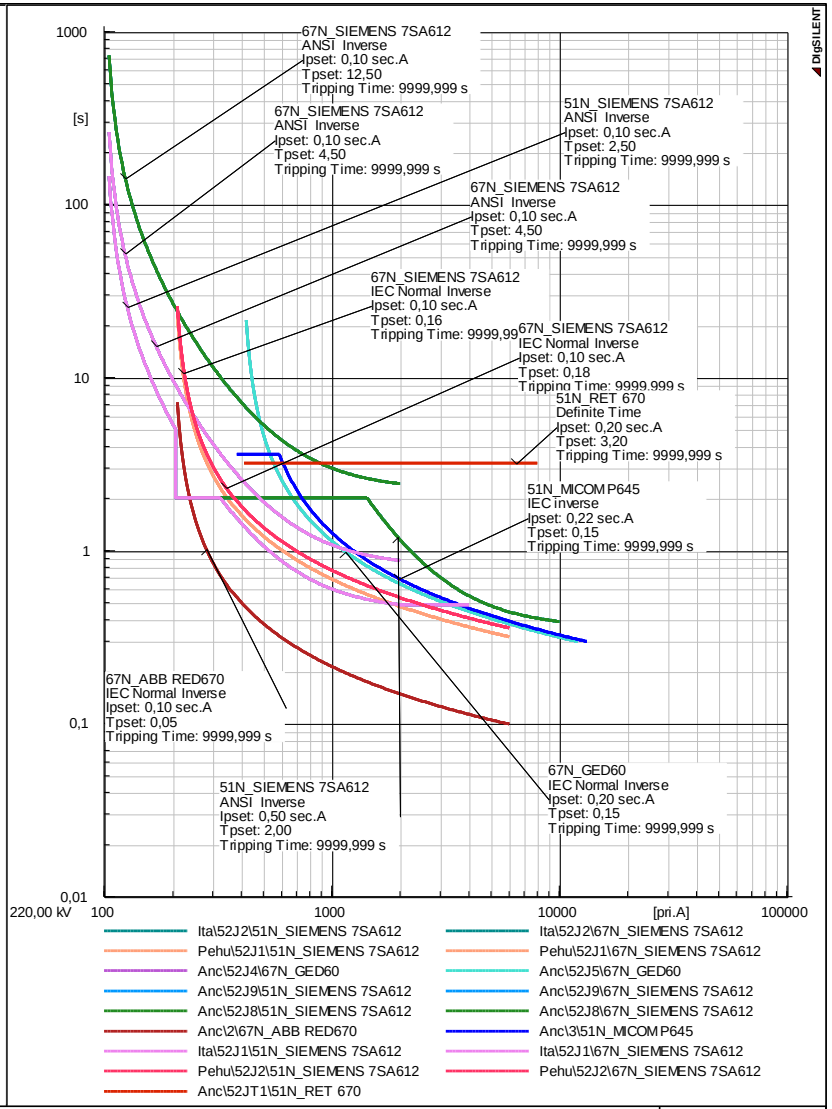

	PROYECTO REPRO 2015	51N_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2F	Annex:

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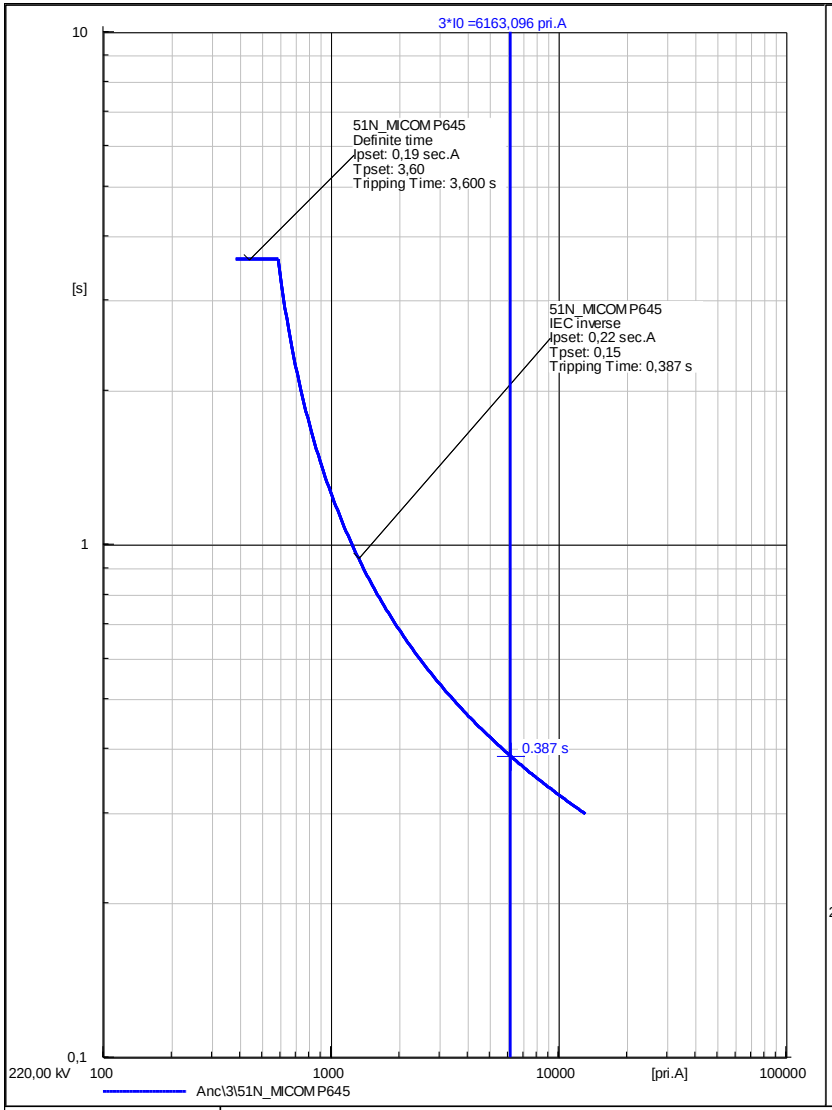

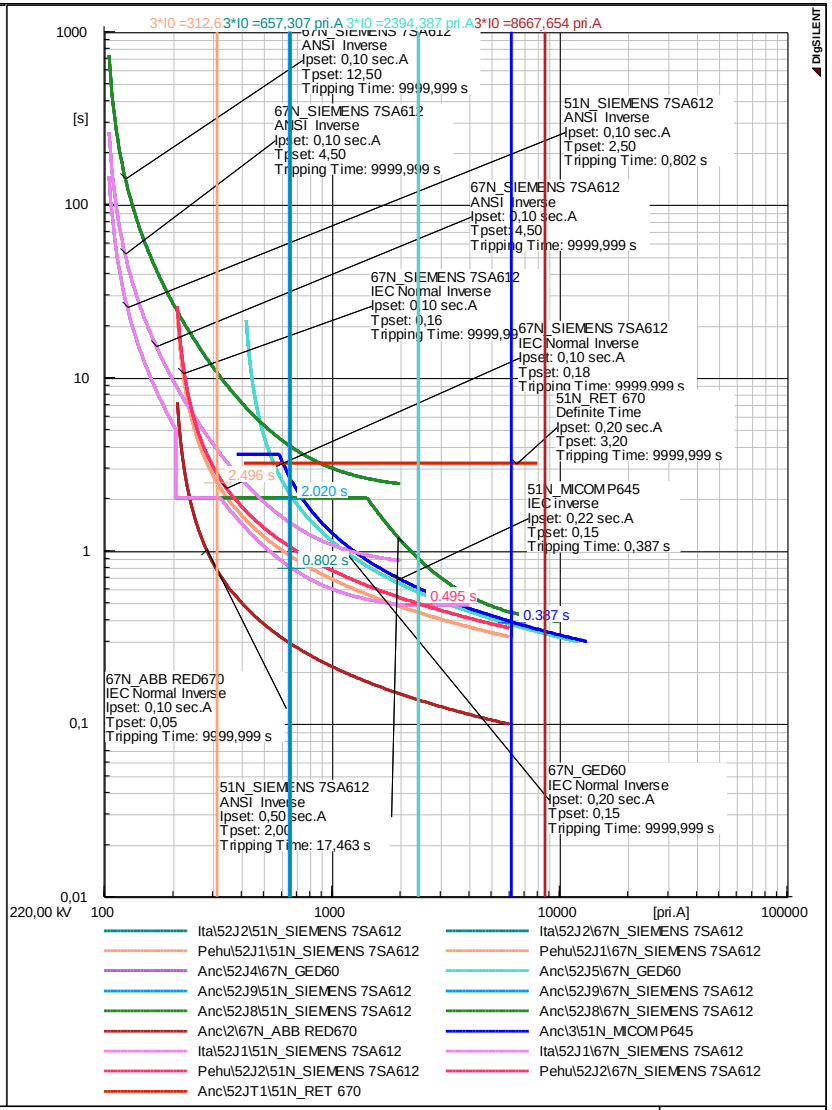

	PROYECTO REPRO 2015	51N_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2FT	Annex:

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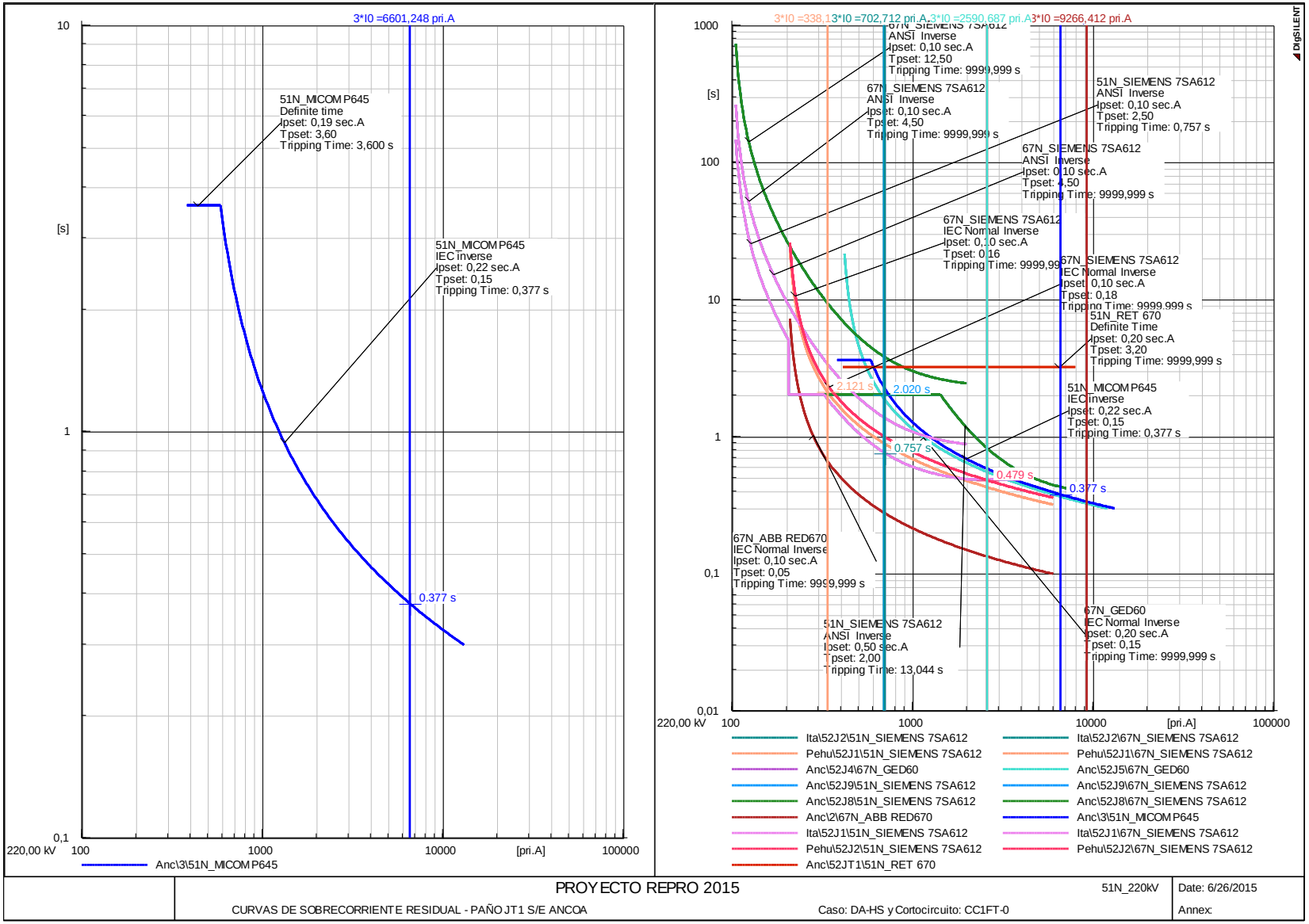

	PROYECTO REPRO 2015	51N_220kV	Date: 6/26/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-0	Annex:

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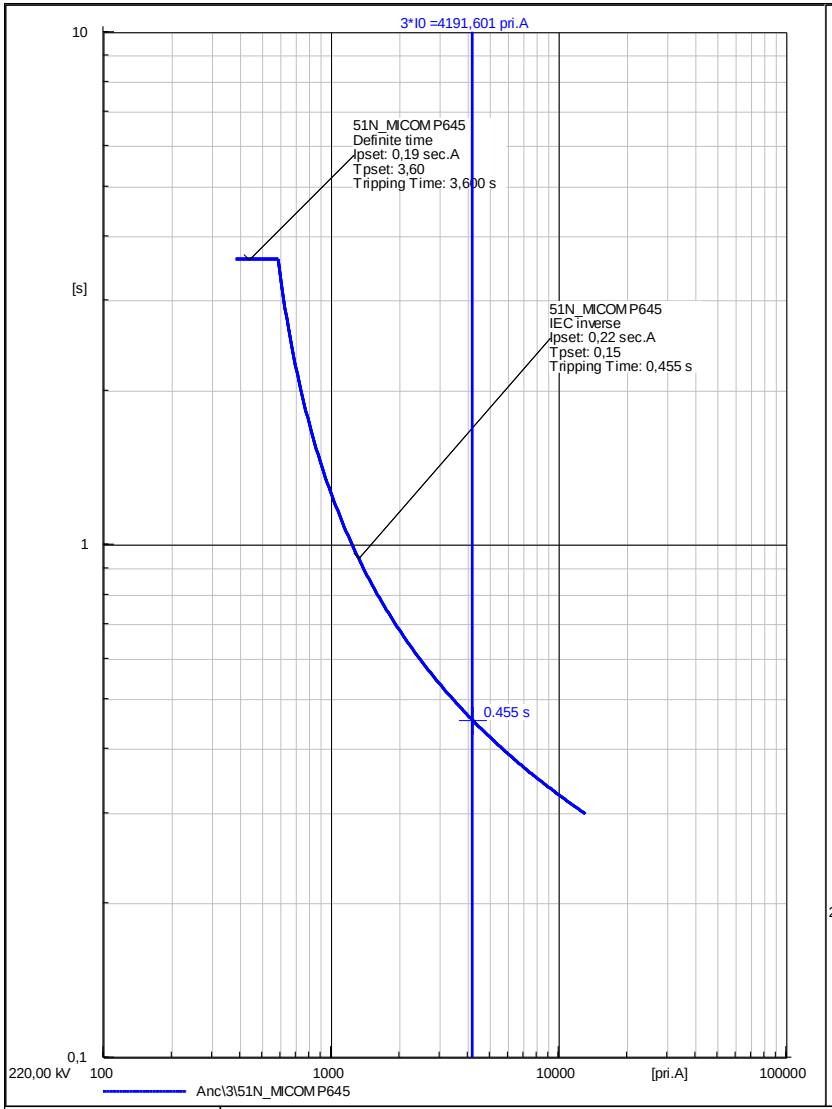

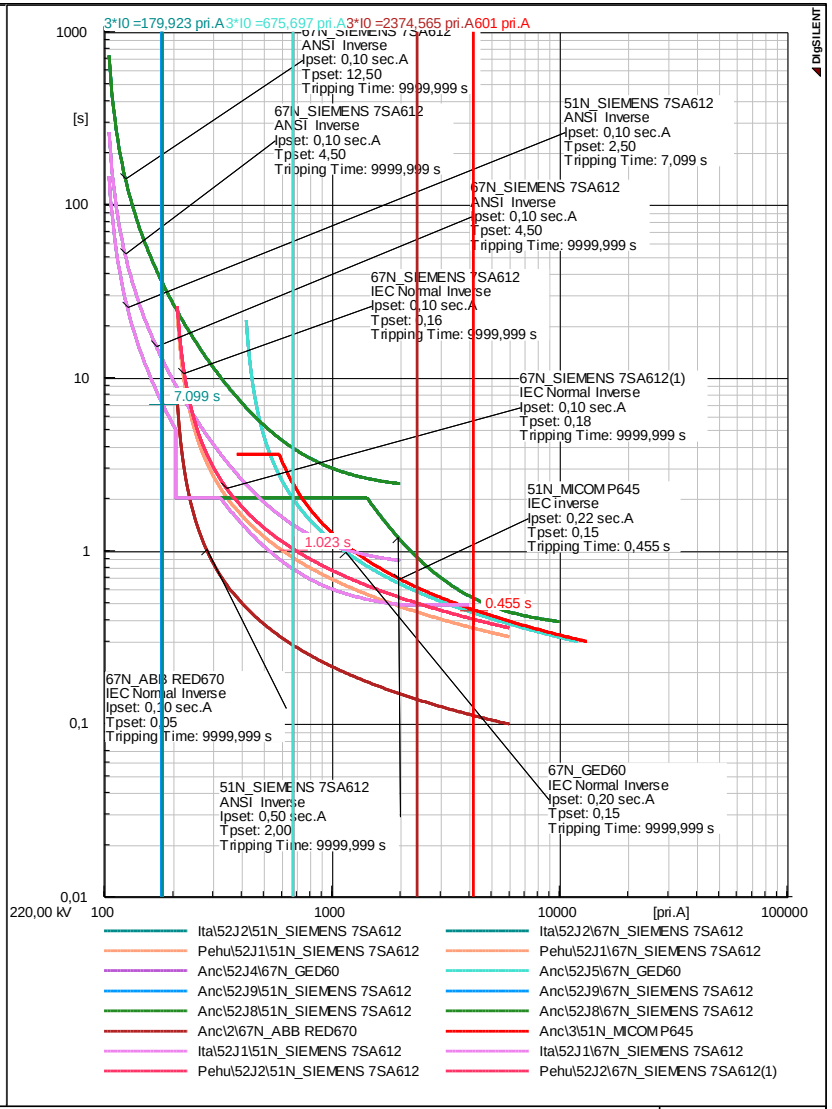

	Caso DA-HS y Cortocircuito CC1FT - 25	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	CURVAS DE SOBRECORRIENTE RESIDUAL PAÑOS ZONA DE 220 KV	Annex:

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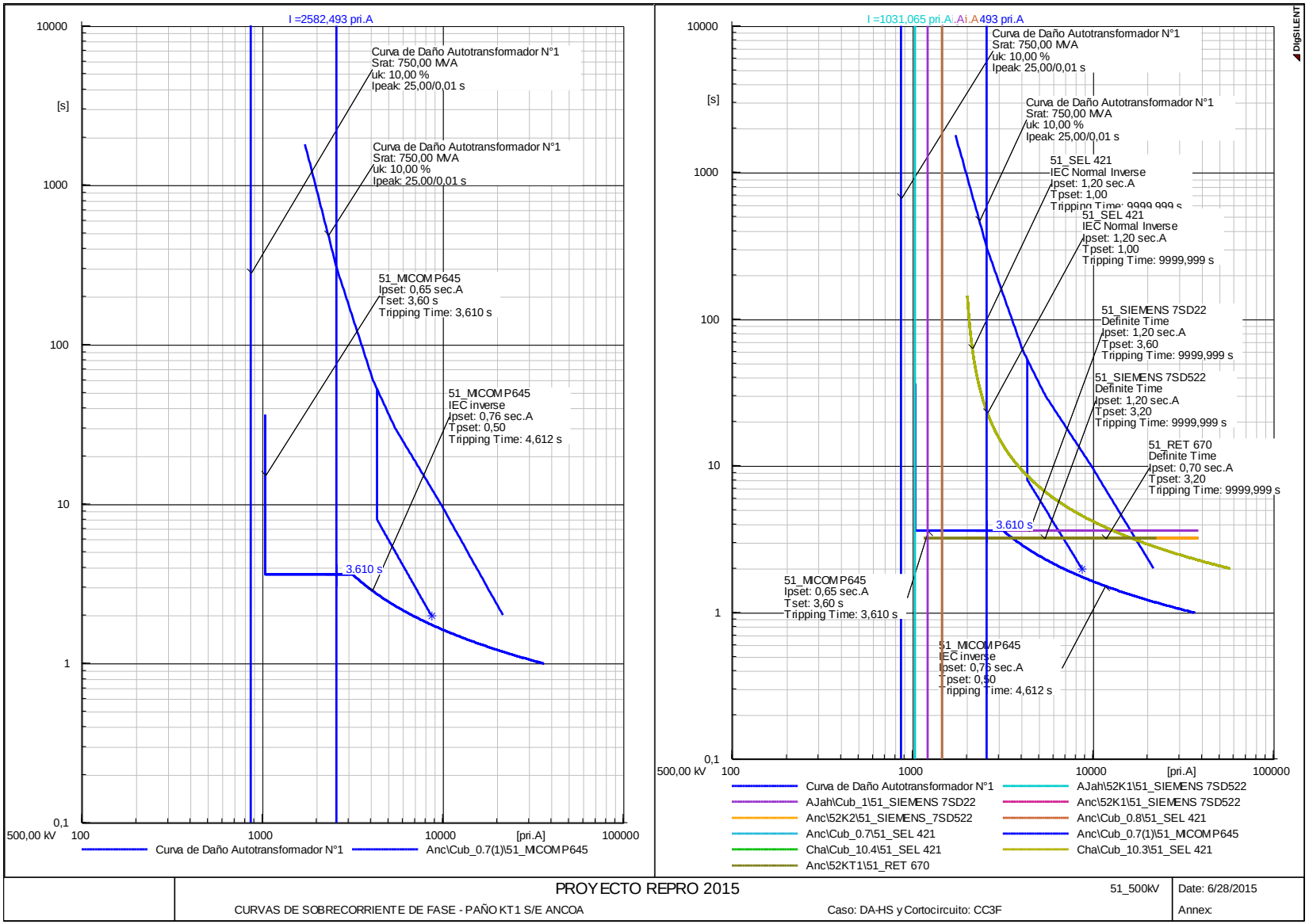
FUNCIÓN 51 LADO DE 500 KV



	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC3F	Annex:

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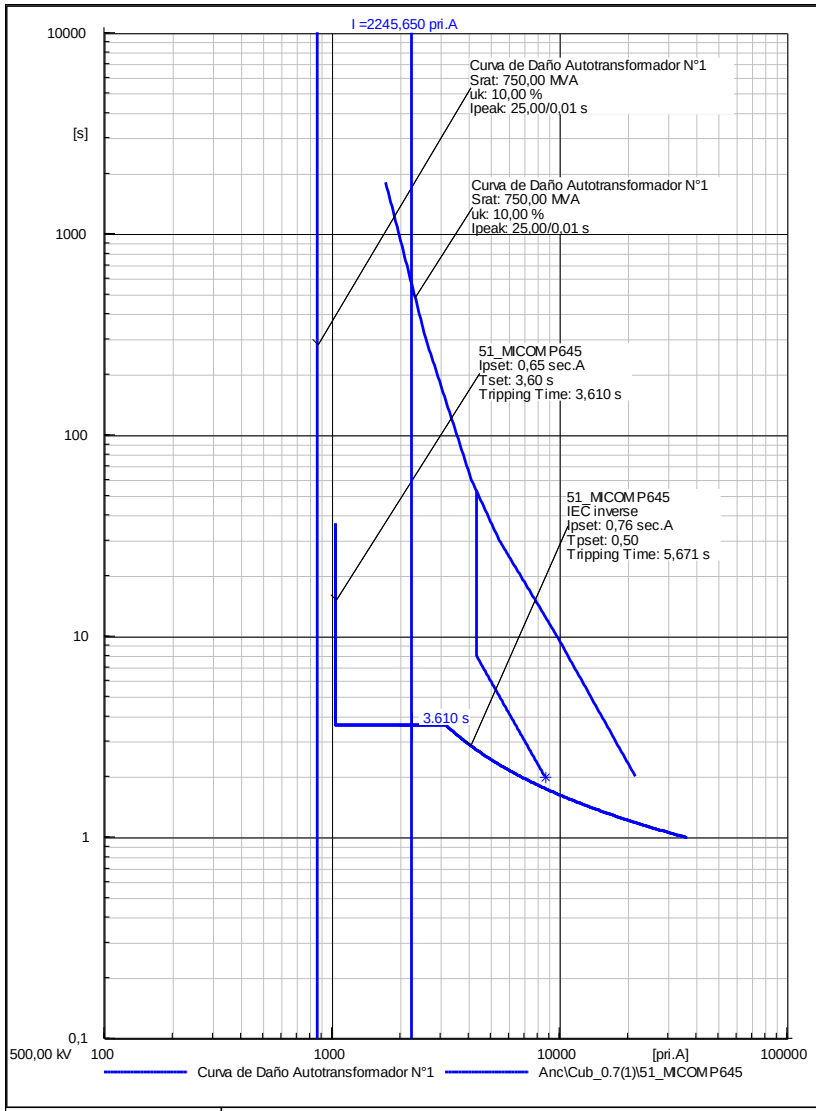

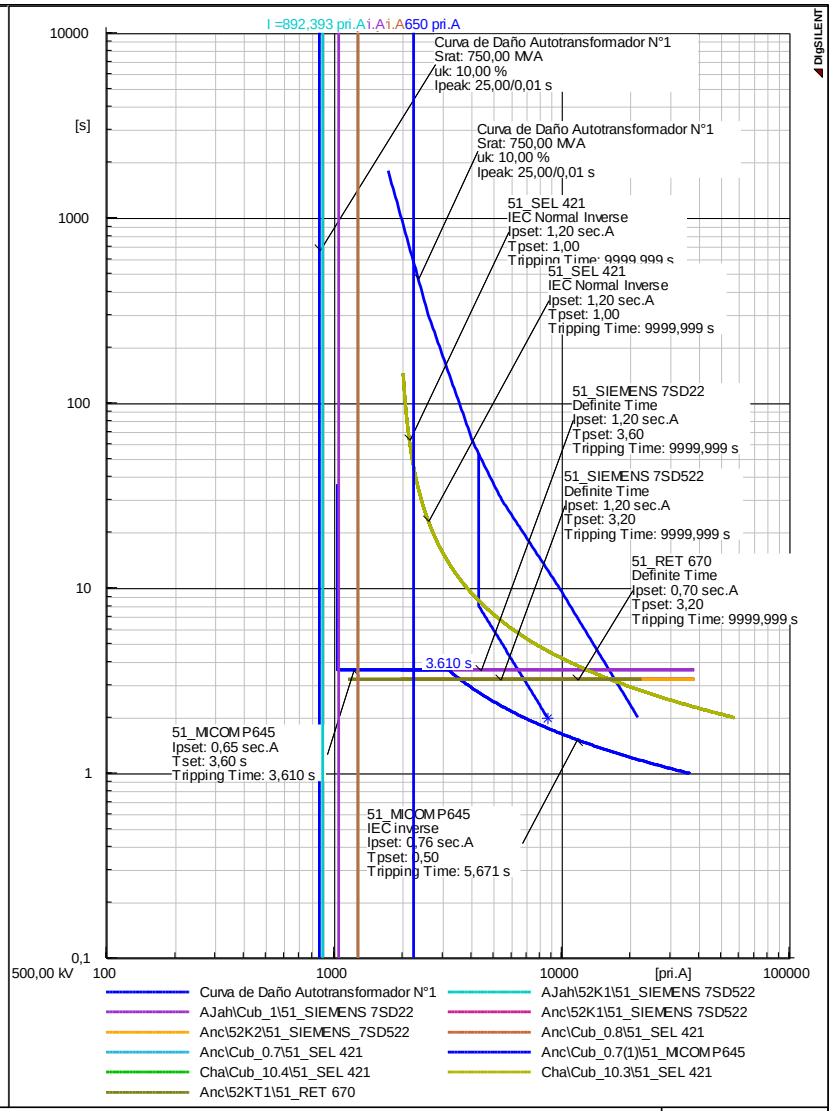

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2F	Annex:

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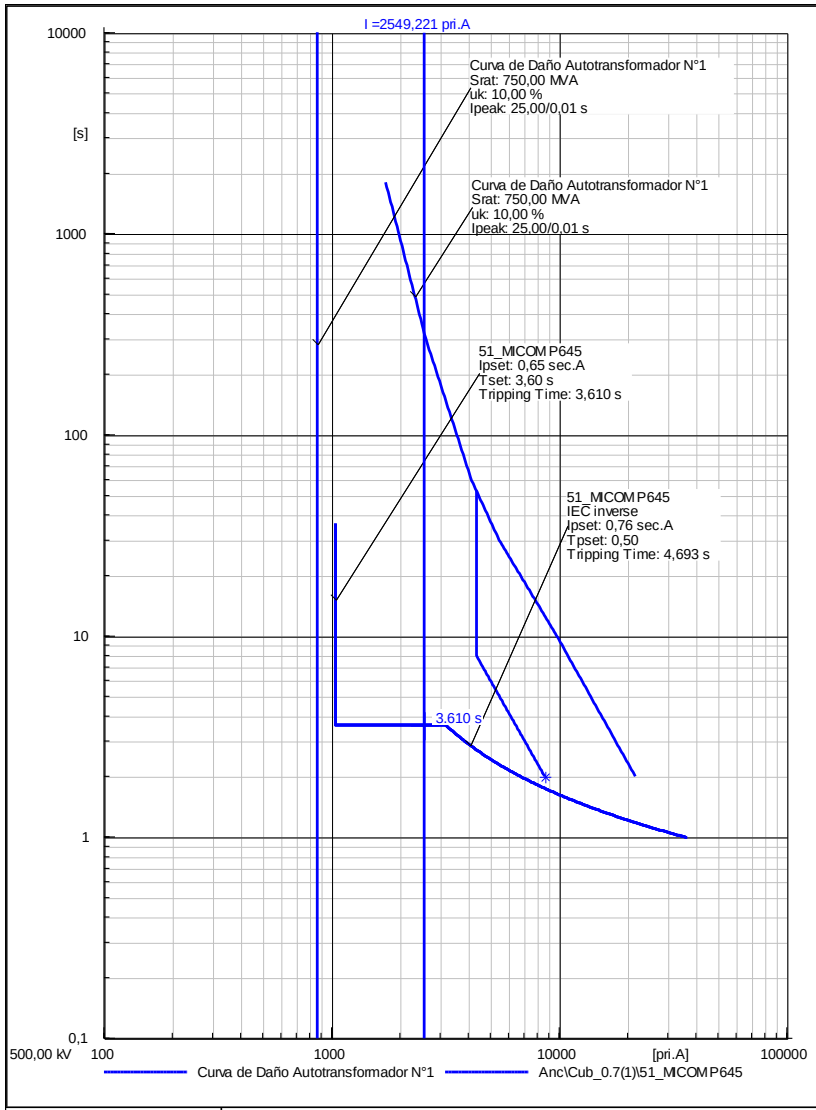

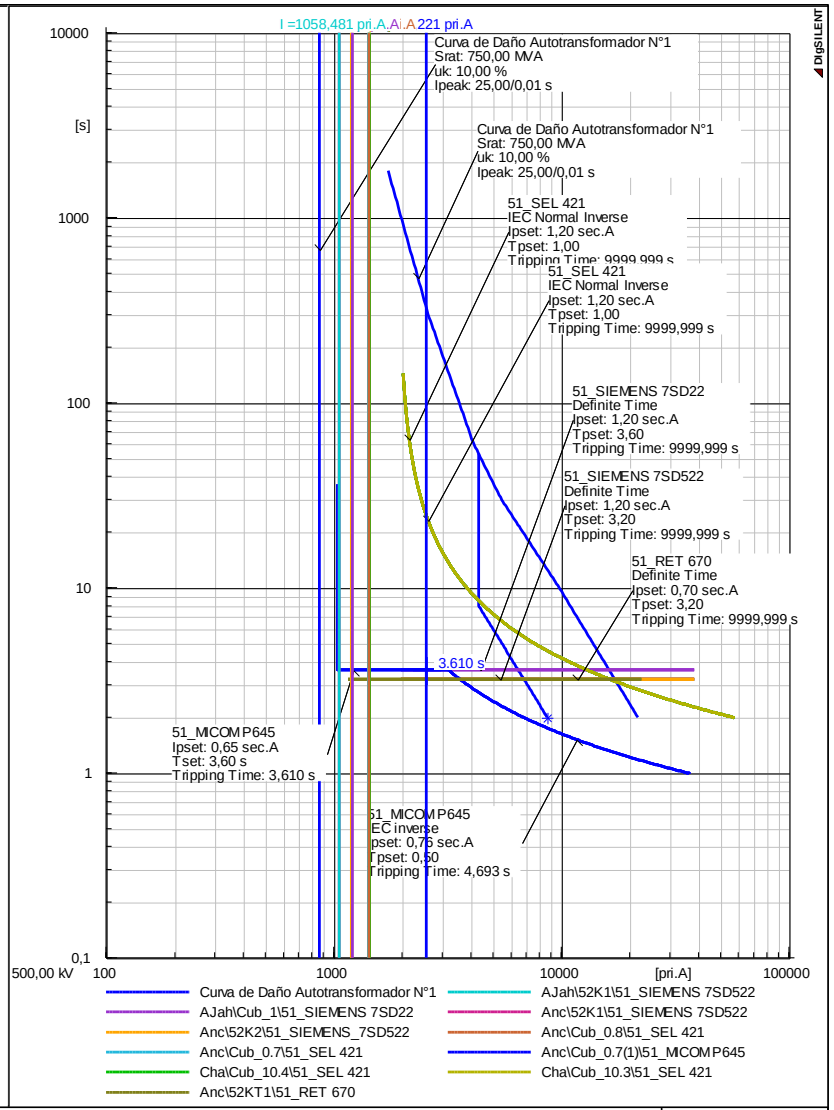

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2FT	Annex:

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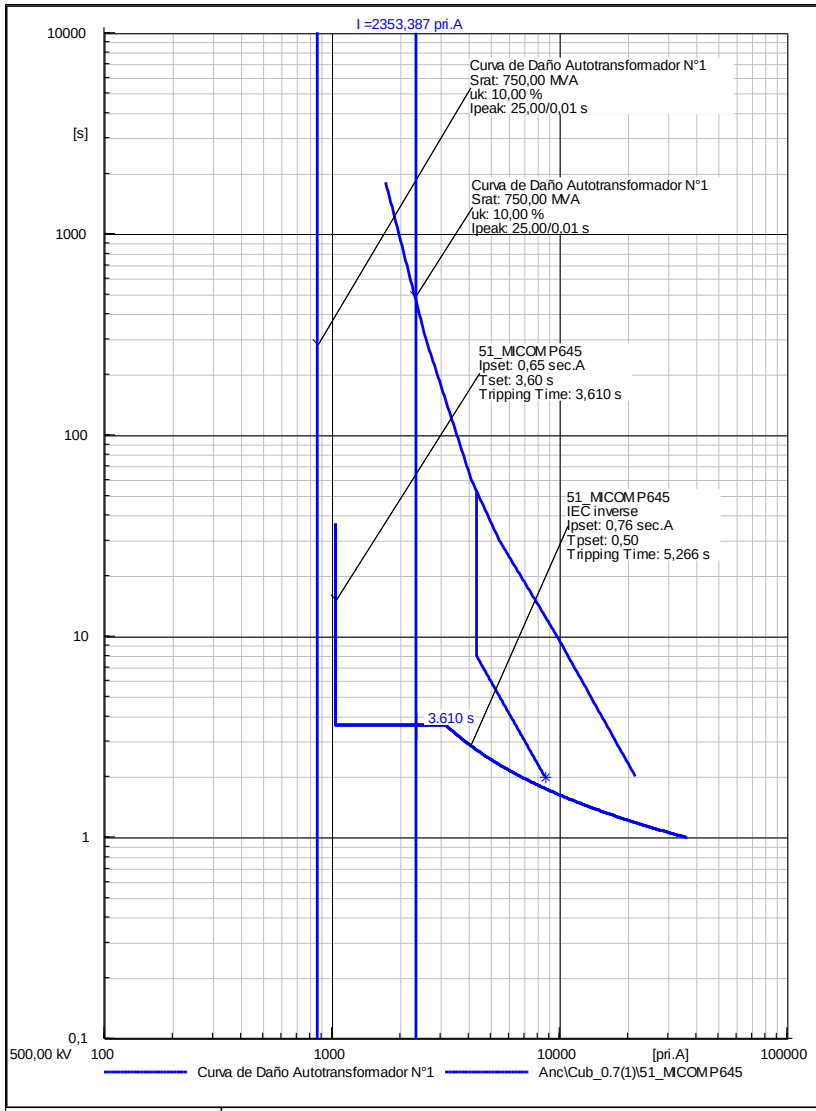

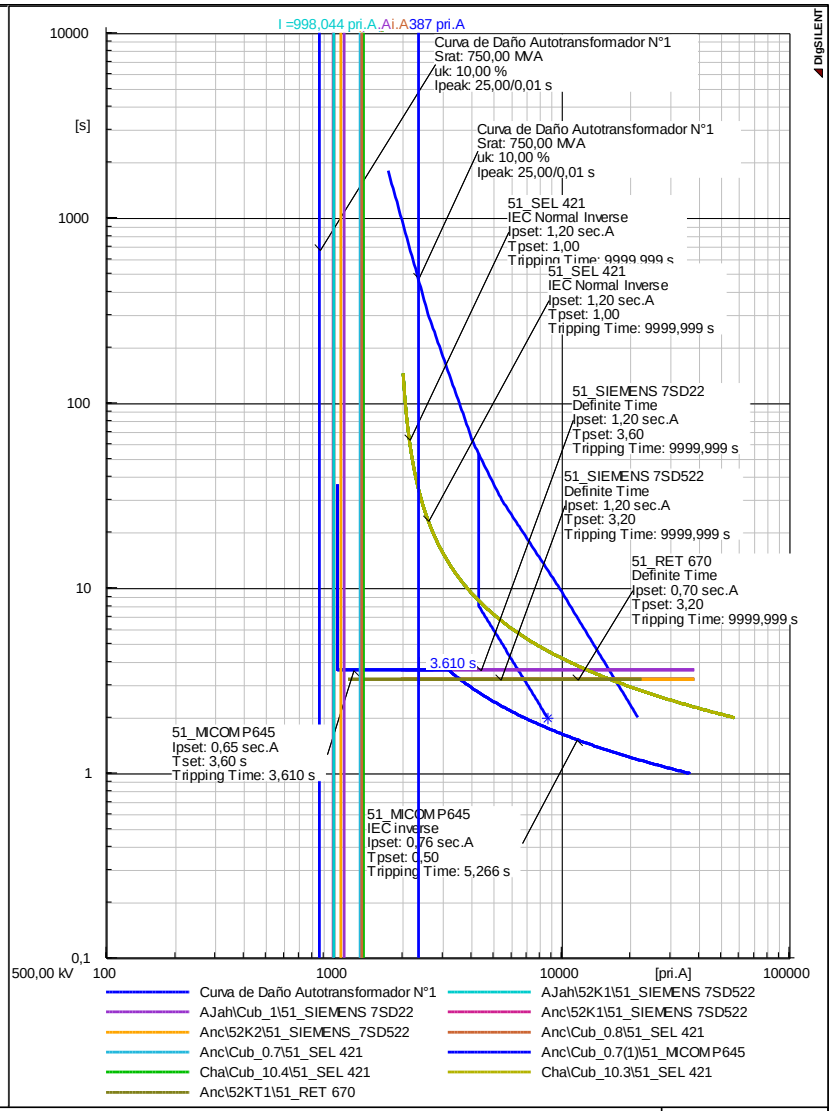

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-0	Annex:

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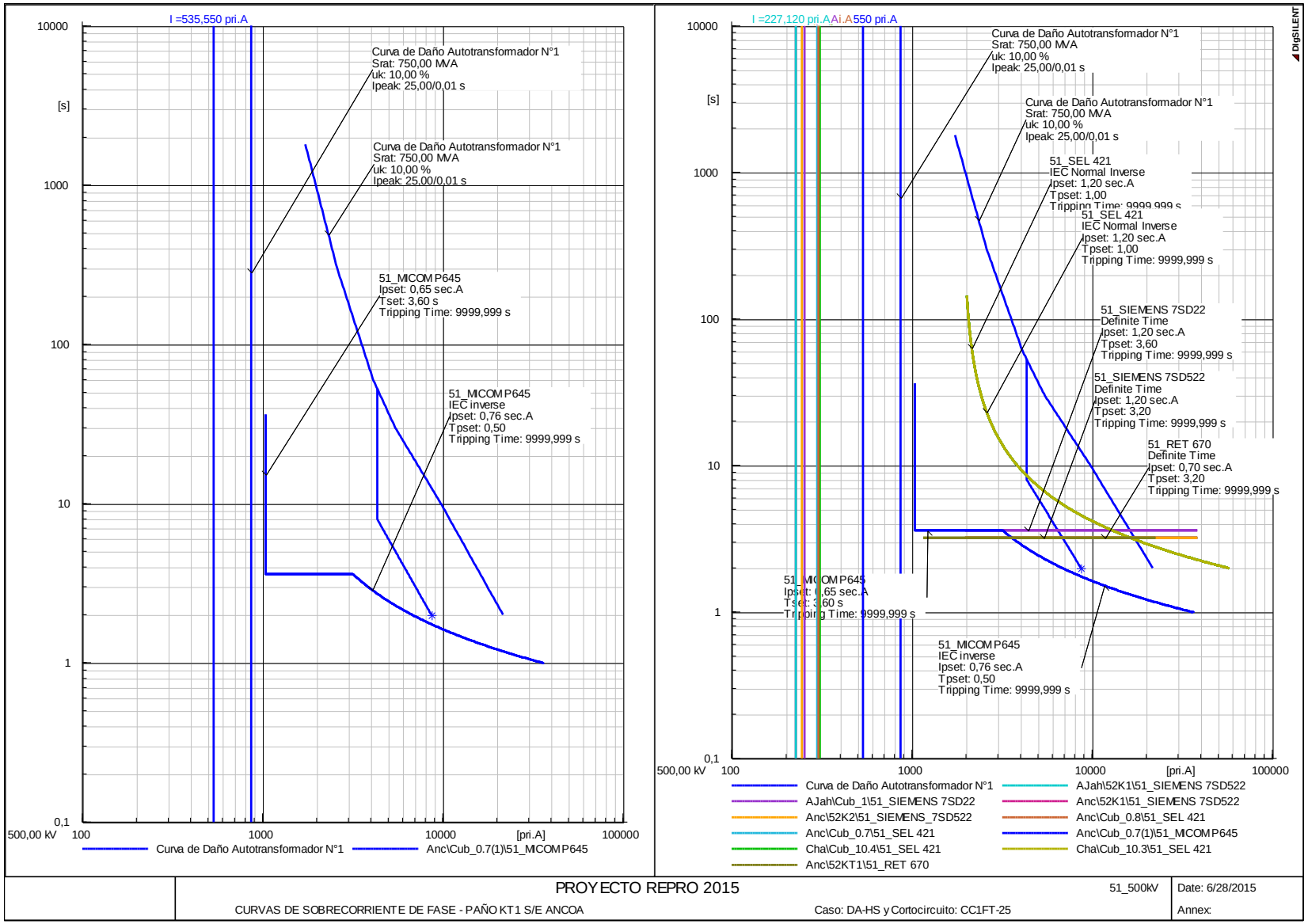

PROYECTO REPRO 2015

CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA

51_500kV

Caso: DA-HS y Cortocircuito: CC1FT-25

Date: 6/28/2015

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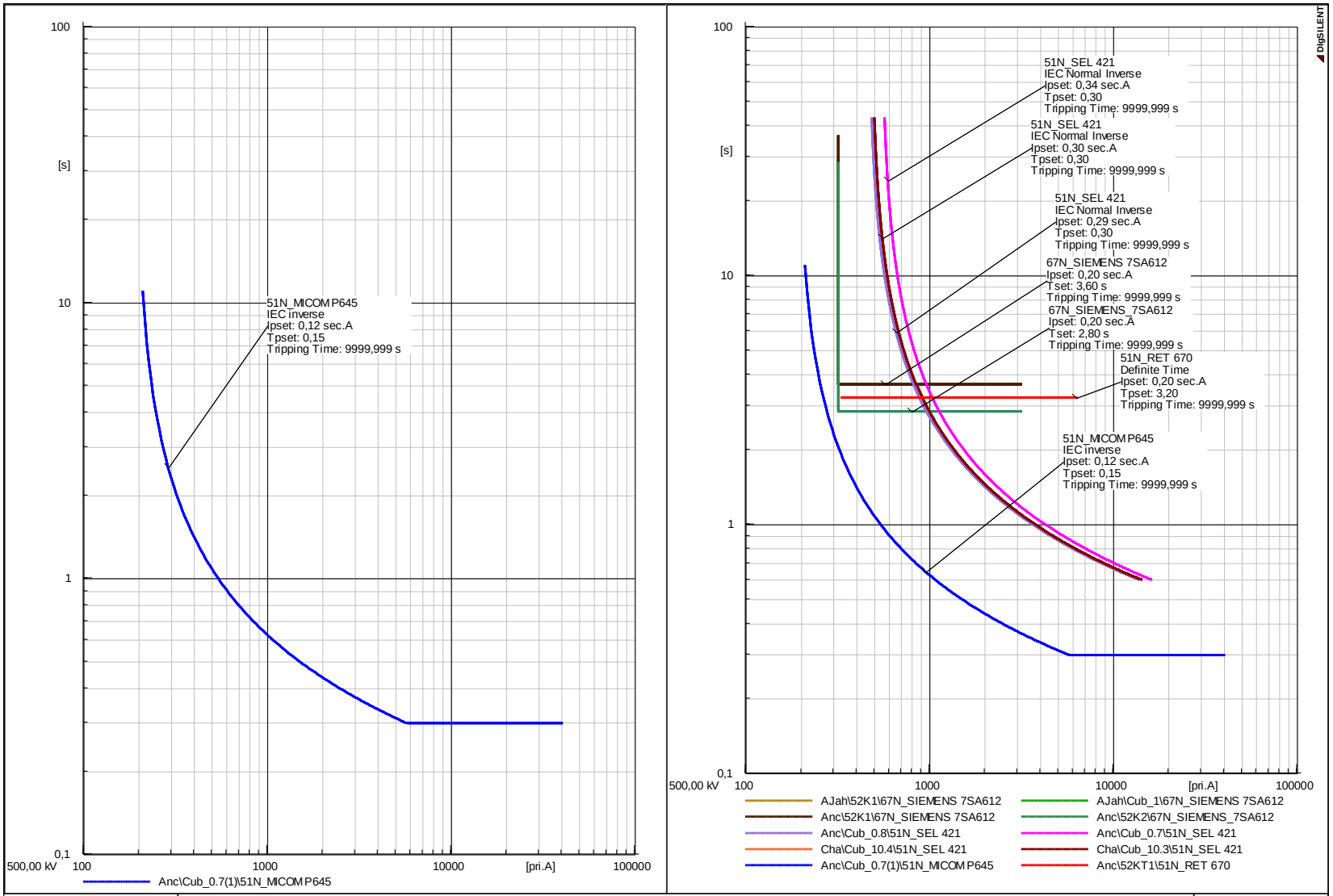
FUNCIÓN 51N LADO DE 500 KV



	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC3F	Annex:

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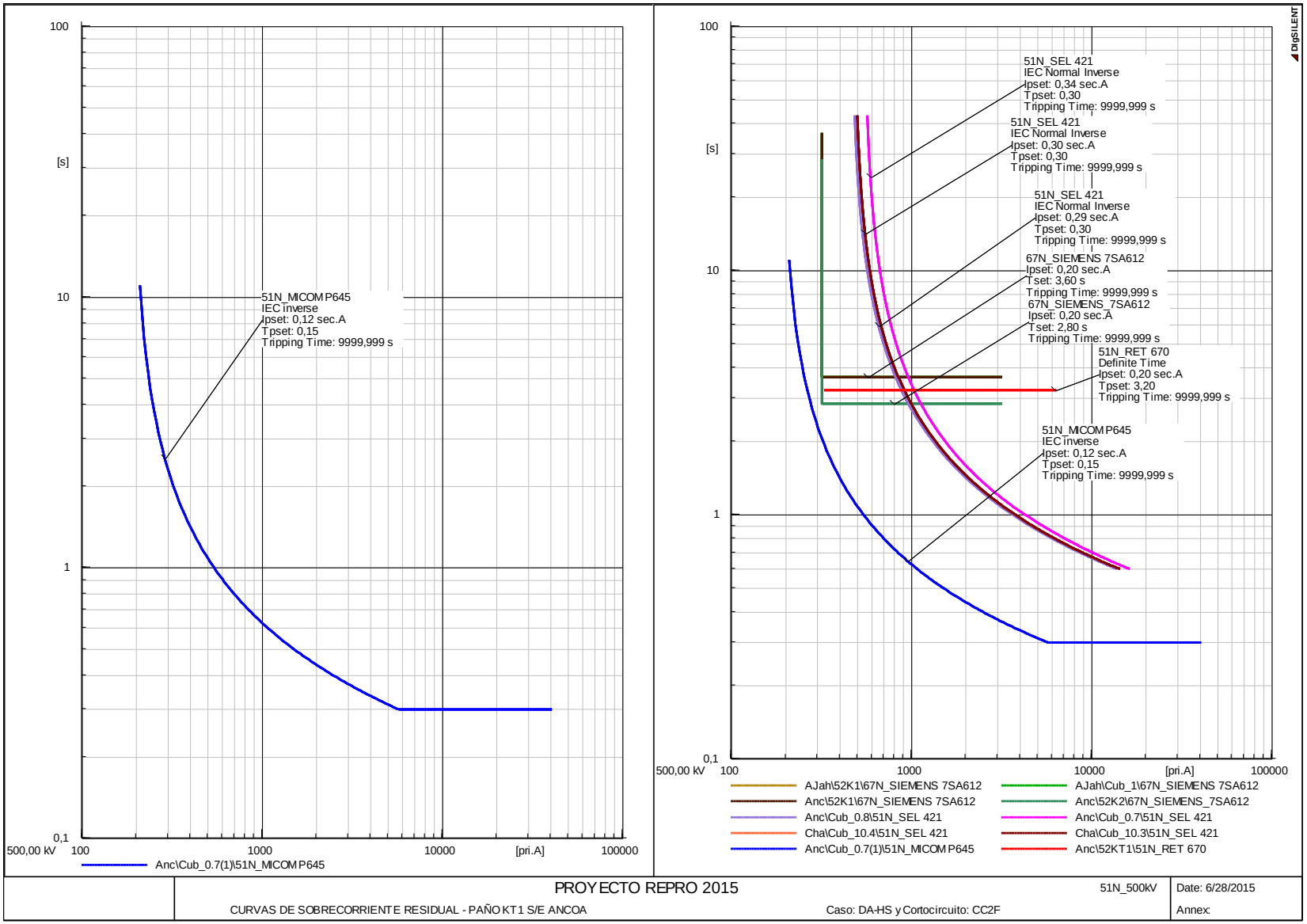

PROYECTO REPRO 2015 | 51N_500kV | Date: 6/28/2015

CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA | Caso: DA-HS y Cortocircuito: CC2F | Annex:

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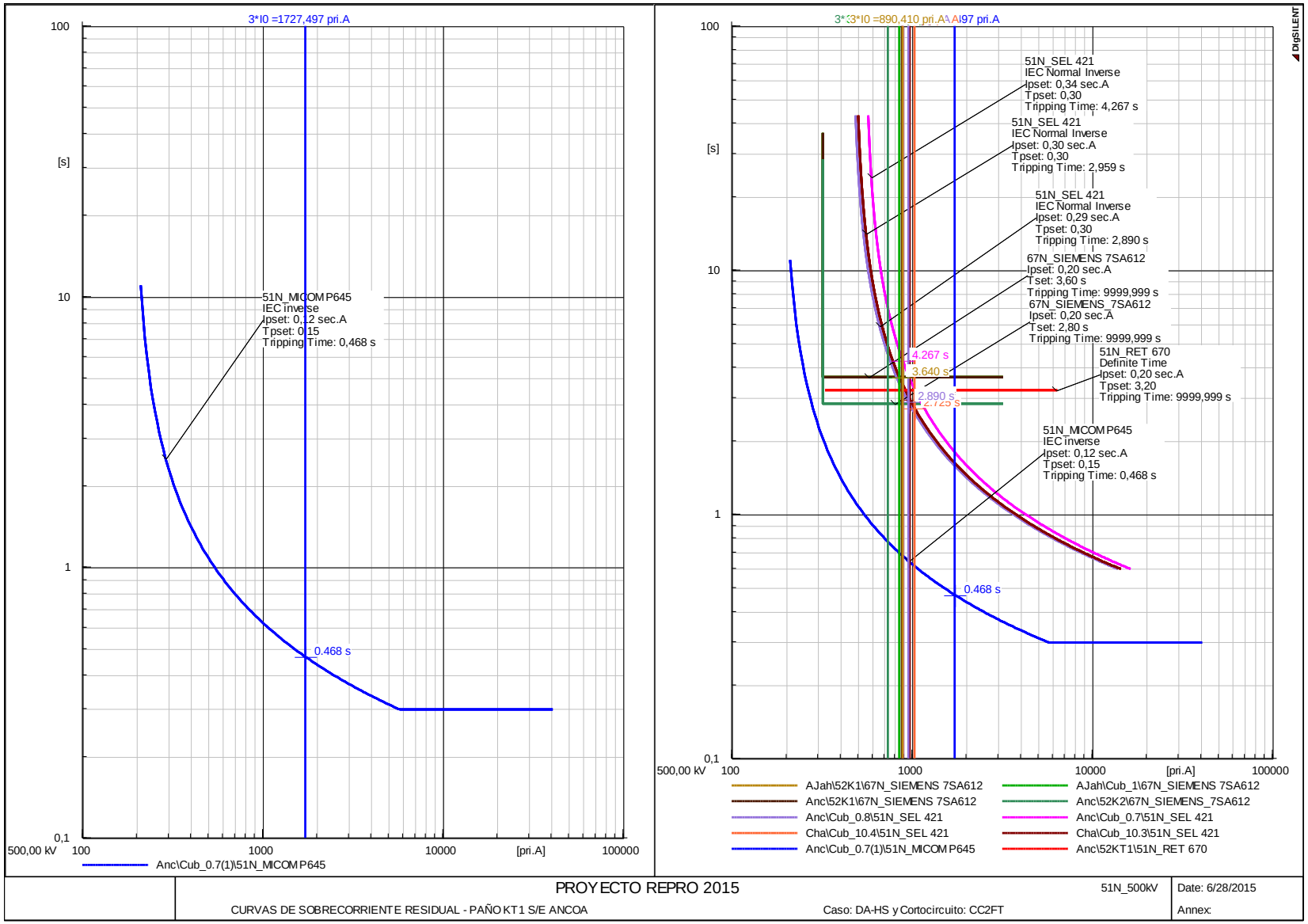

	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2FT	Annex:

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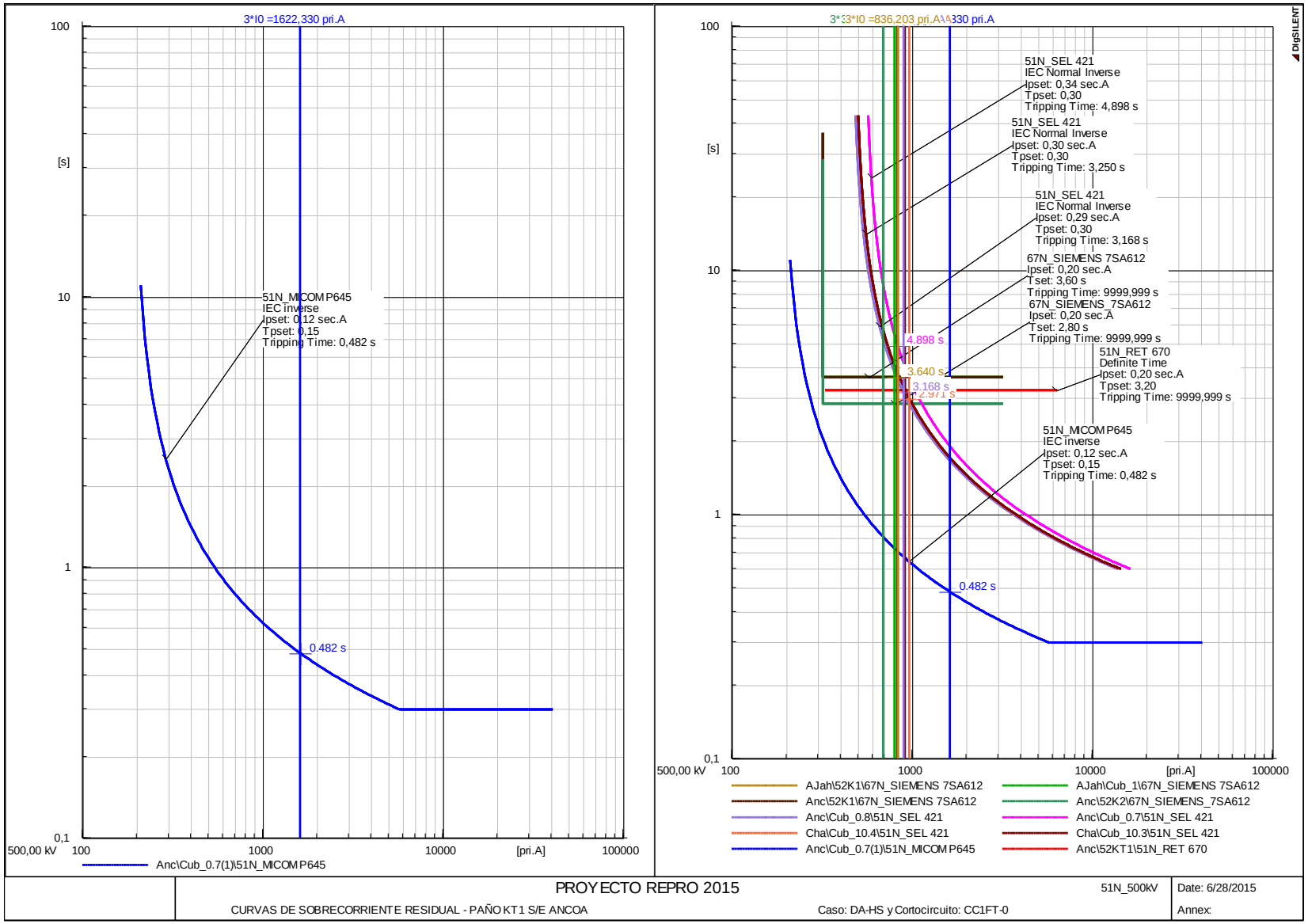

PROYECTO REPRO 2015

CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA

51N_500kV

Caso: DA-HS y Cortocircuito: CC1FT-0

Date: 6/28/2015

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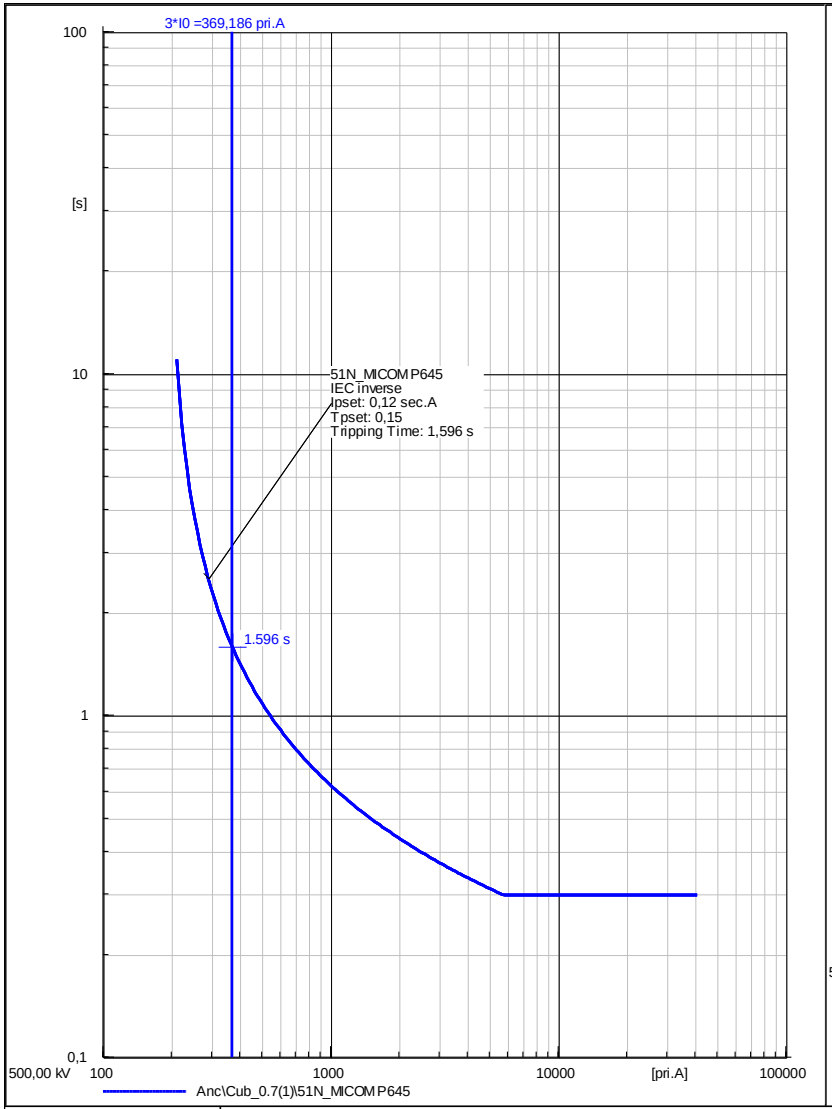

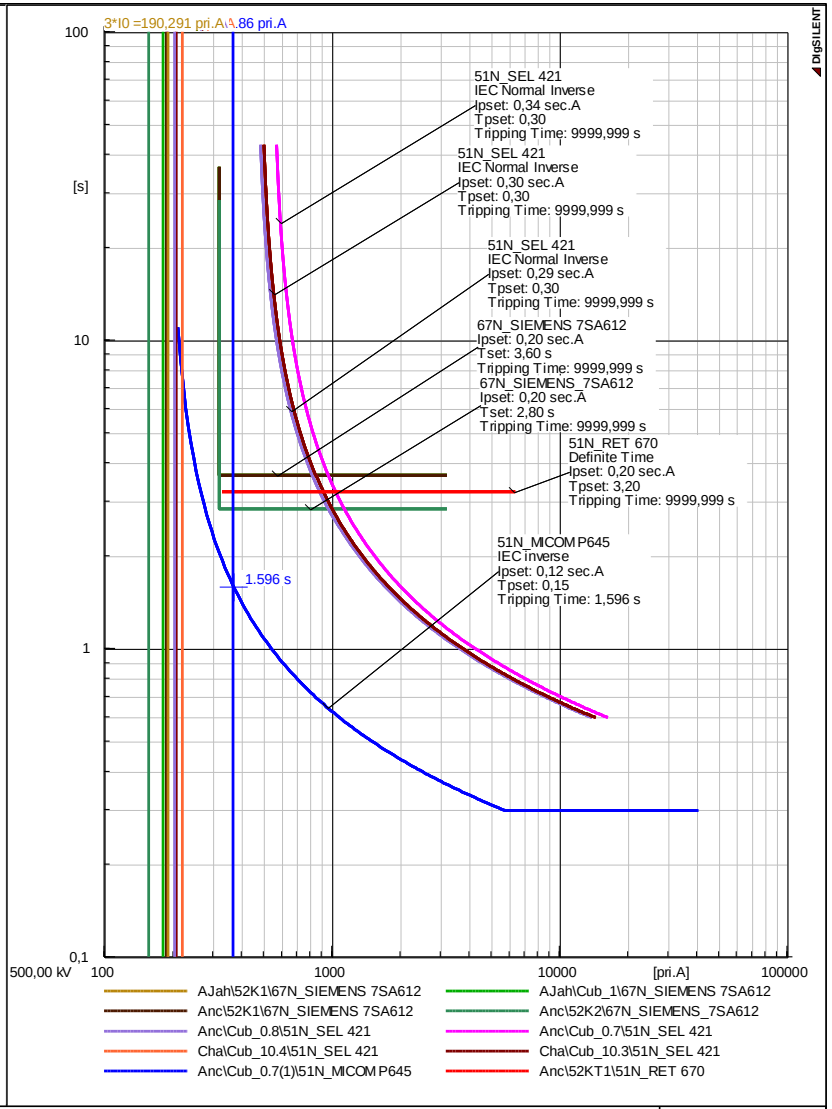

	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-25	Annex:

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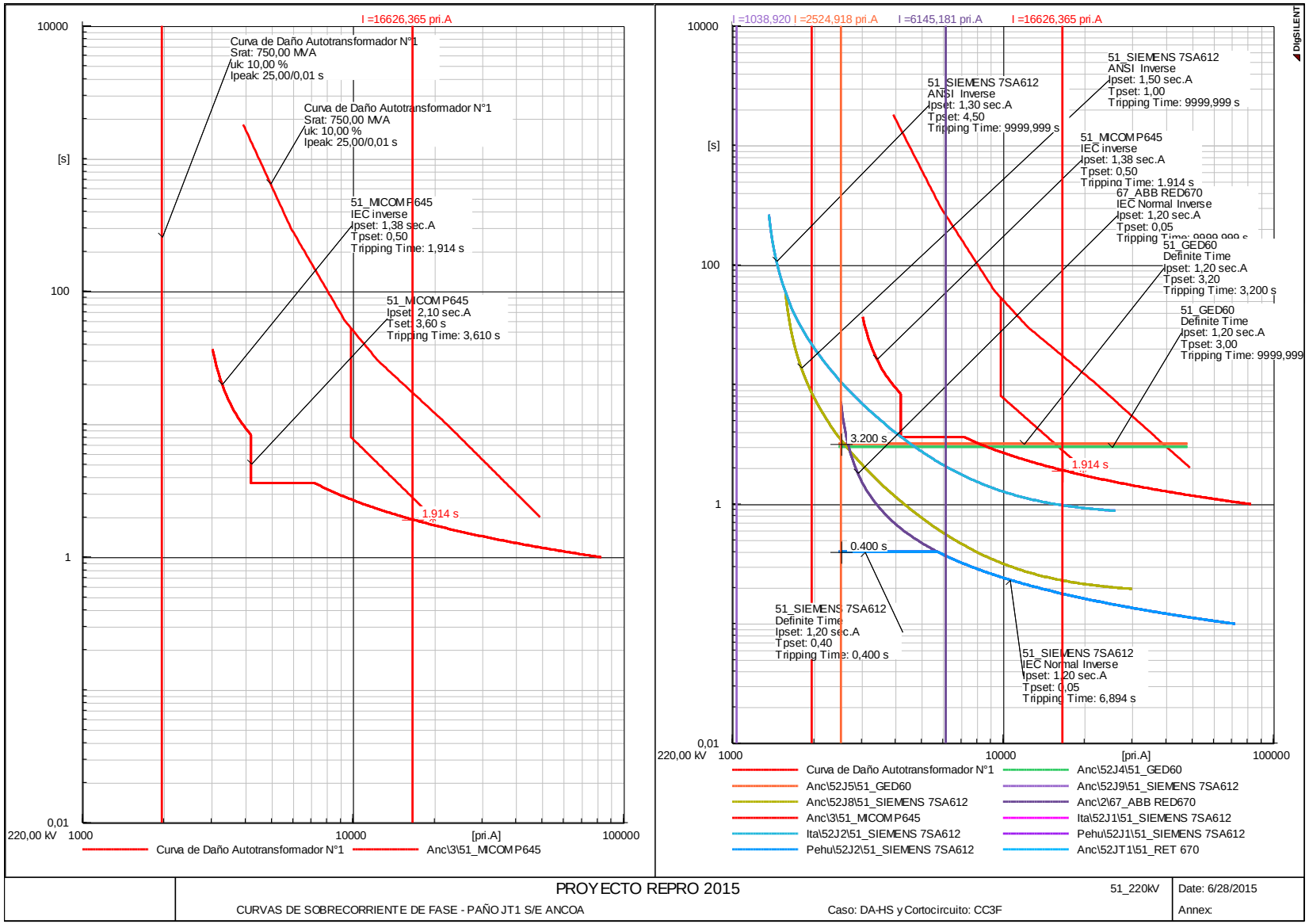
FALLA EN EL TERMINAL DE 230 KV DEL AUTOTRANSFORMADOR N°1

FUNCIÓN 51 LADO DE 220 KV



	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC3F	Annex:

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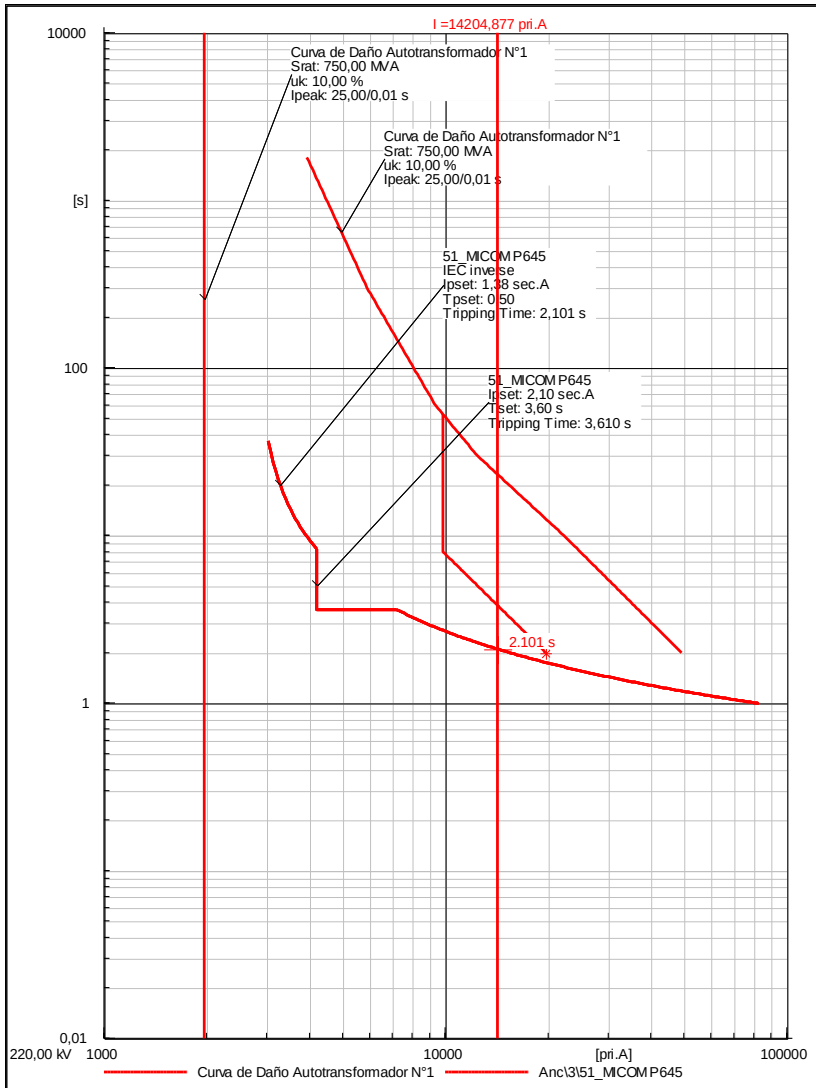

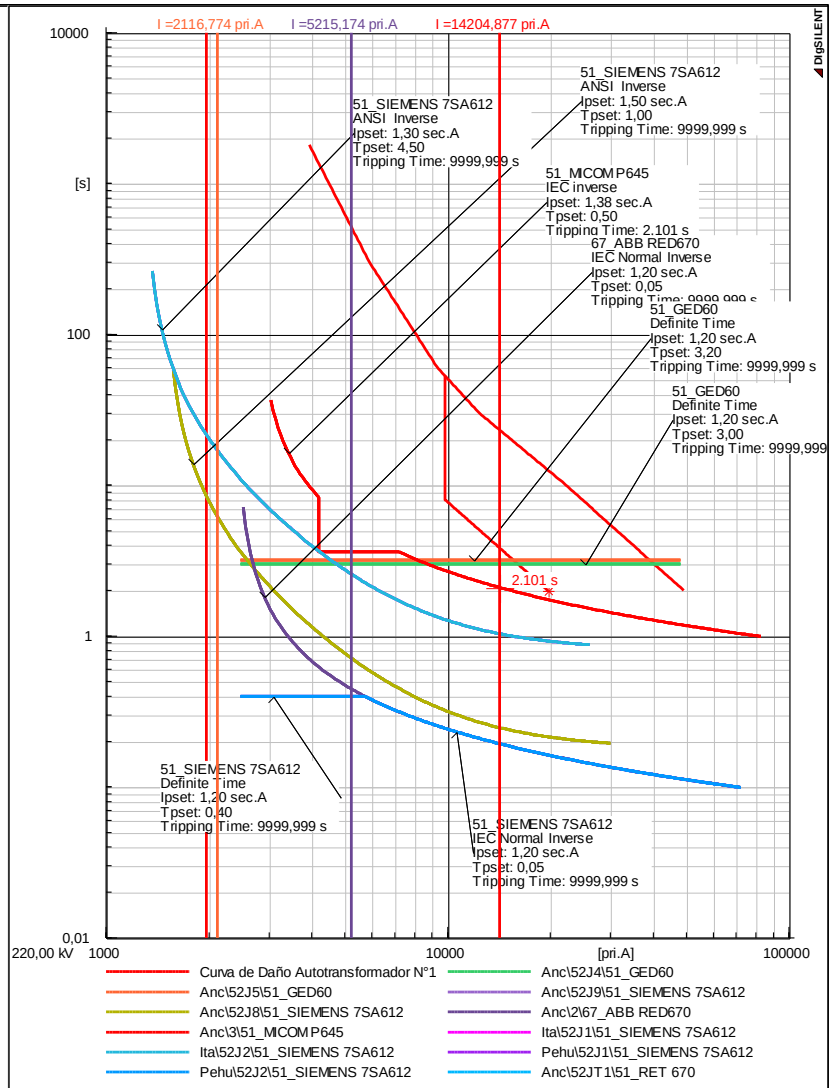

	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2F	Annex:

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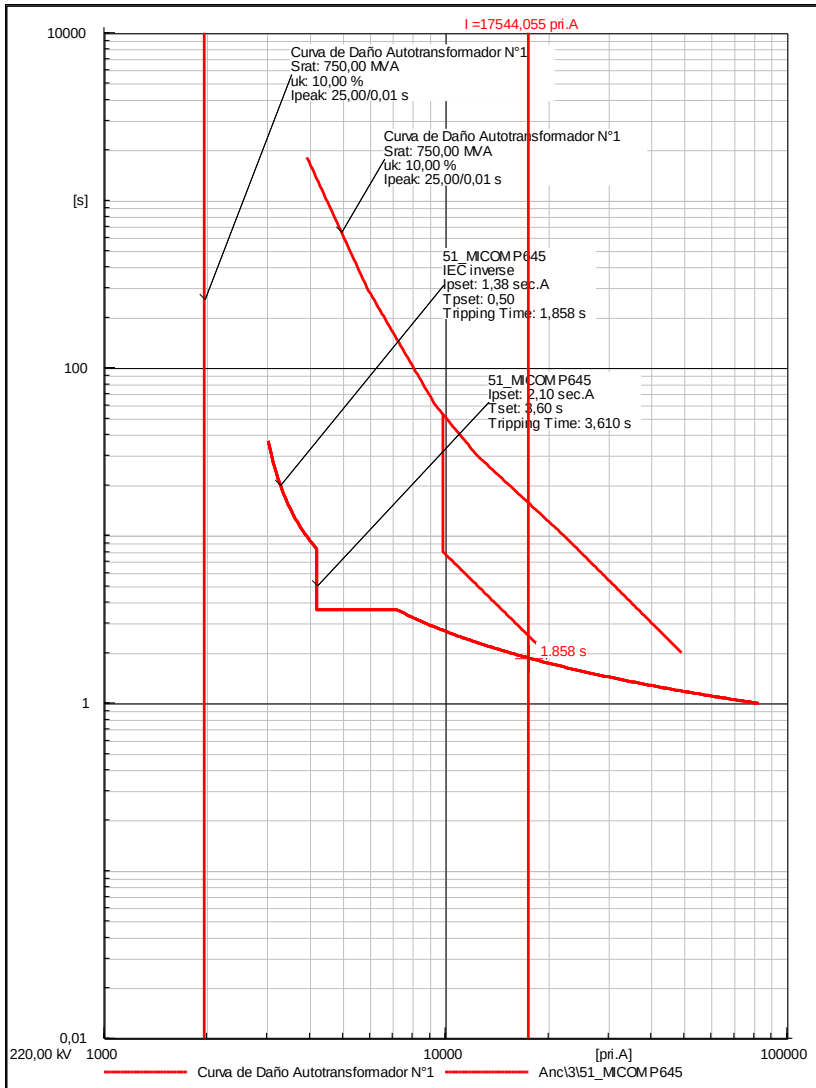

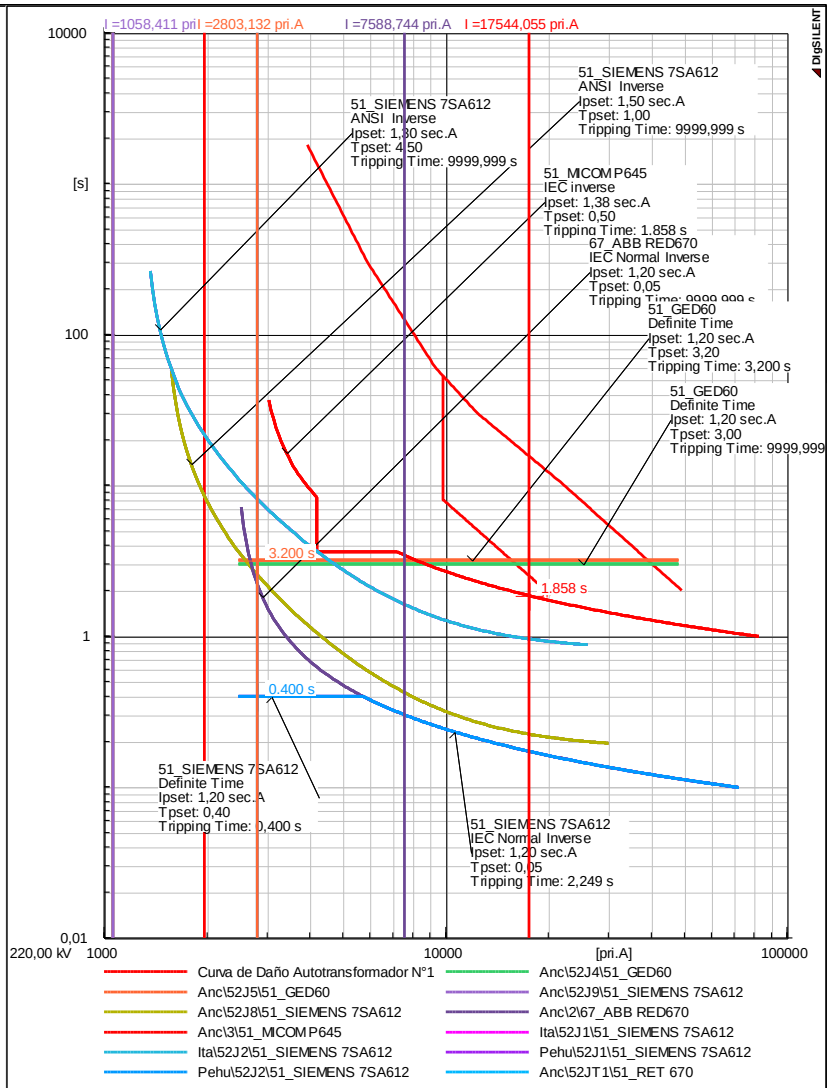

	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2FT	Annex:

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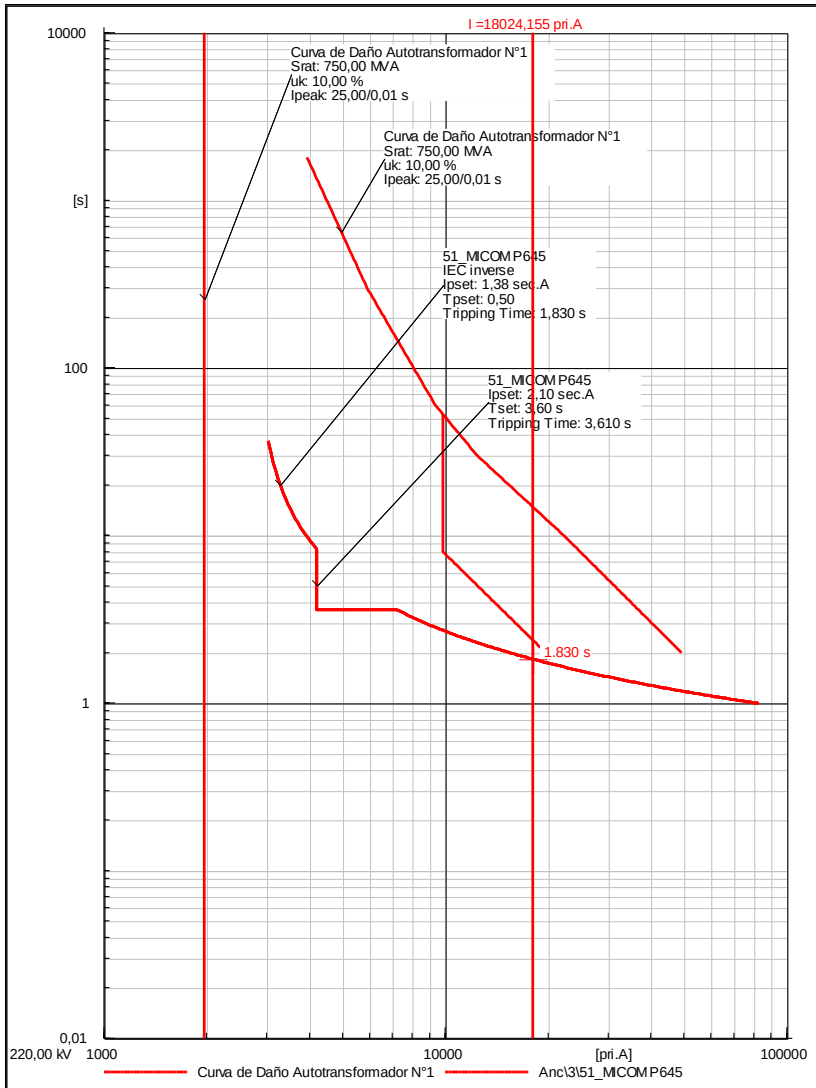

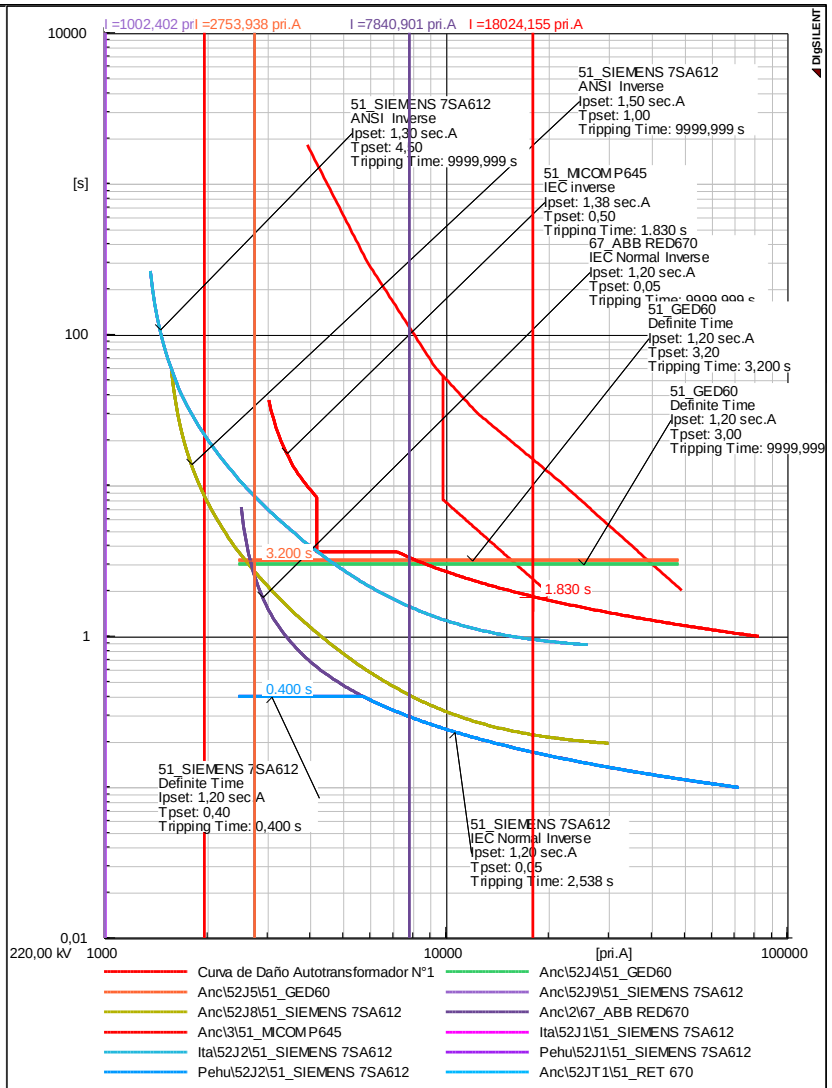

	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-0	Annex:

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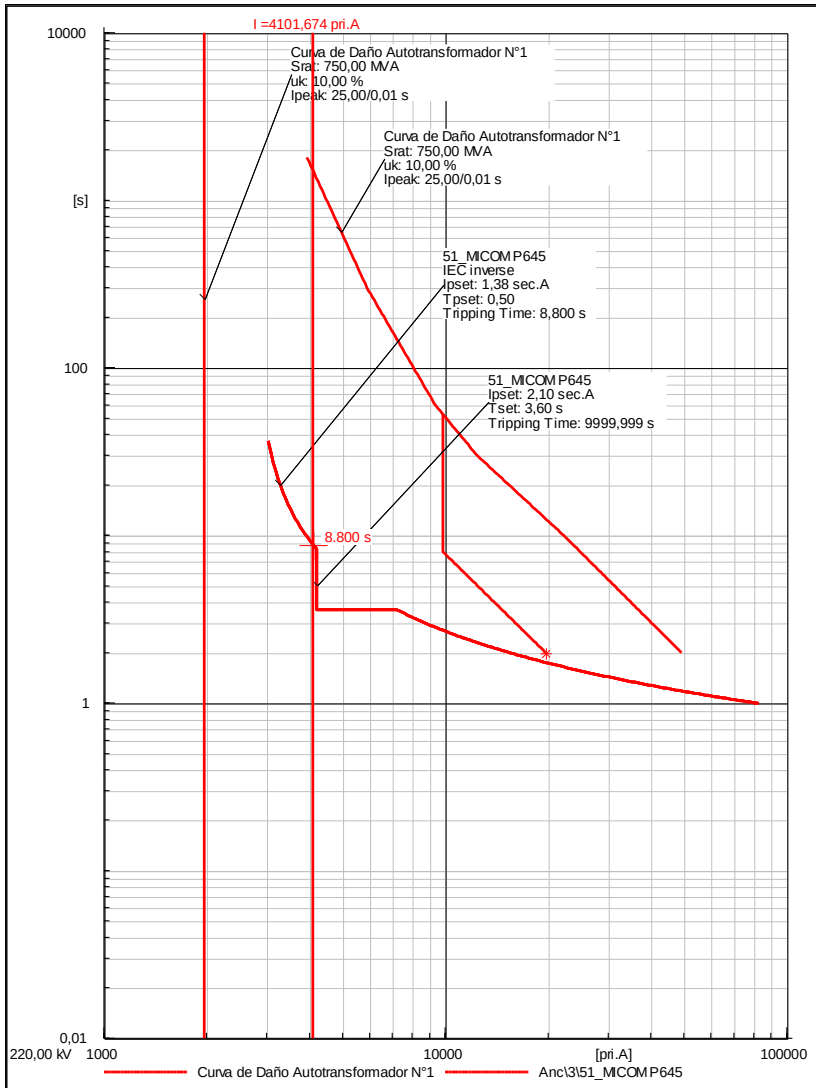

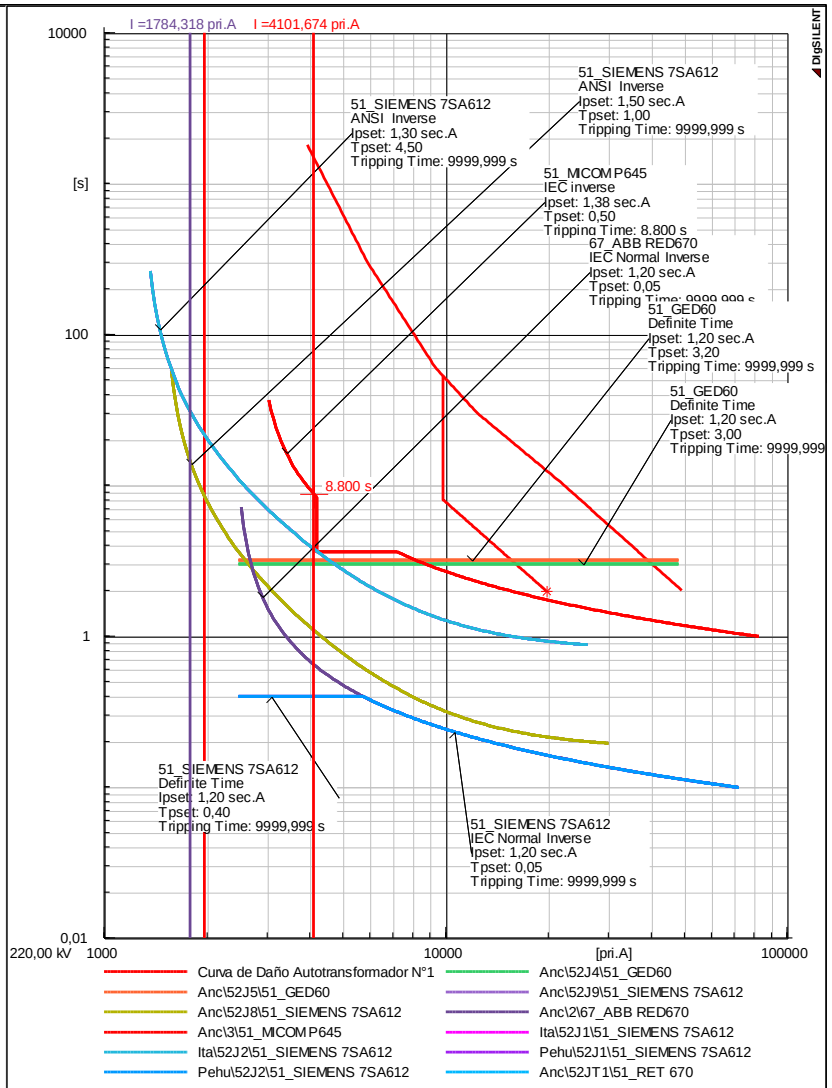

	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-25	Annex:

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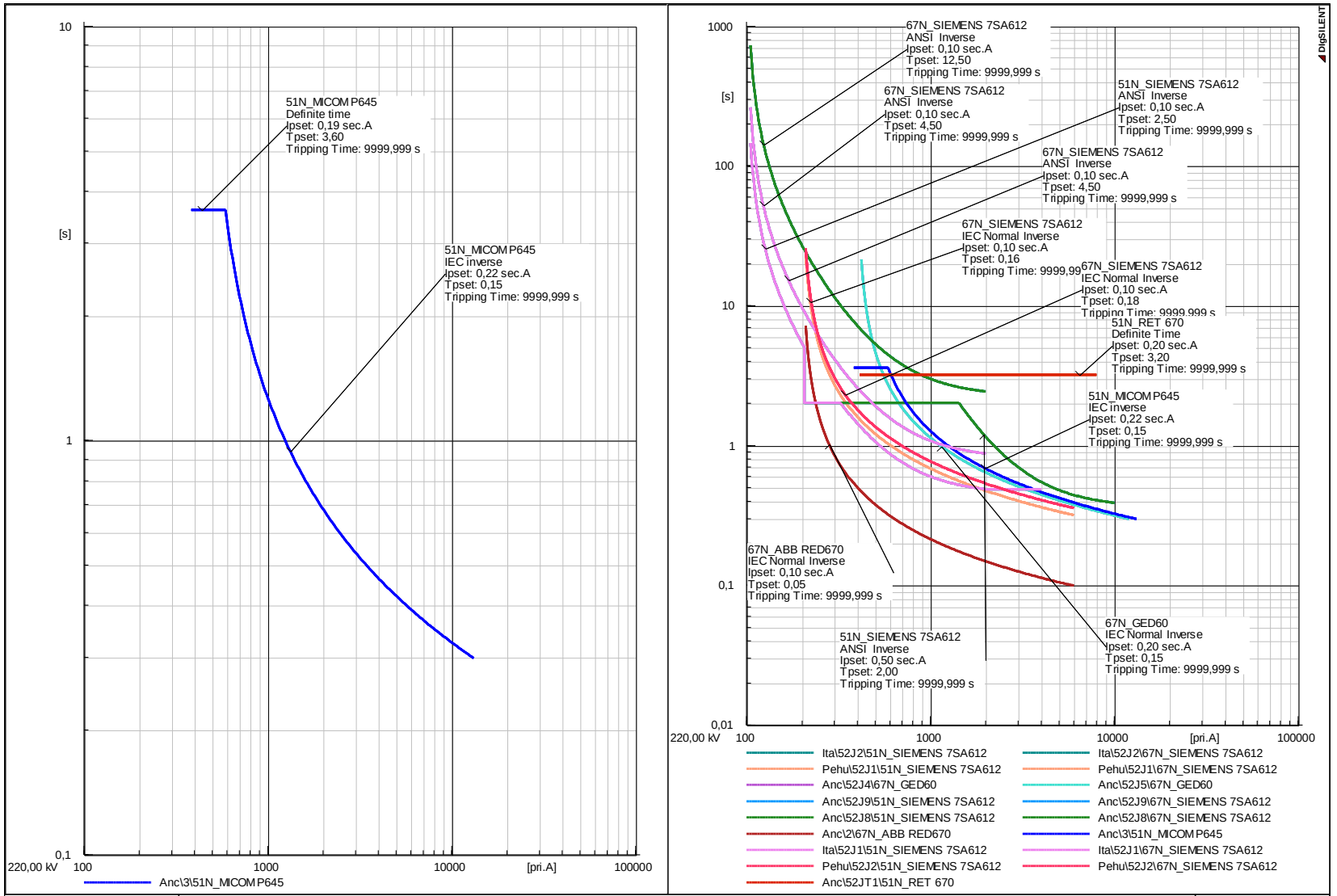
FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC3F	Annex:

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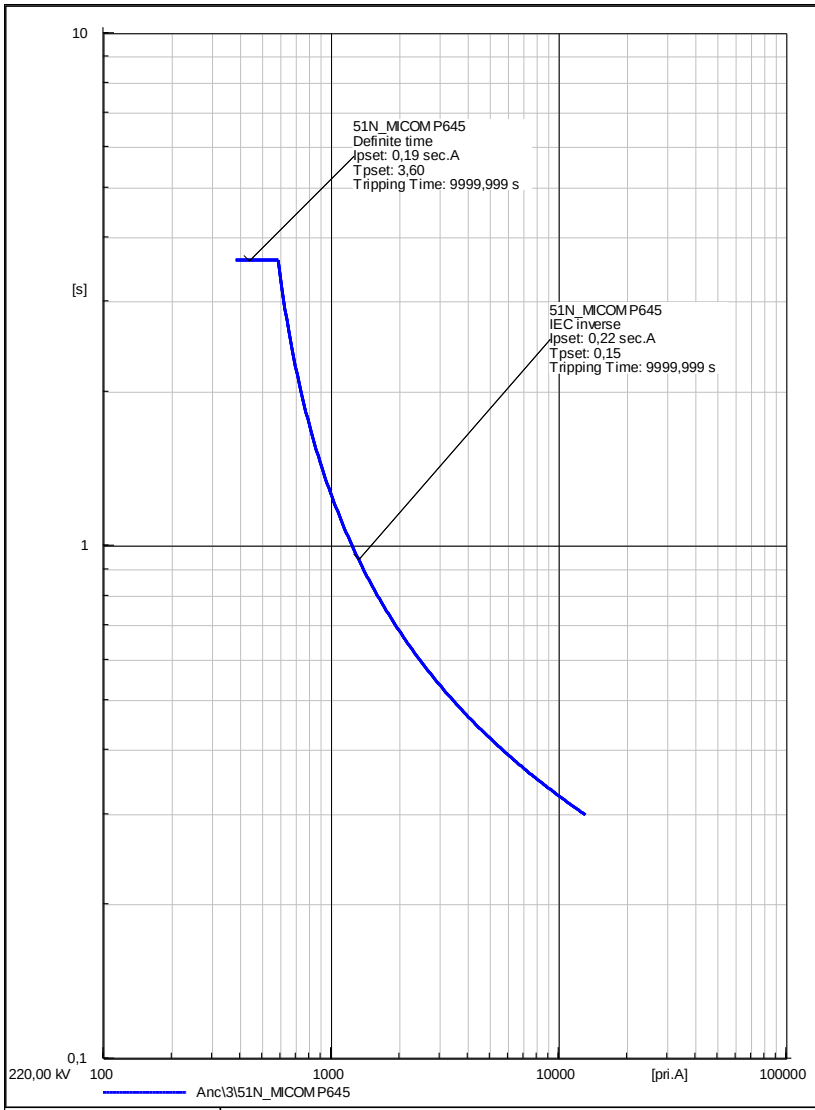

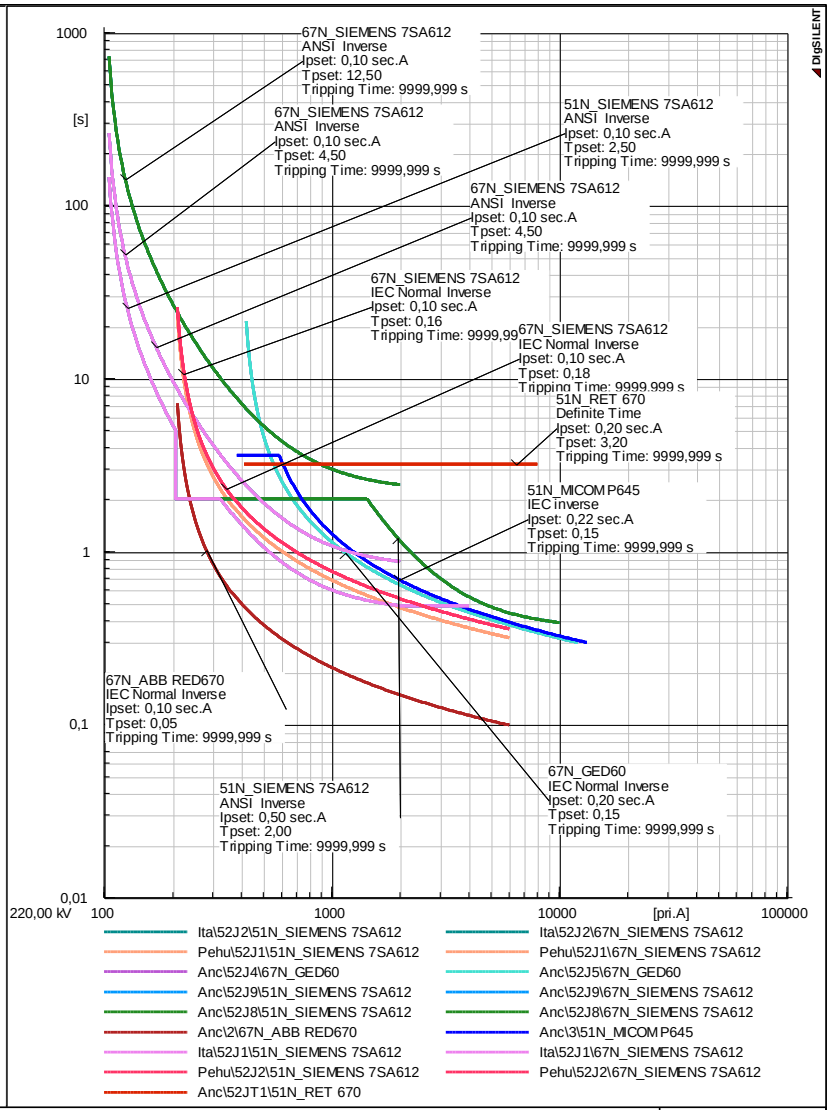

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2F	Annex:

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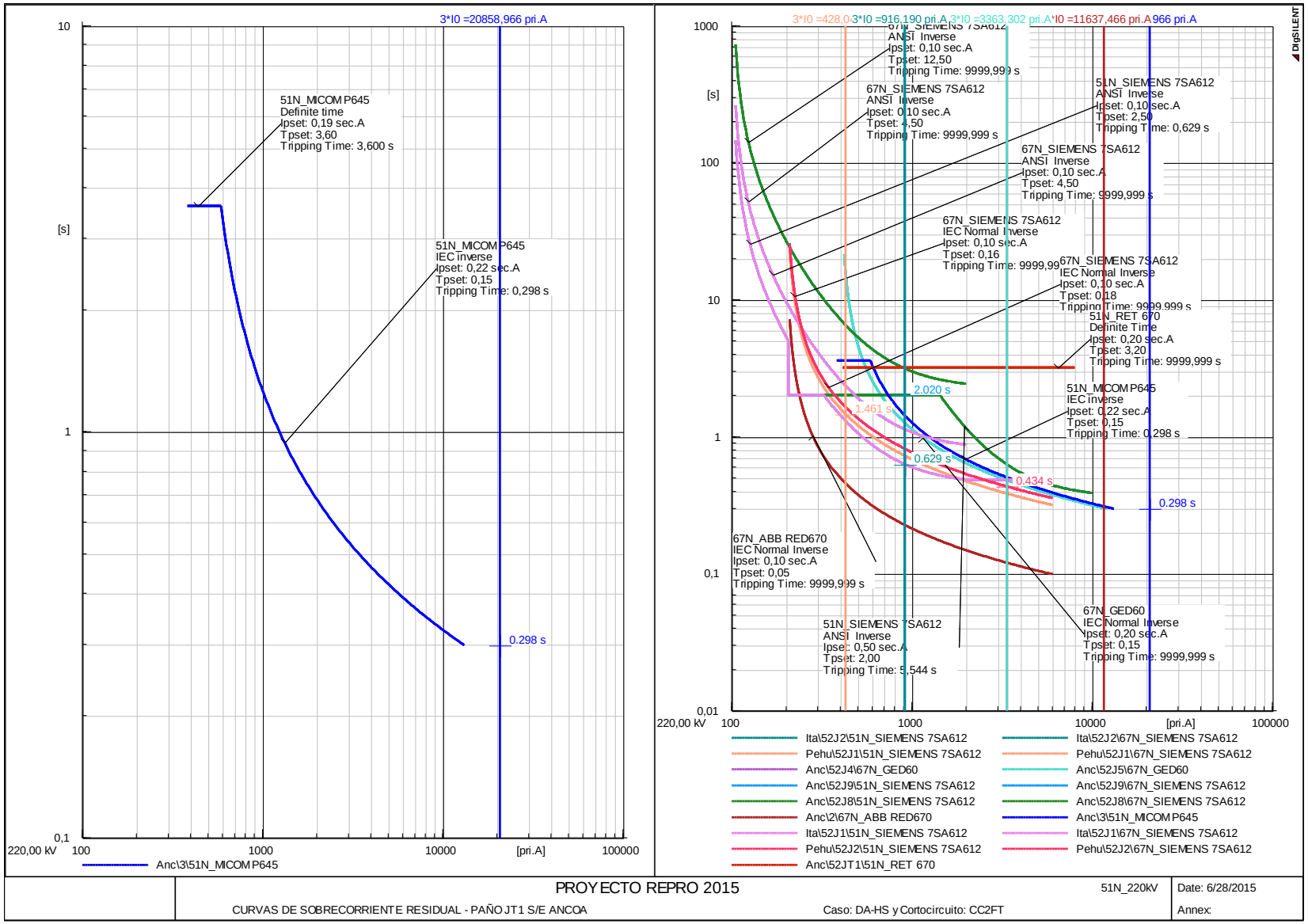

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2FT	Annex:

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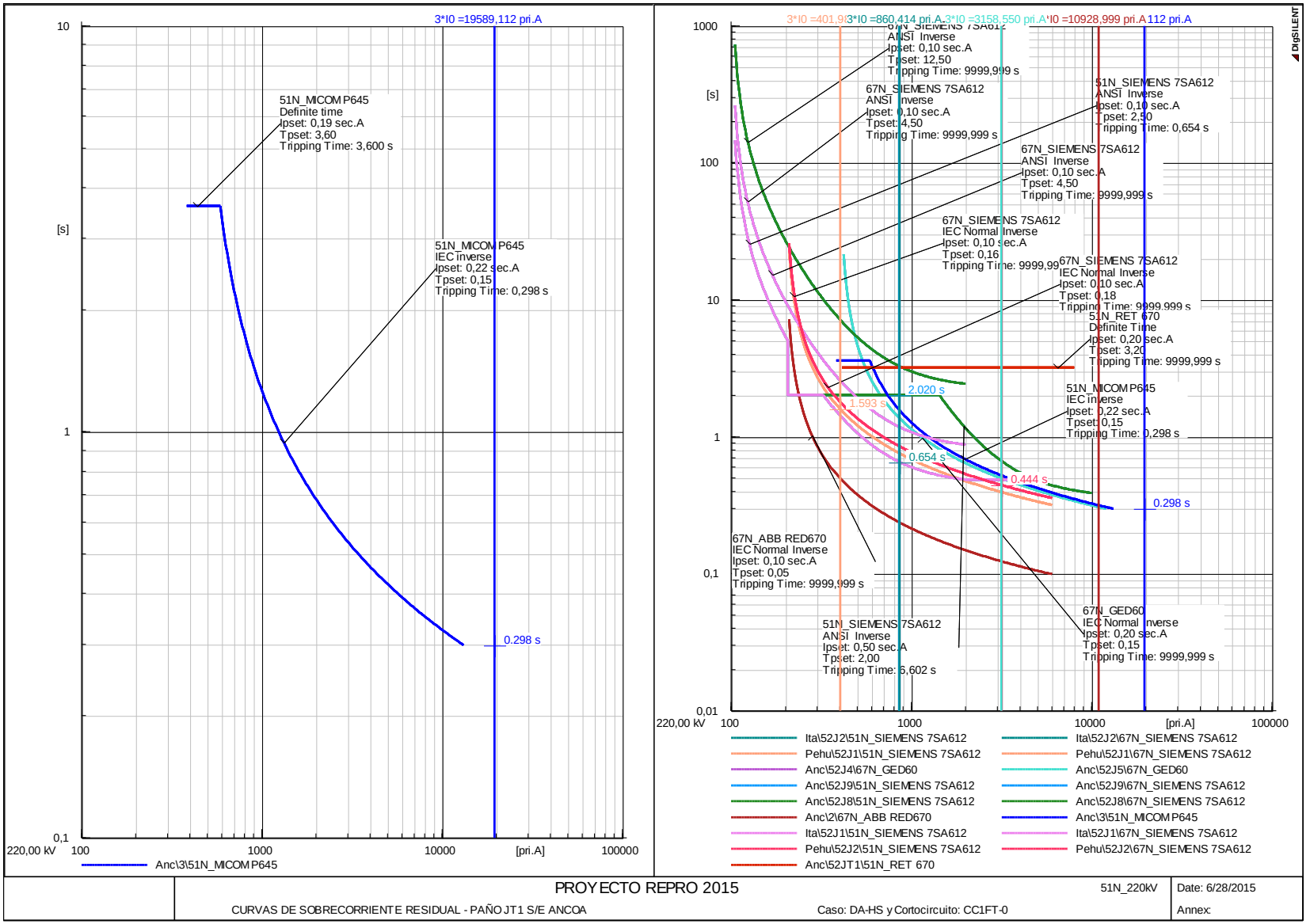

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-0	Annex:

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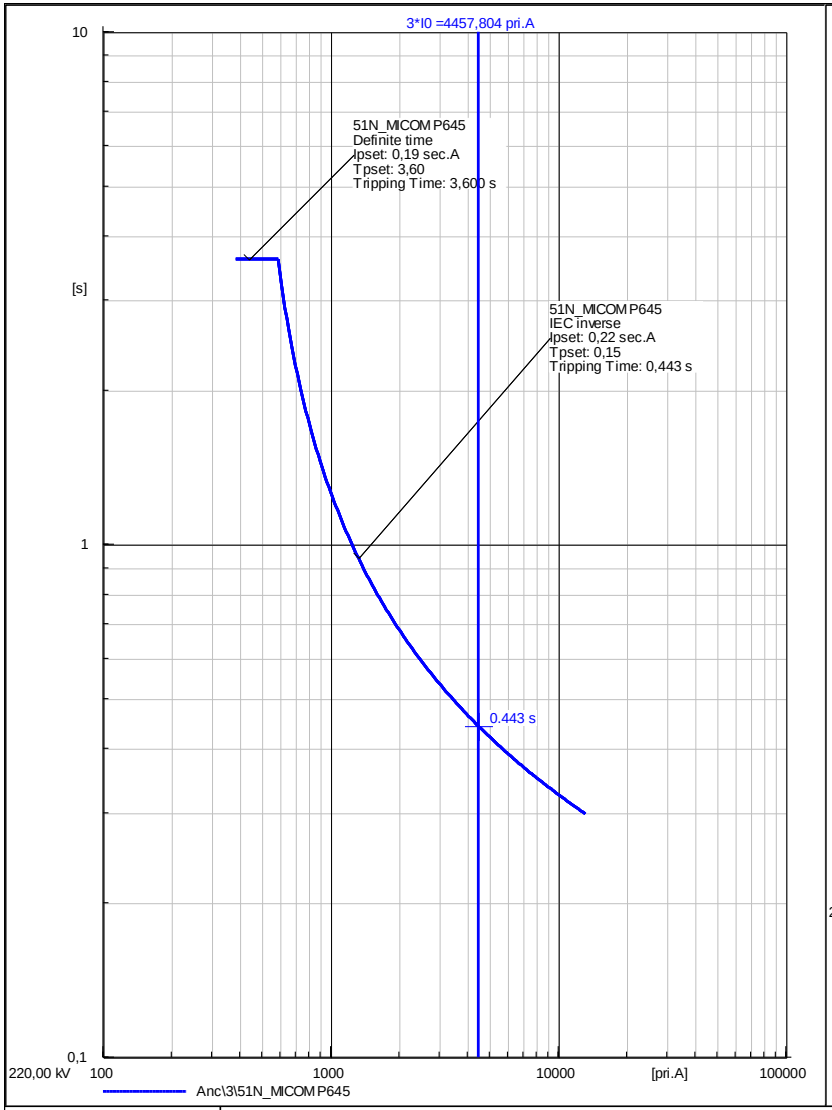

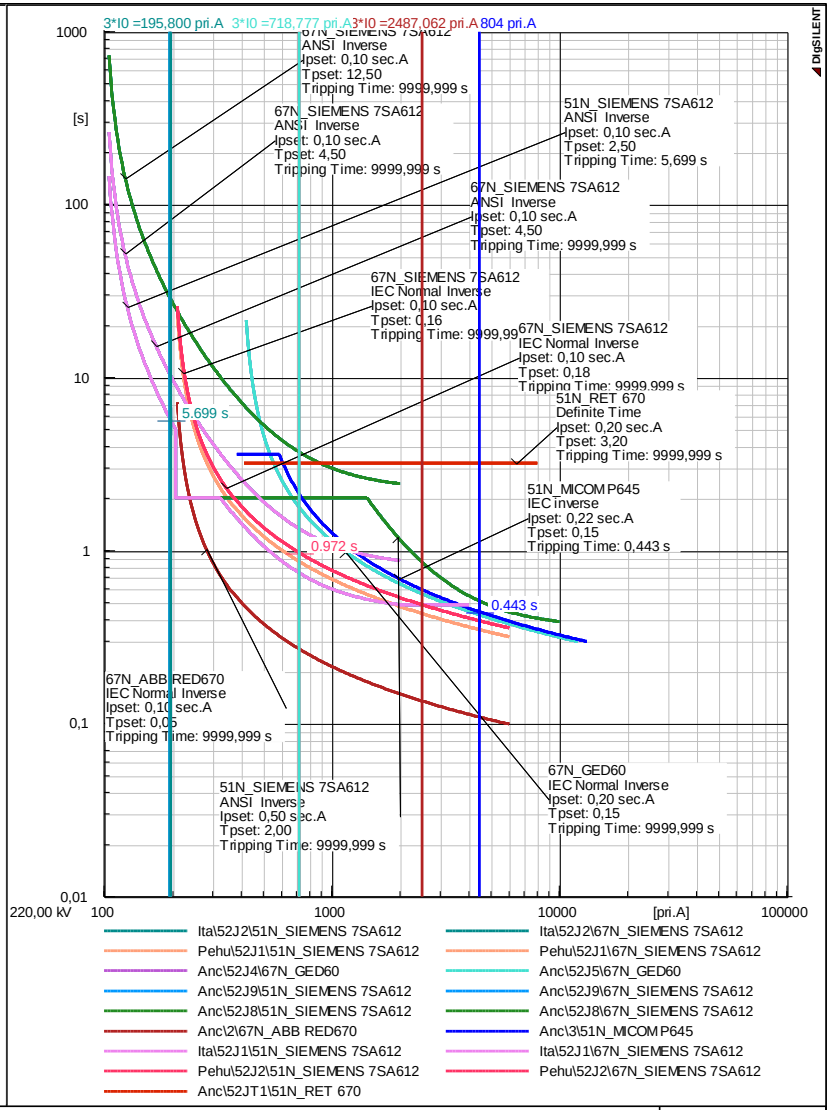

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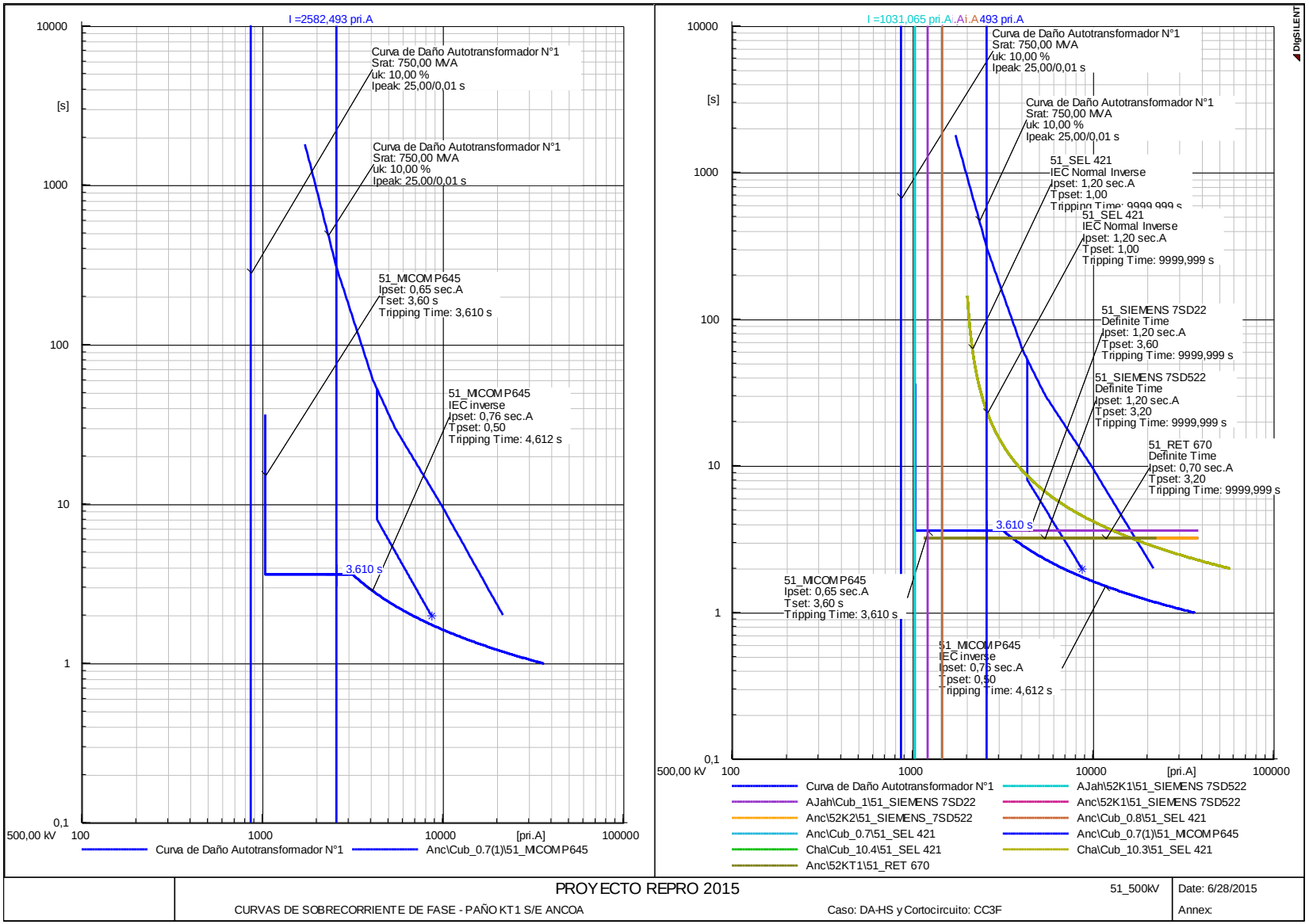
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-25	Annex:

FUNCIÓN 51 LADO DE 500 KV



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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC3F	Annex:

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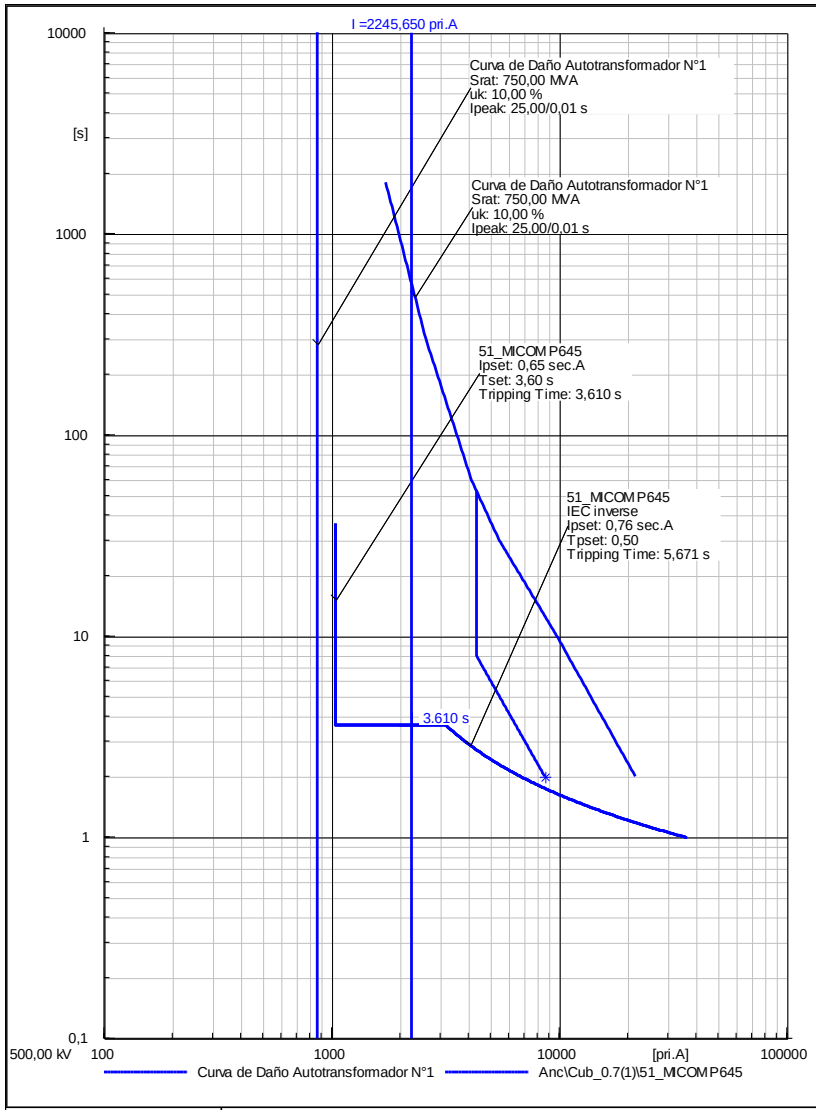

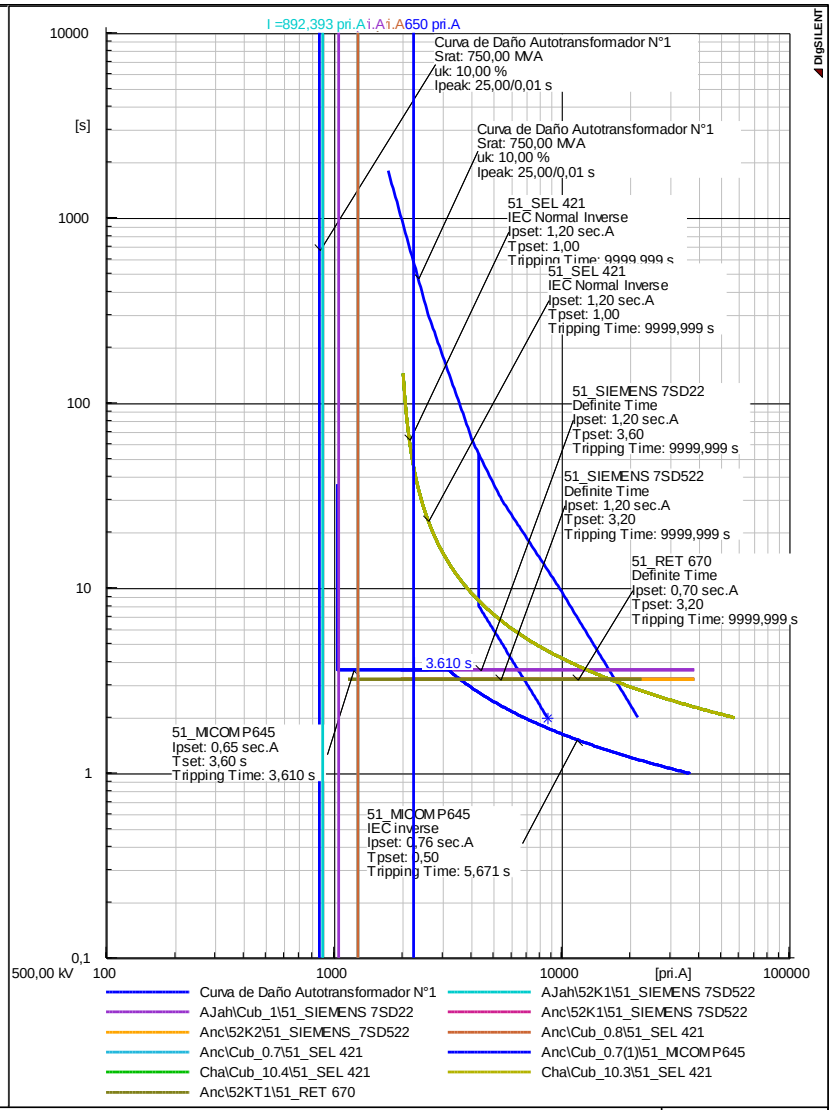

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2F	Annex:

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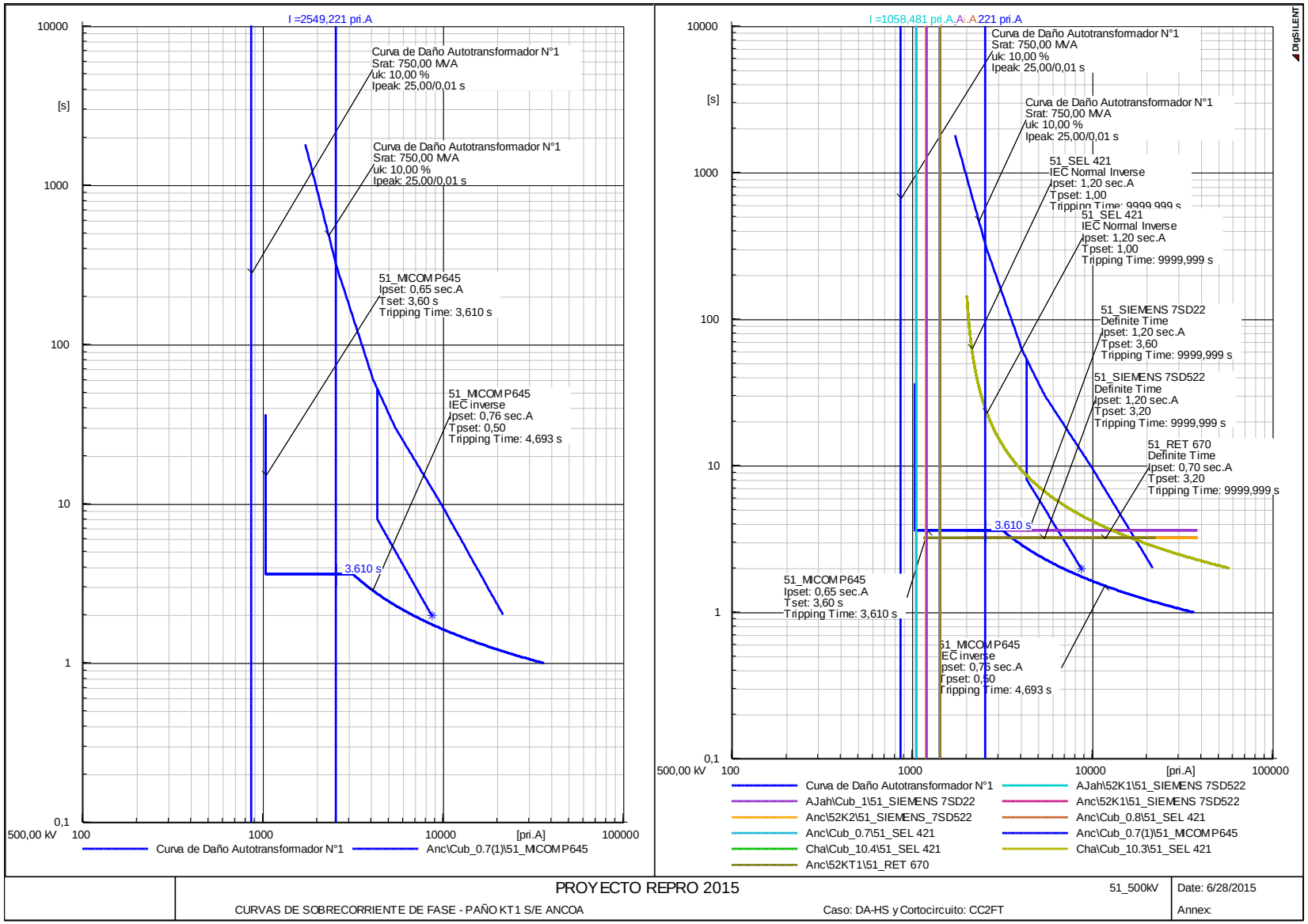

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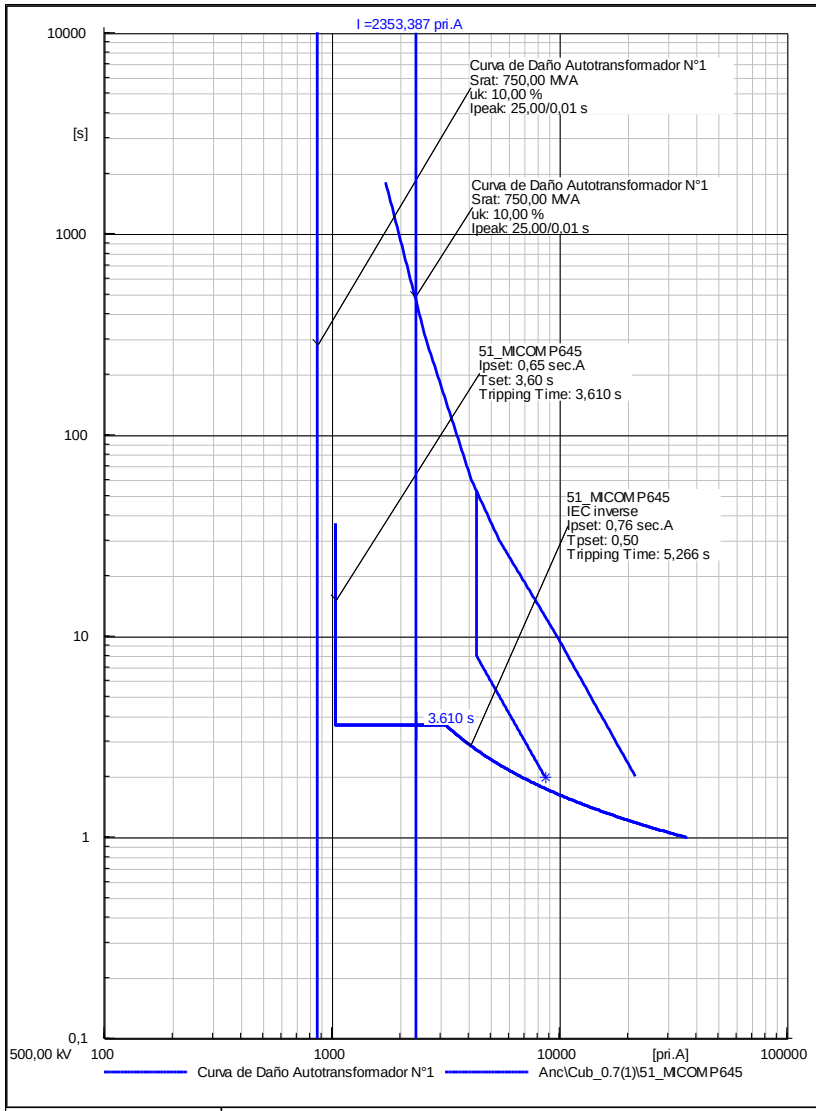

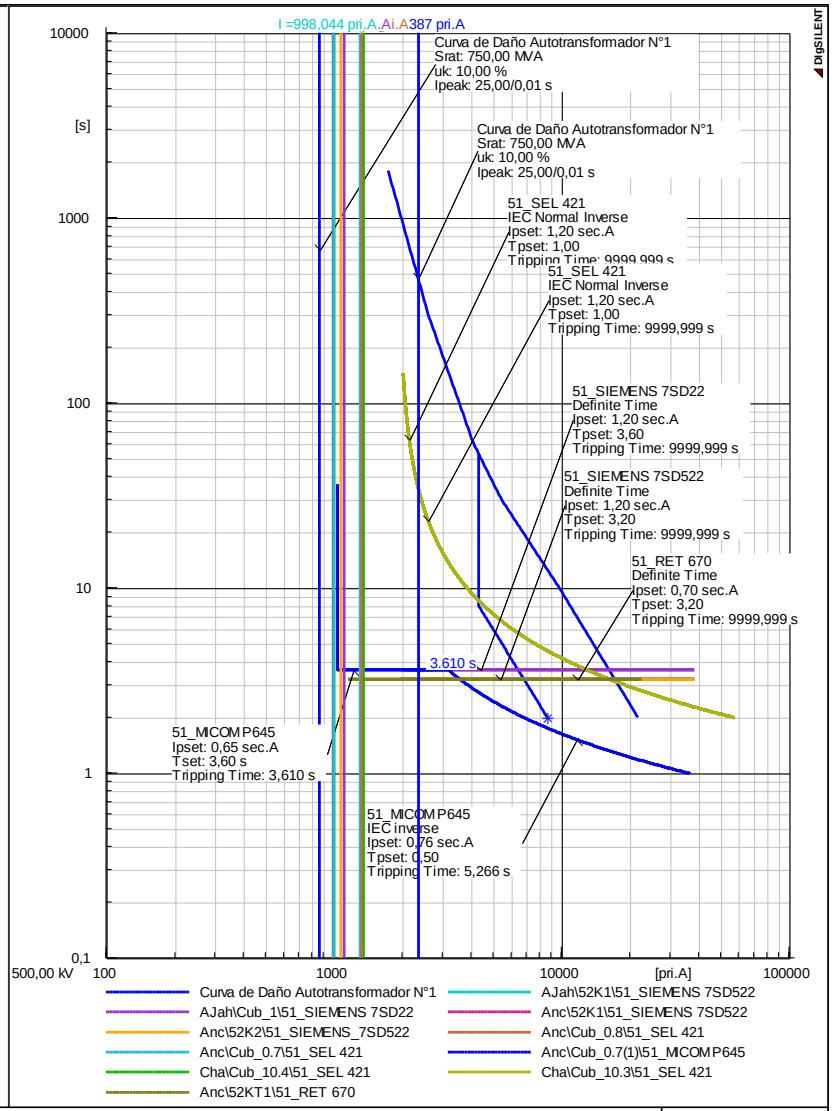

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-0	Annex:

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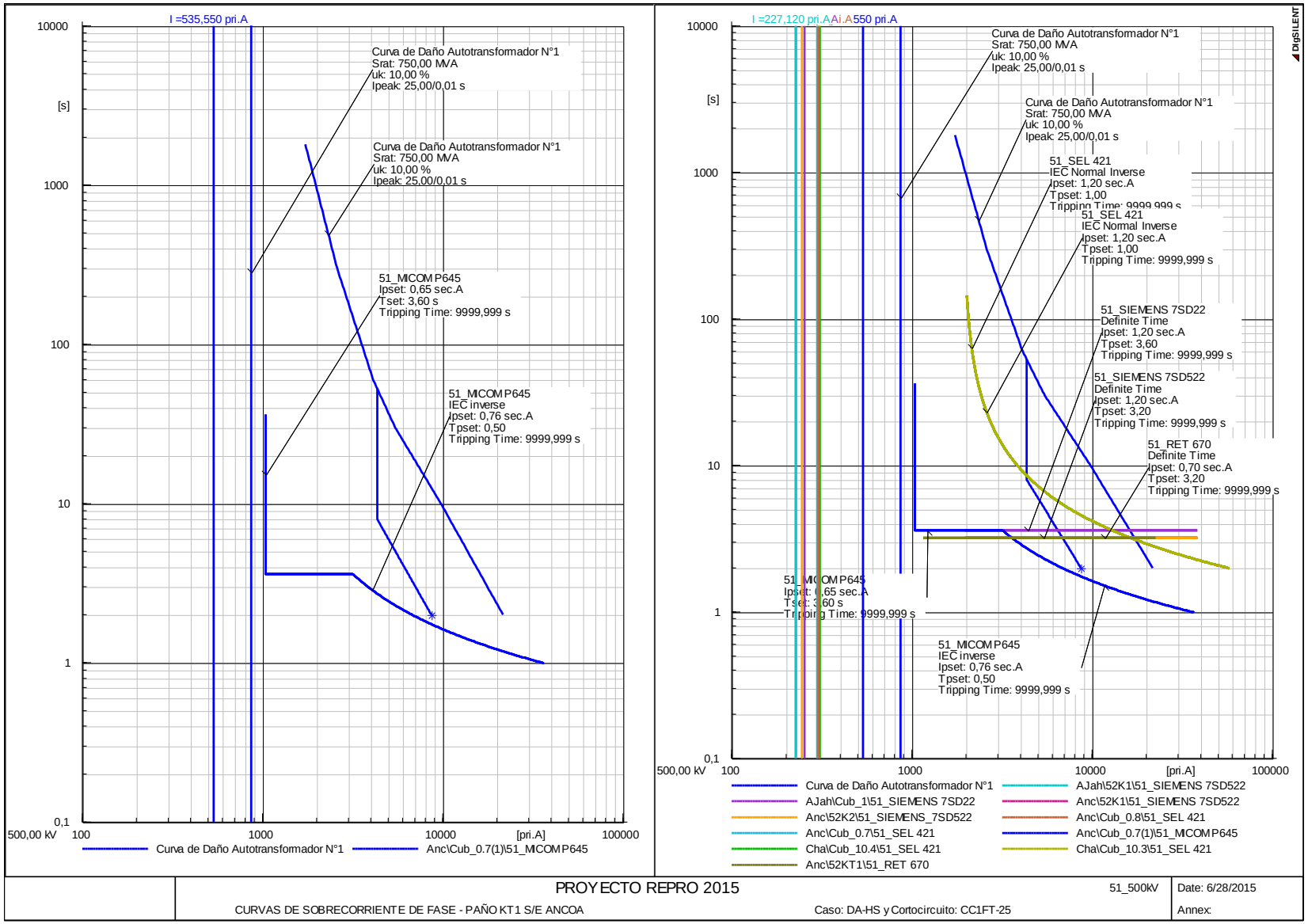

PROYECTO REPRO 2015

CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA

51_500kV

Caso: DA-HS y Cortocircuito: CC1FT-25

Date: 6/28/2015

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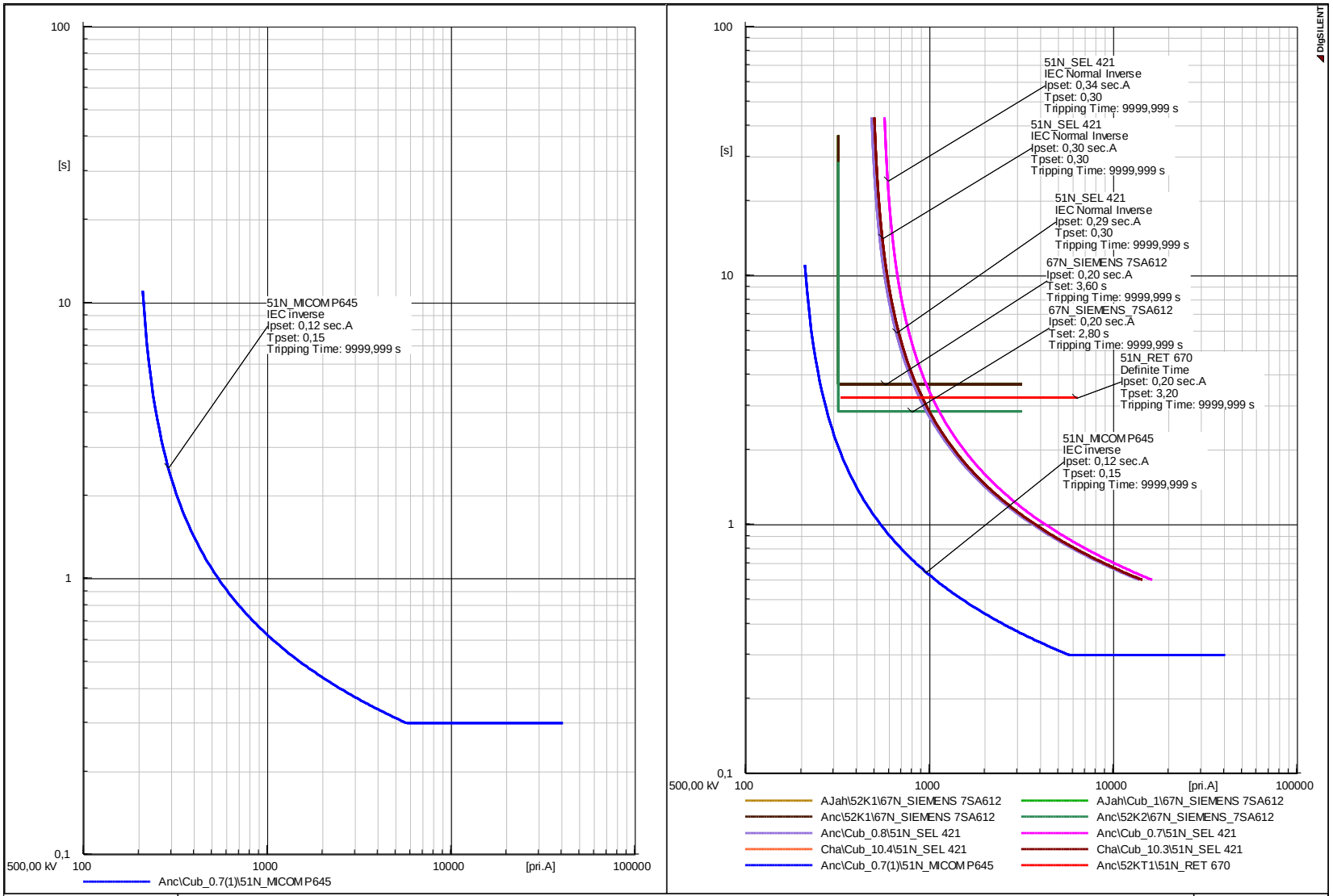
FUNCIÓN 51N LADO DE 500 KV



	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC3F	Annex:

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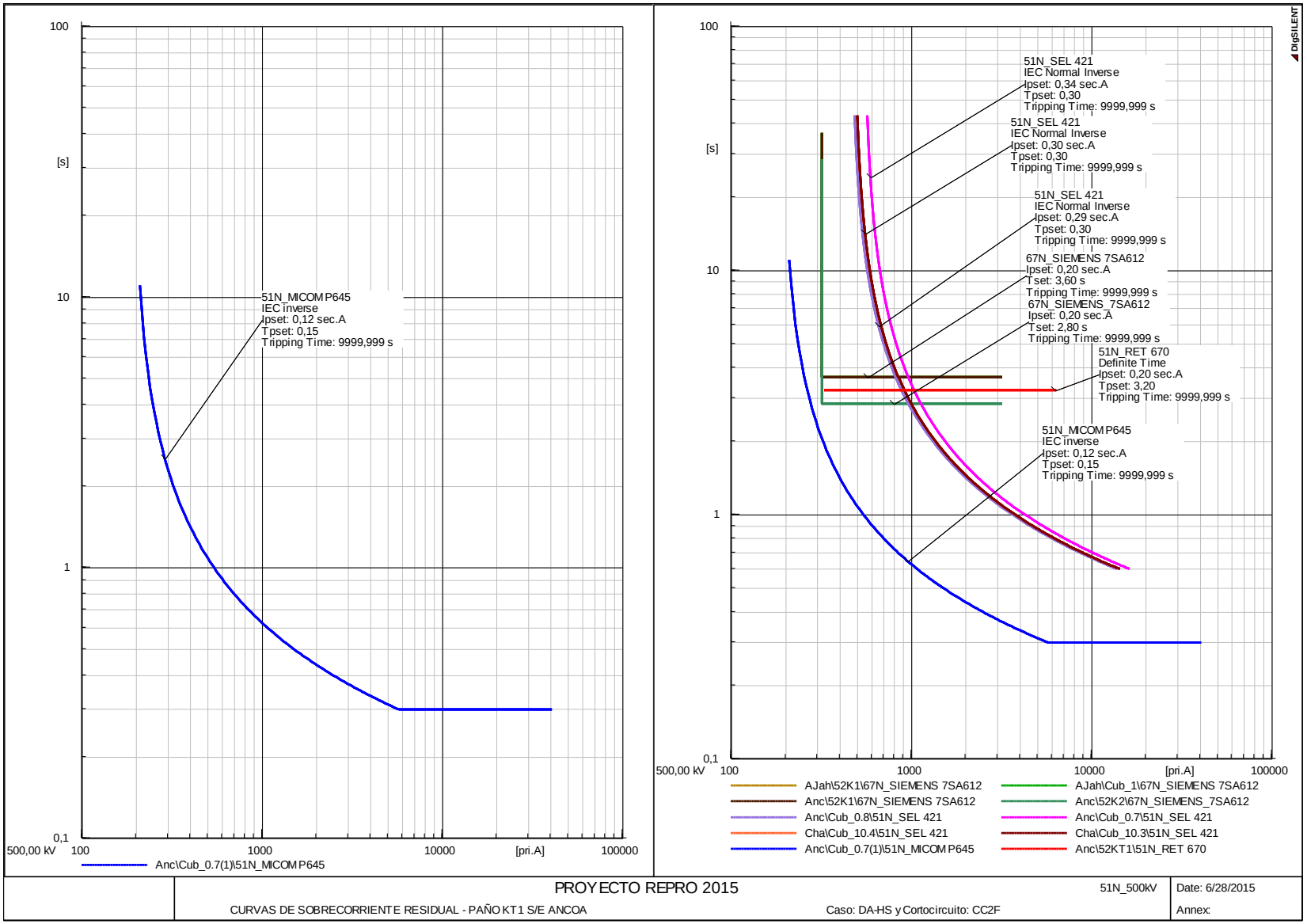

	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC2F	Annex:

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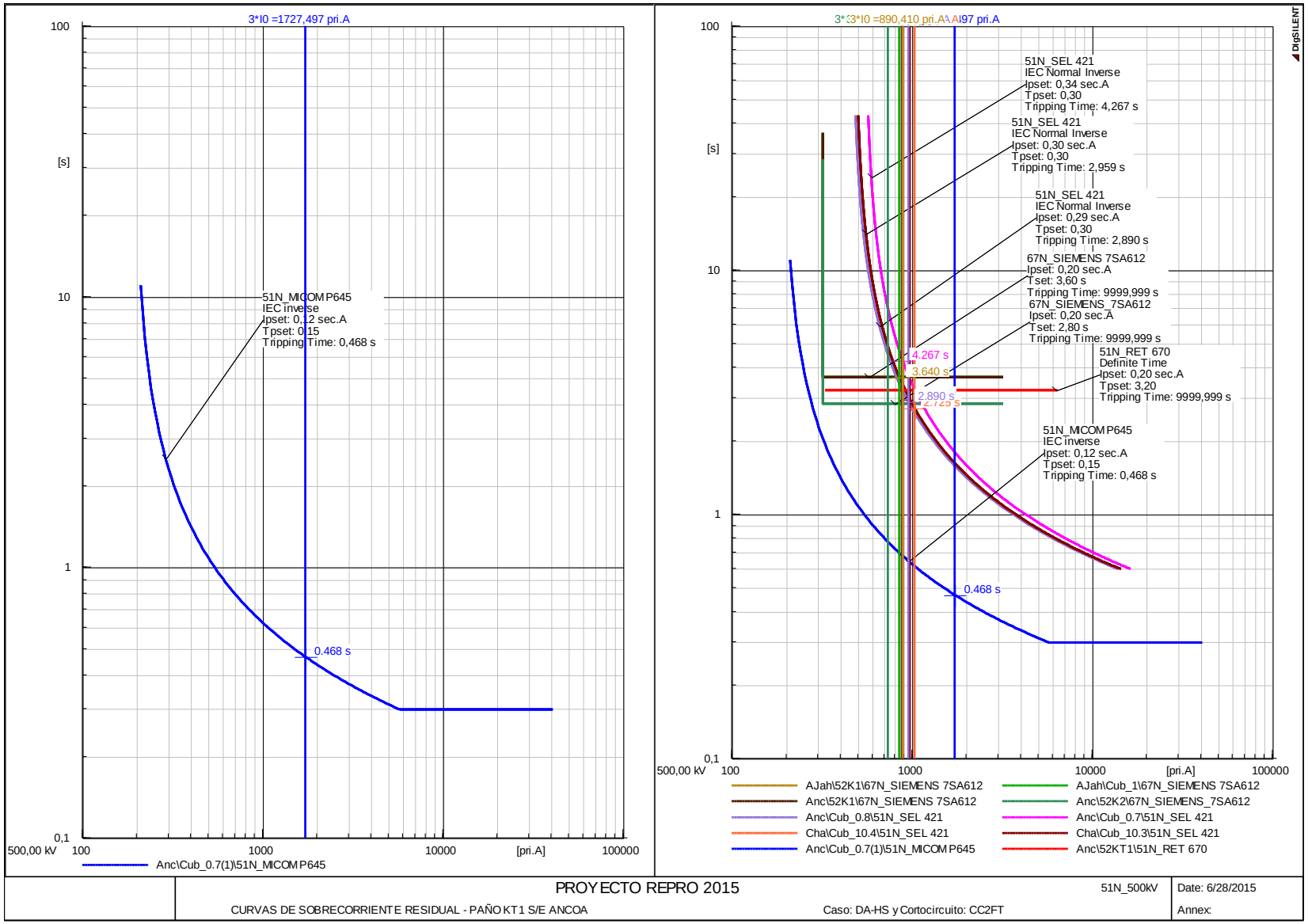
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100
[s]
10
1
0,1
51N_MICOM P645
IEC Inverse
Ipset: 0,12 sec.A
Tpset: 0,15
Tripping Time: 0,468 s
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1000
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100000
Anc\Cub_0.7(1)\51N_MICOM P645
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IEC Normal Inverse
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Tpset: 0,30
Tripping Time: 4,267 s
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Tpset: 0,30
Tripping Time: 2,959 s
51N_SEL 421
IEC Normal Inverse
Ipset: 0,29 sec.A
Tpset: 0,30
Tripping Time: 2,890 s
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Ipset: 0,20 sec.A
Tset: 3,60 s
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Tset: 2,80 s
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Definite Time
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Tripping Time: 9999,999 s
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2,890 s
2,725 s
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Tpset: 0,15
Tripping Time: 0,468 s
0,468 s
DIgSILENT
AJah\52K1\67N_SIEMENS 7SA612
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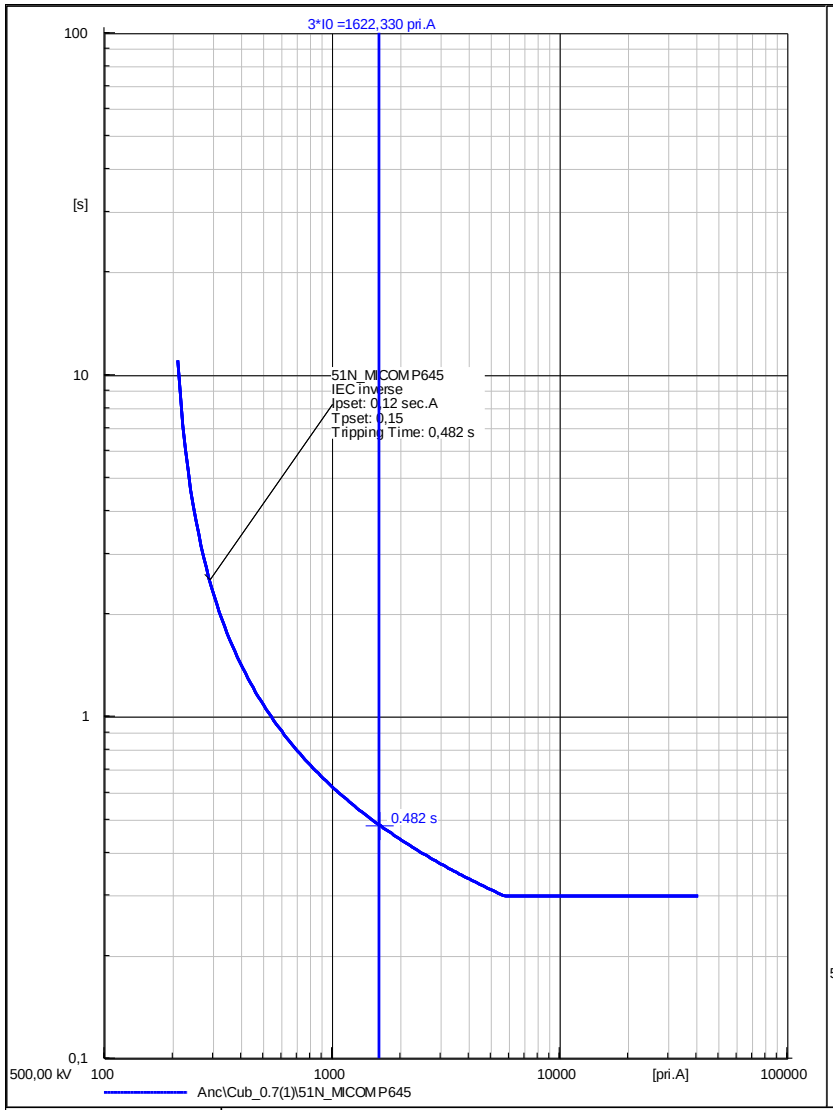
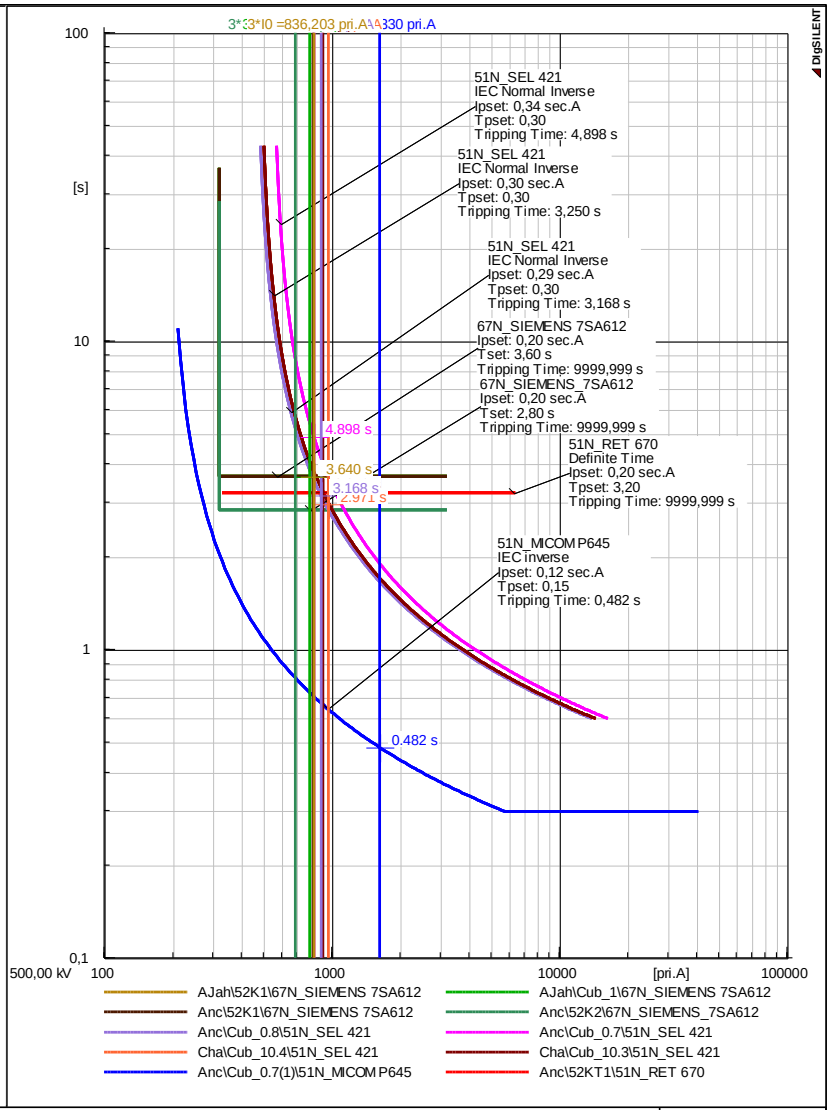
PROYECTO REPRO 2015
51N_500kV
Date: 6/28/2015
CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA
Caso: DA-HS y Cortocircuito: CC2FT
Annex:





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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-0	Annex:

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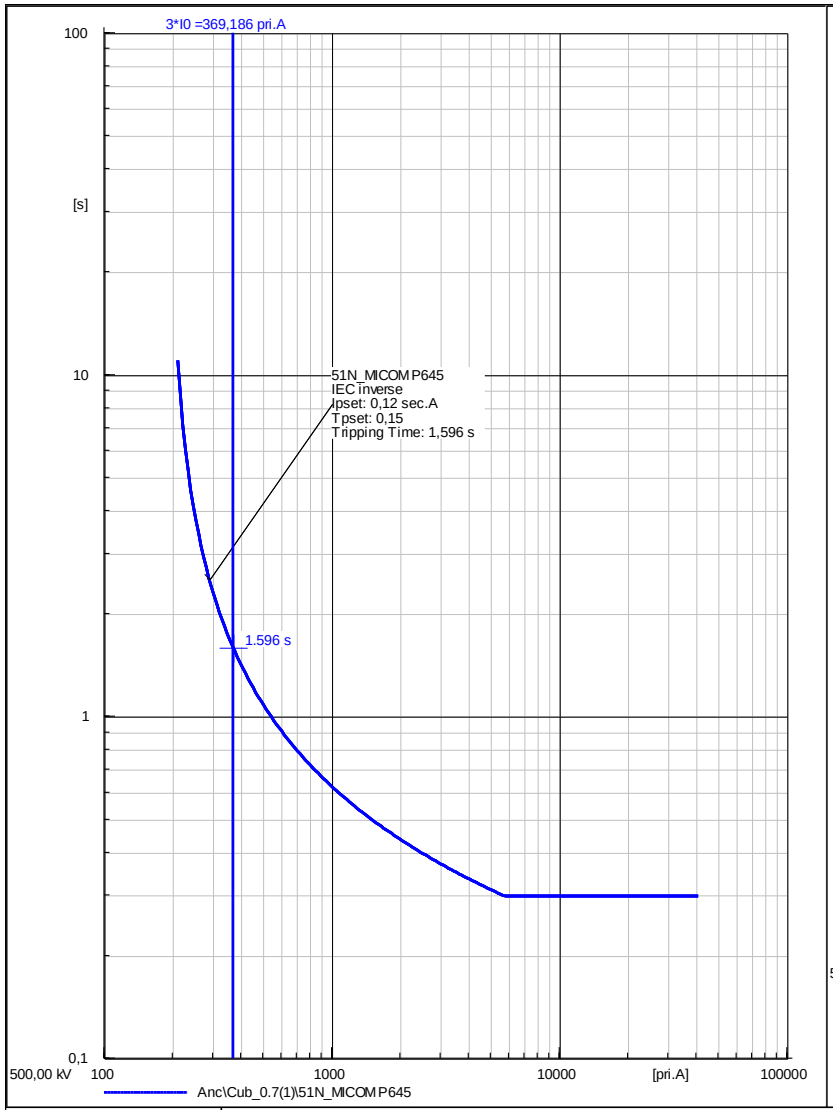

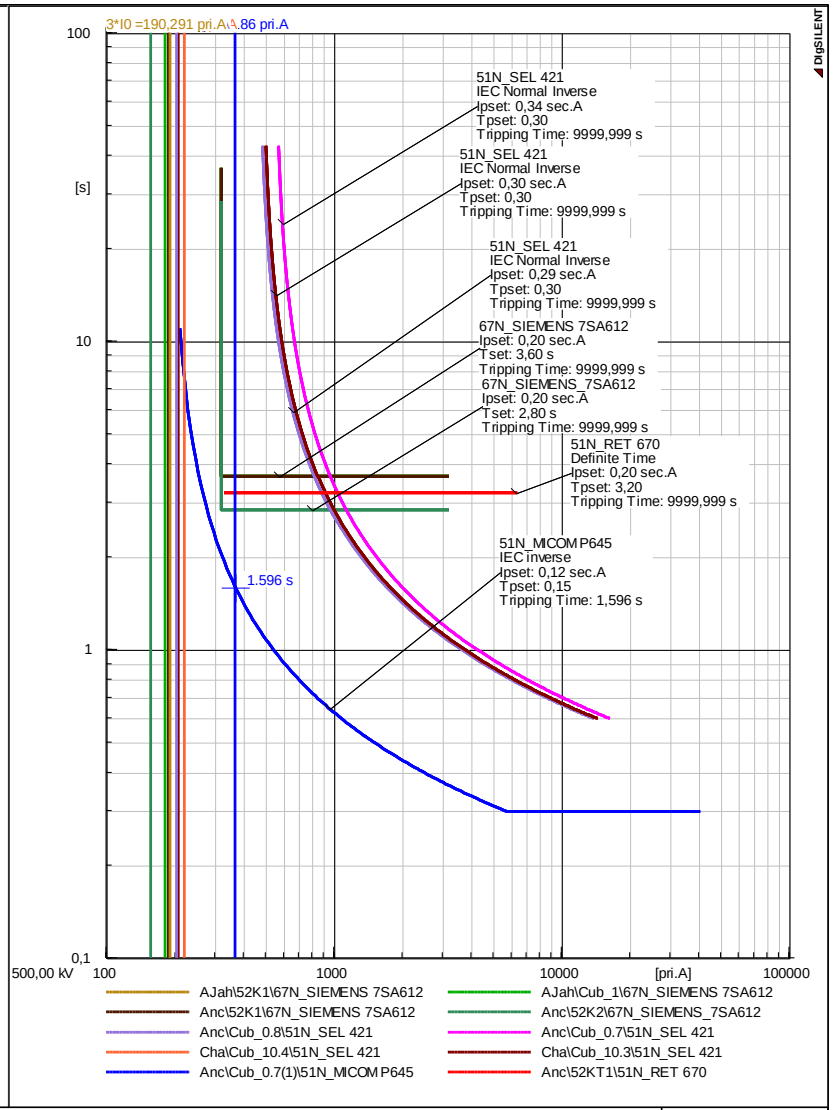

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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS y Cortocircuito: CC1FT-25	Annex:

ESCENARIO DE LÍNEA ANCOA PEHUENCHE 220 KV L2 ATERRIZADA

SIMULACIONES EN DEMANDA ALTA – HIDROLOGÍA HUMEDA

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FALLA EN BARRA 500 KV S/E ANCOA

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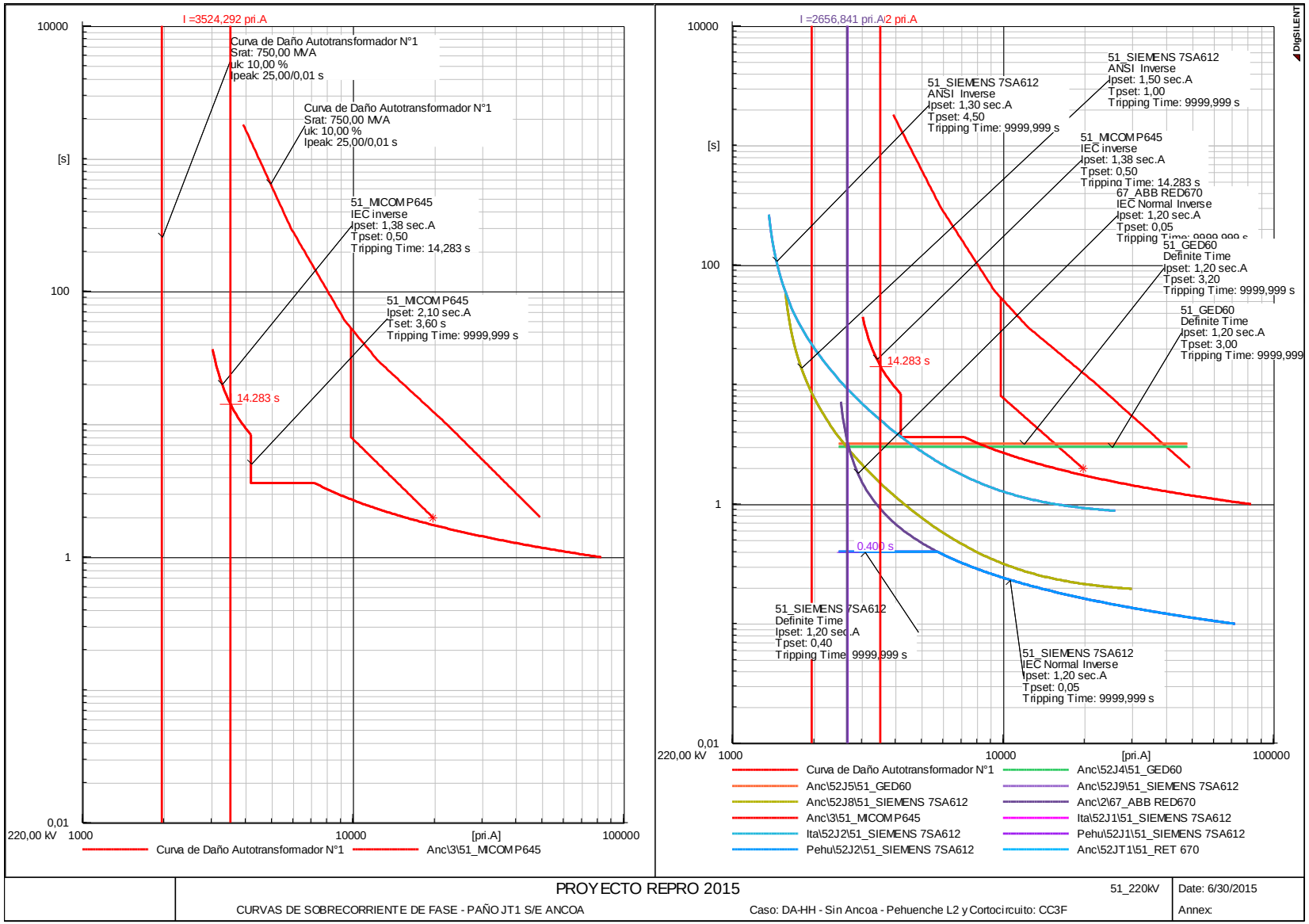
FUNCIÓN 51 LADO DE 220 KV



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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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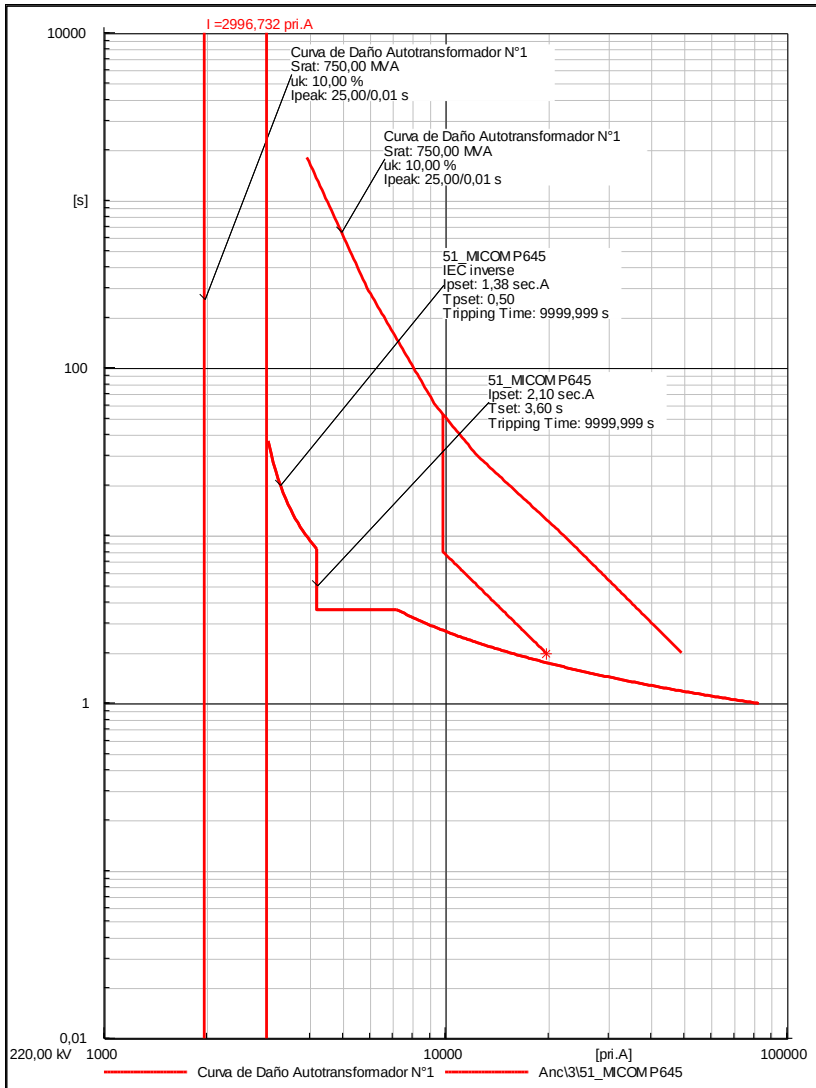

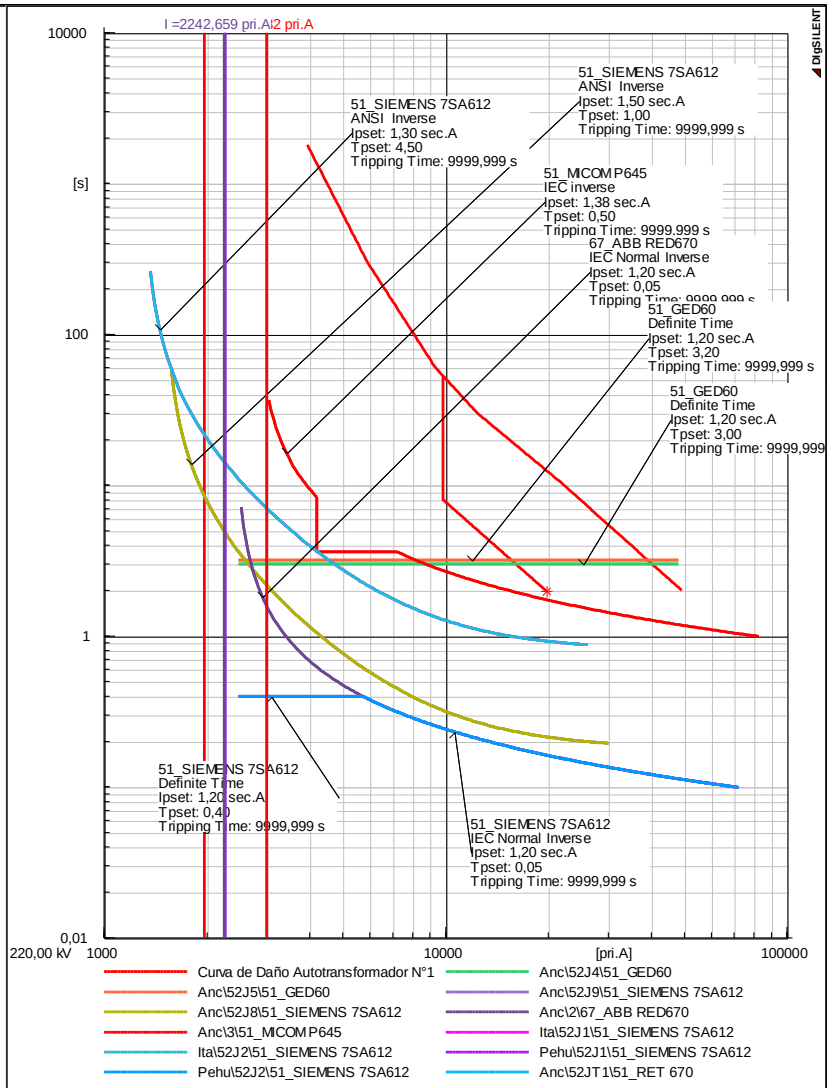

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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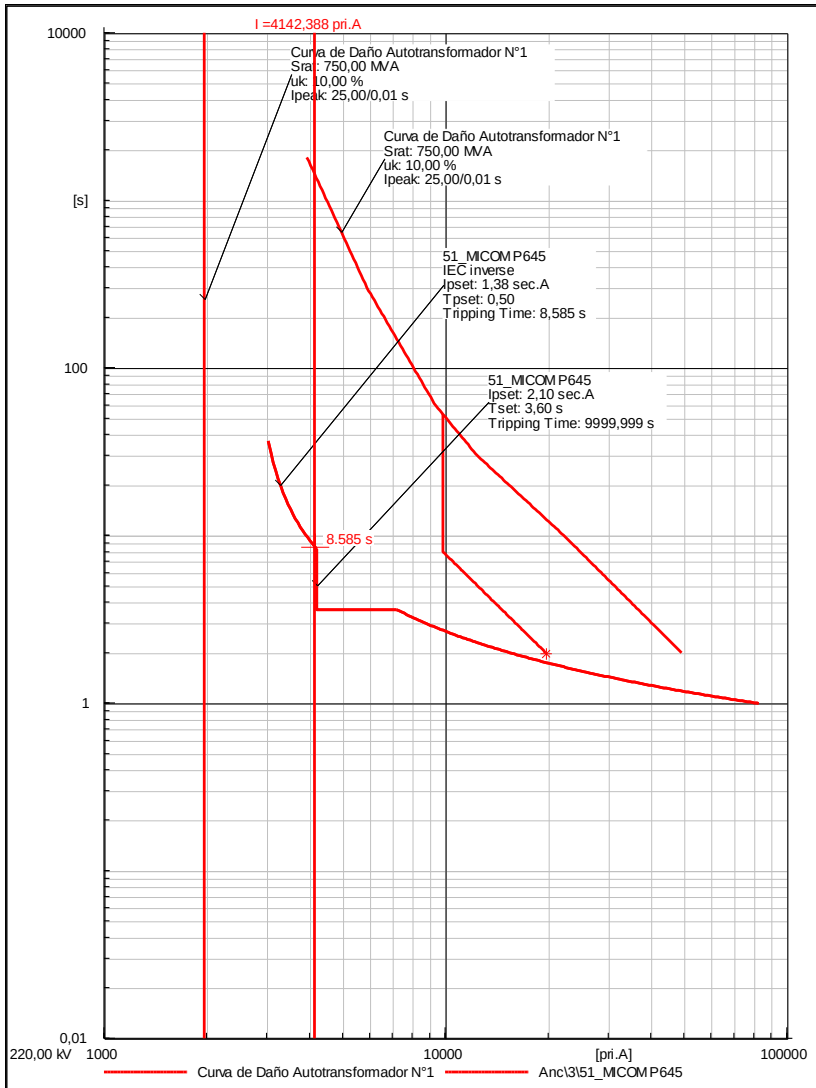

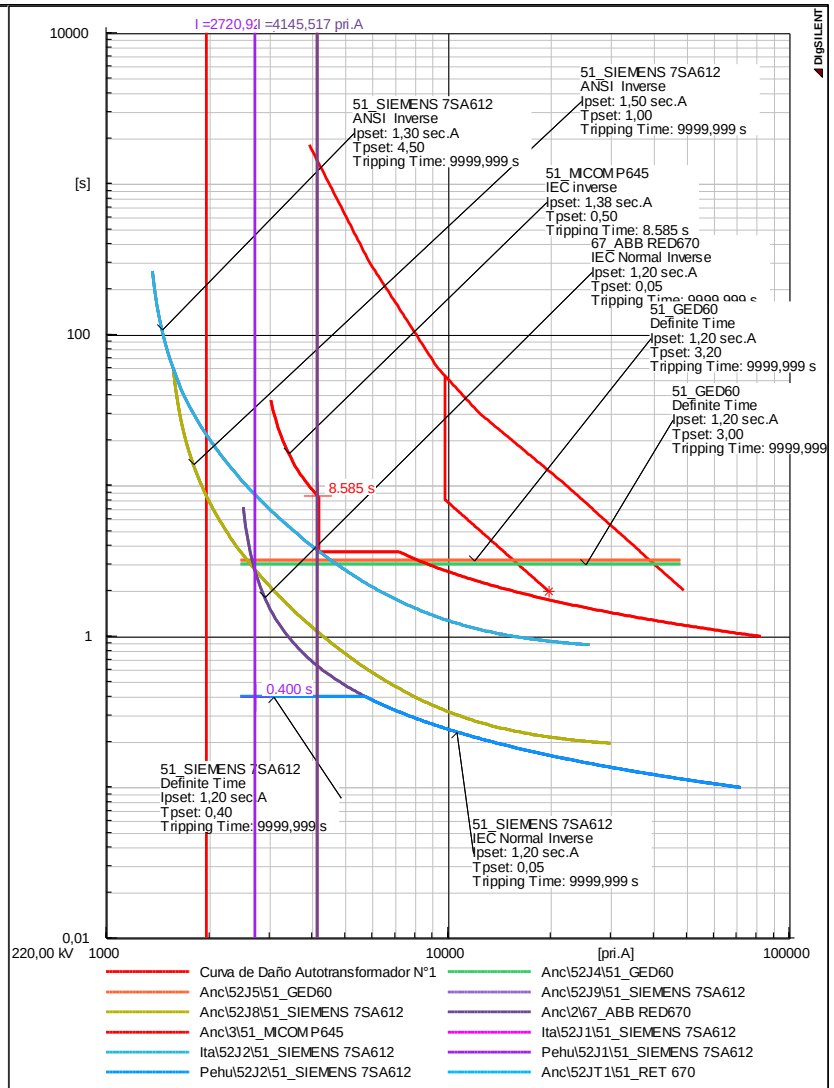

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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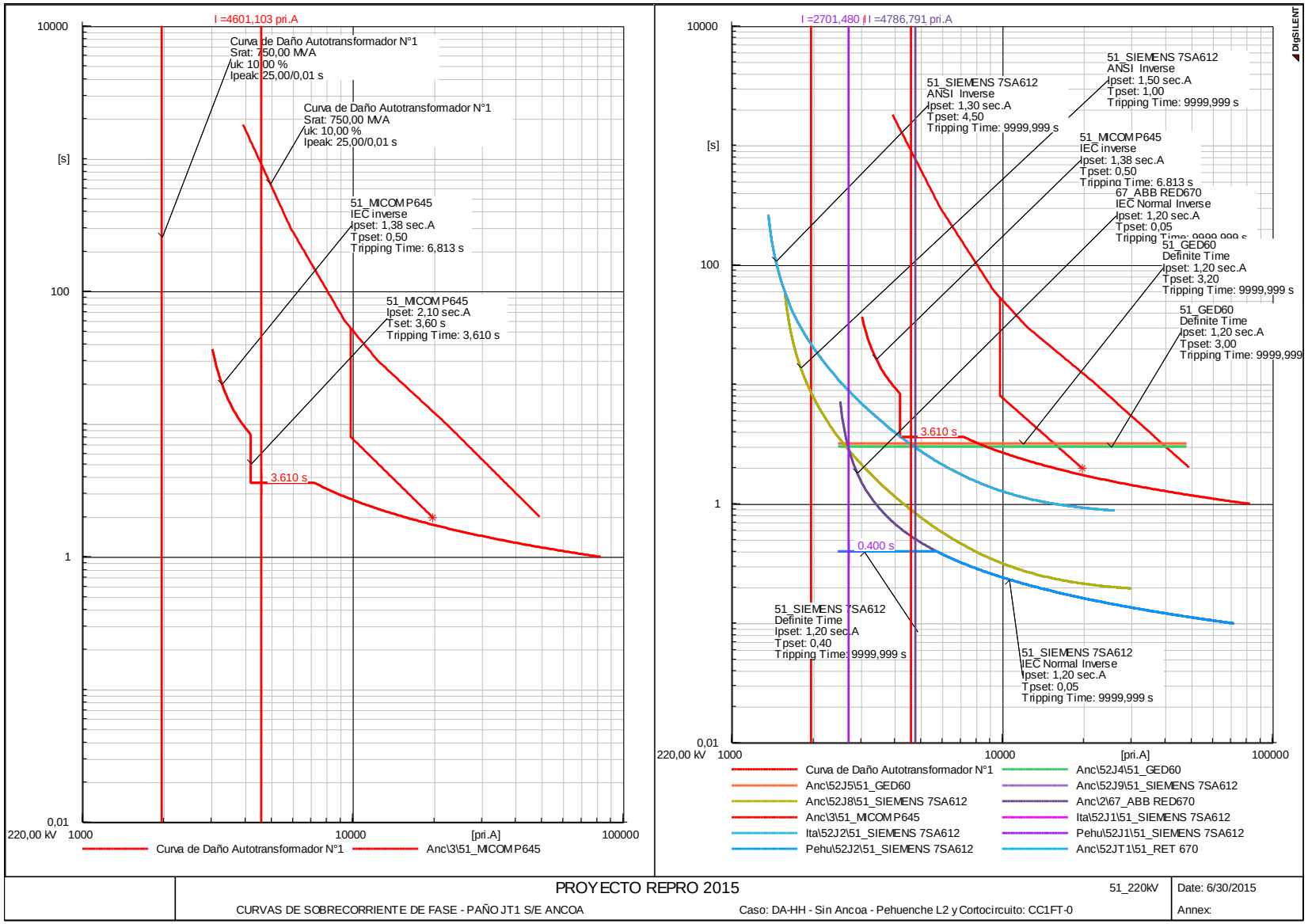

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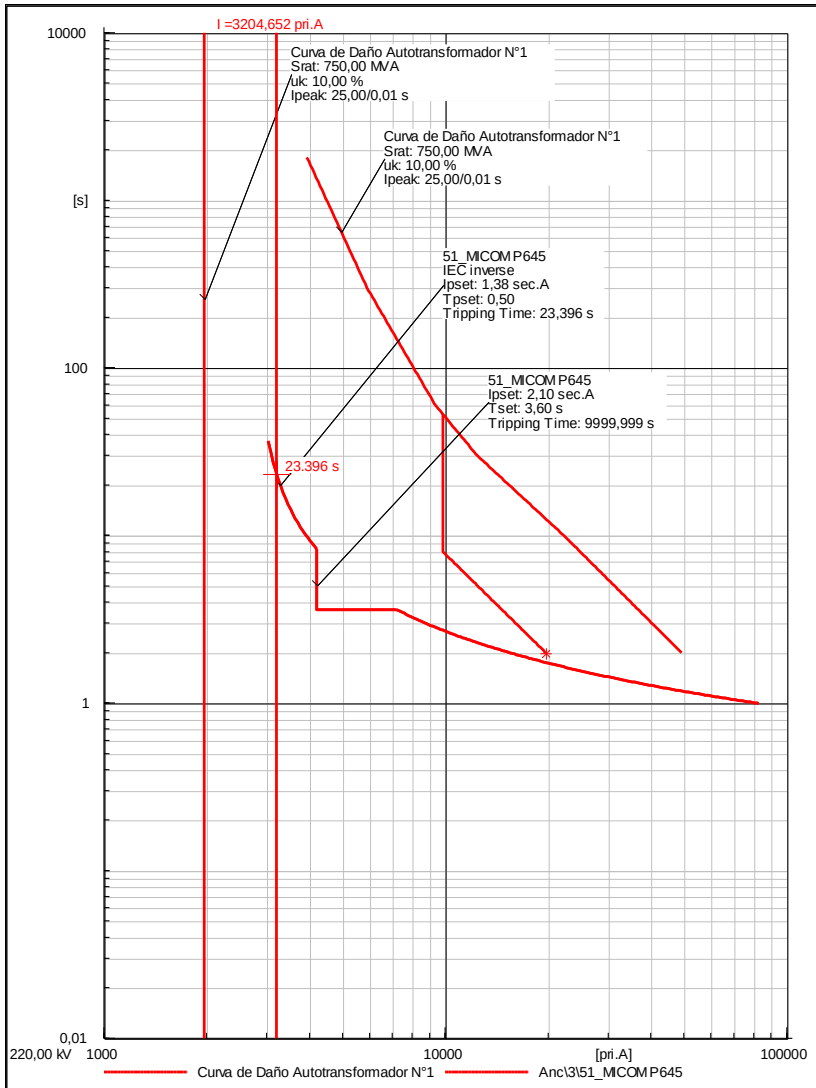

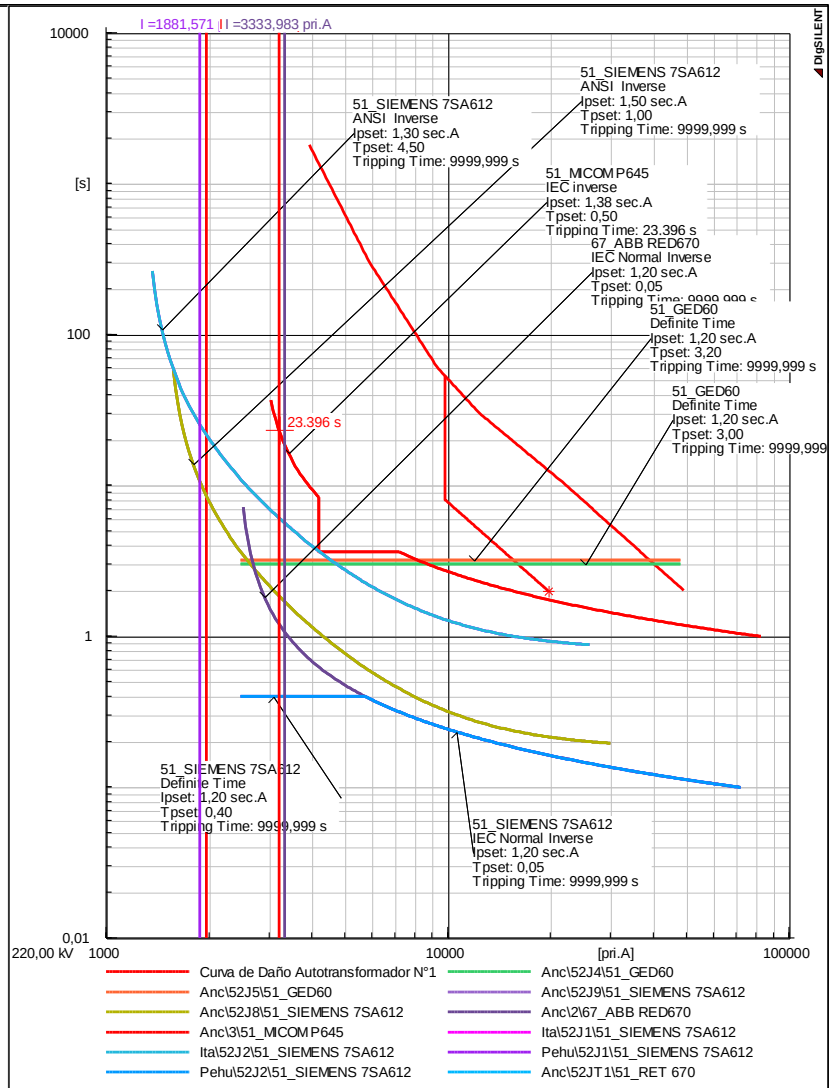

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

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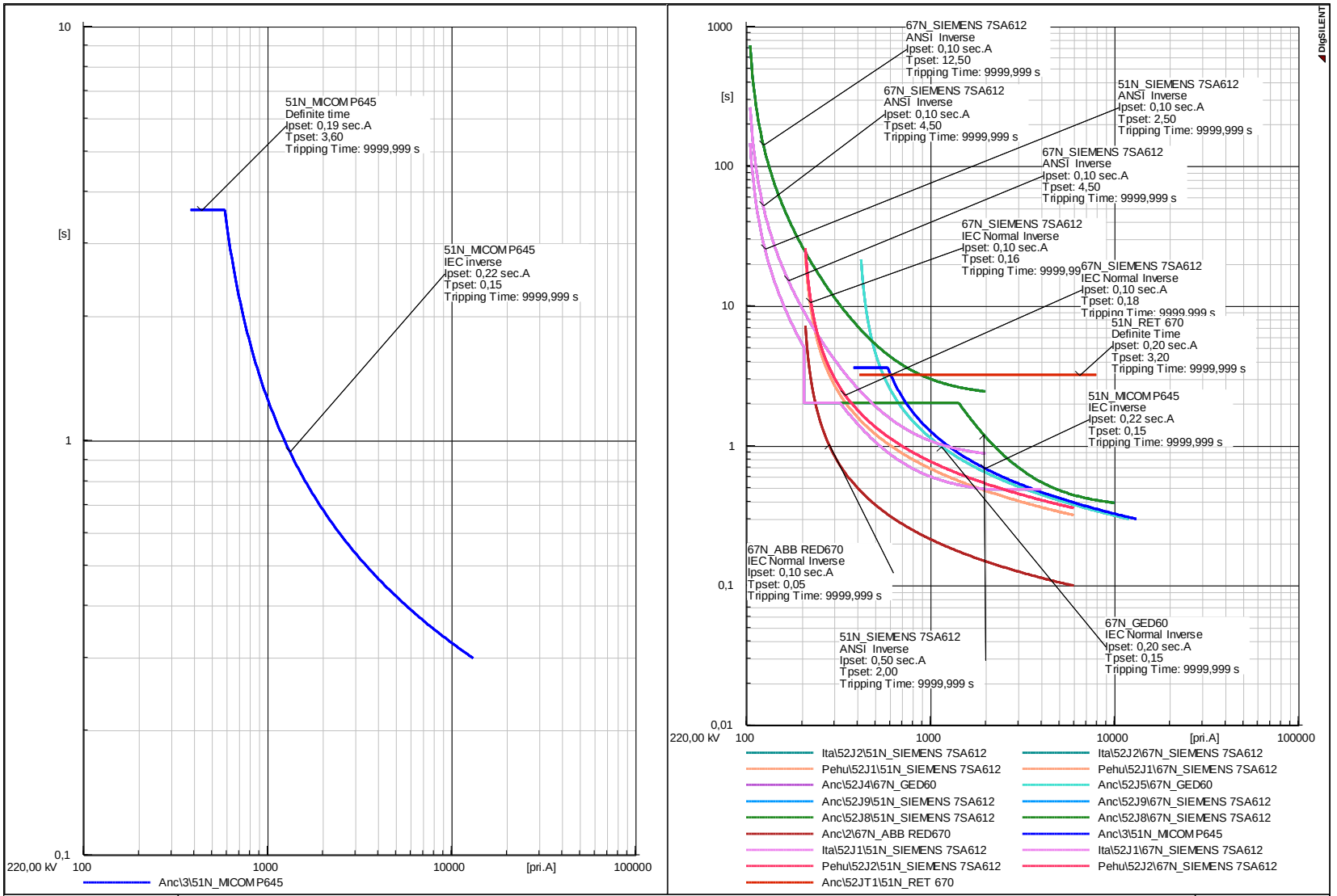
FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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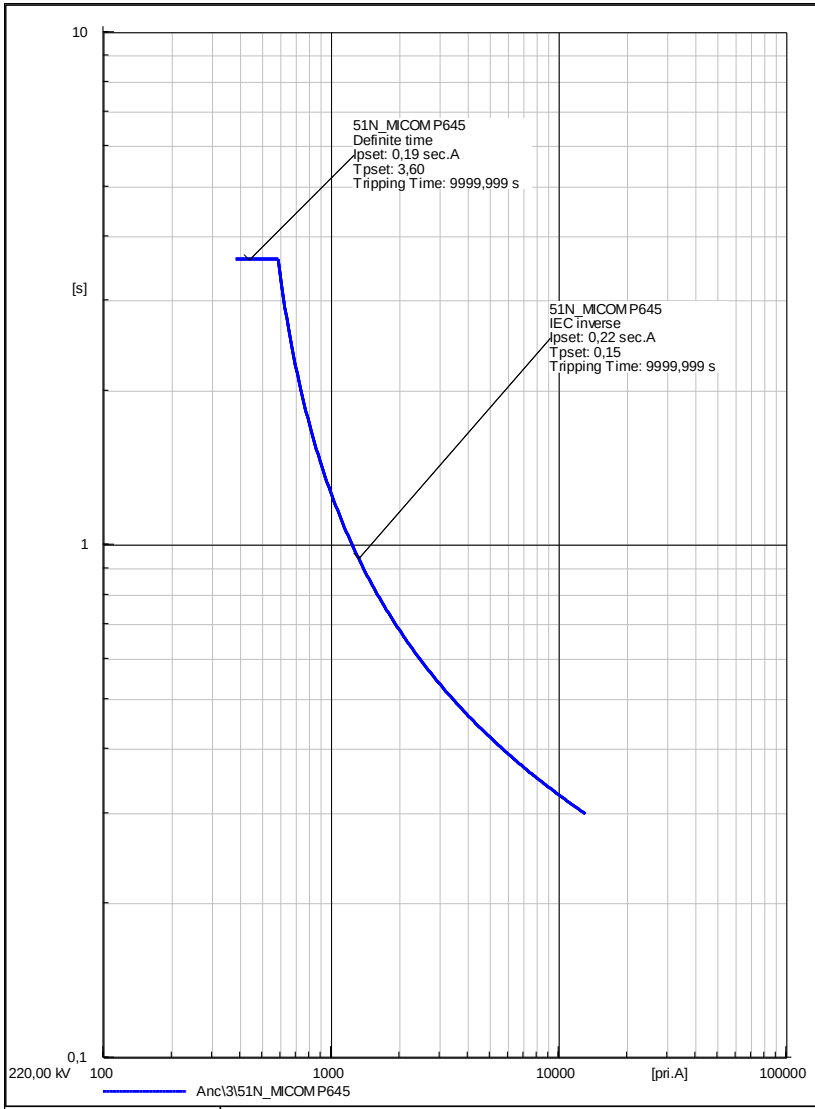

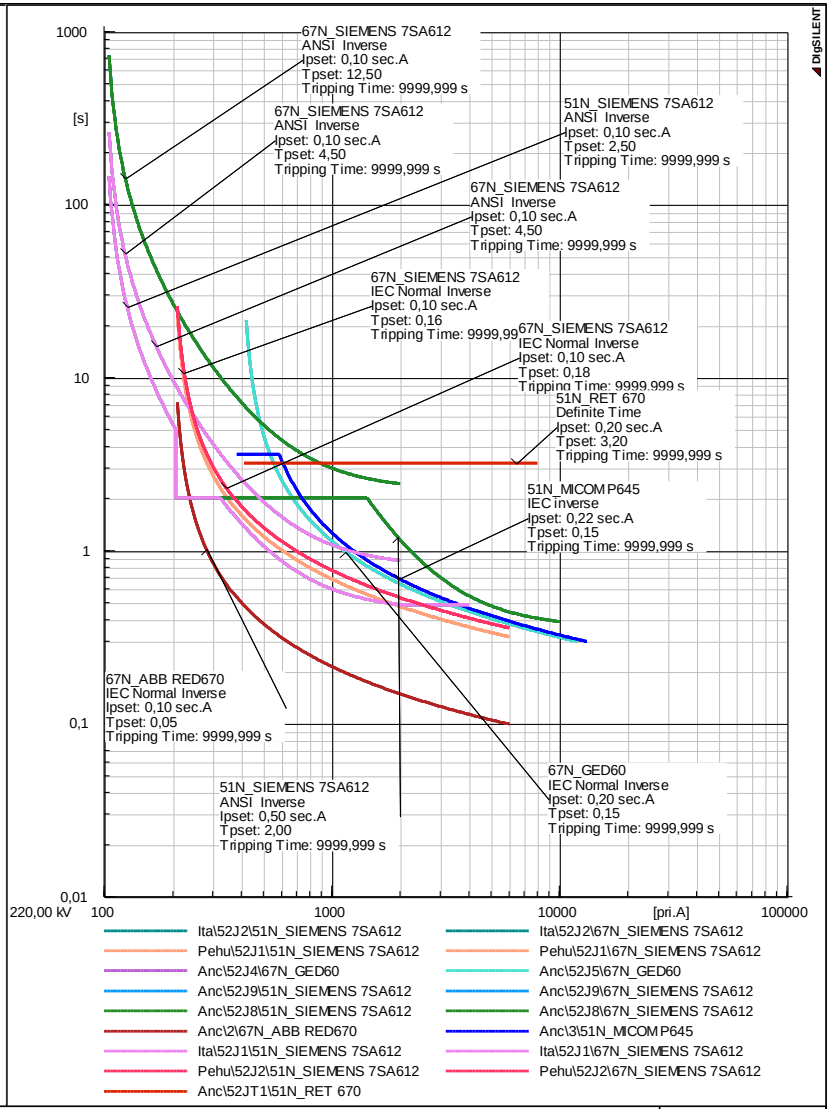

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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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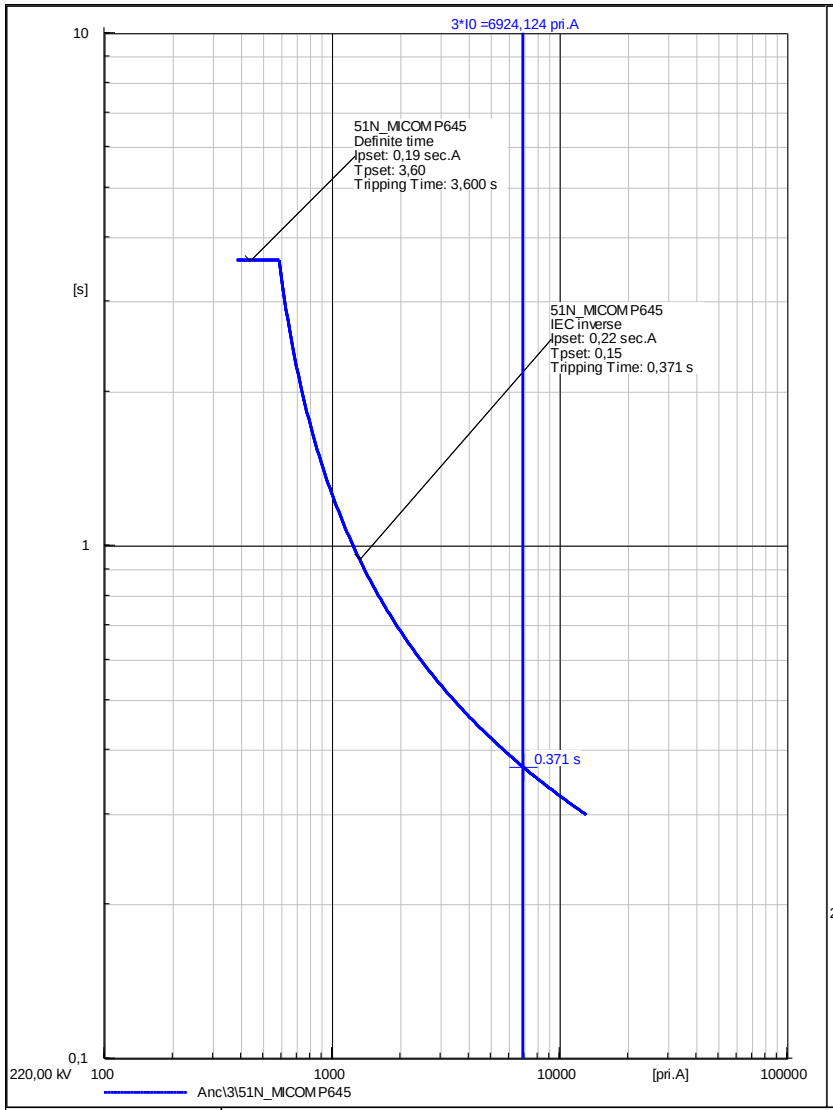

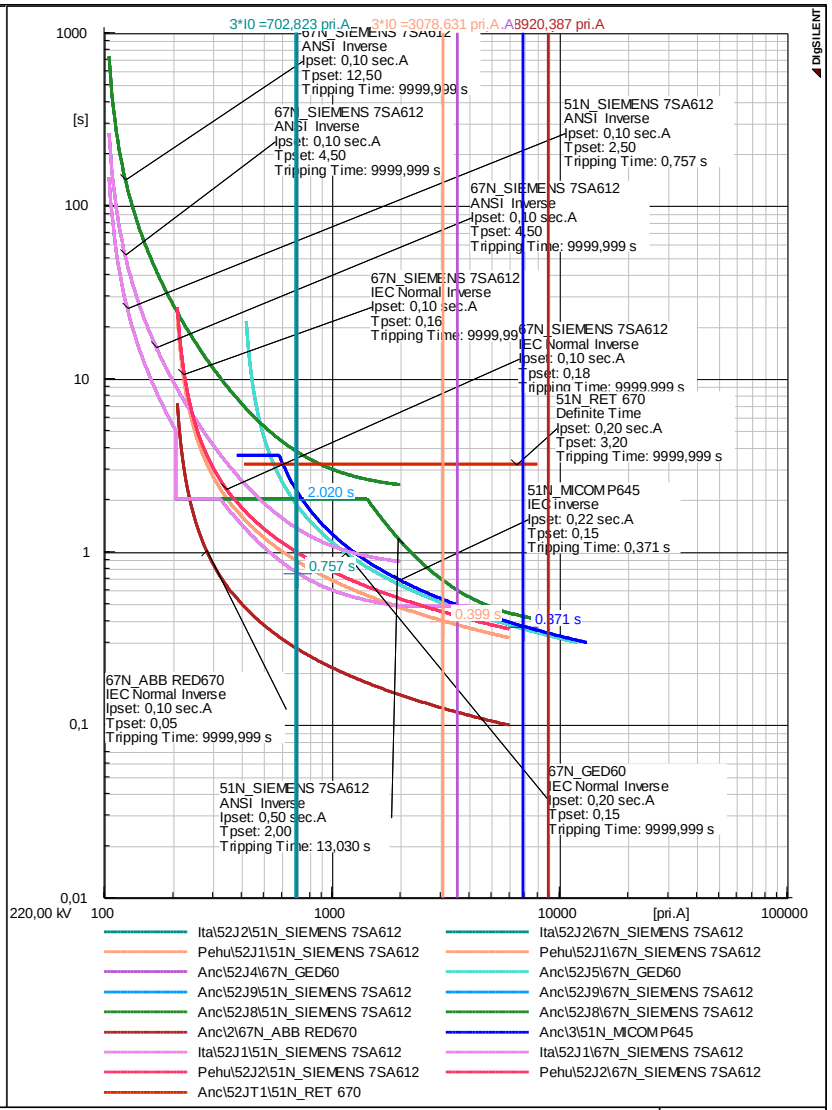

	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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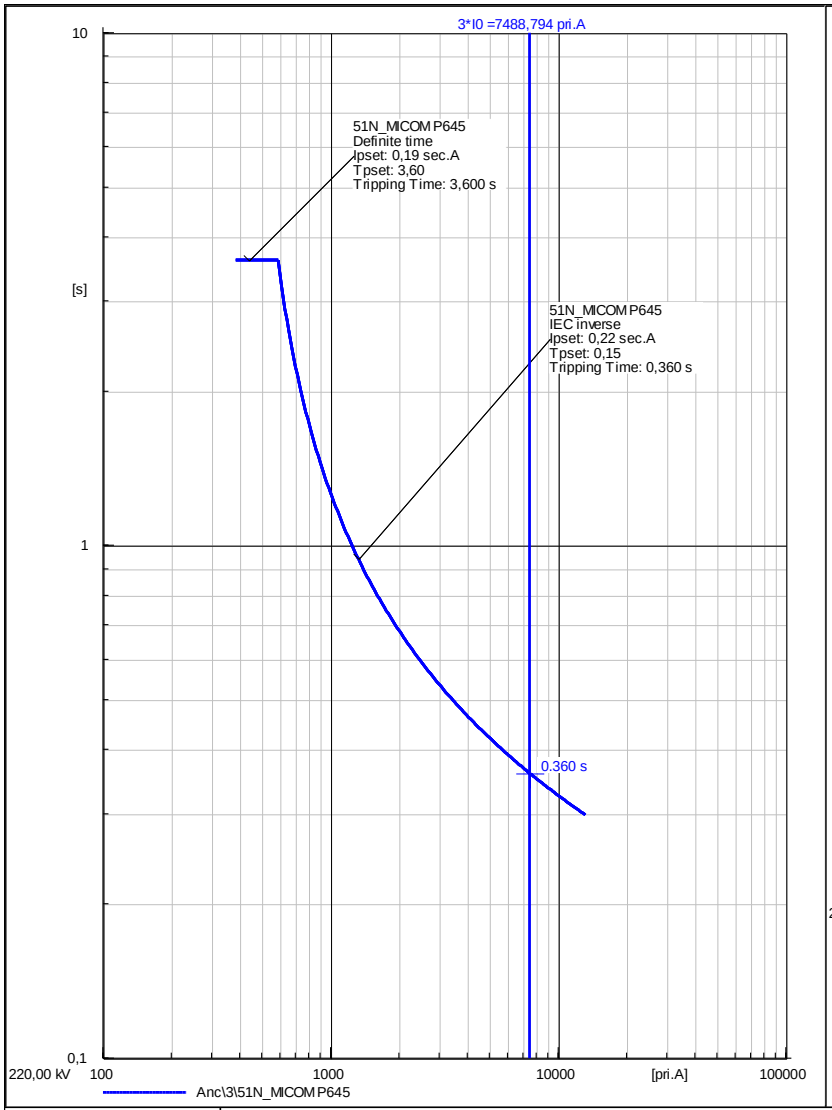

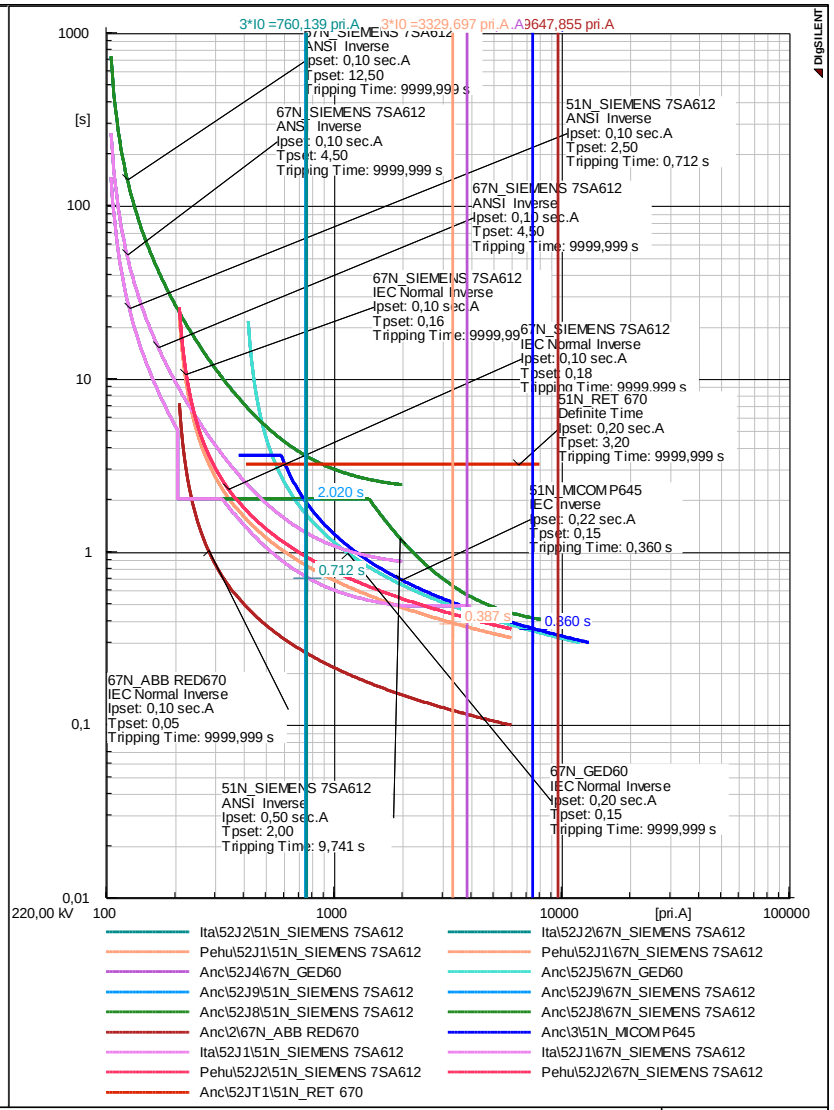

	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:

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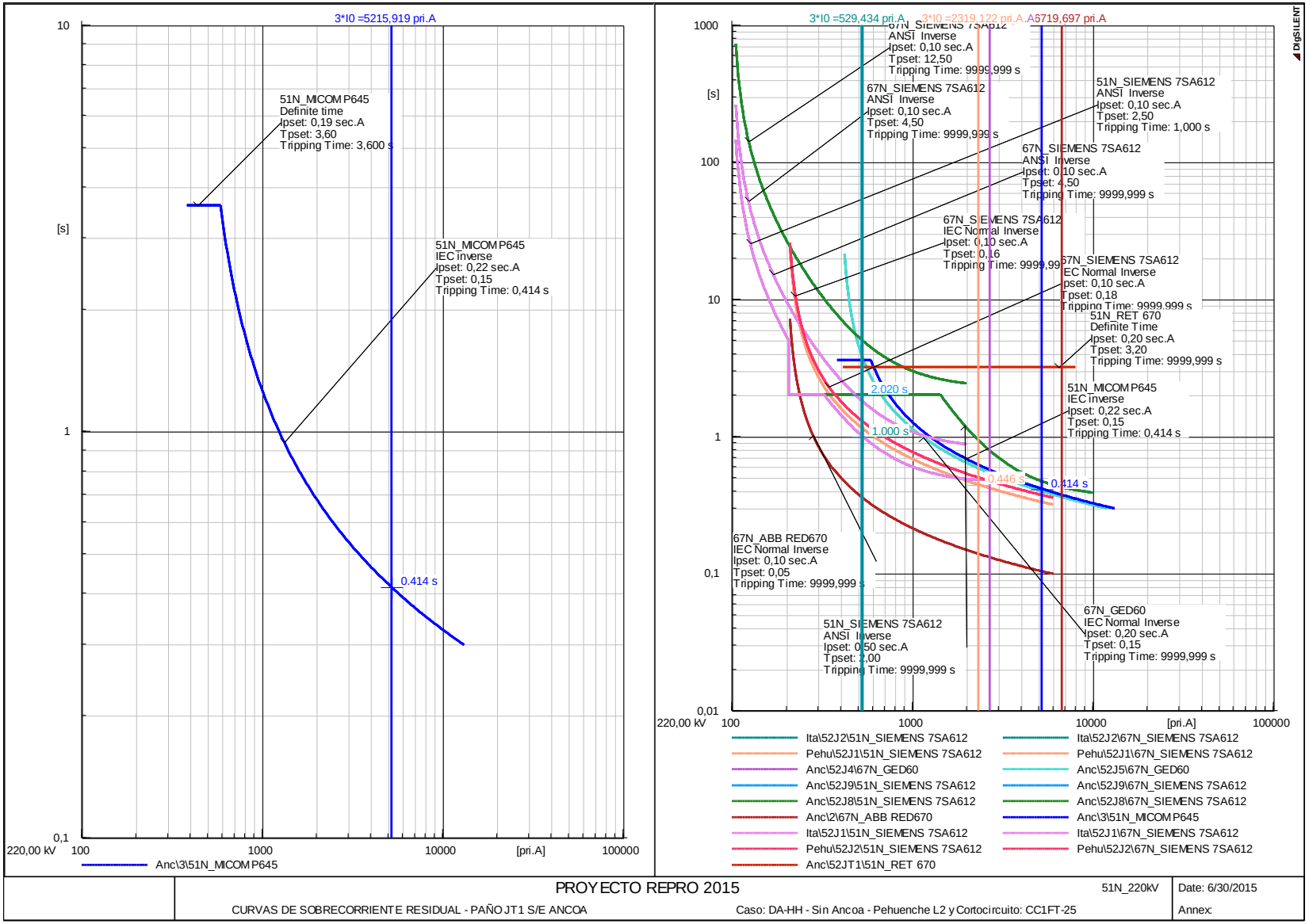

	PROYECTO REPRO 2015		51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25		Annex:

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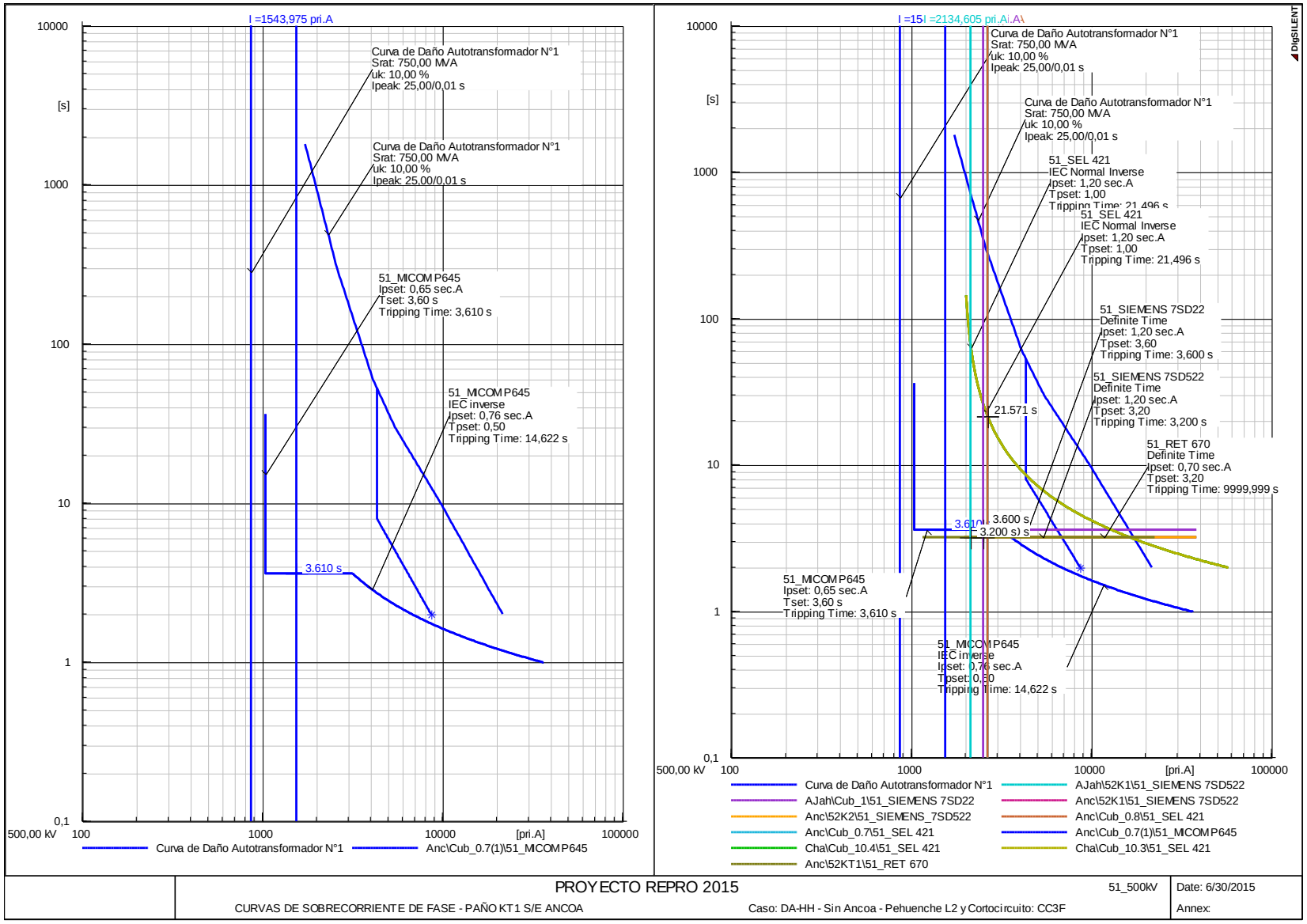
FUNCIÓN 51 LADO DE 500 KV



	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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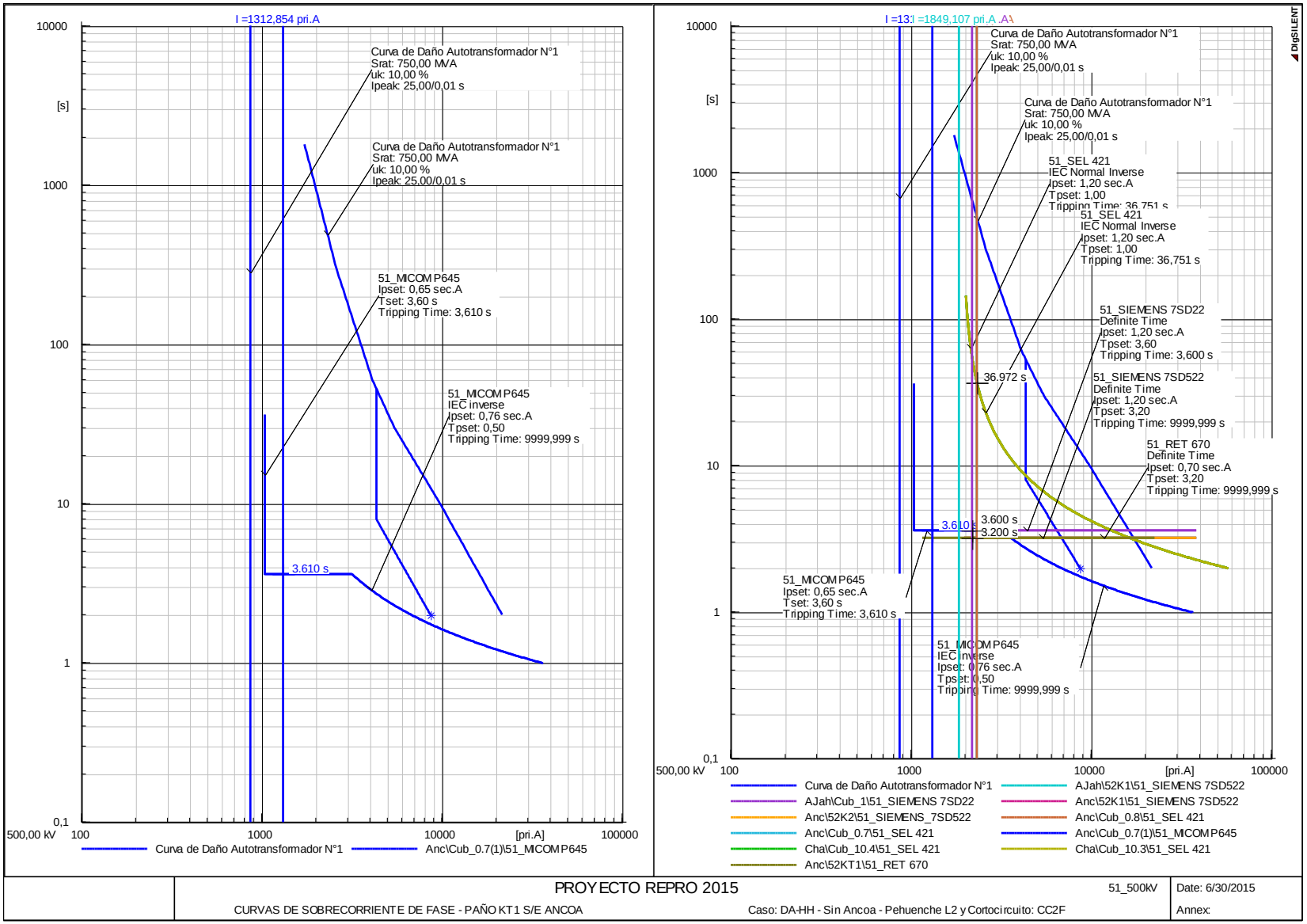

	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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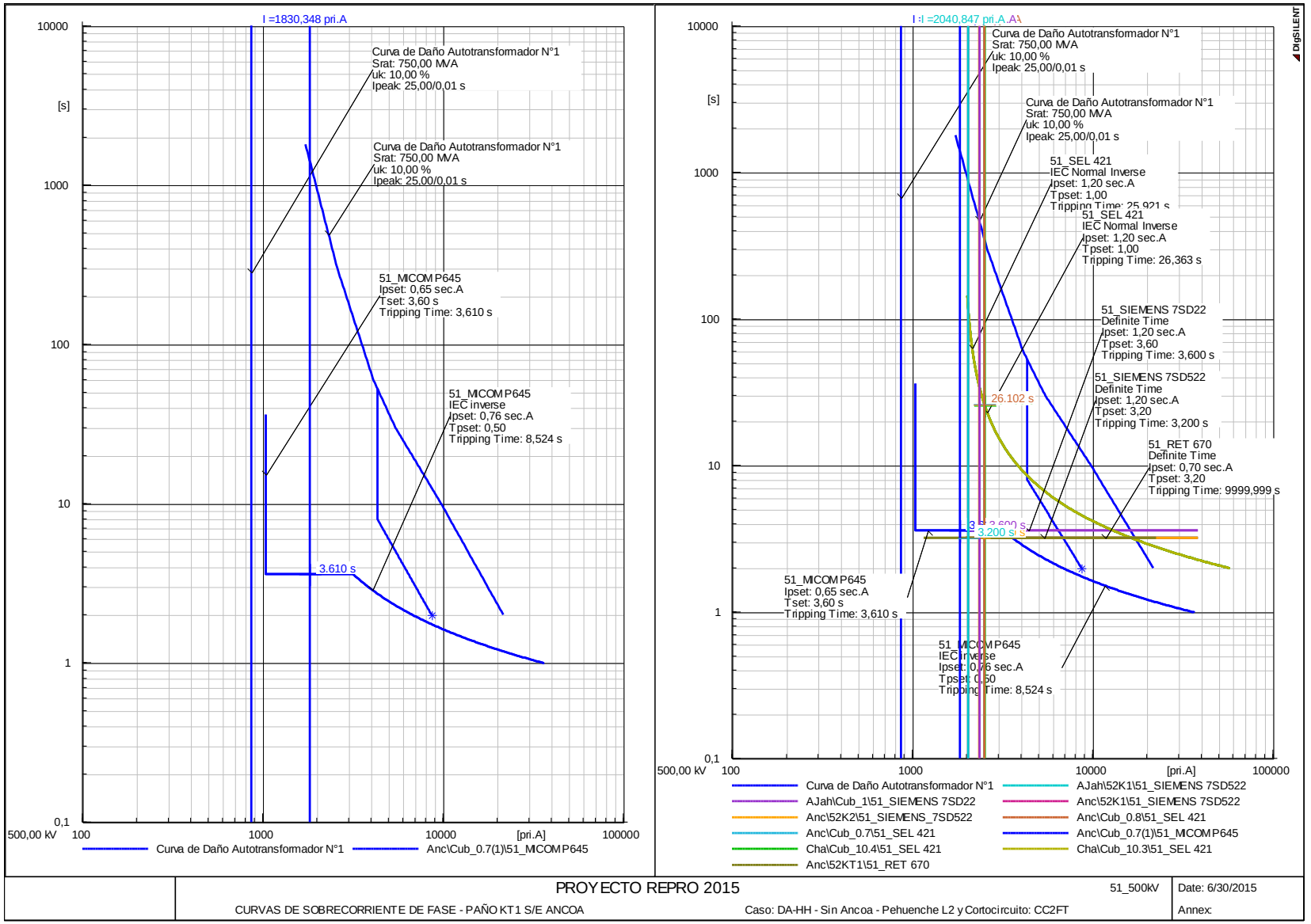

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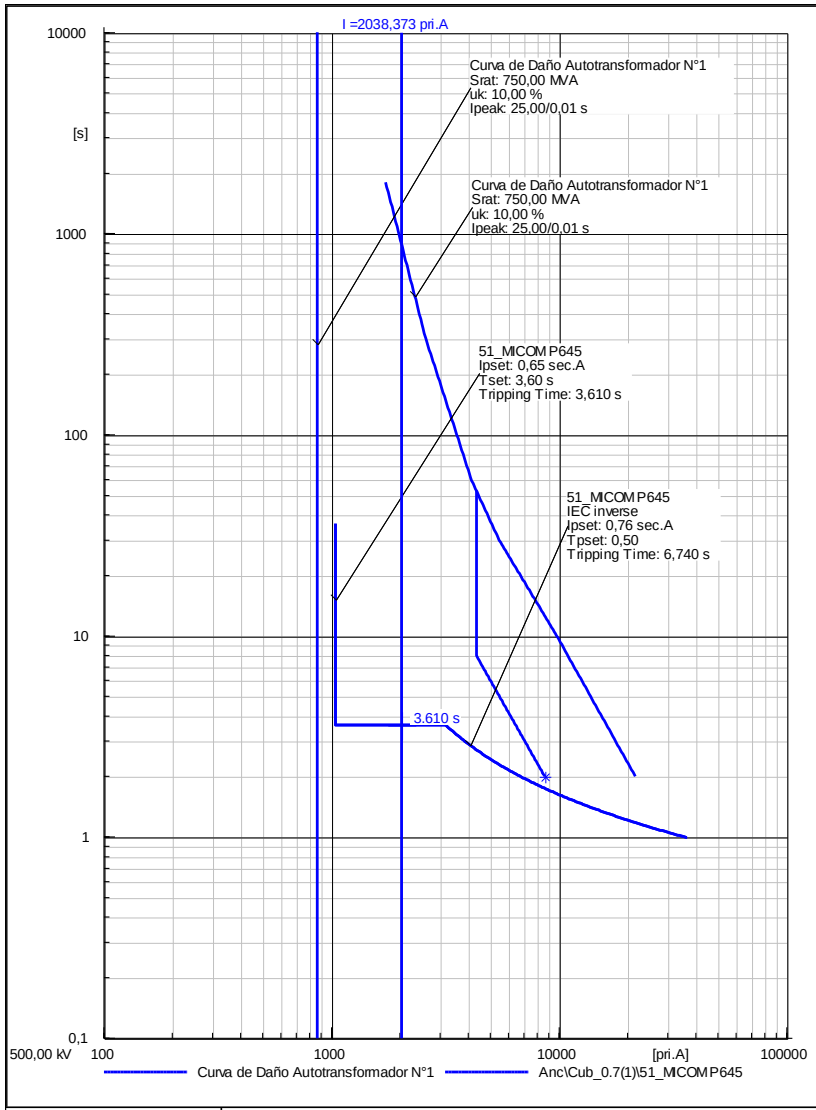
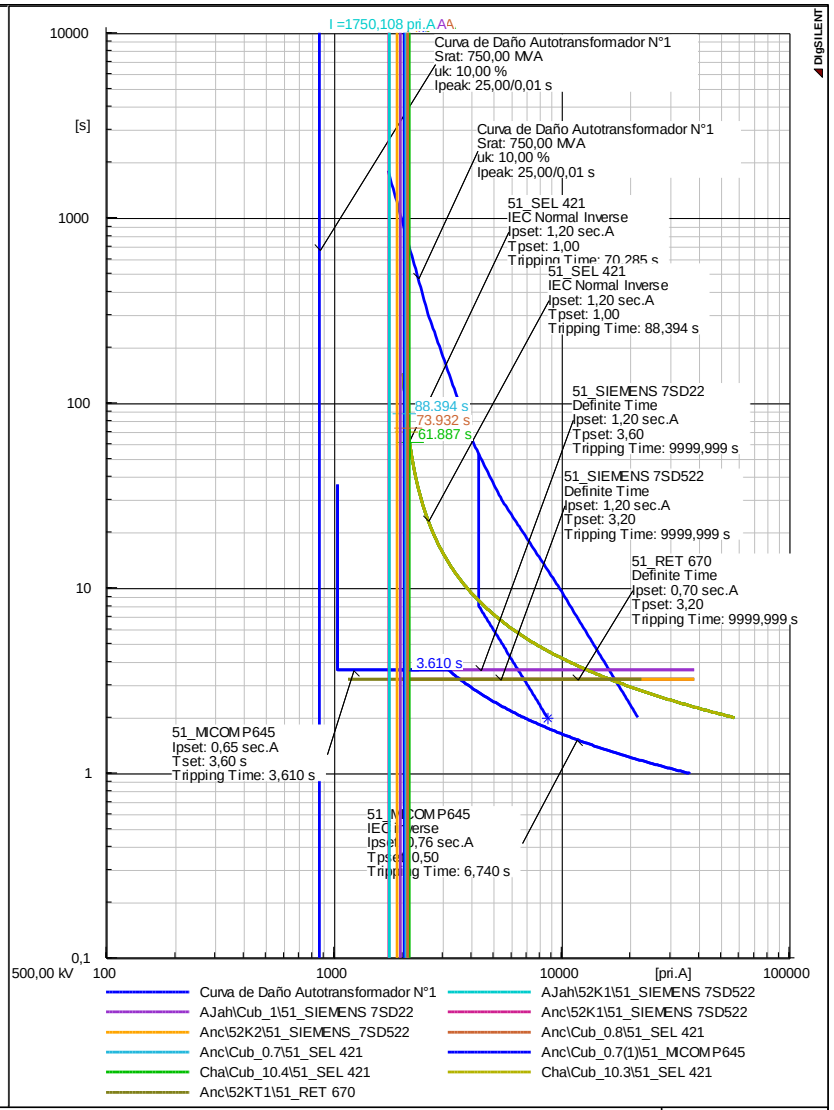
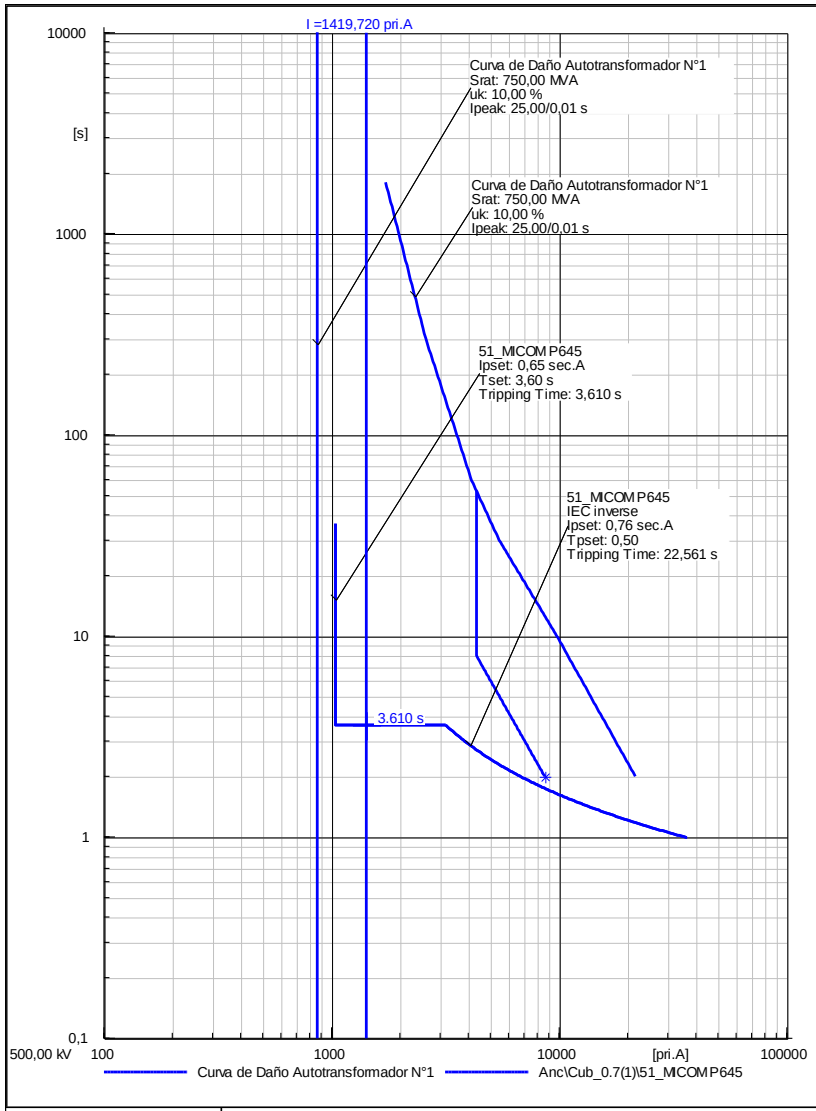
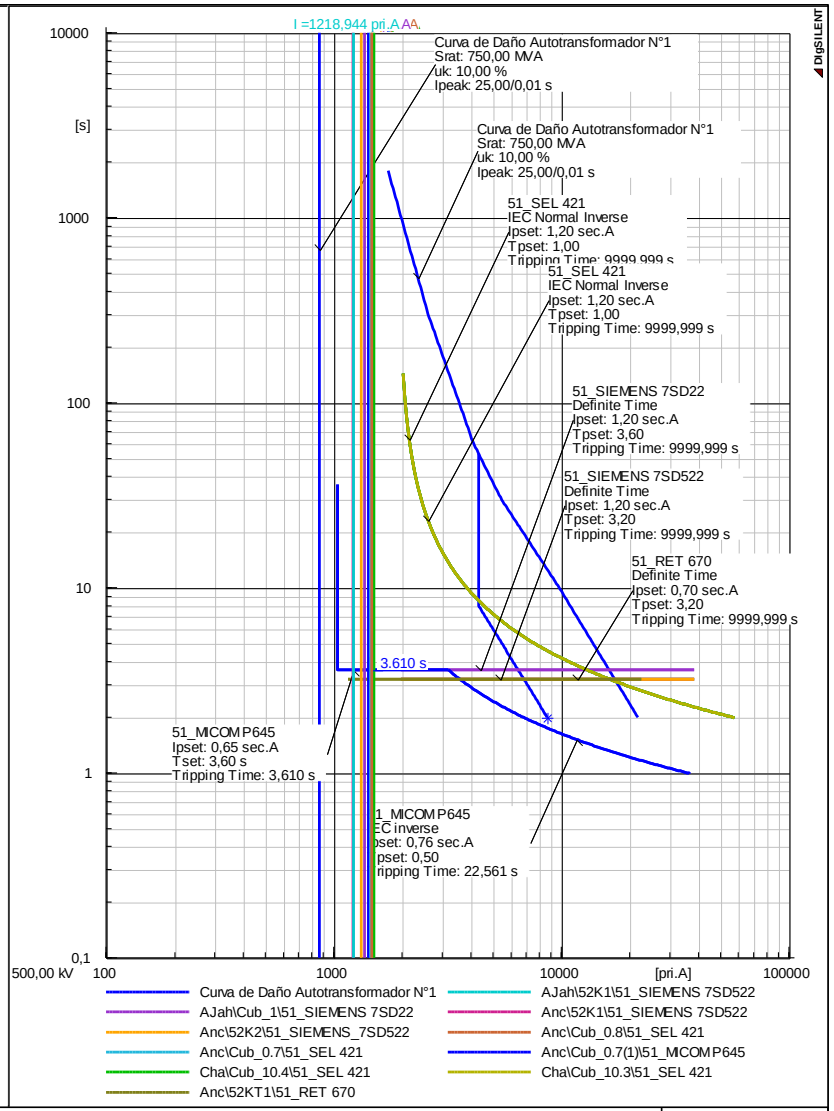




	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:





	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

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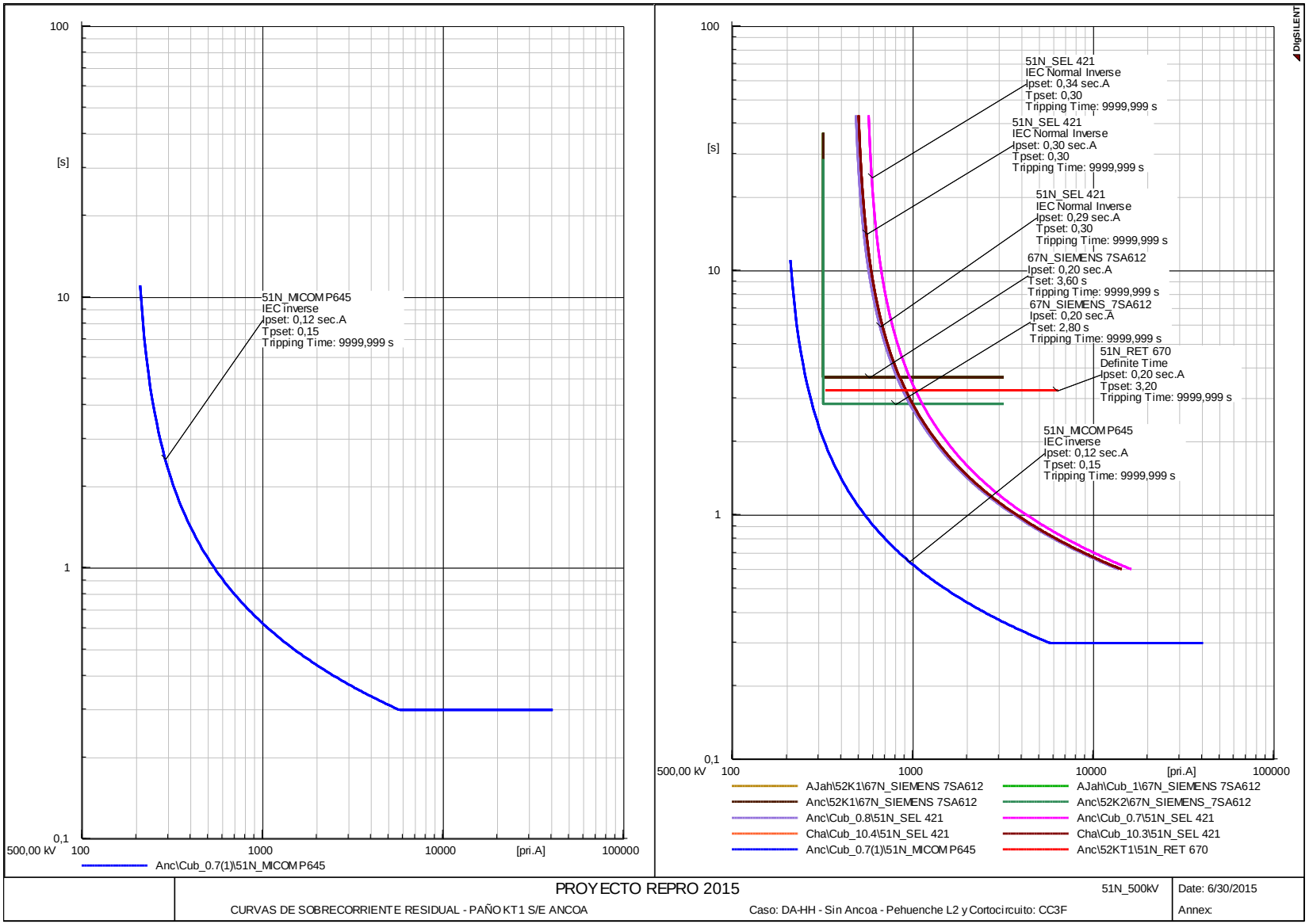
FUNCIÓN 51N LADO DE 500 KV



	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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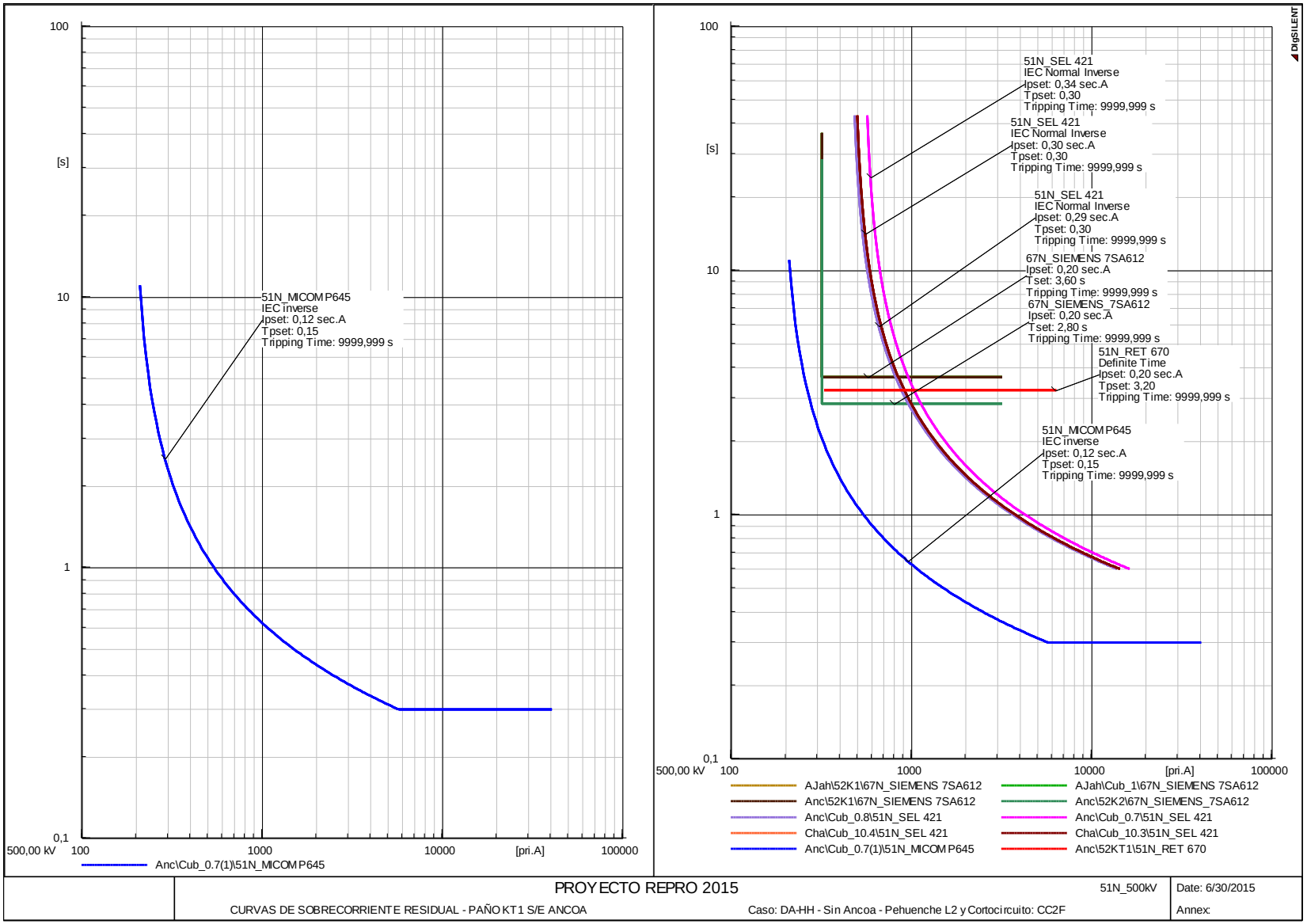

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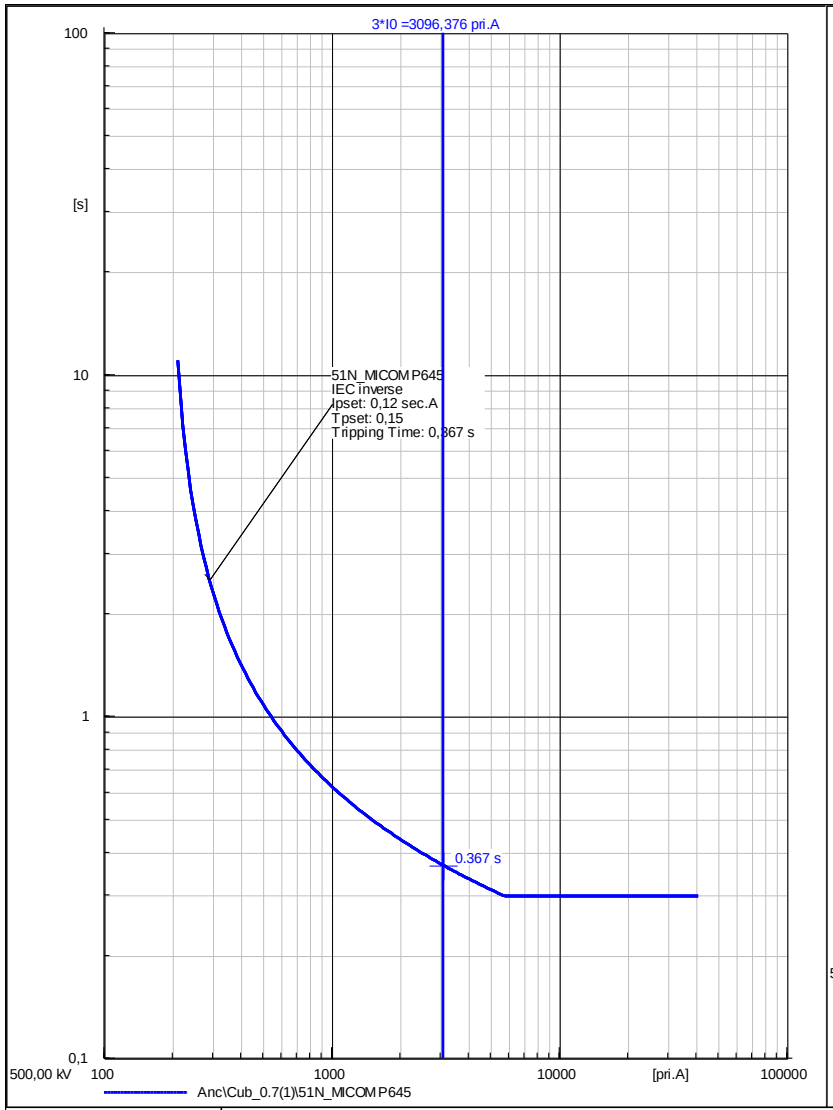

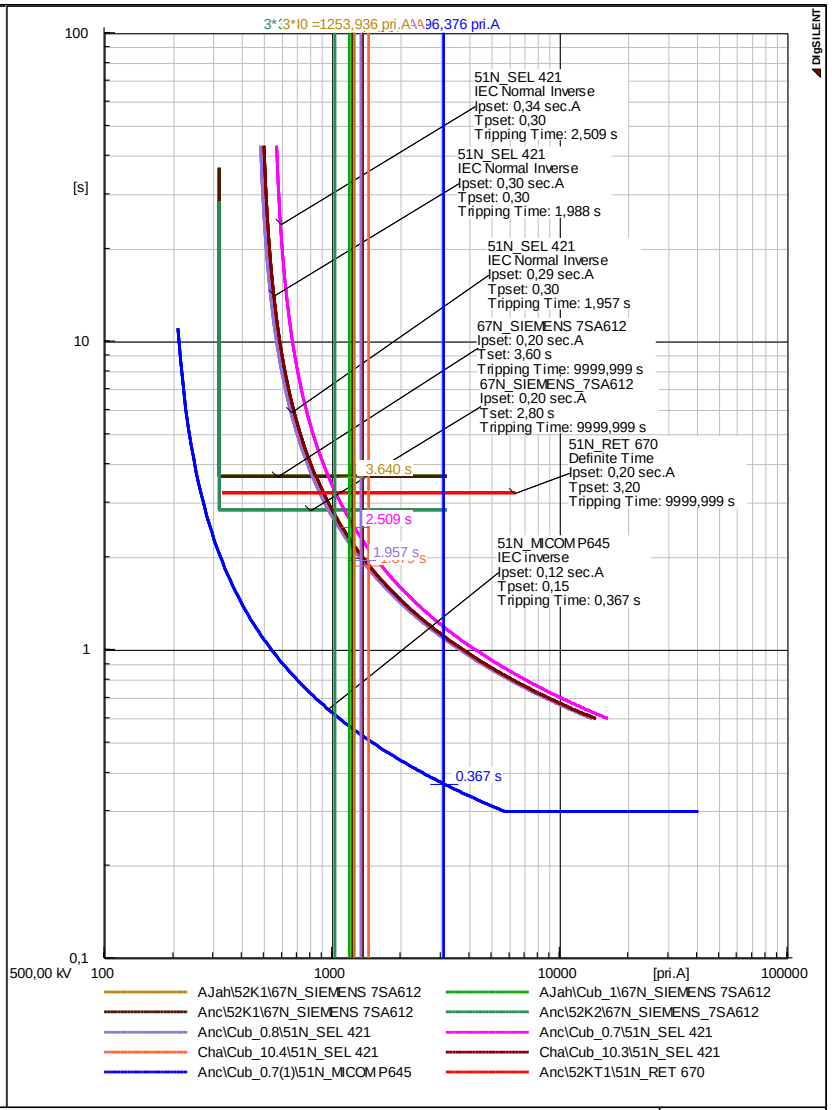

	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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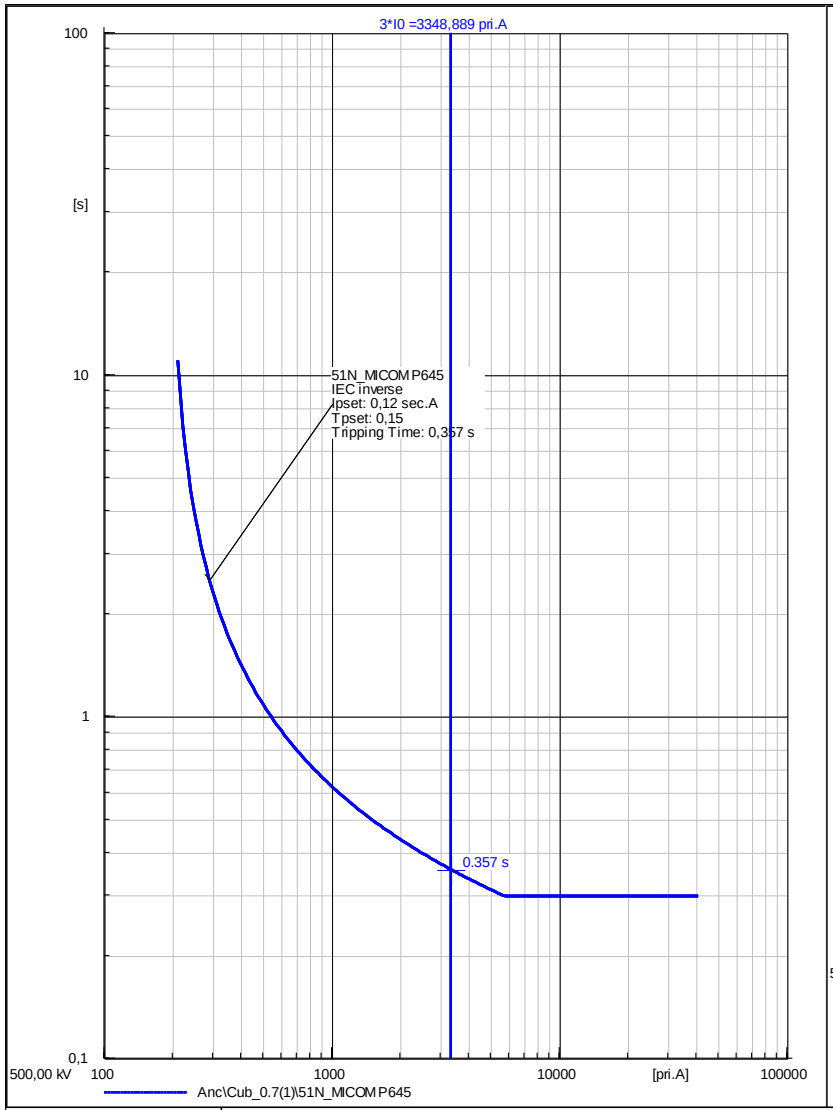

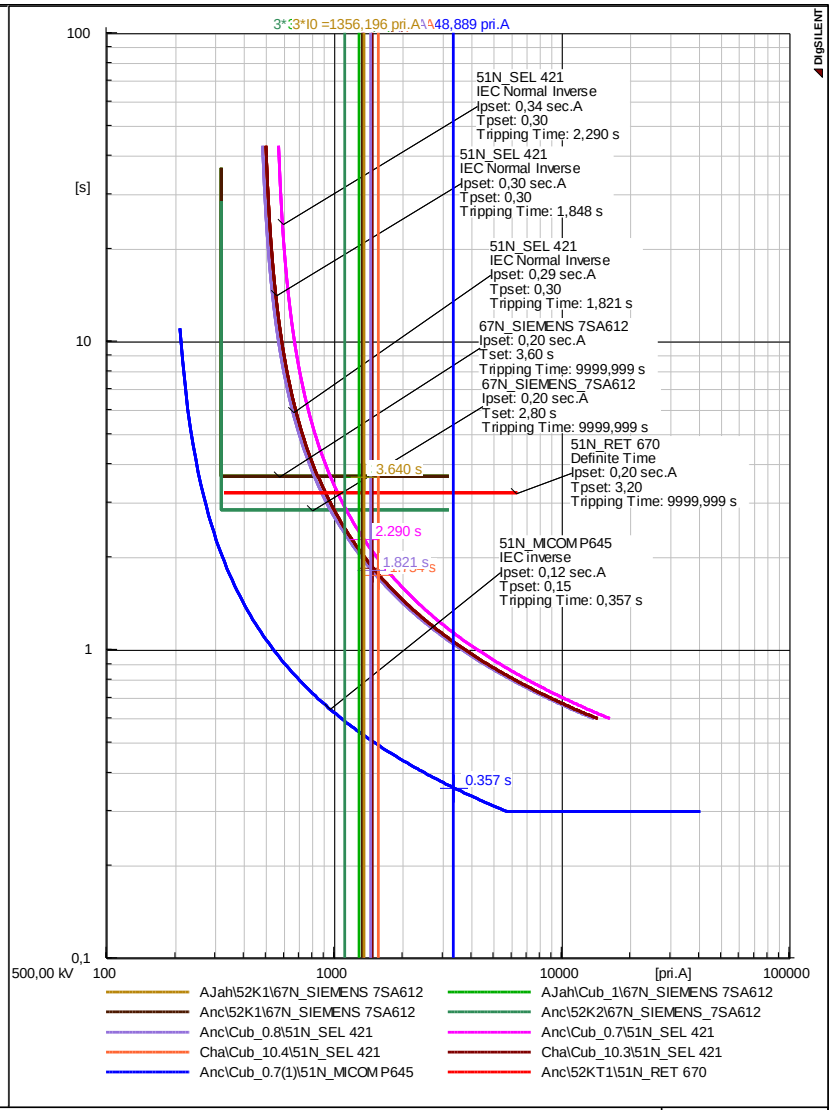

	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:

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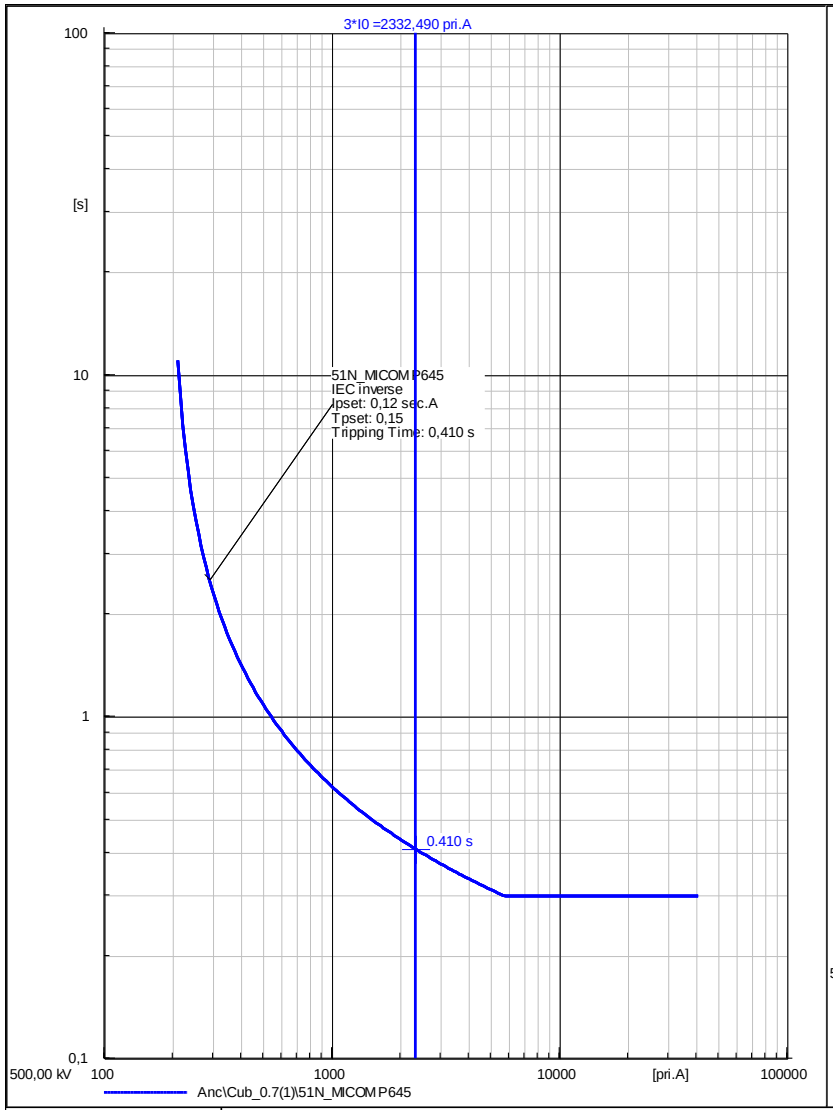

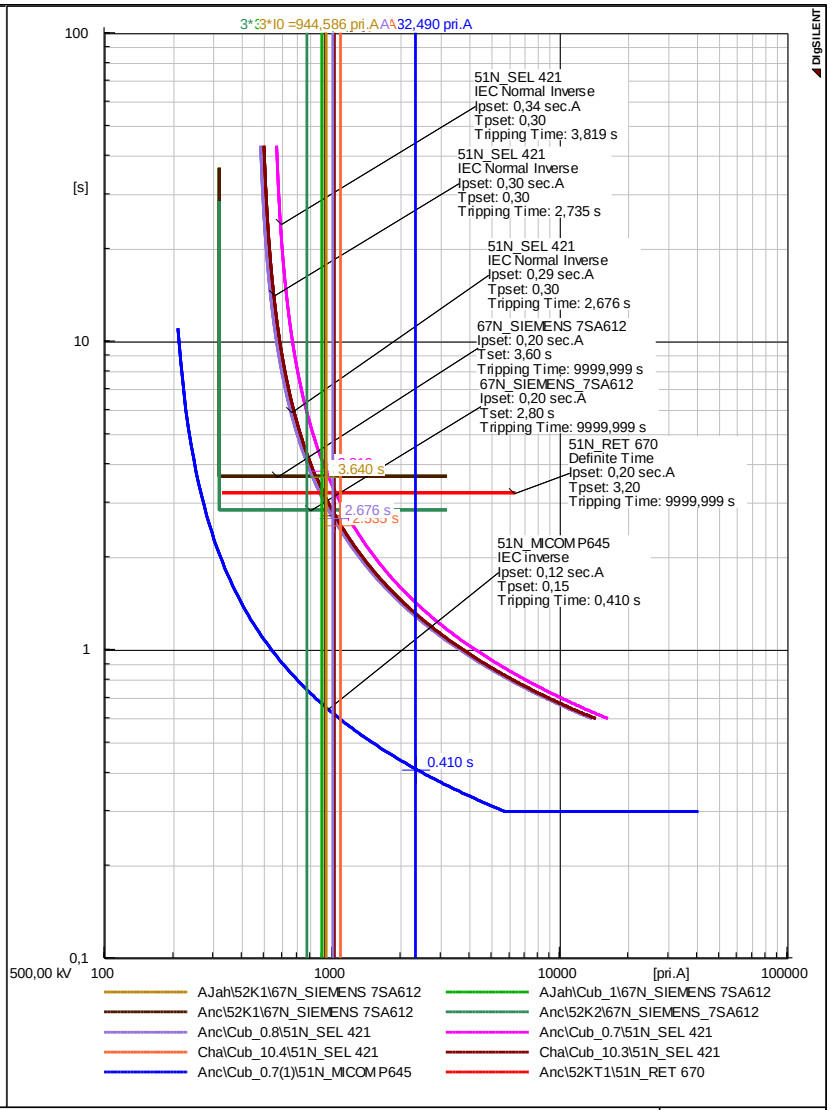

	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

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FALLA EN EL TERMINAL DE 525 KV DEL AUTOTRANSFORMADOR N°1

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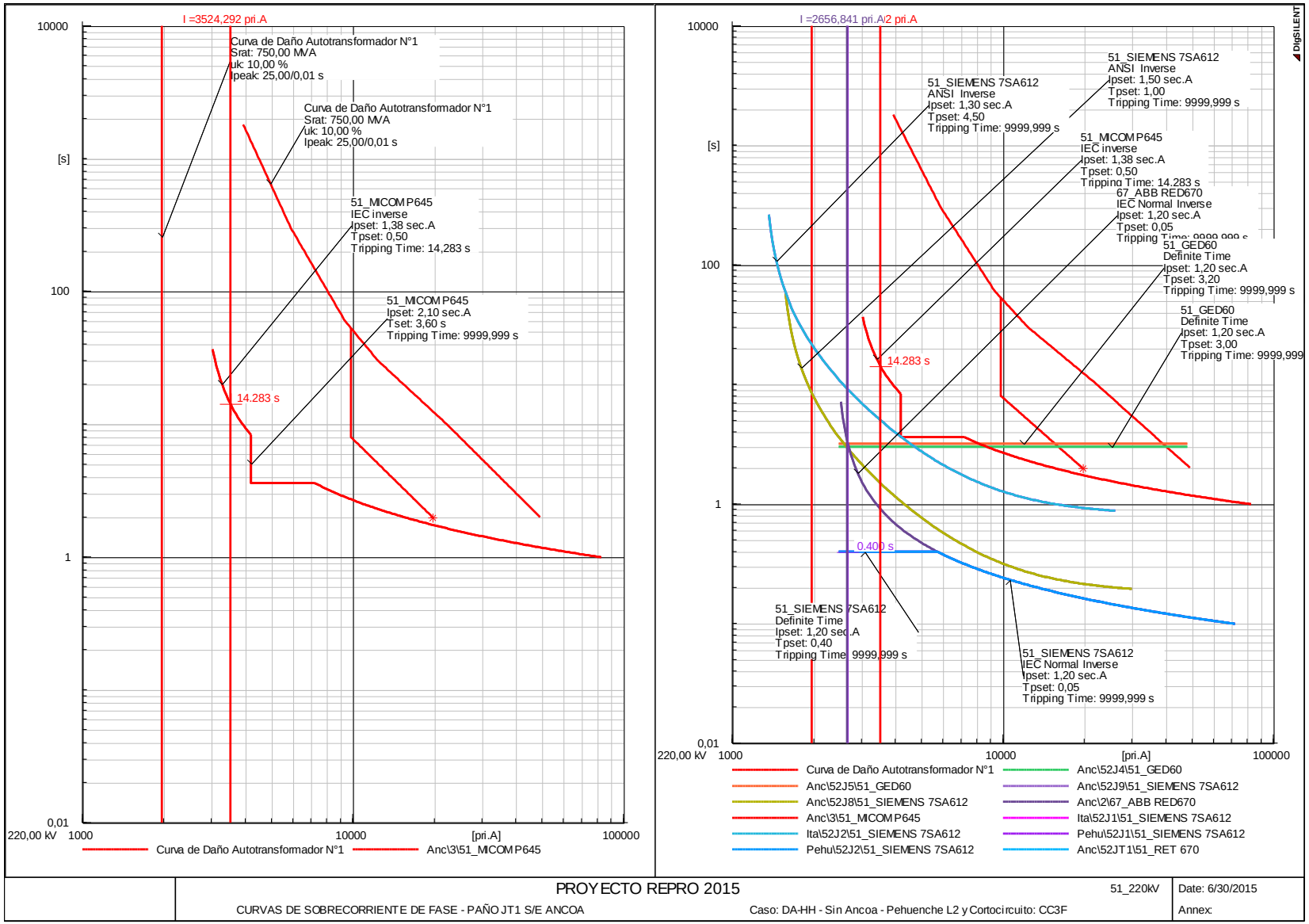
FUNCIÓN 51 LADO DE 220 KV



	PROYECTO REPRO 2015	51_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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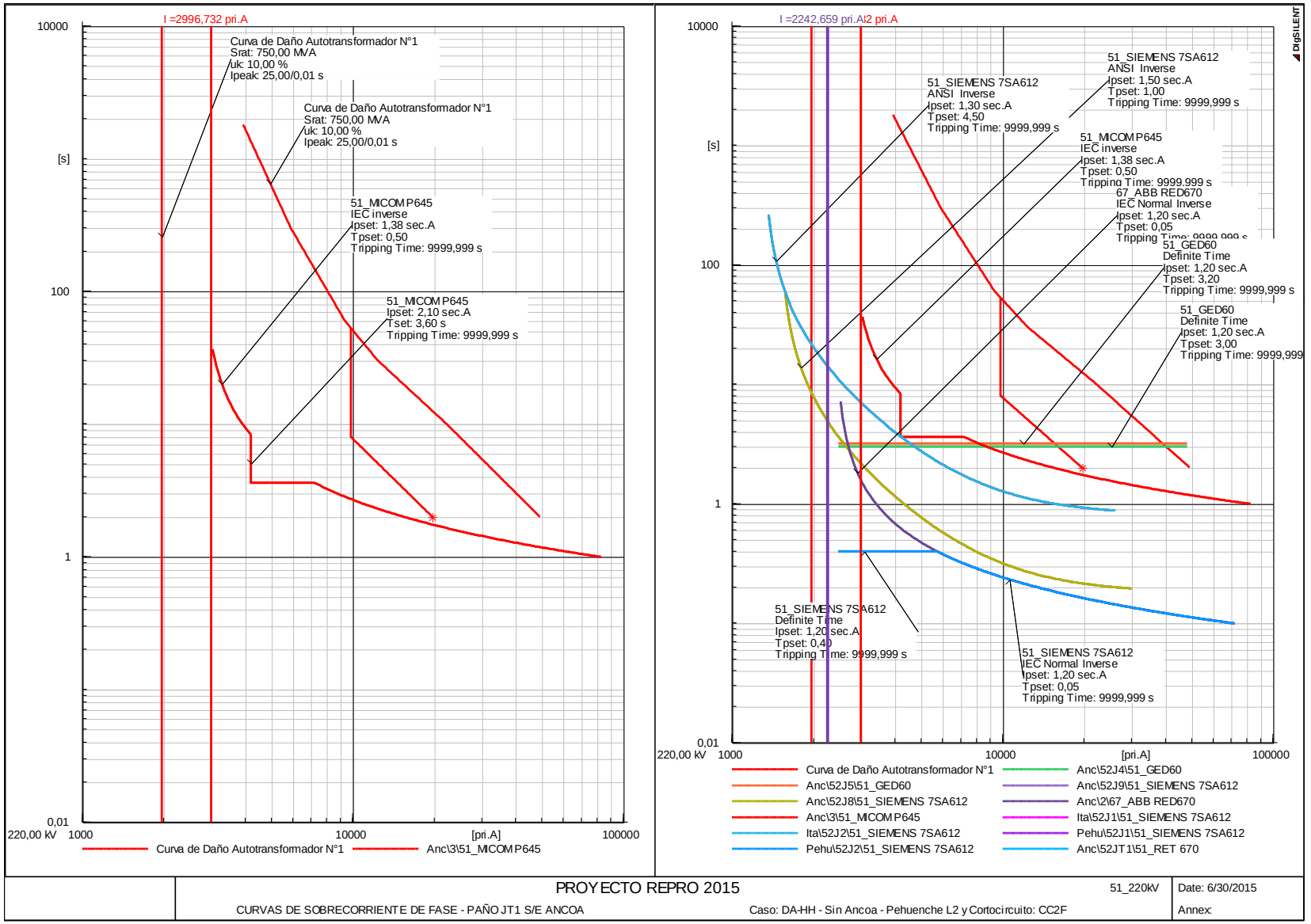

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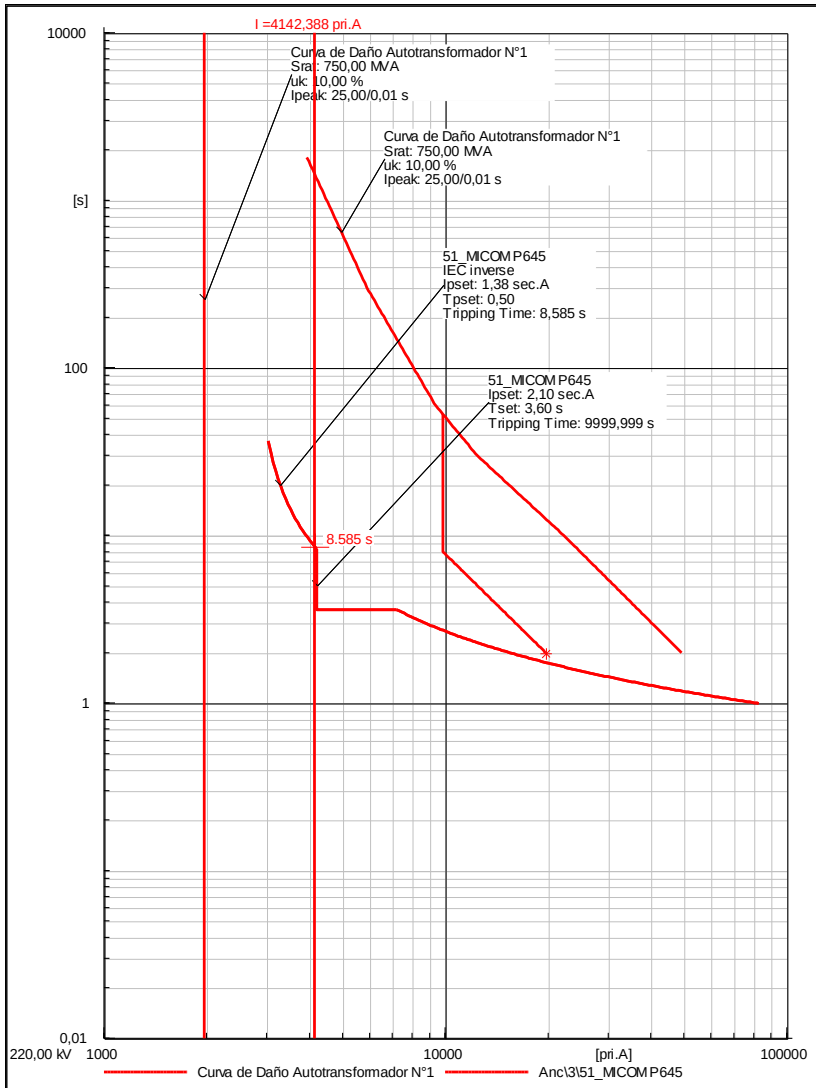

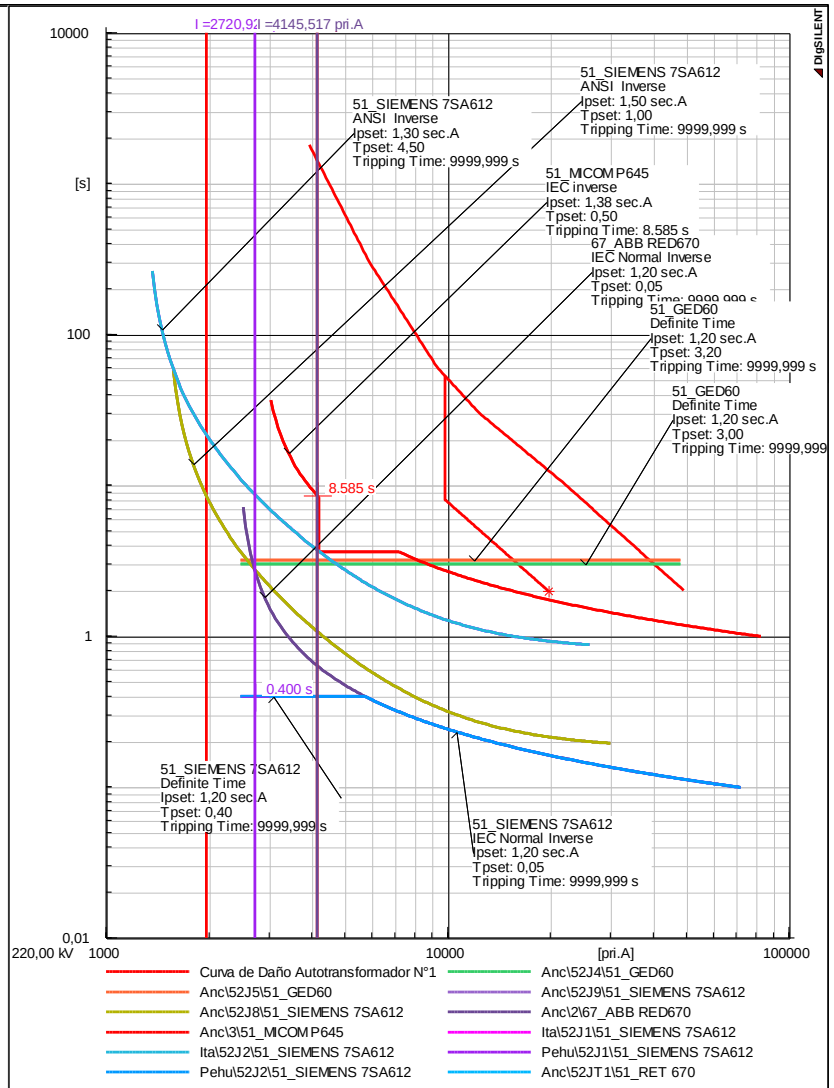

	PROYECTO REPRO 2015	51_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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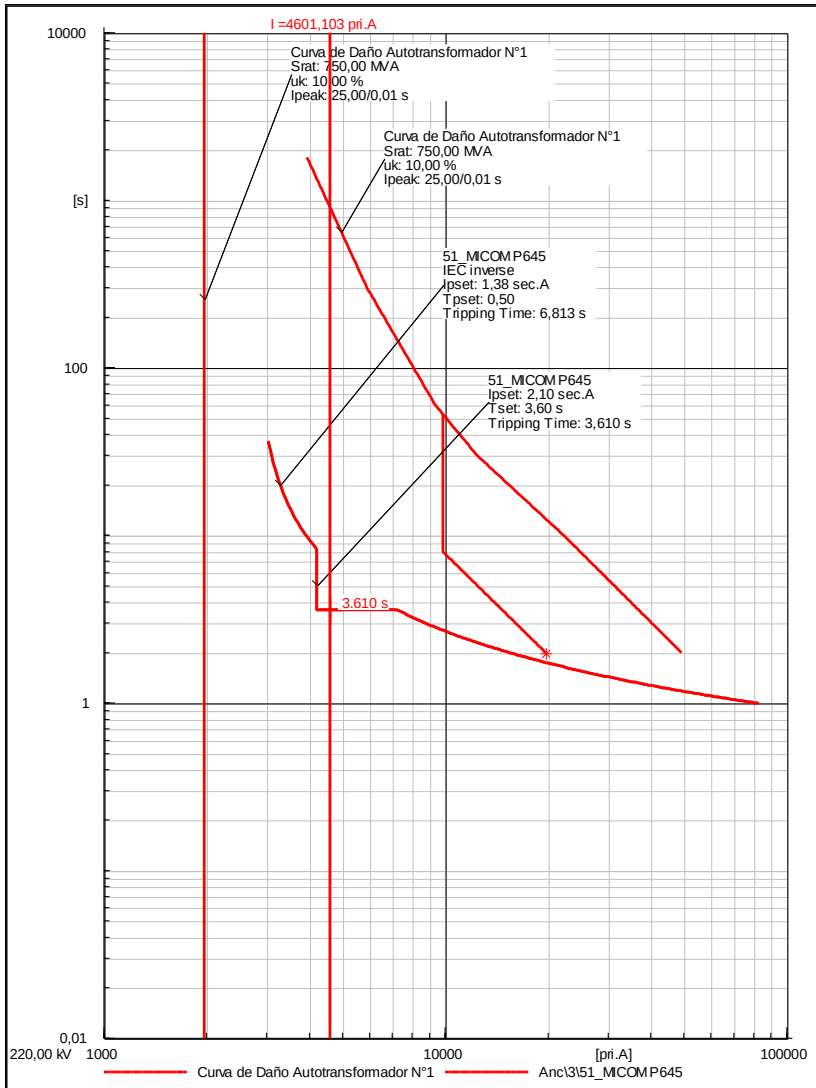

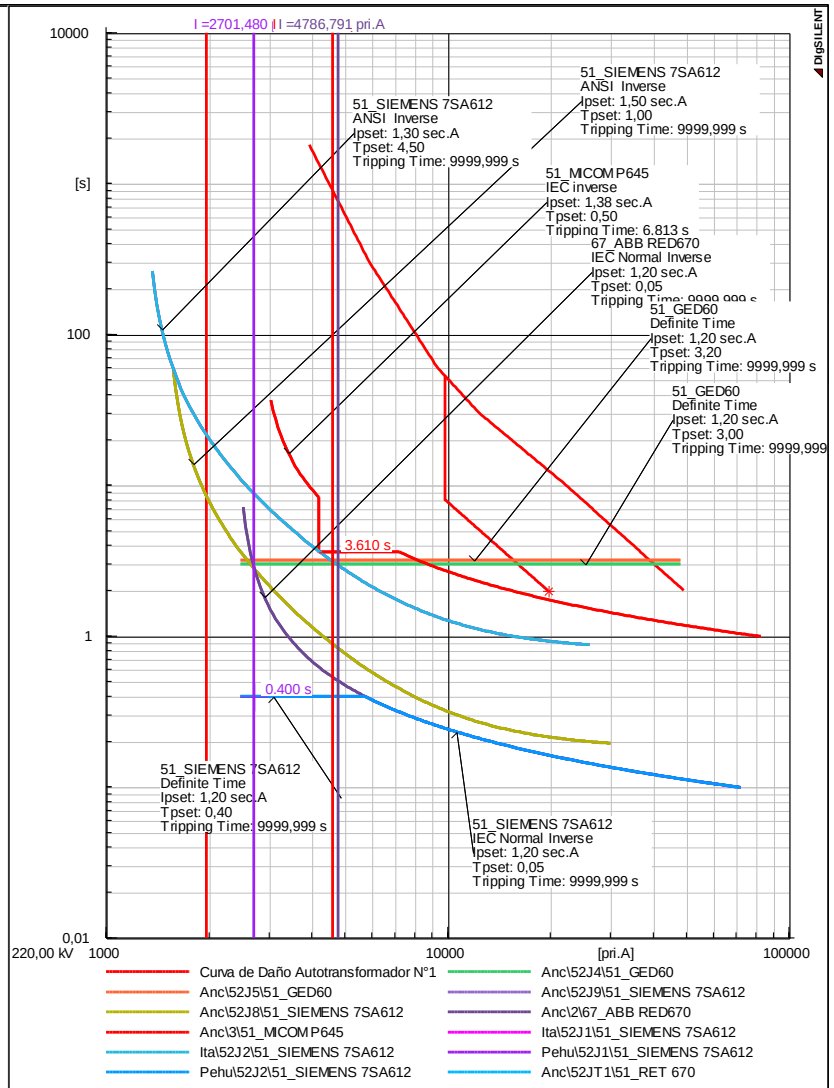

	PROYECTO REPRO 2015	51_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:

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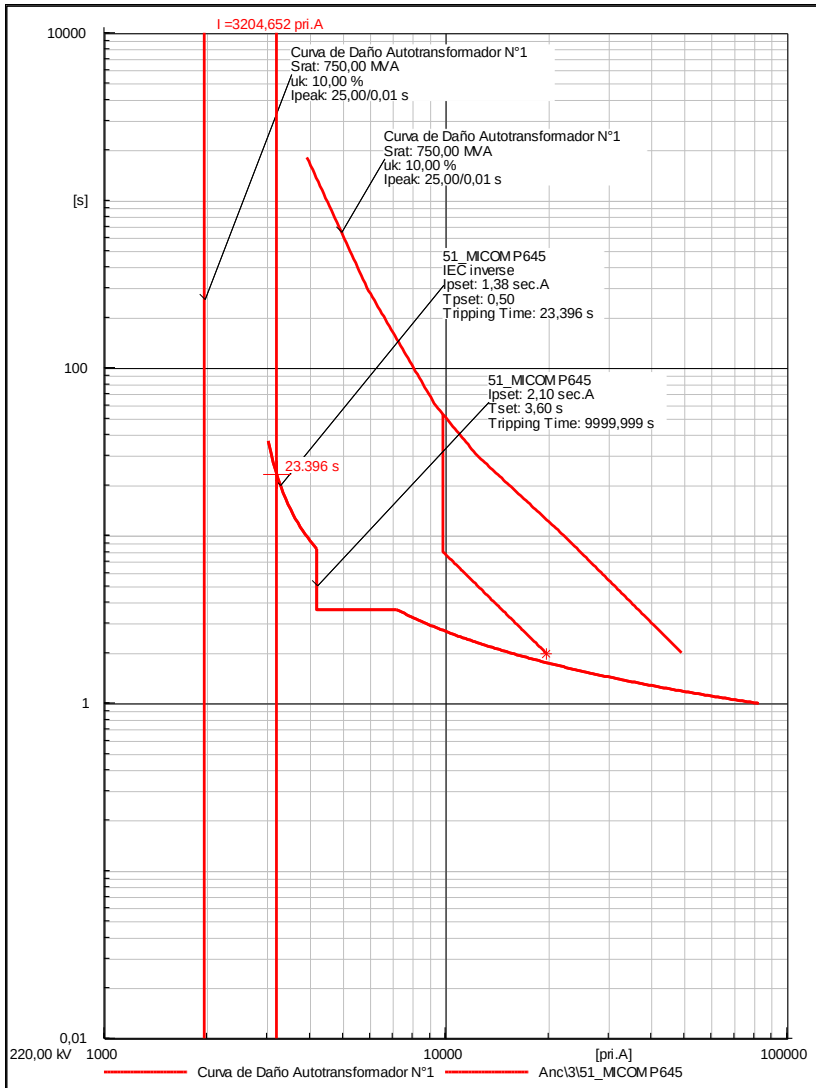

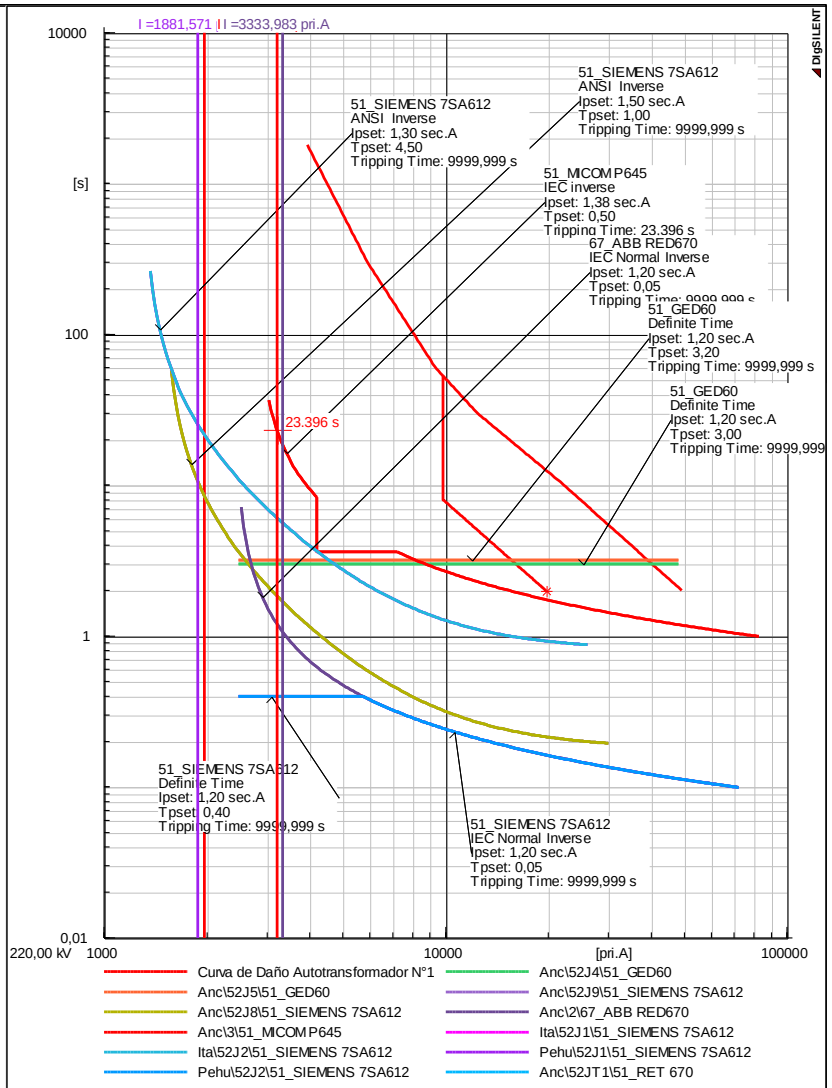

	PROYECTO REPRO 2015	51_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

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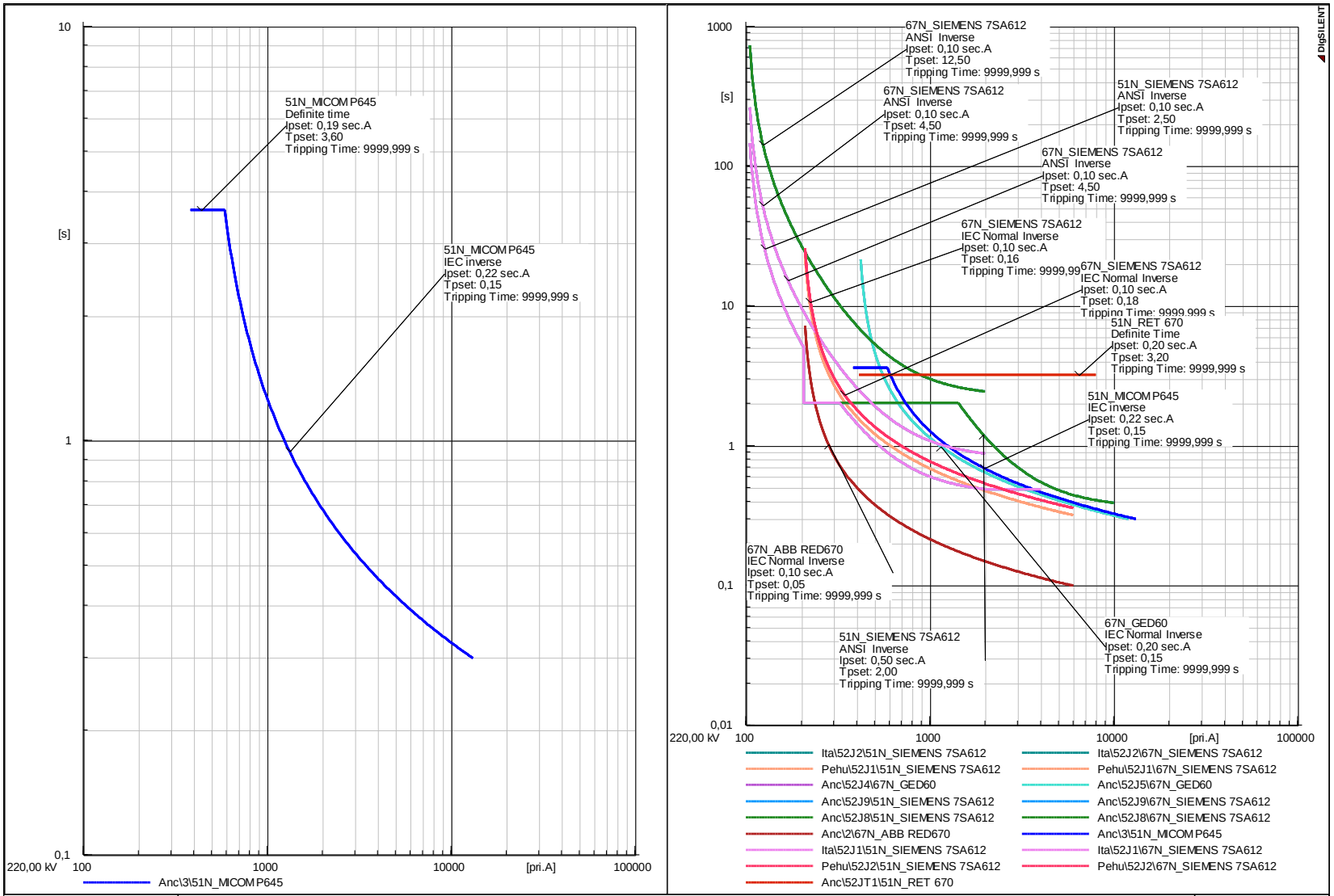
FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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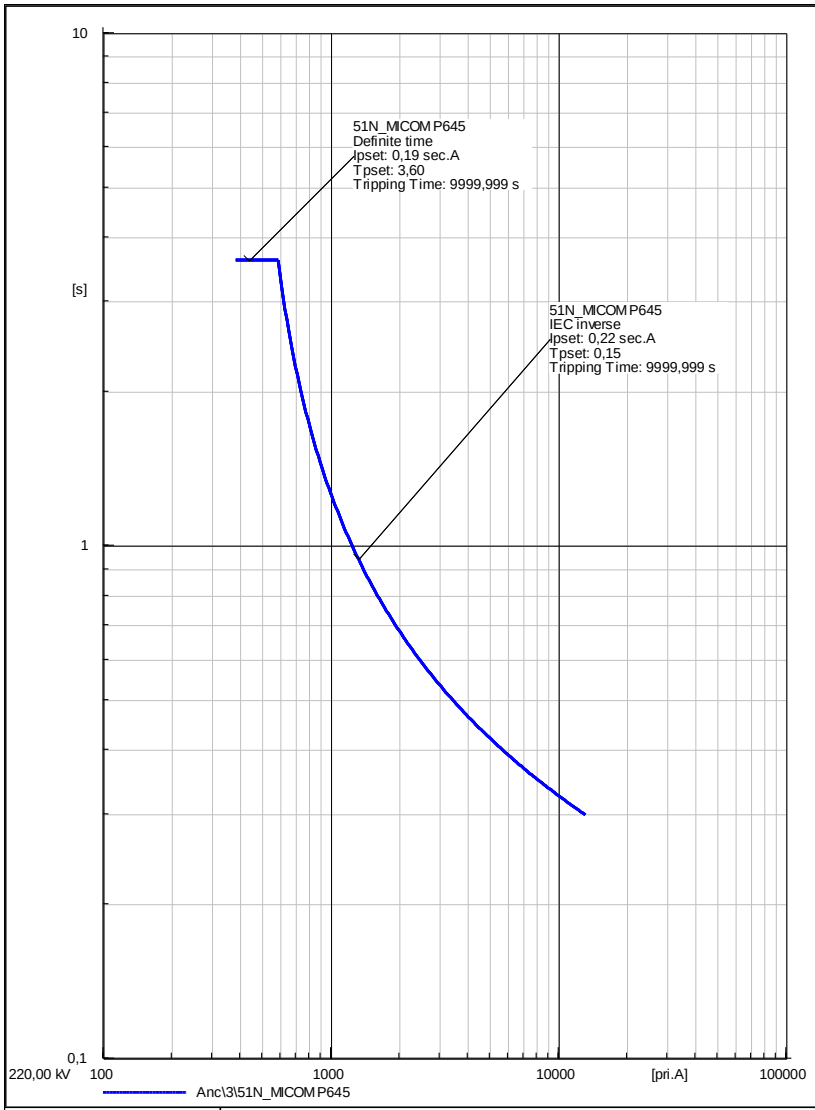

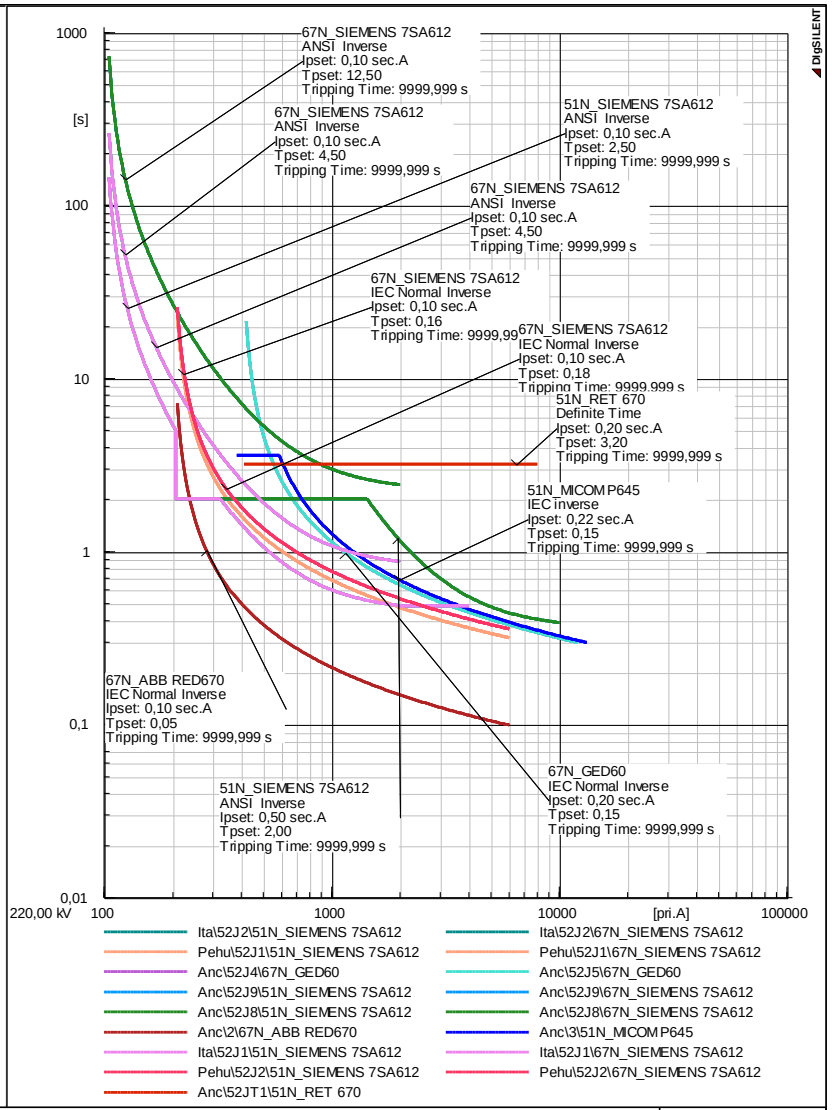

	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
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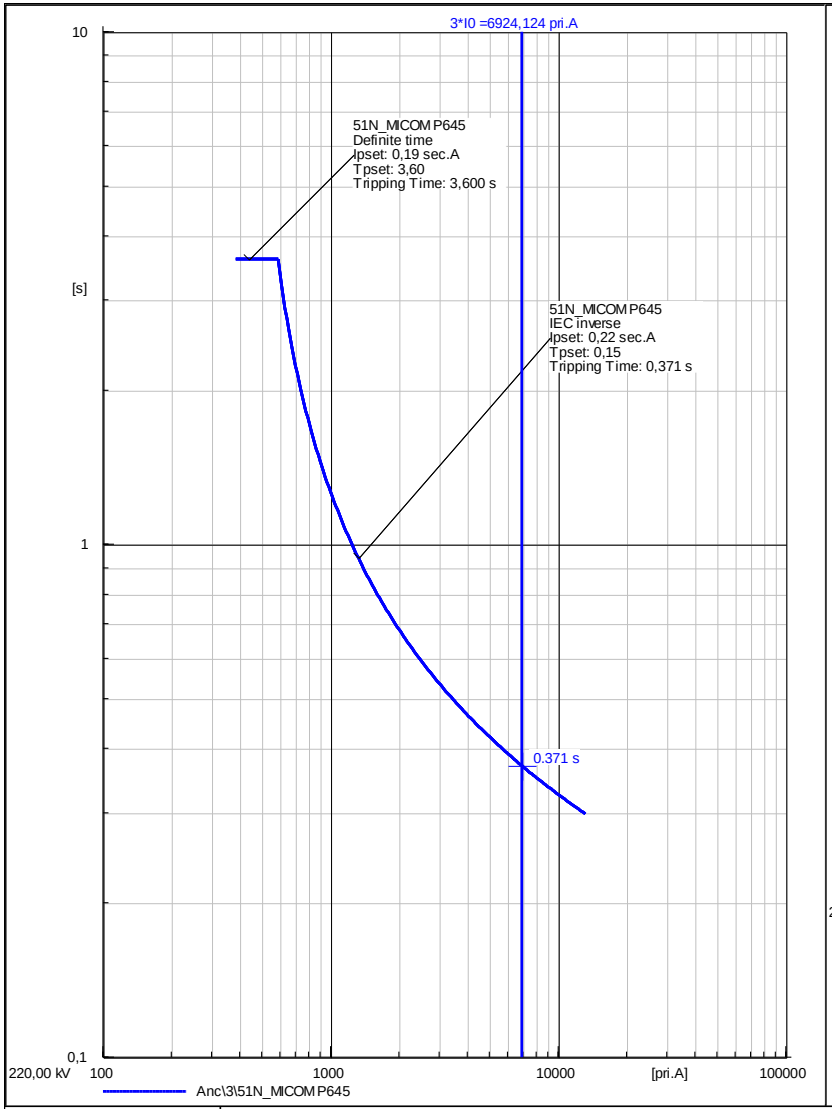

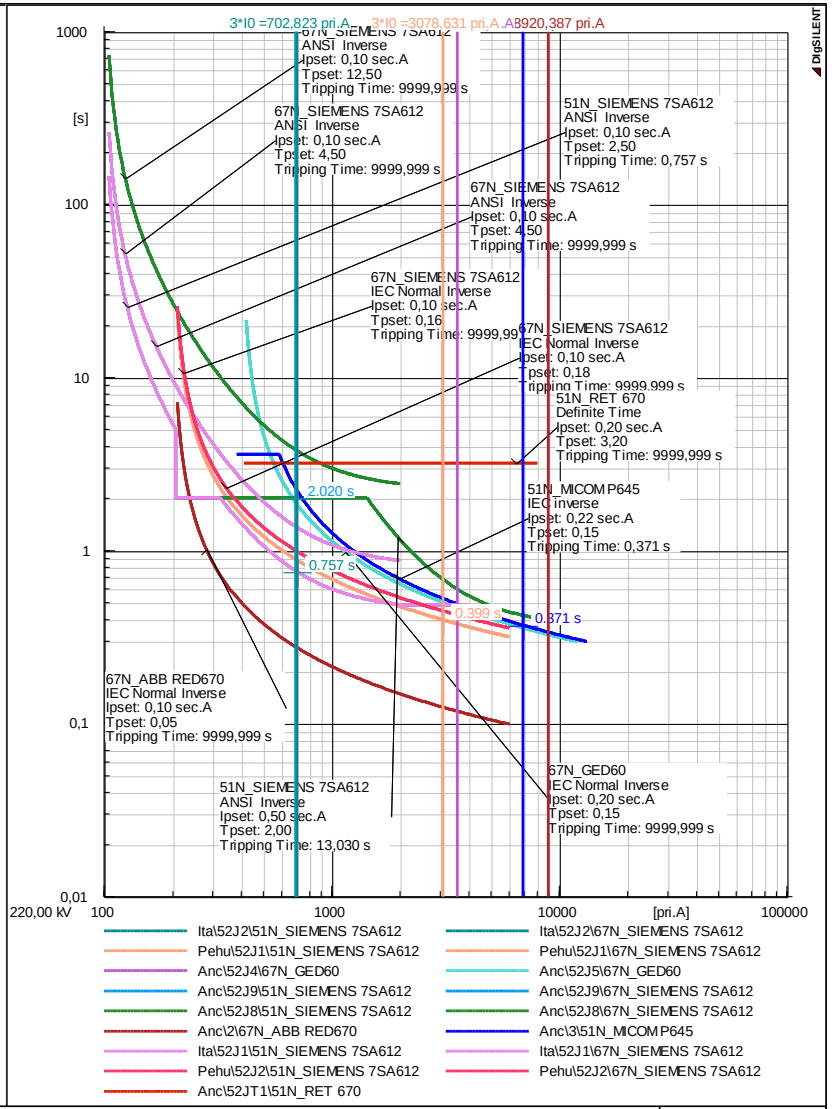

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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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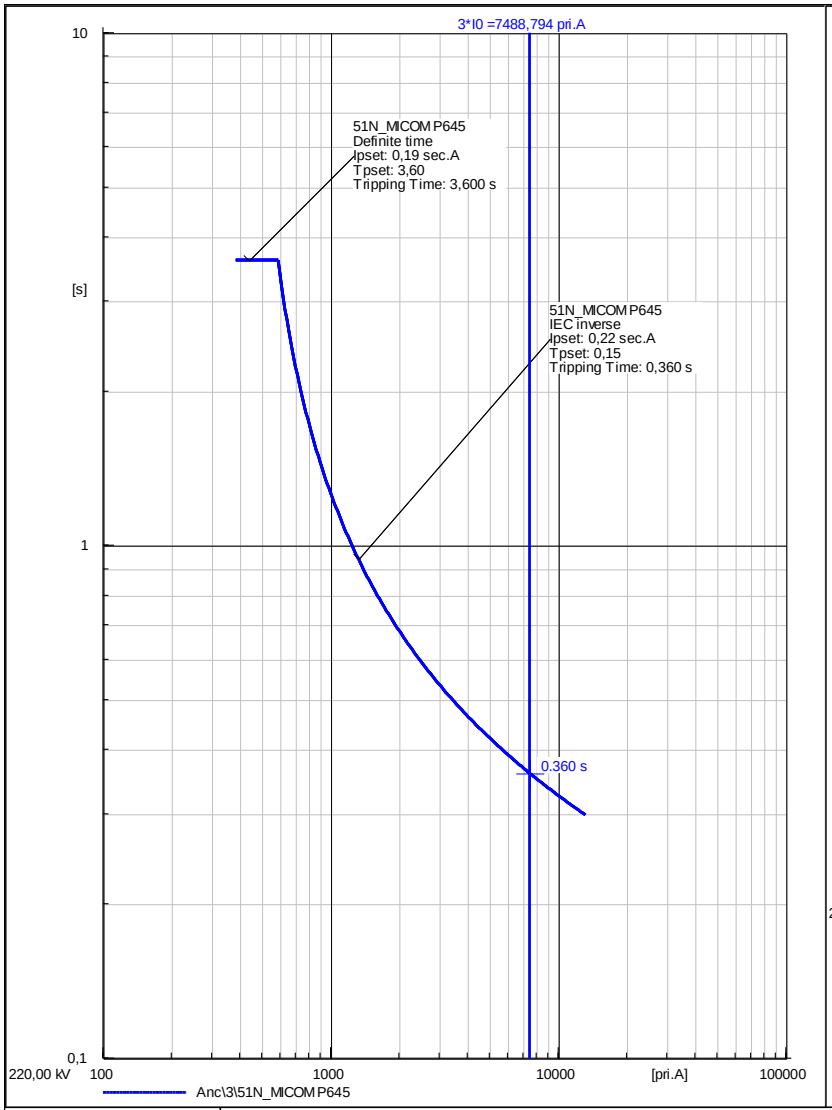

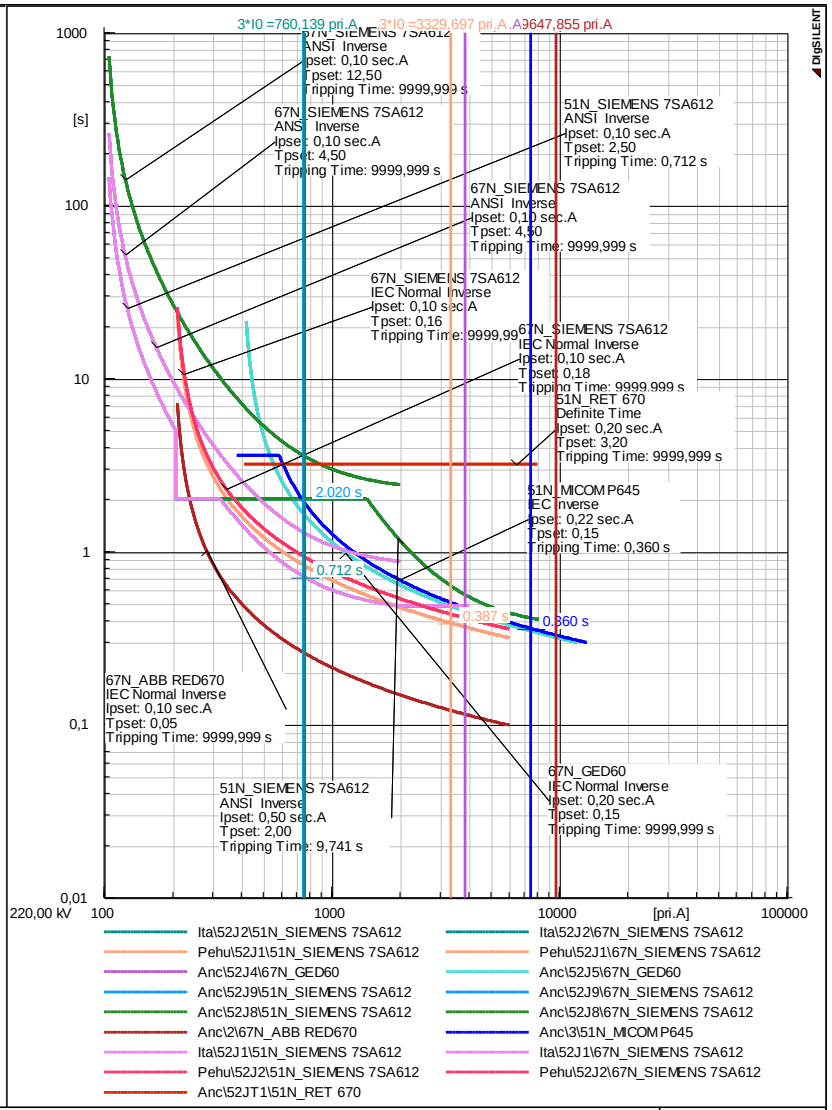

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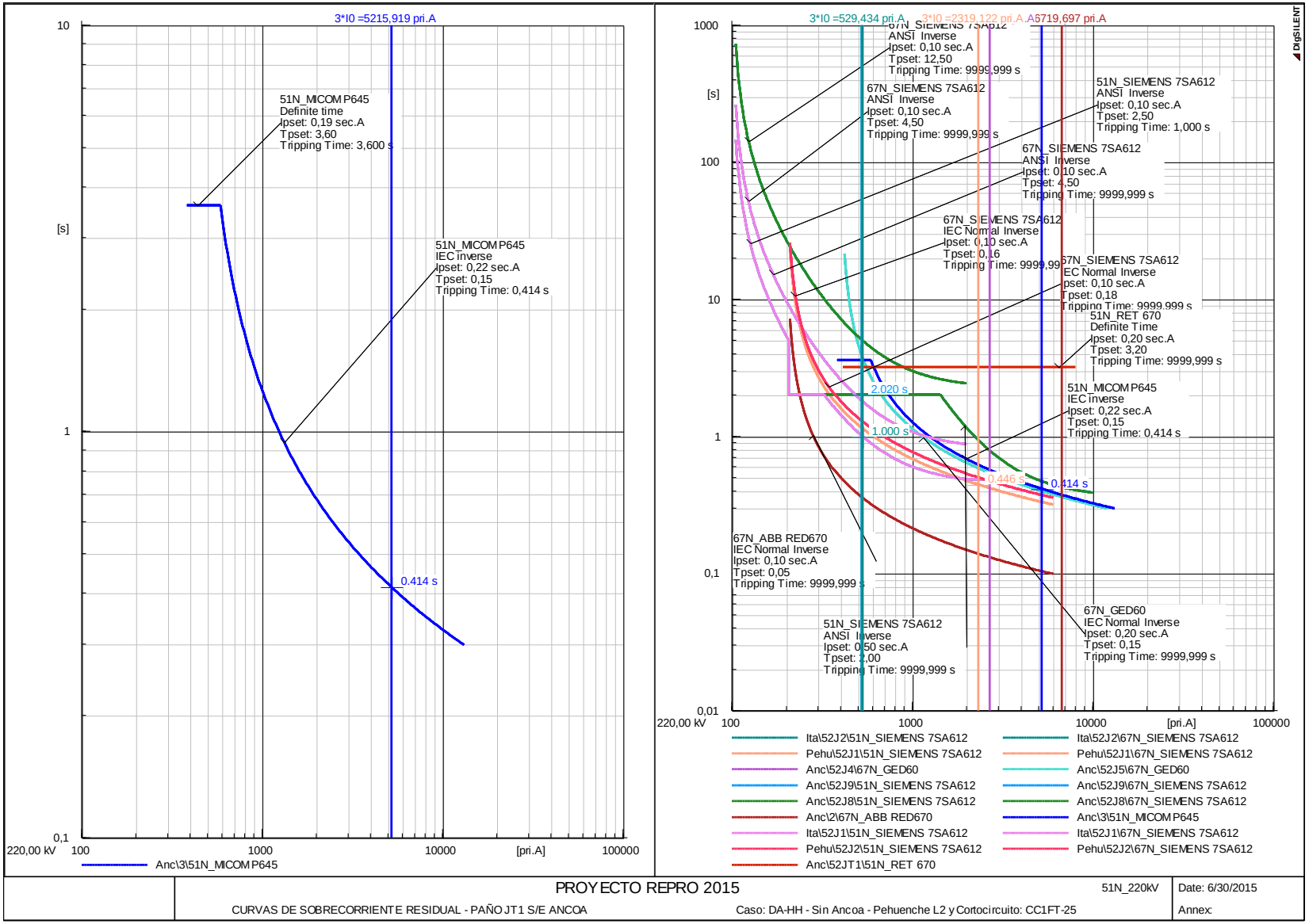

	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

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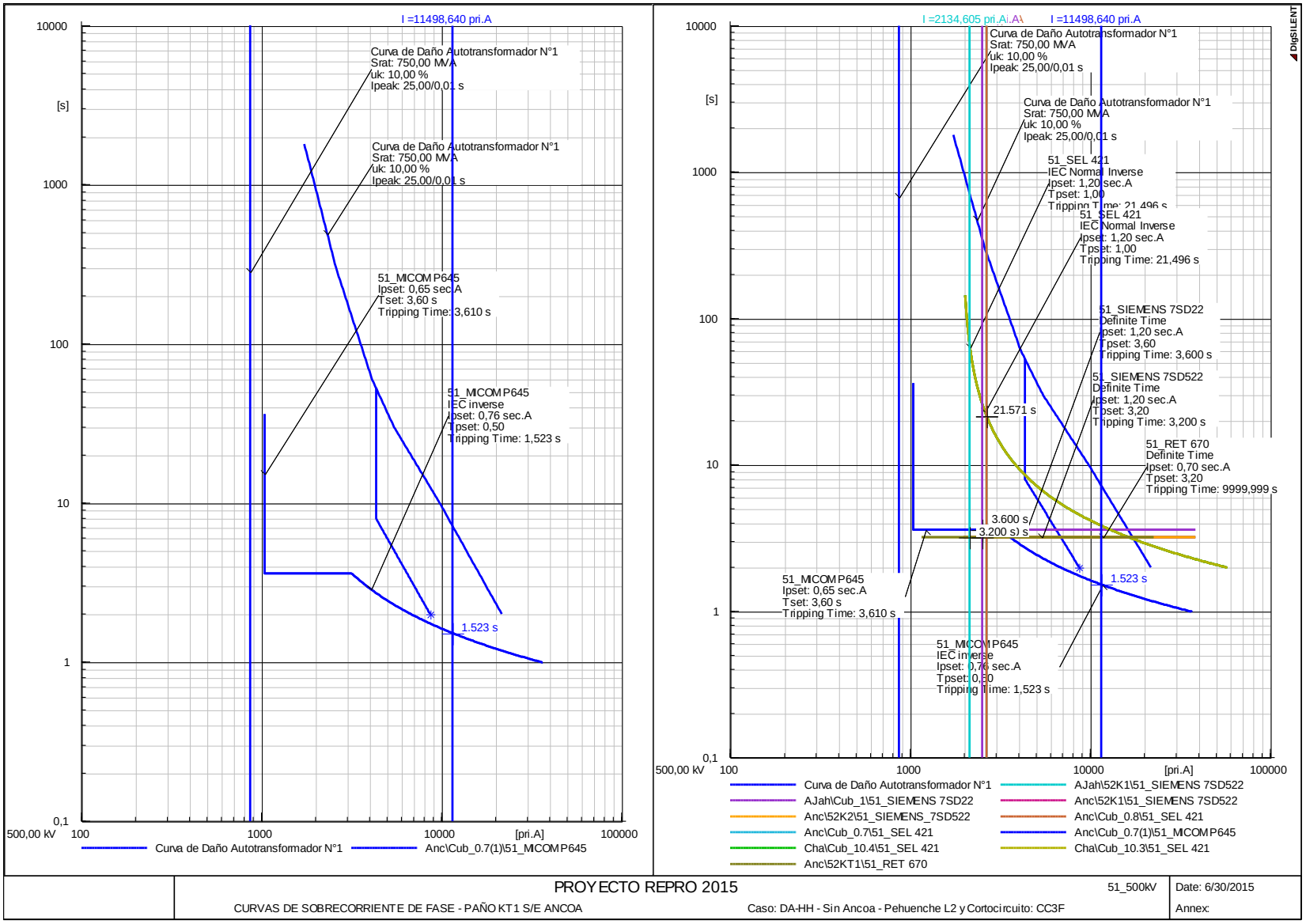
FUNCIÓN 51 LADO DE 500 KV



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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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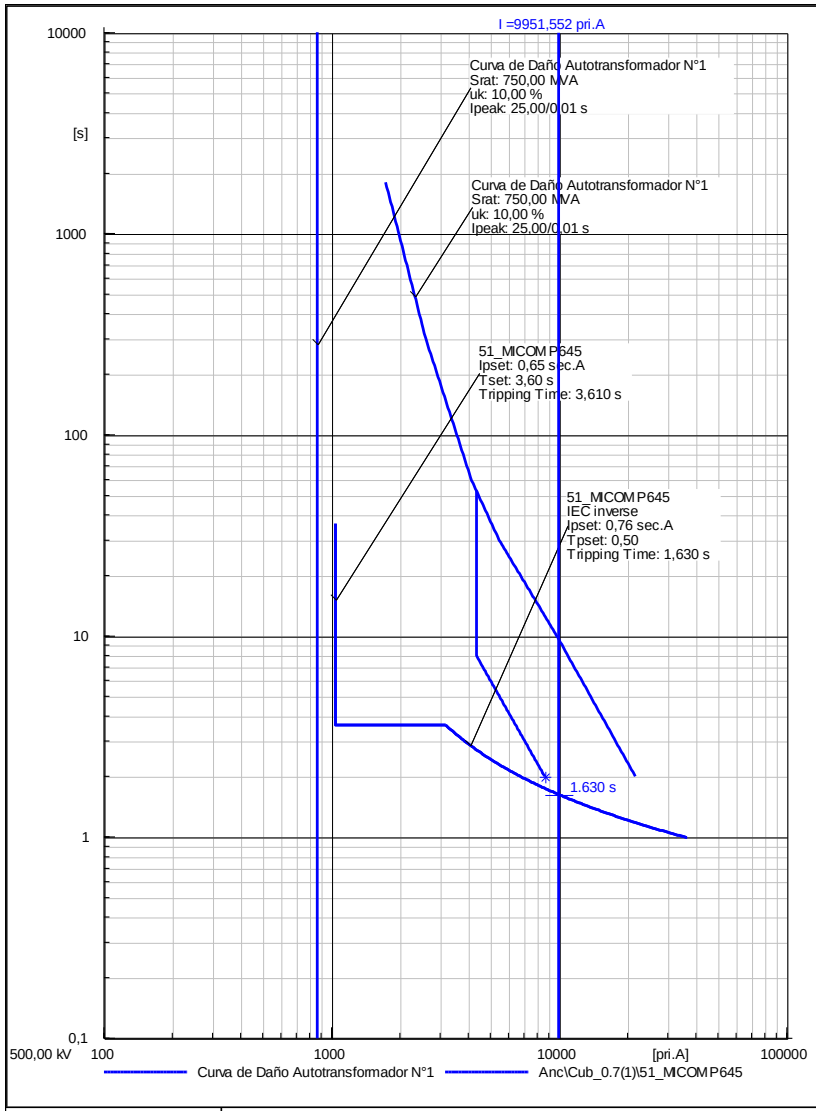

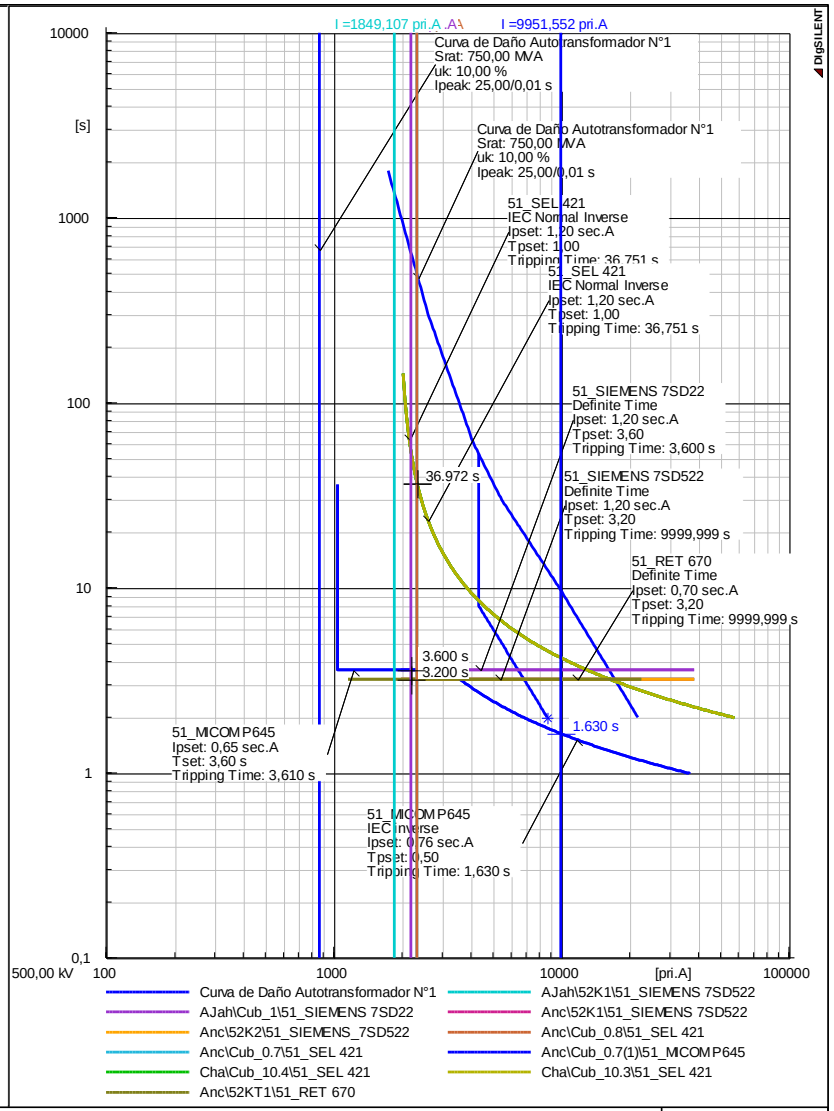

	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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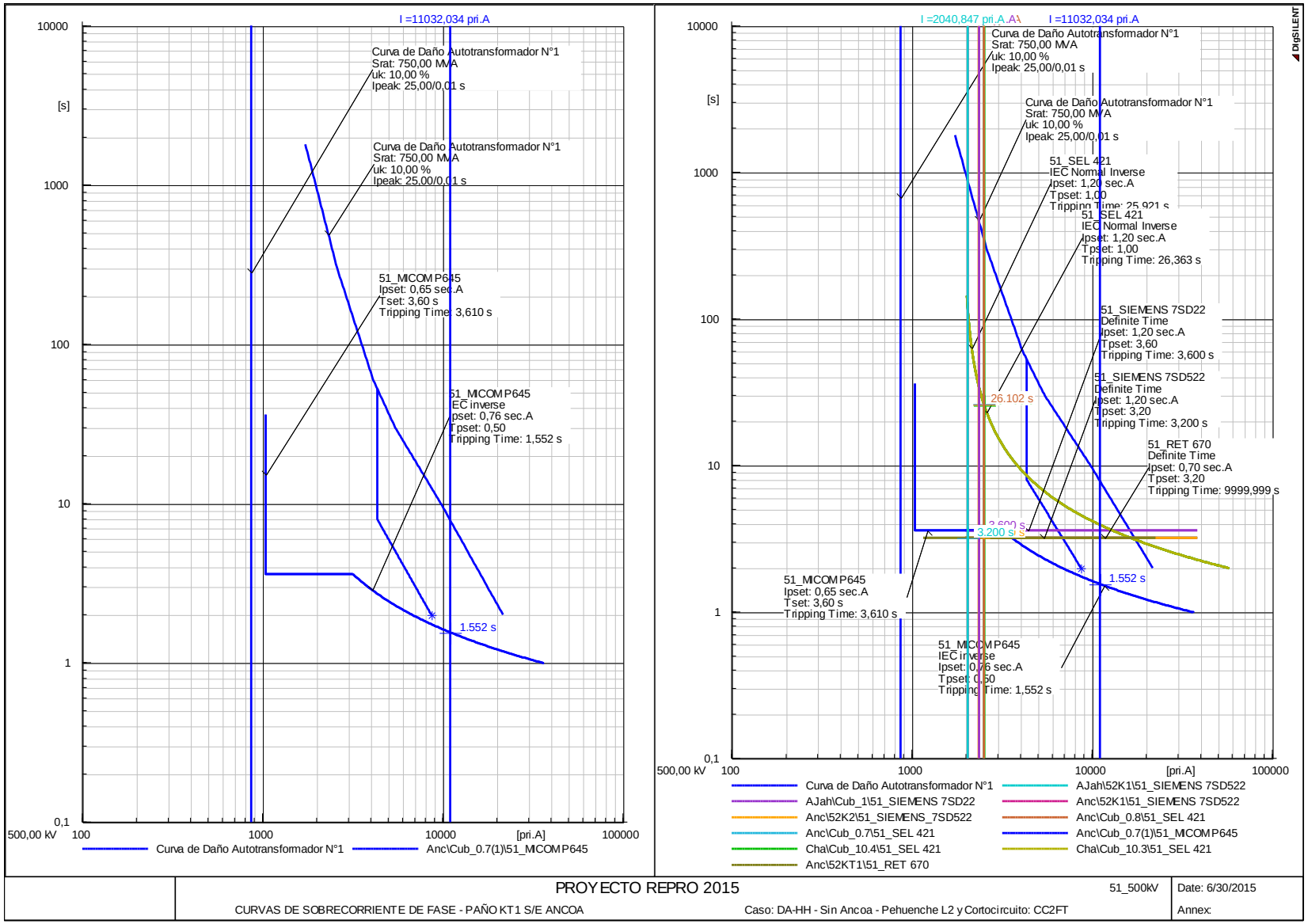

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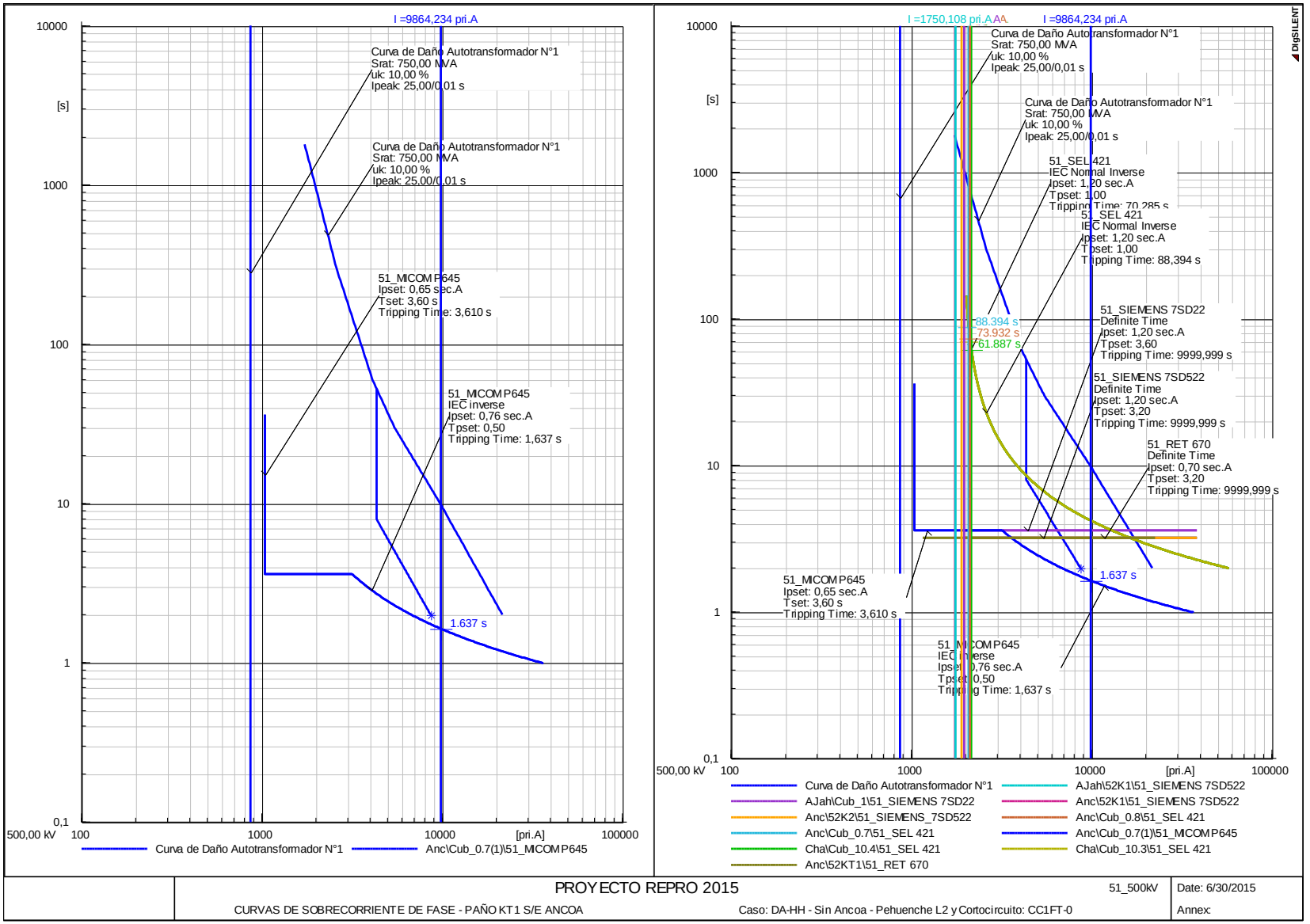

	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:

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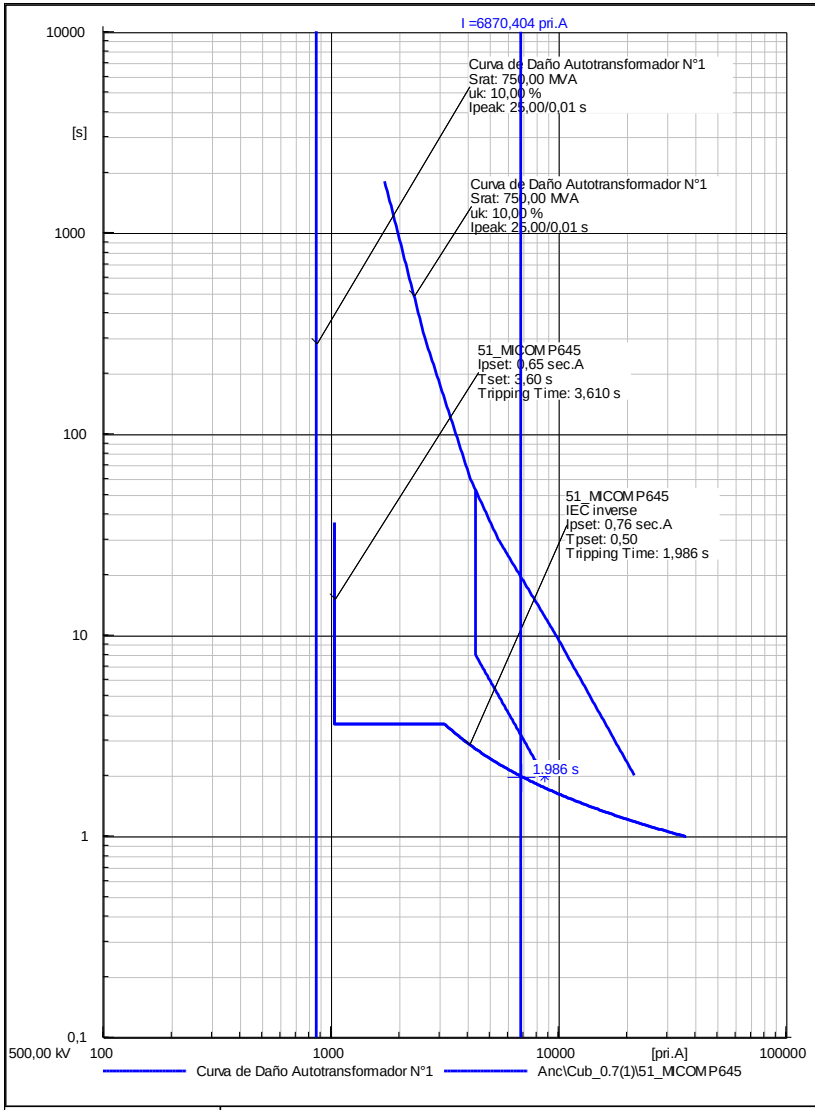
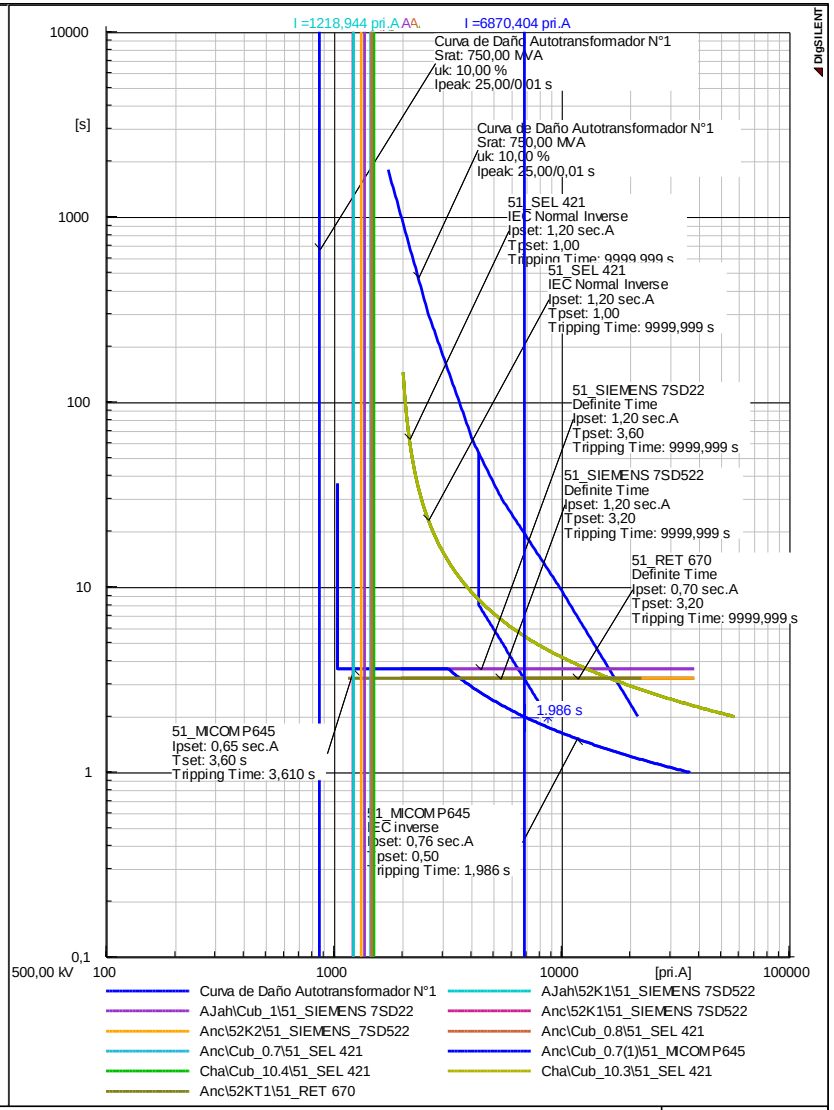
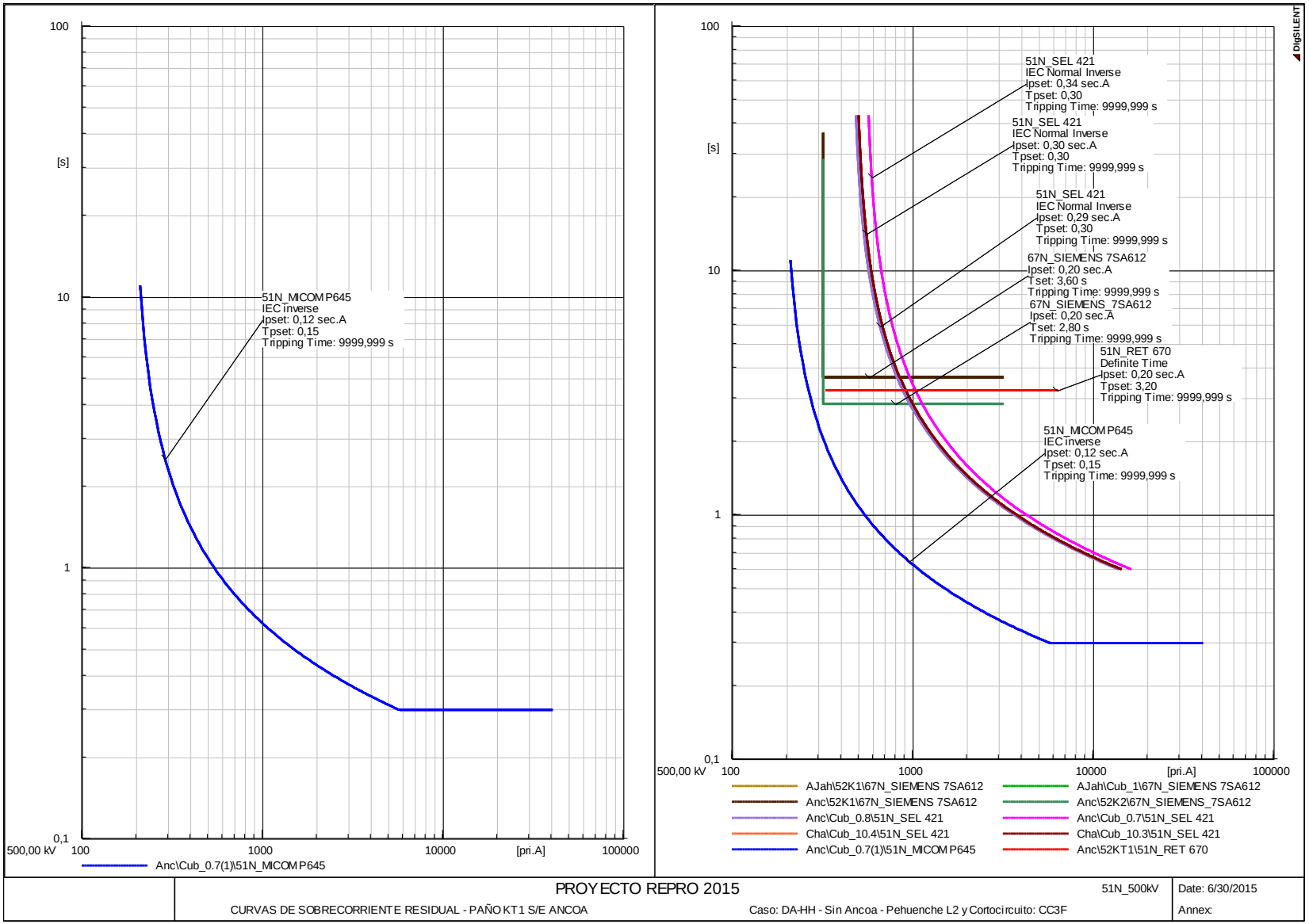




	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

FUNCIÓN 51N LADO DE 500 KV



	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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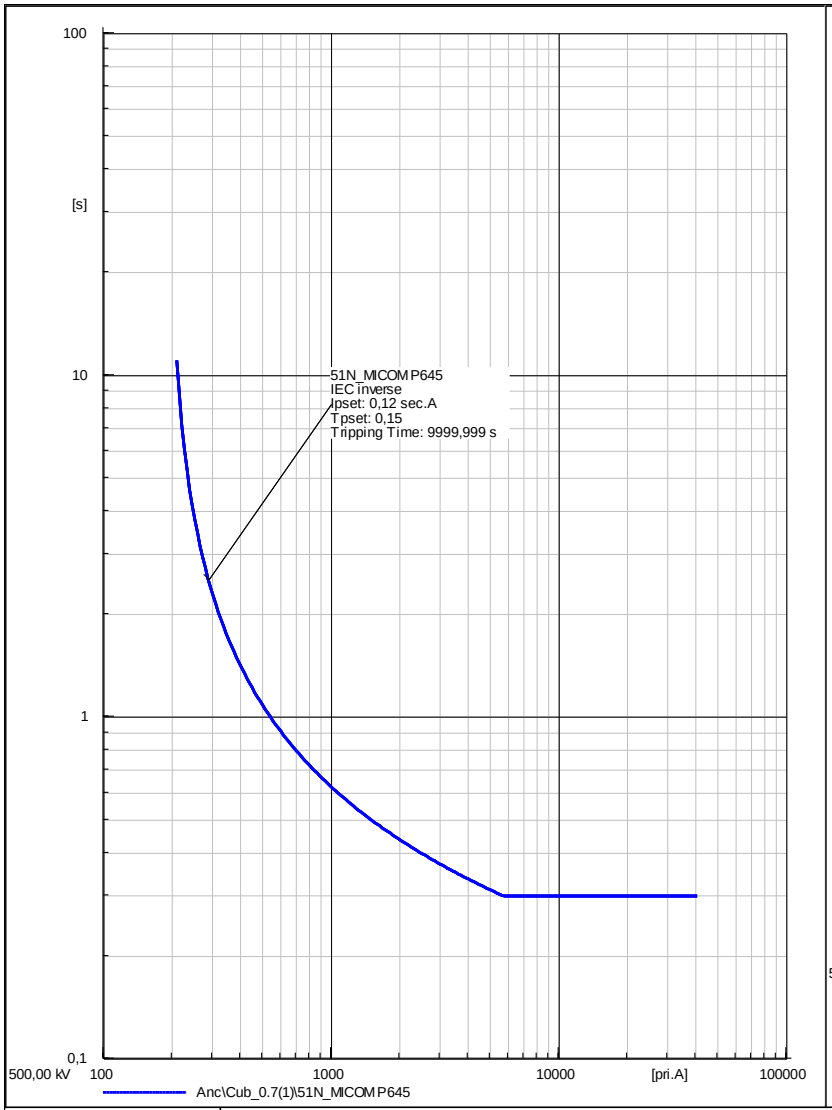

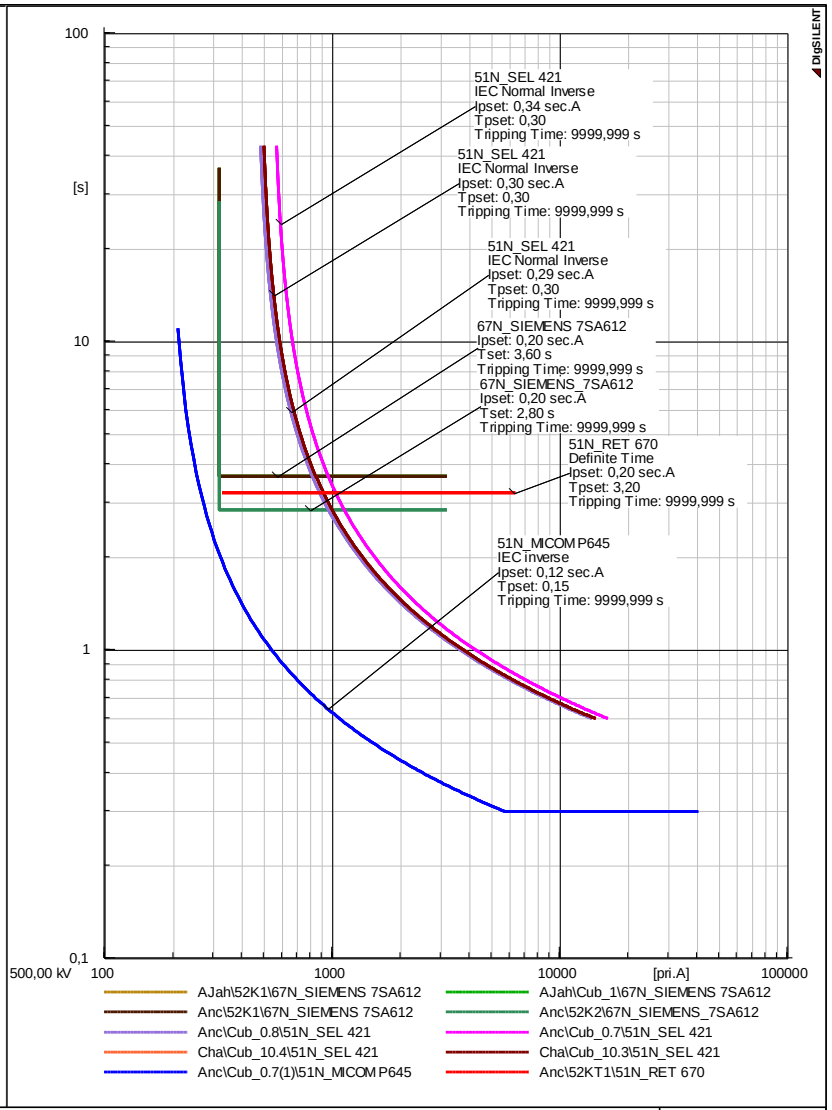

	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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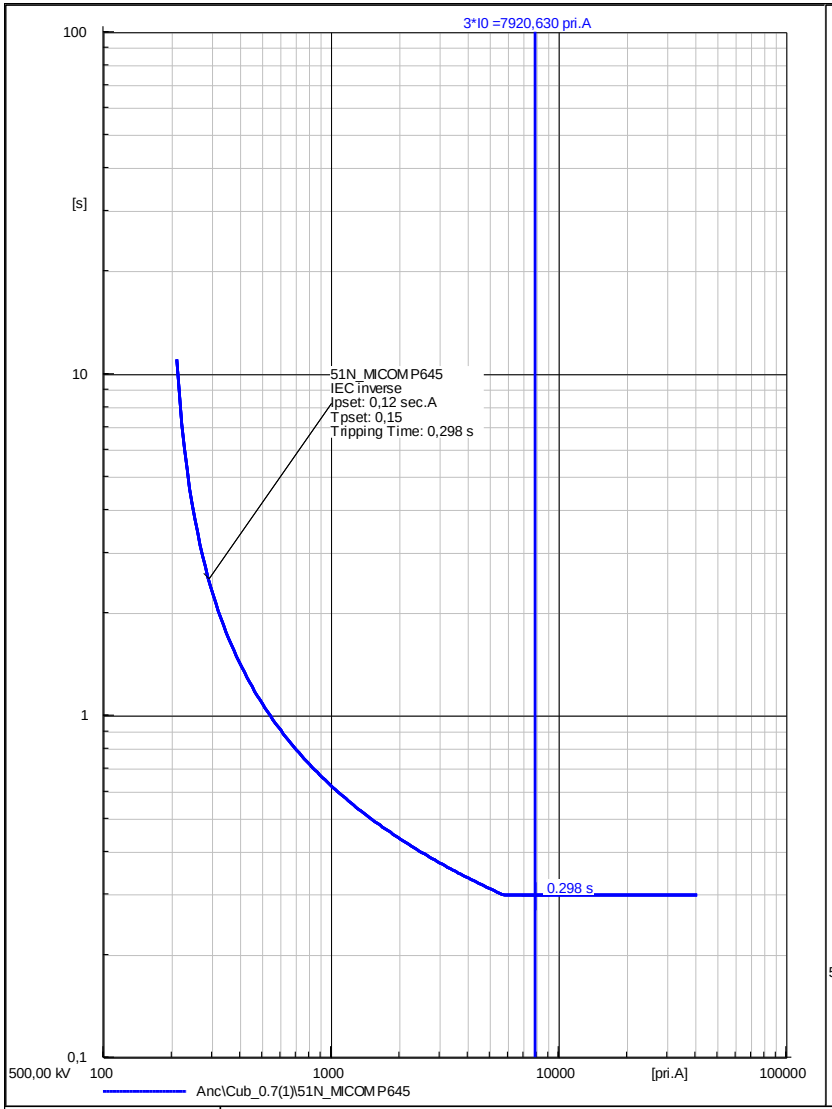

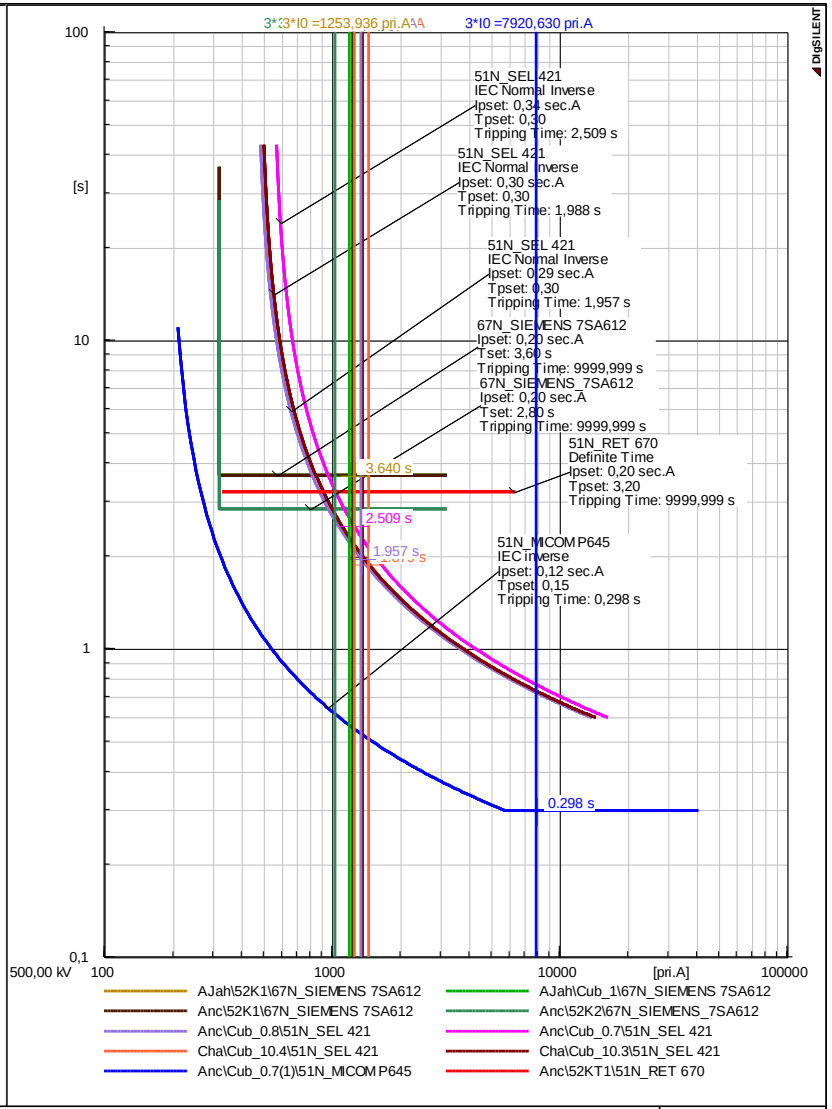

	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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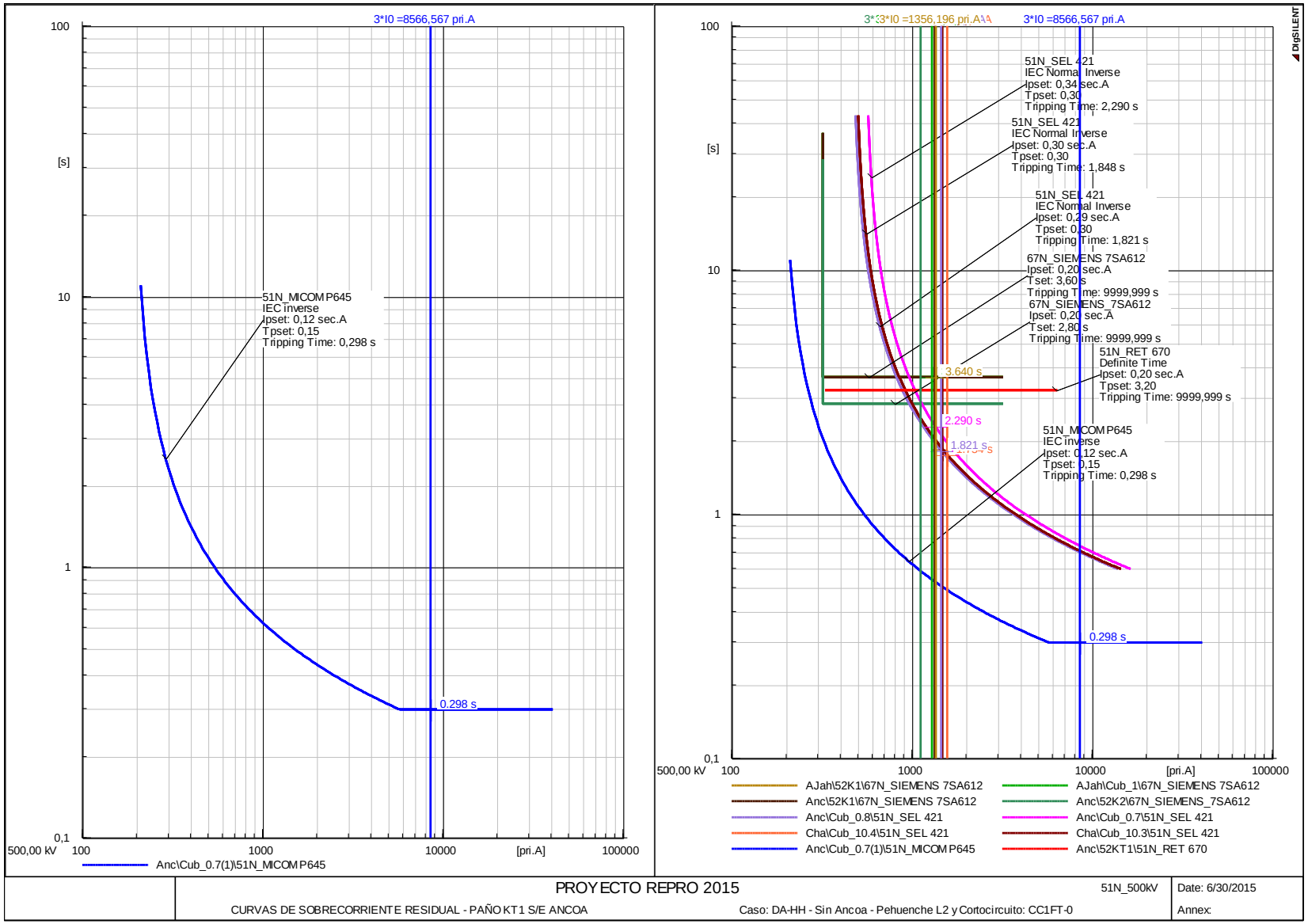

	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:

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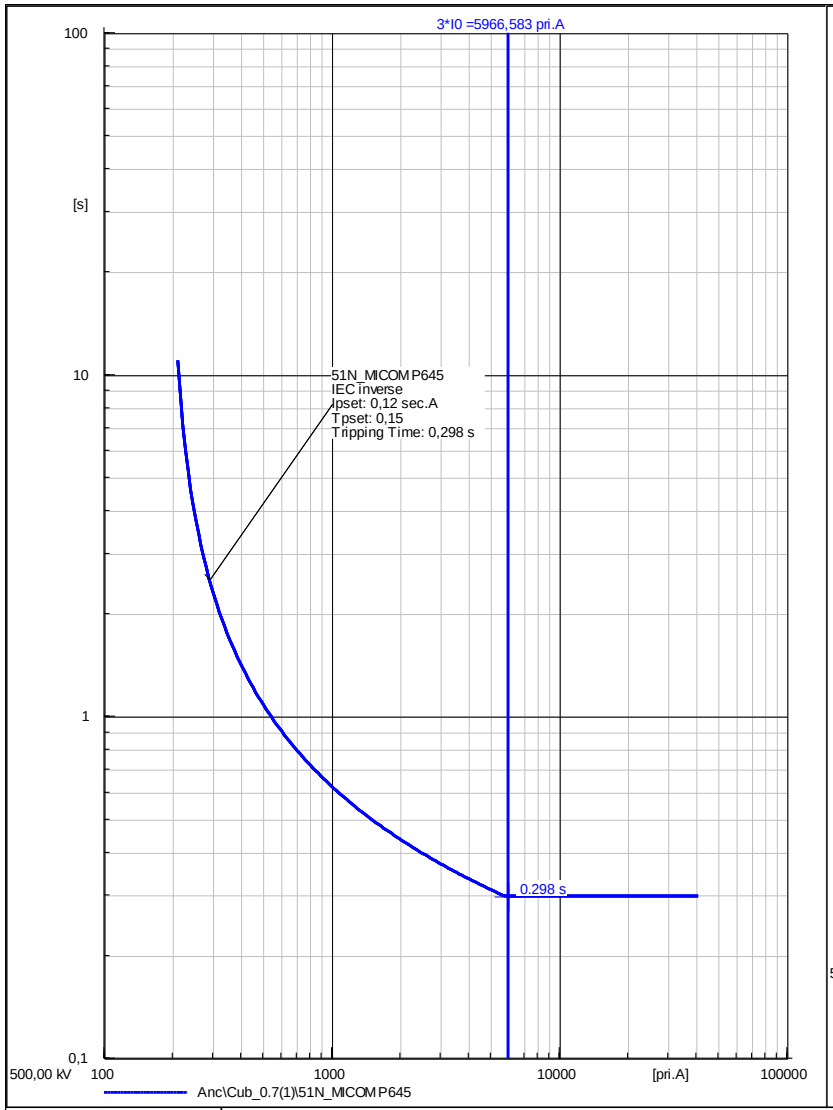

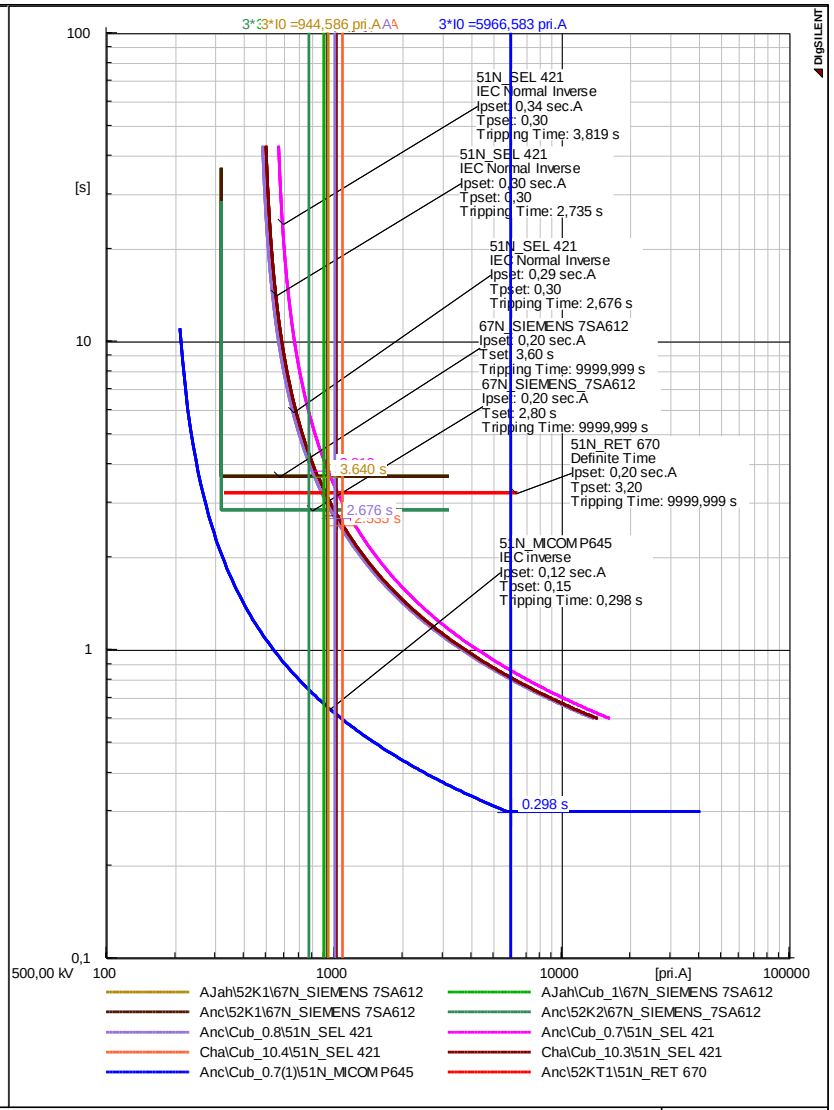

	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

FALLA EN BARRA 220 KV S/E ANCOA

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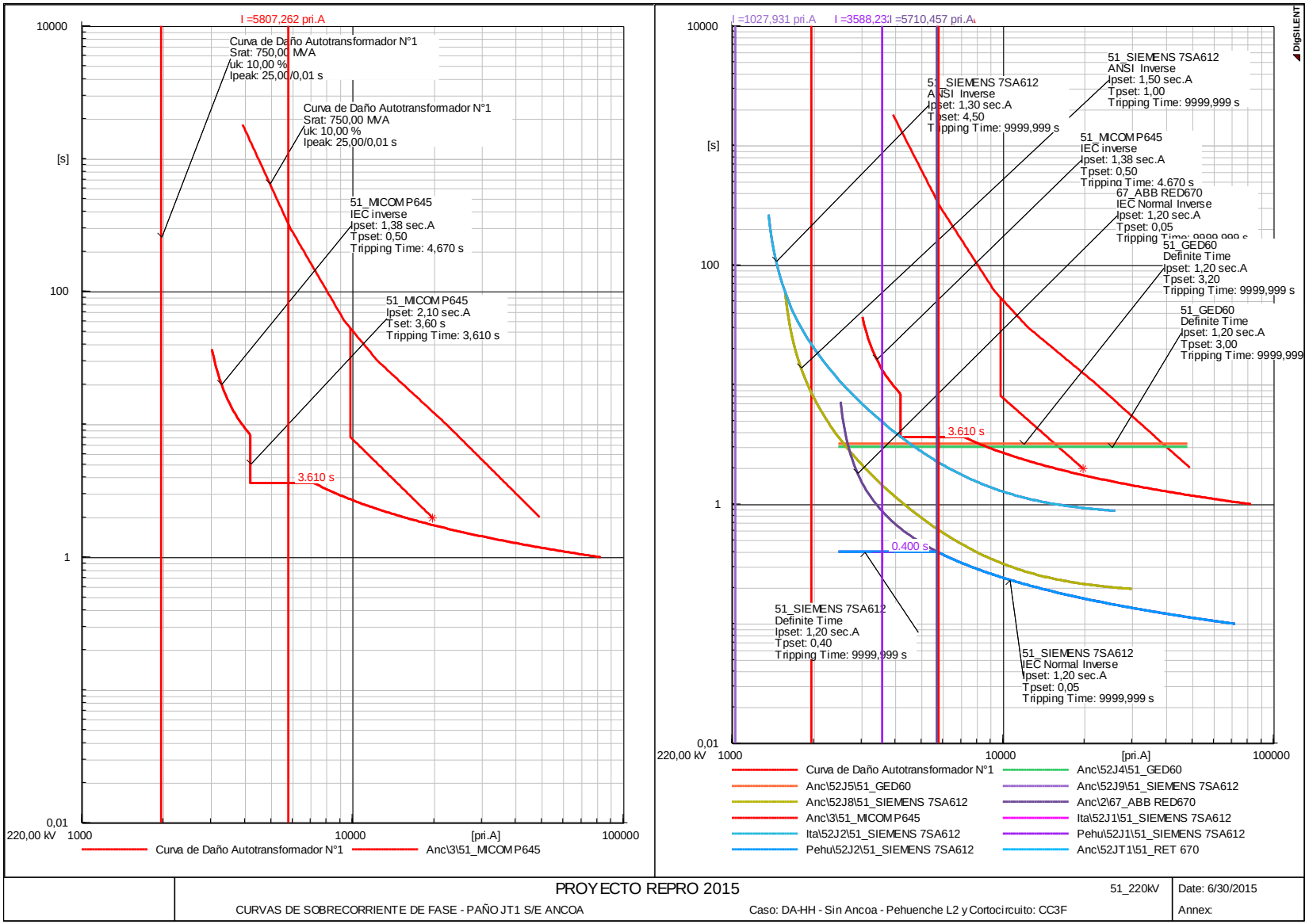
FUNCIÓN 51 LADO DE 220 KV



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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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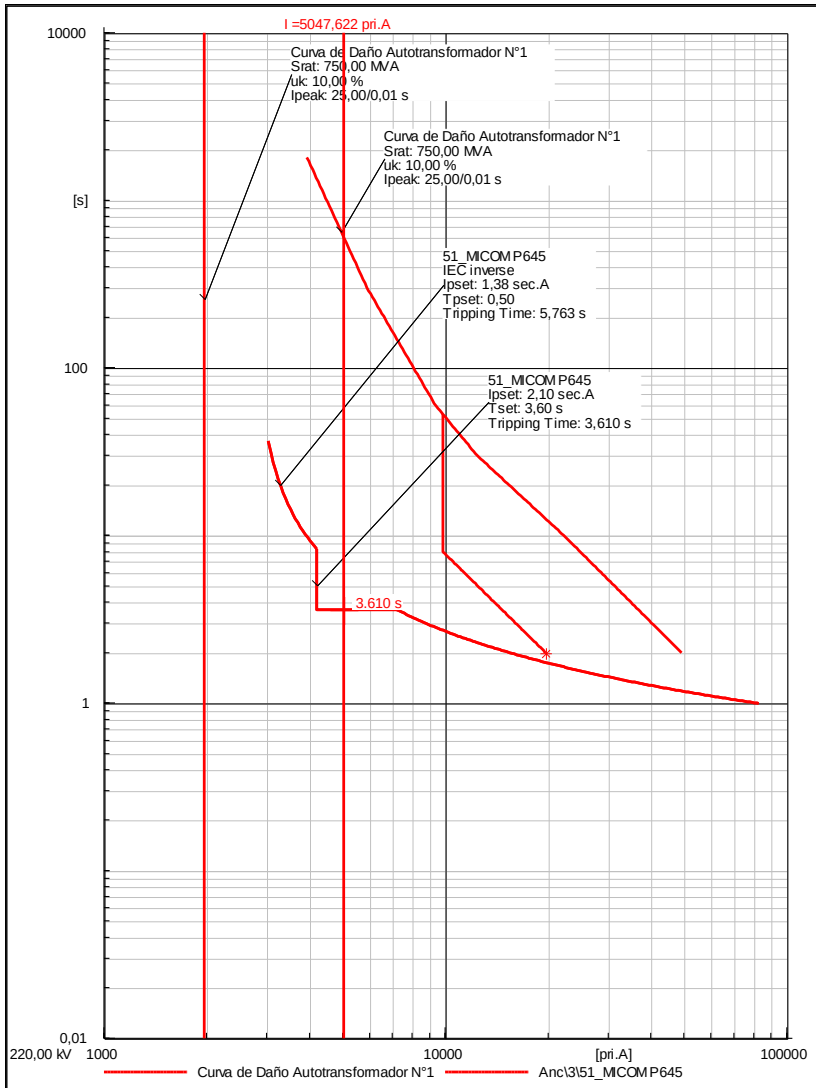
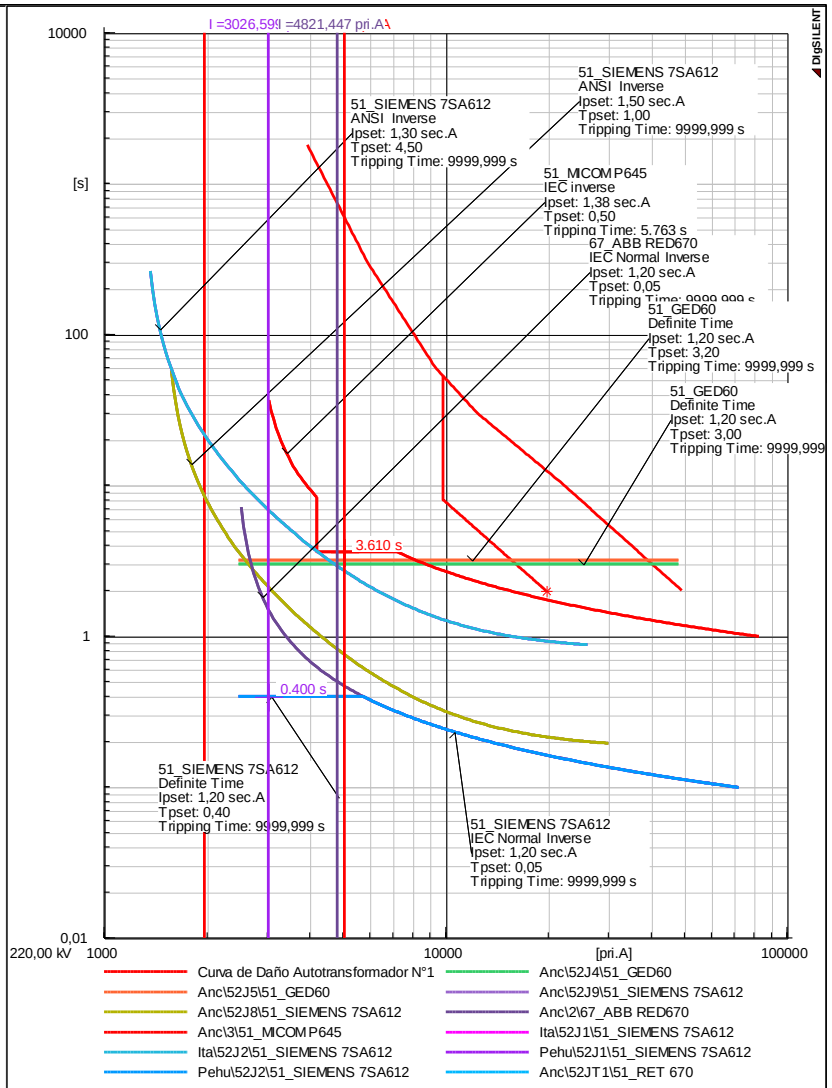
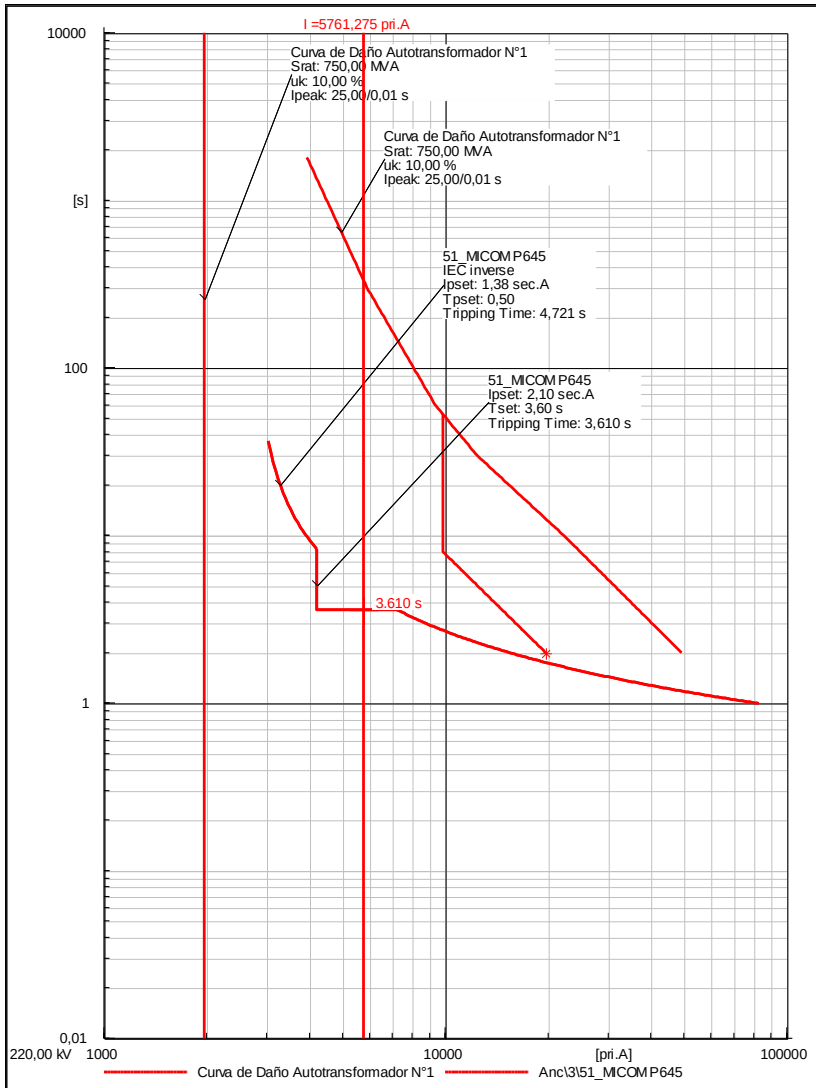
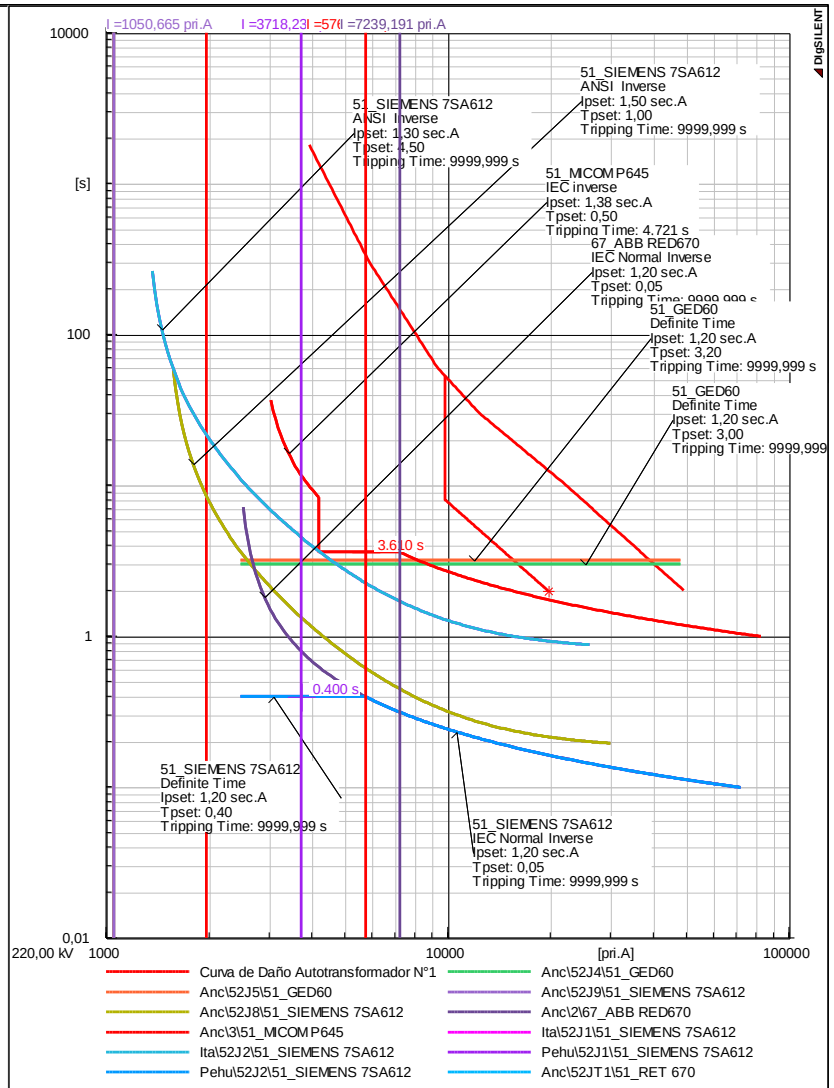




	PROYECTO REPRO 2015	51_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:





	PROYECTO REPRO 2015	51_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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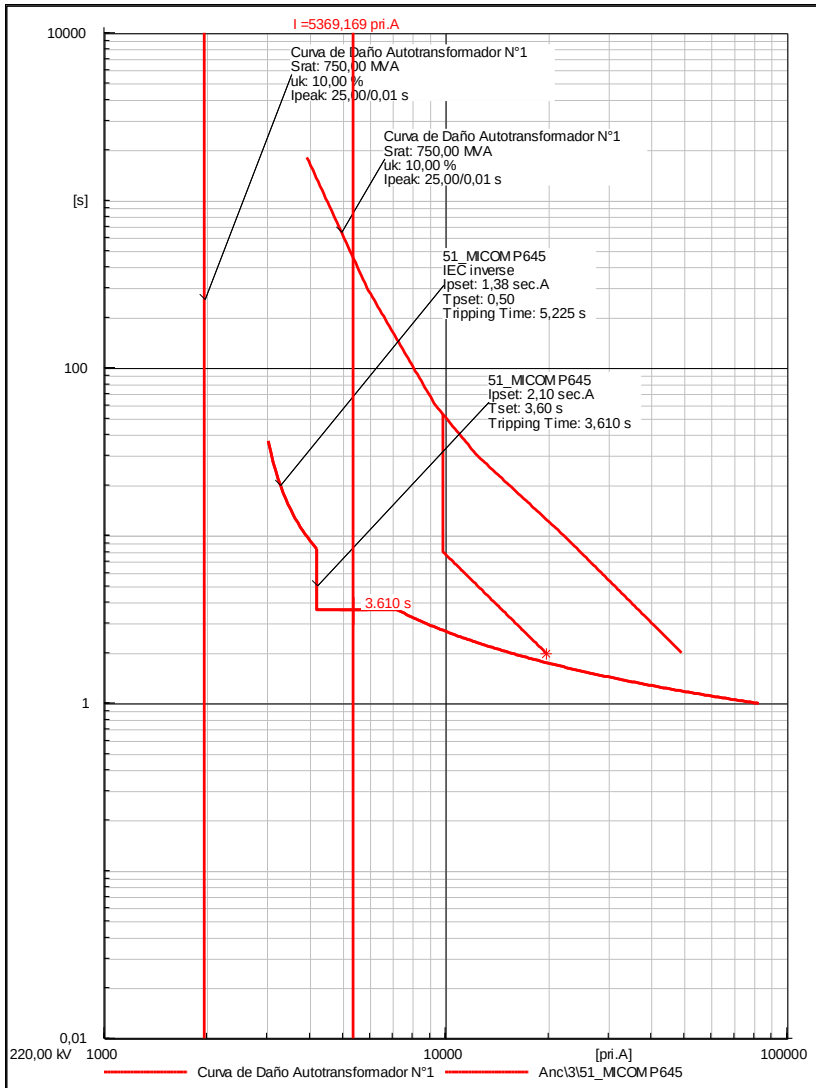

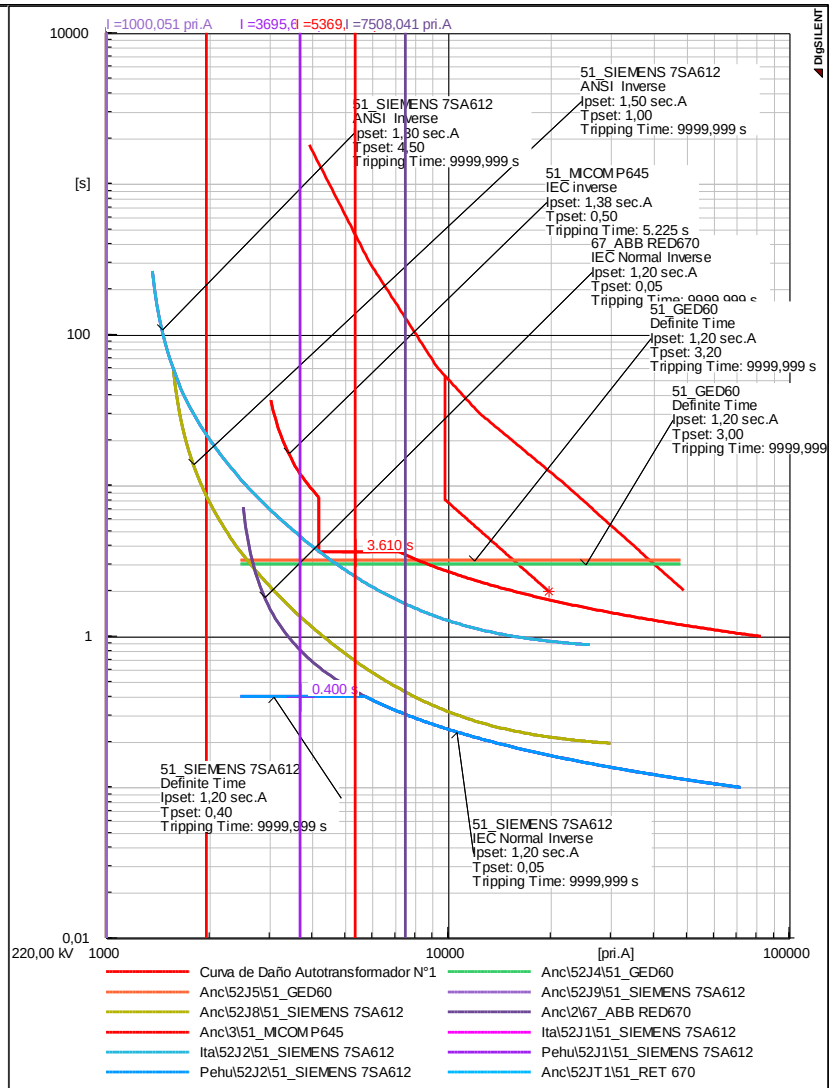

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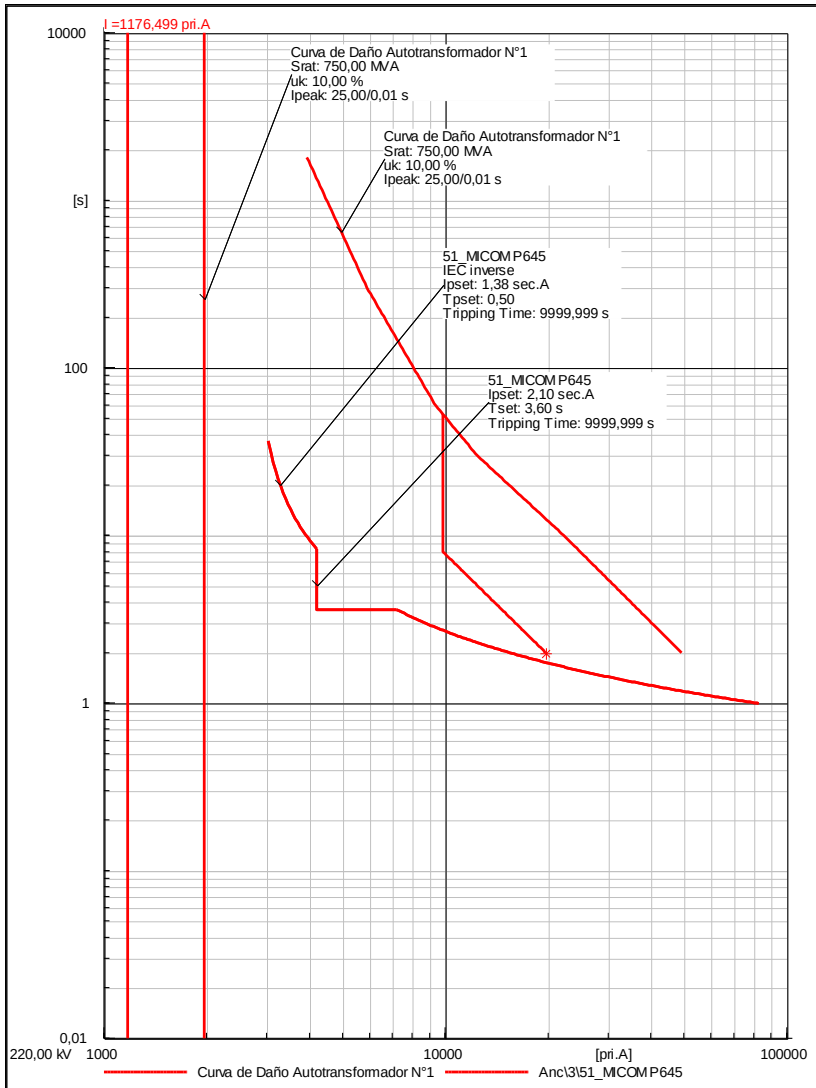
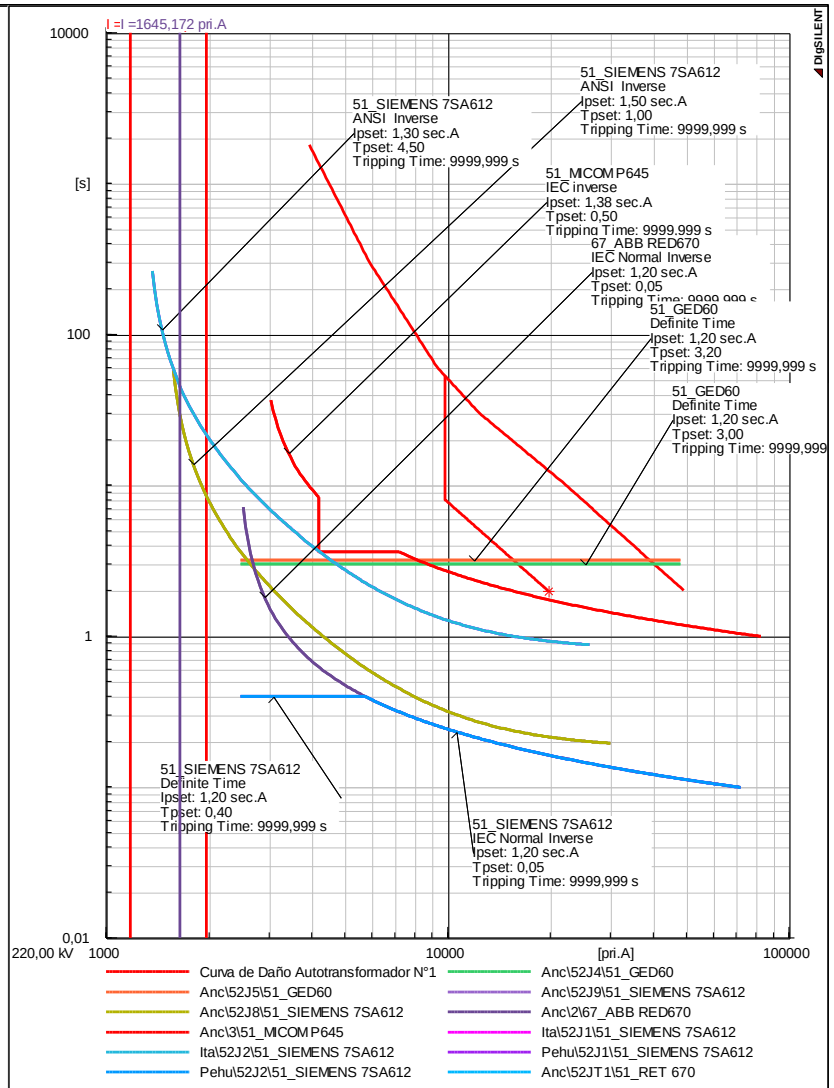
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:





	PROYECTO REPRO 2015	51_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

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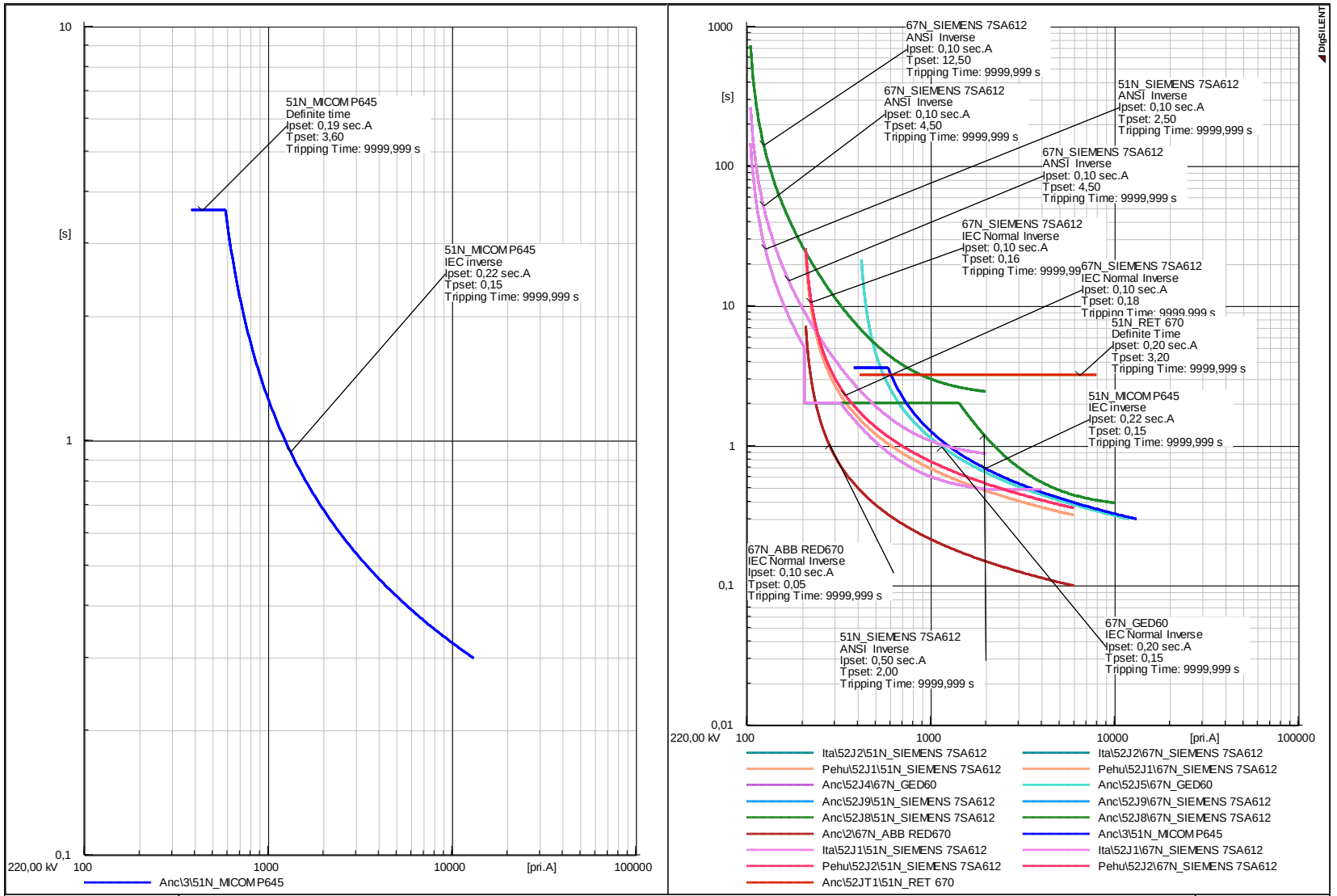
FUNCIÓN 51N LADO DE 220 KV



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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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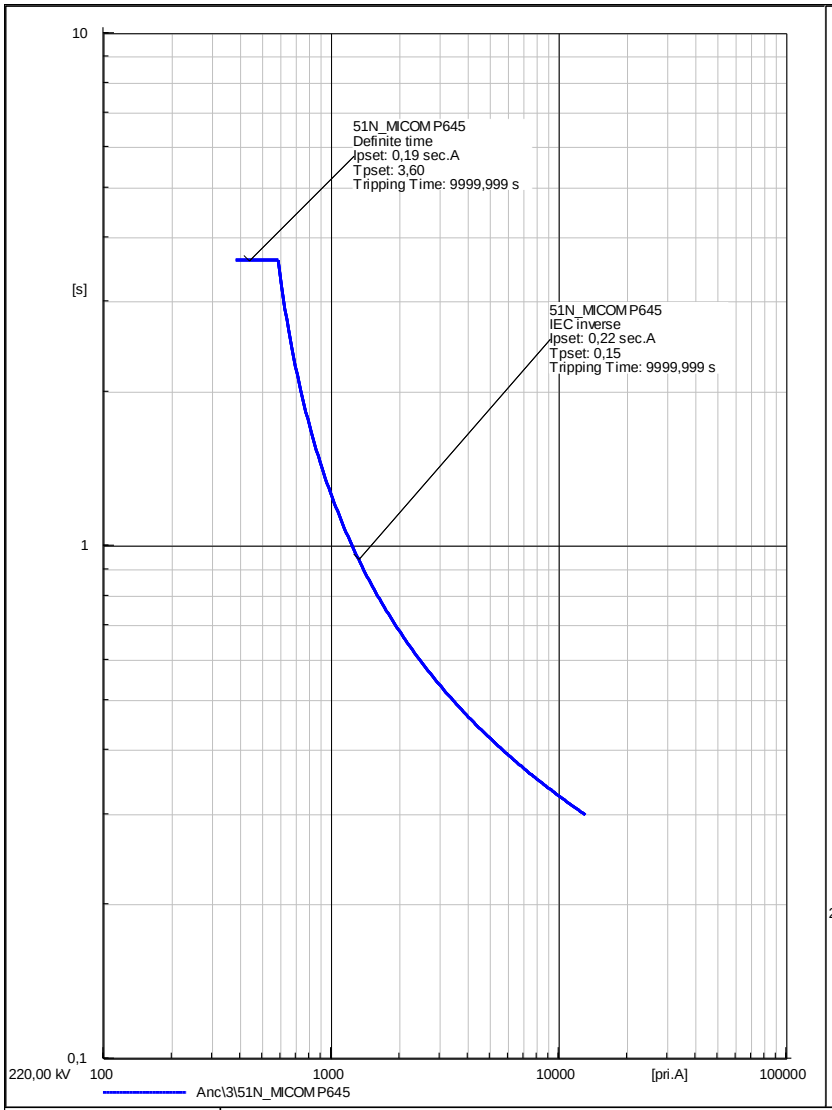

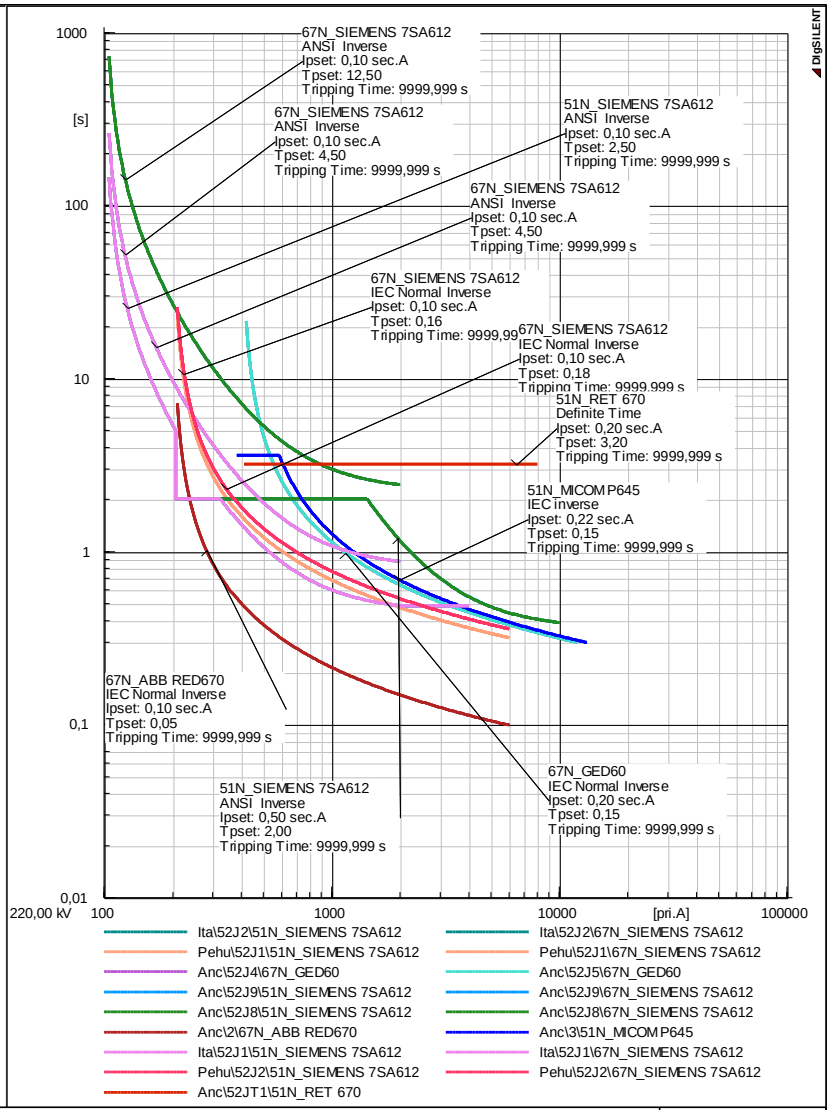

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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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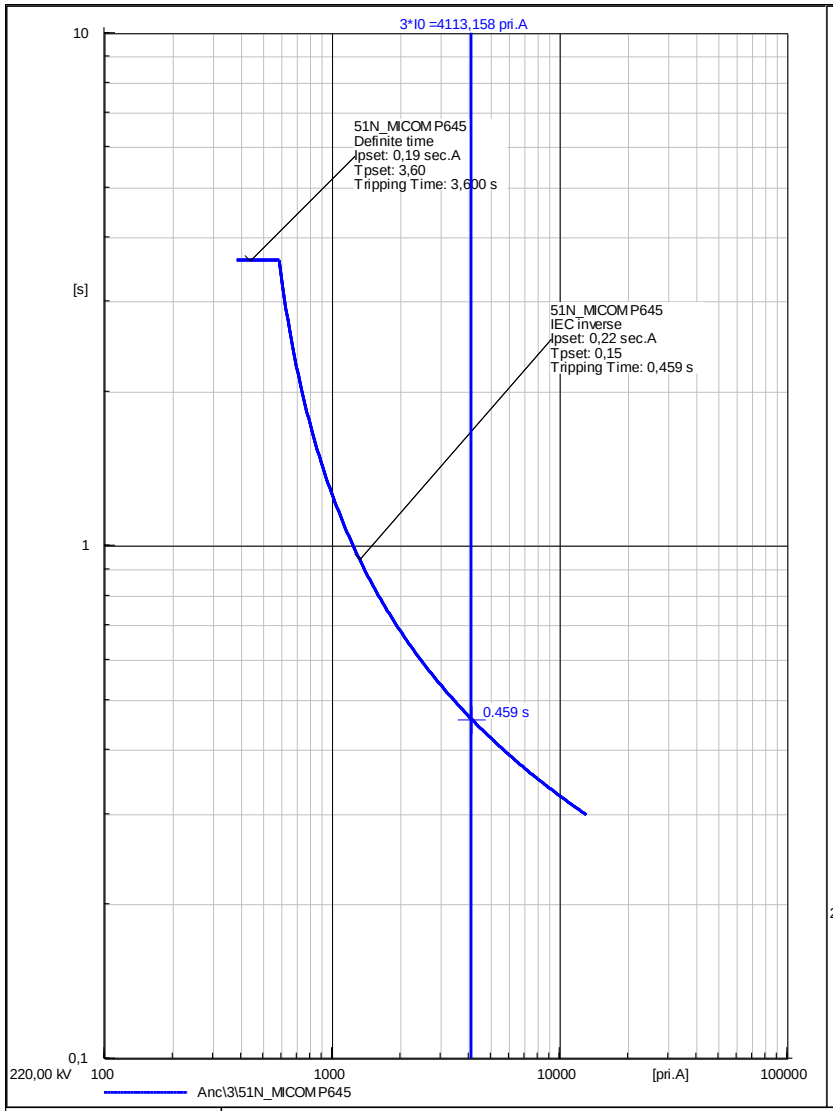

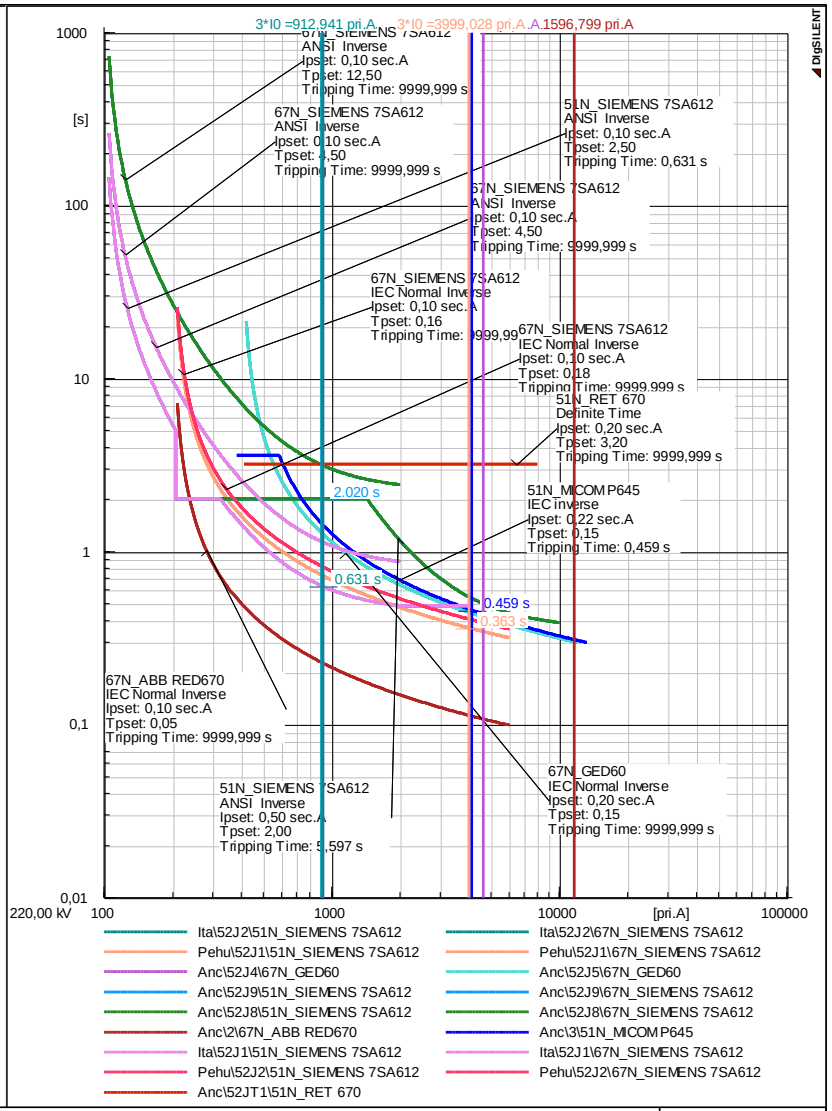

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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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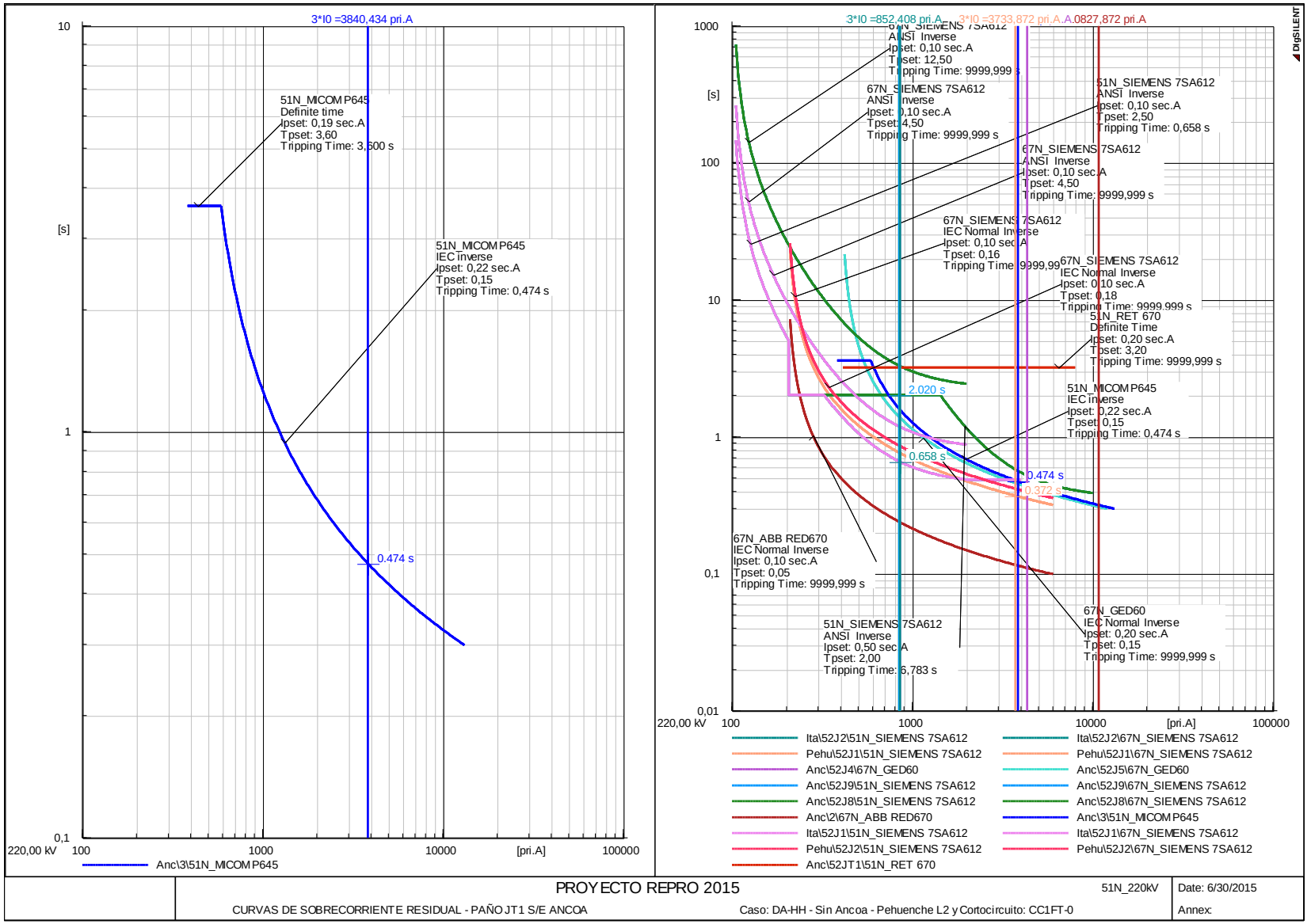

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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:

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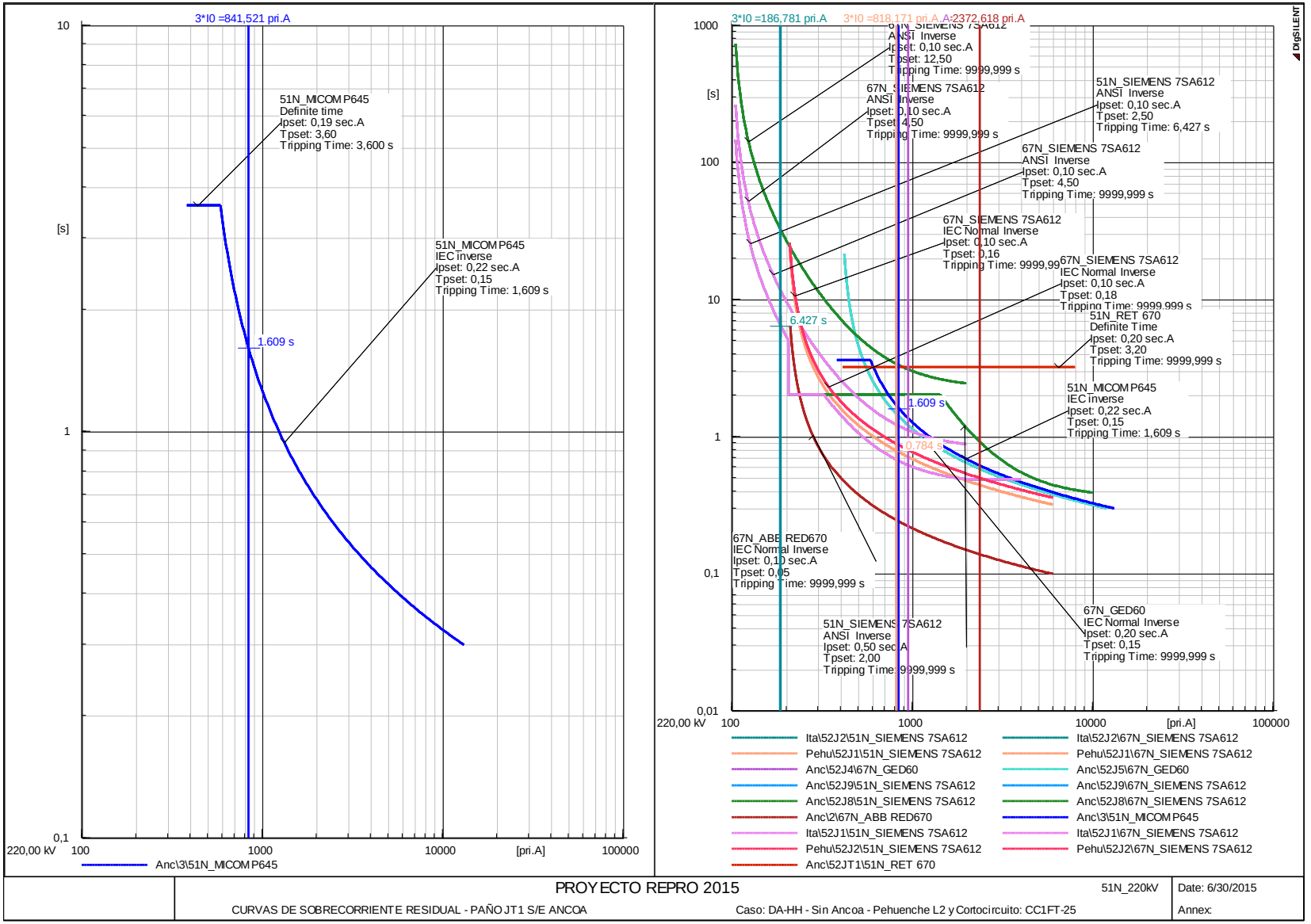

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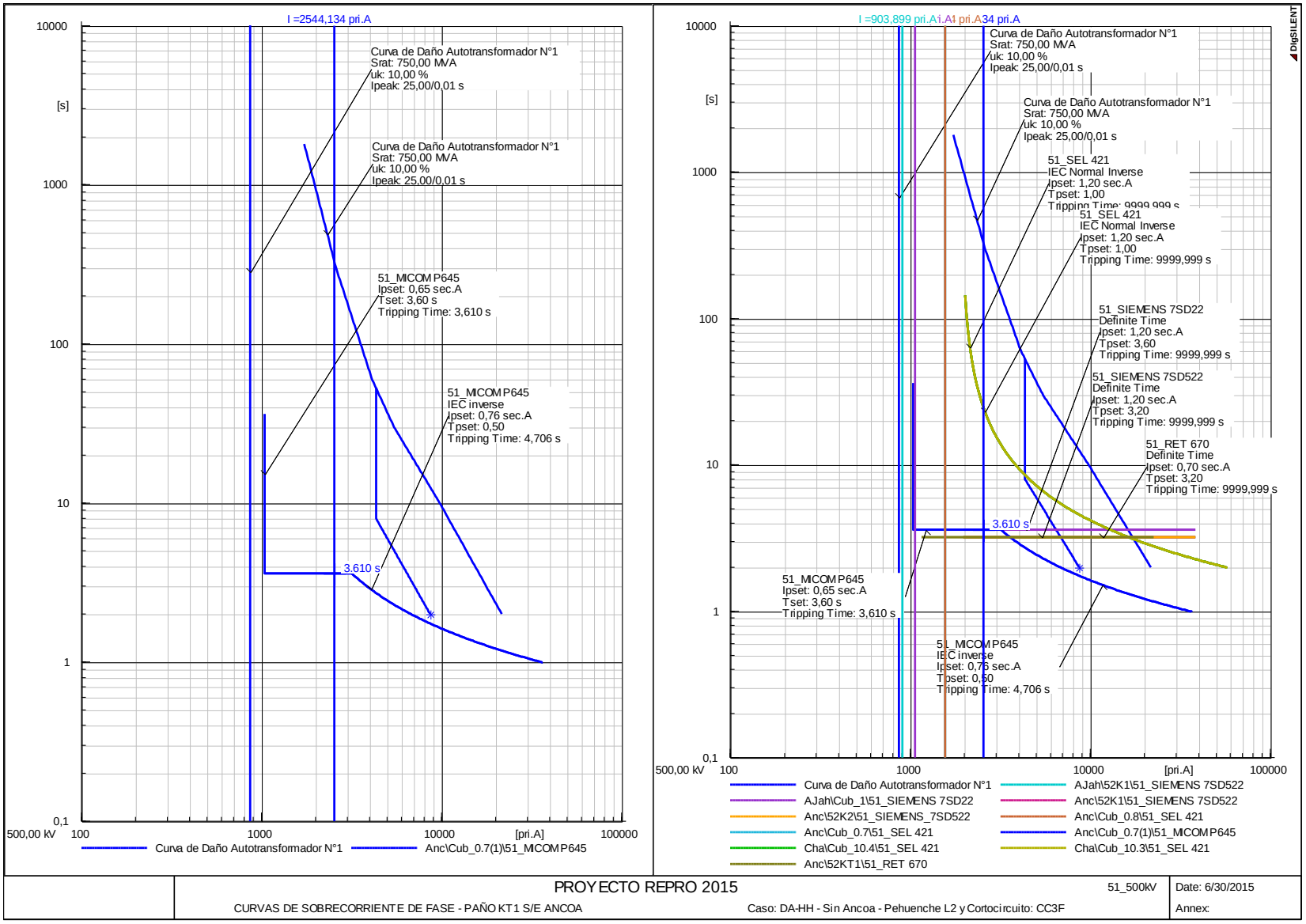
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

FUNCIÓN 51 LADO DE 500 KV



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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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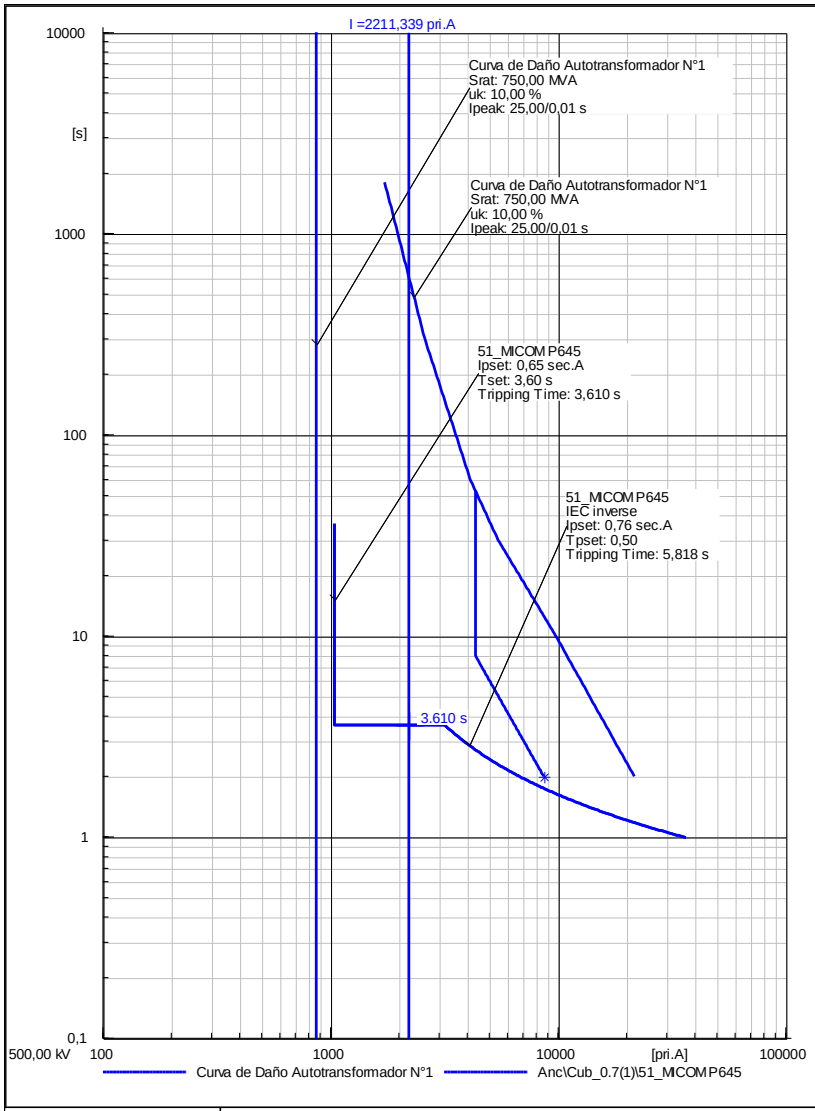

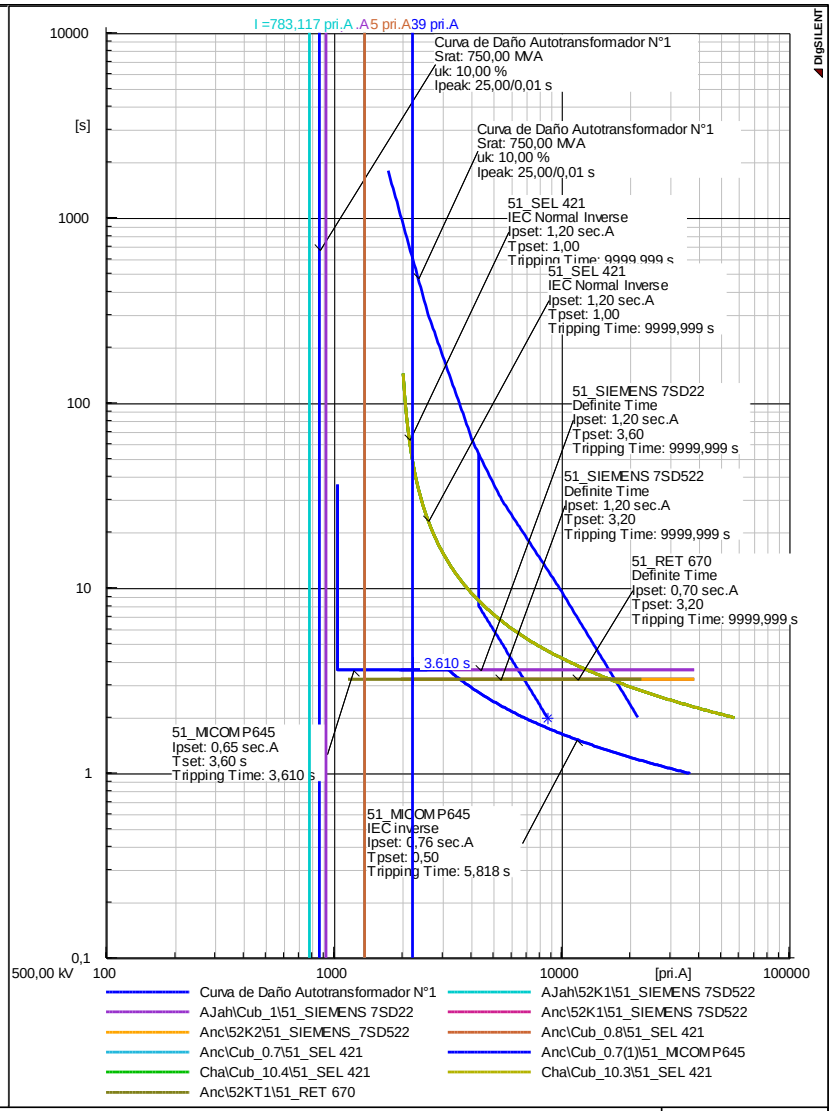

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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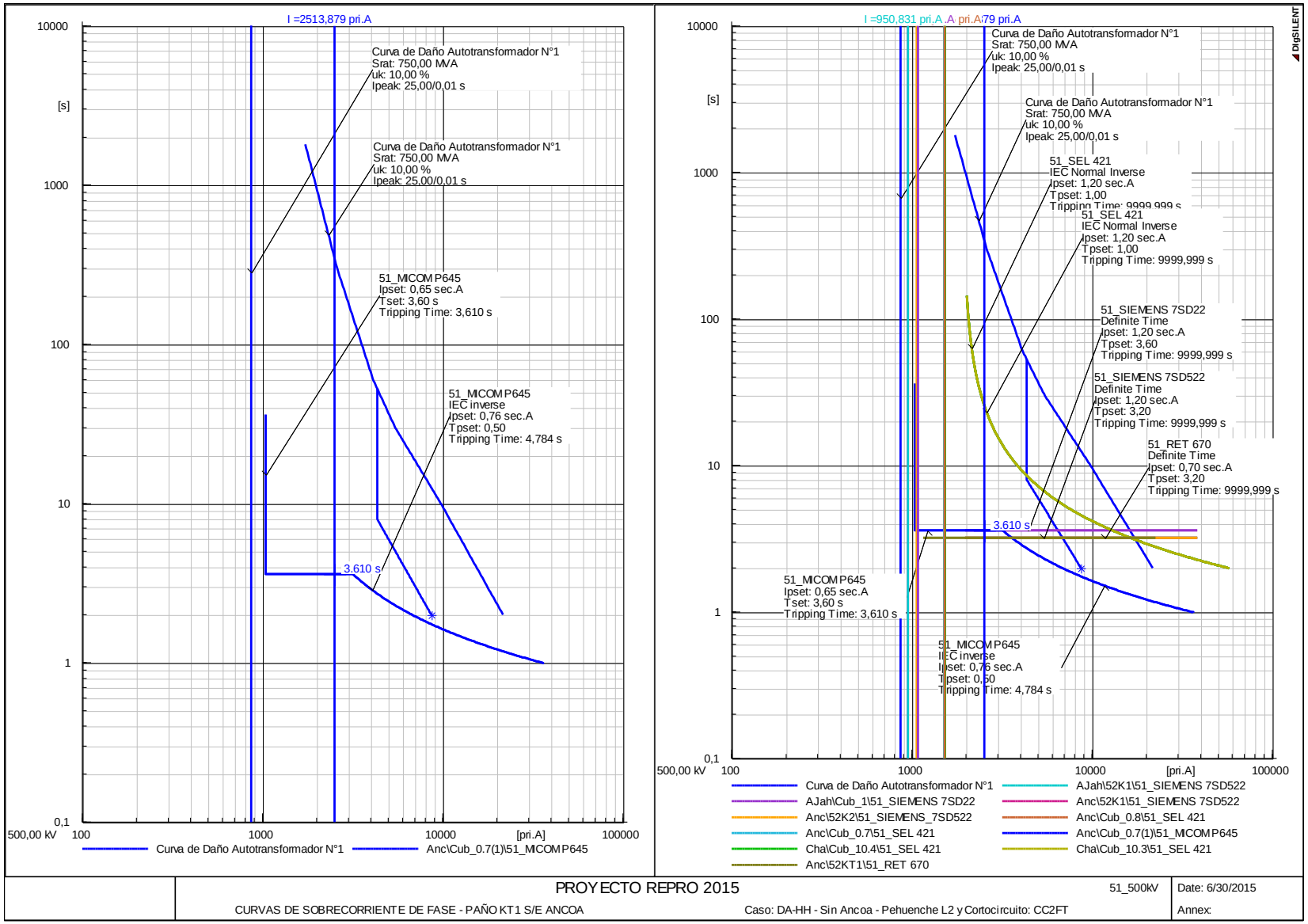

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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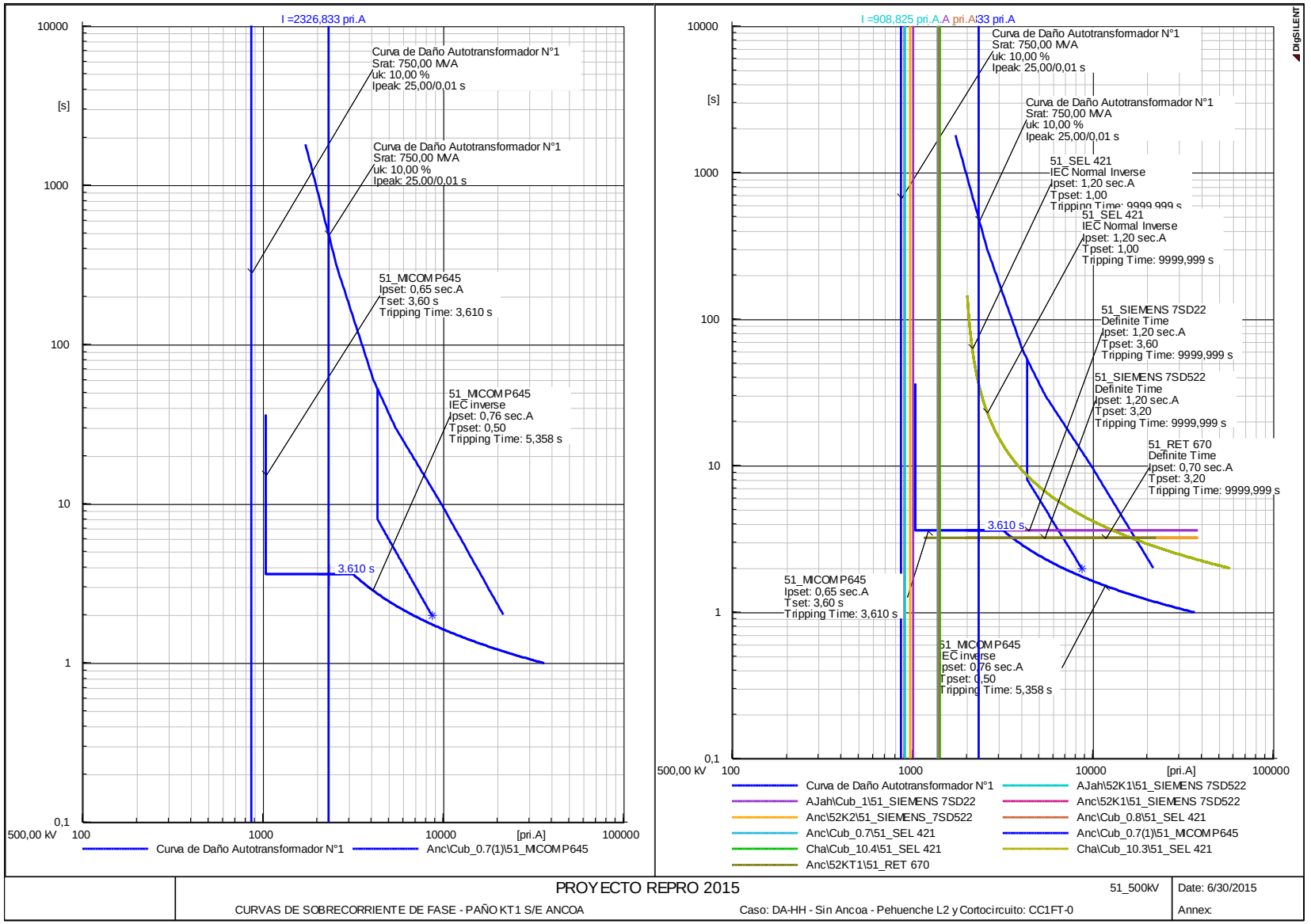

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:

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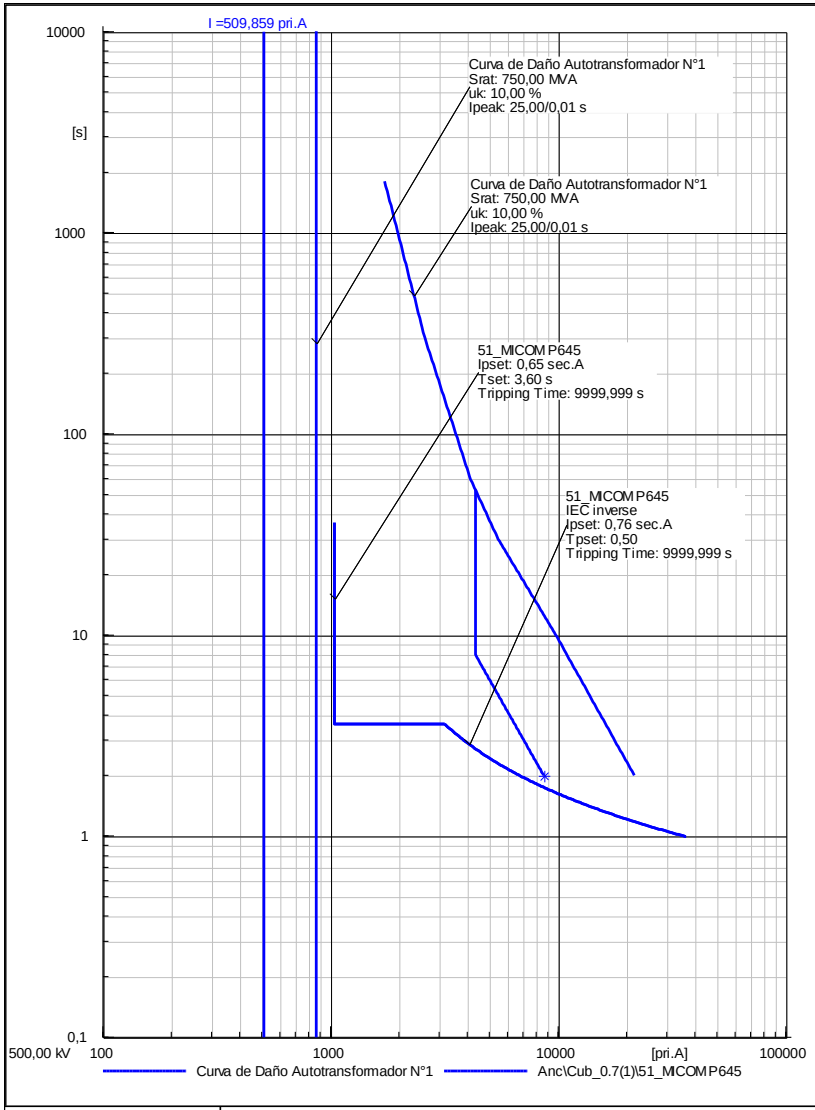

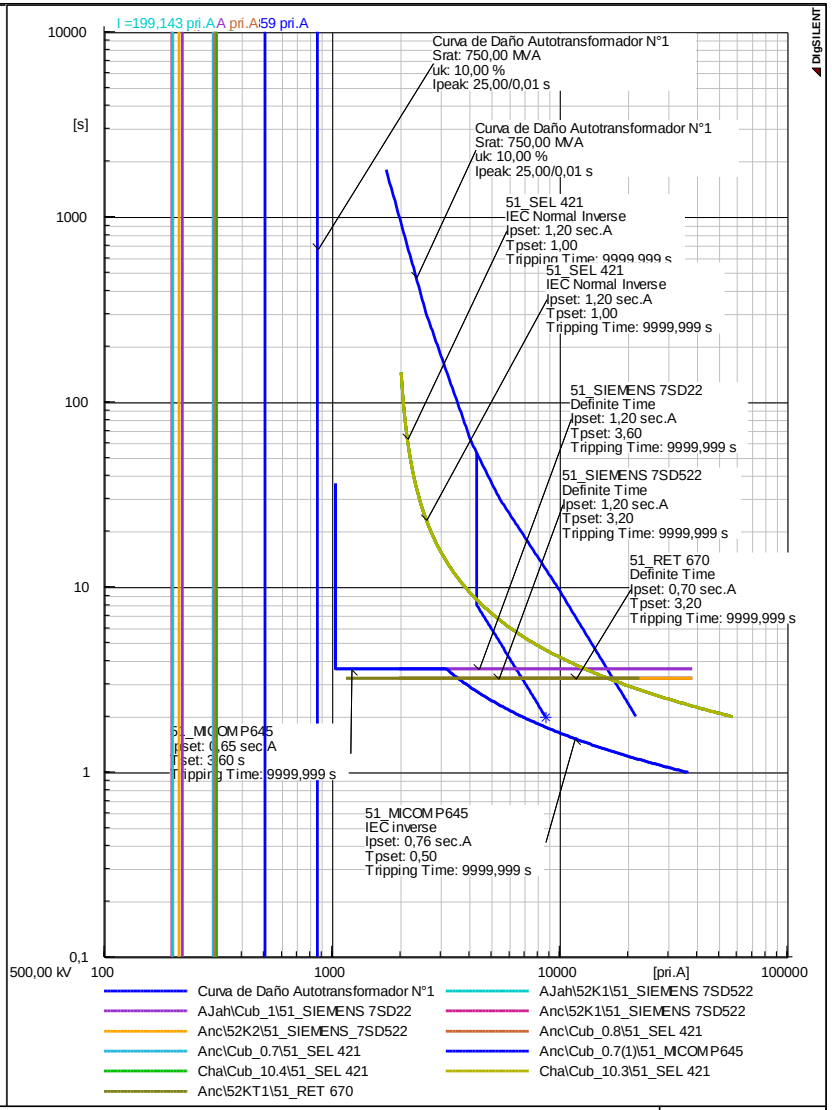

	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

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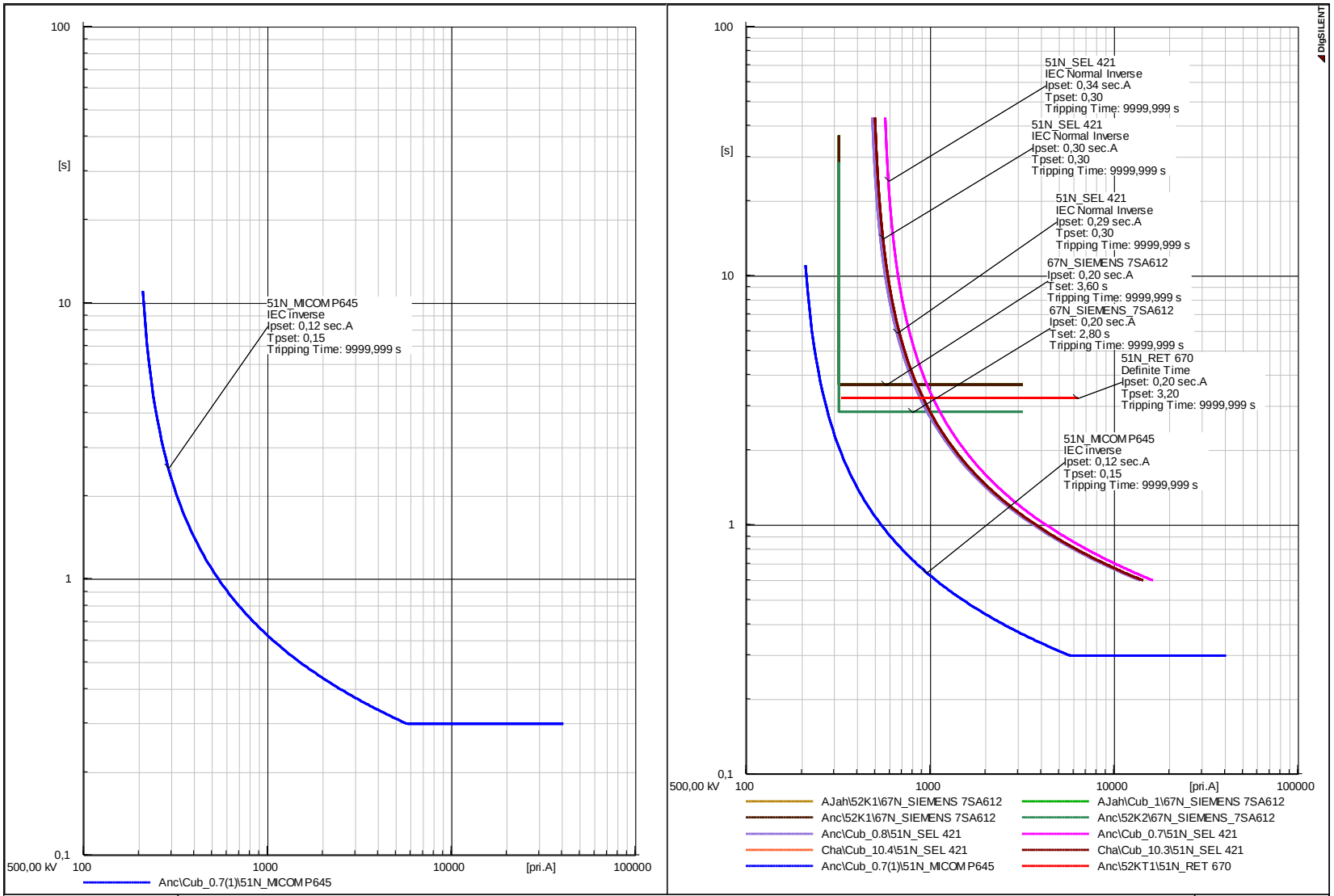
FUNCIÓN 51N LADO DE 500 KV



	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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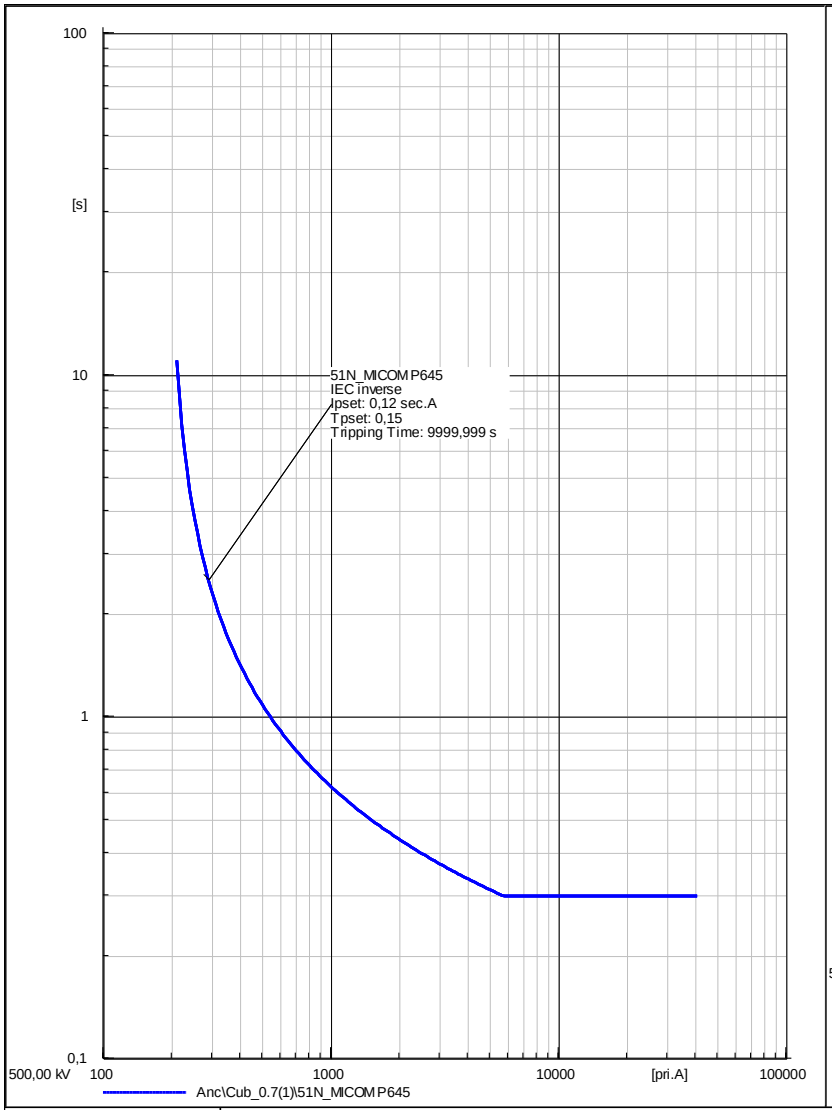
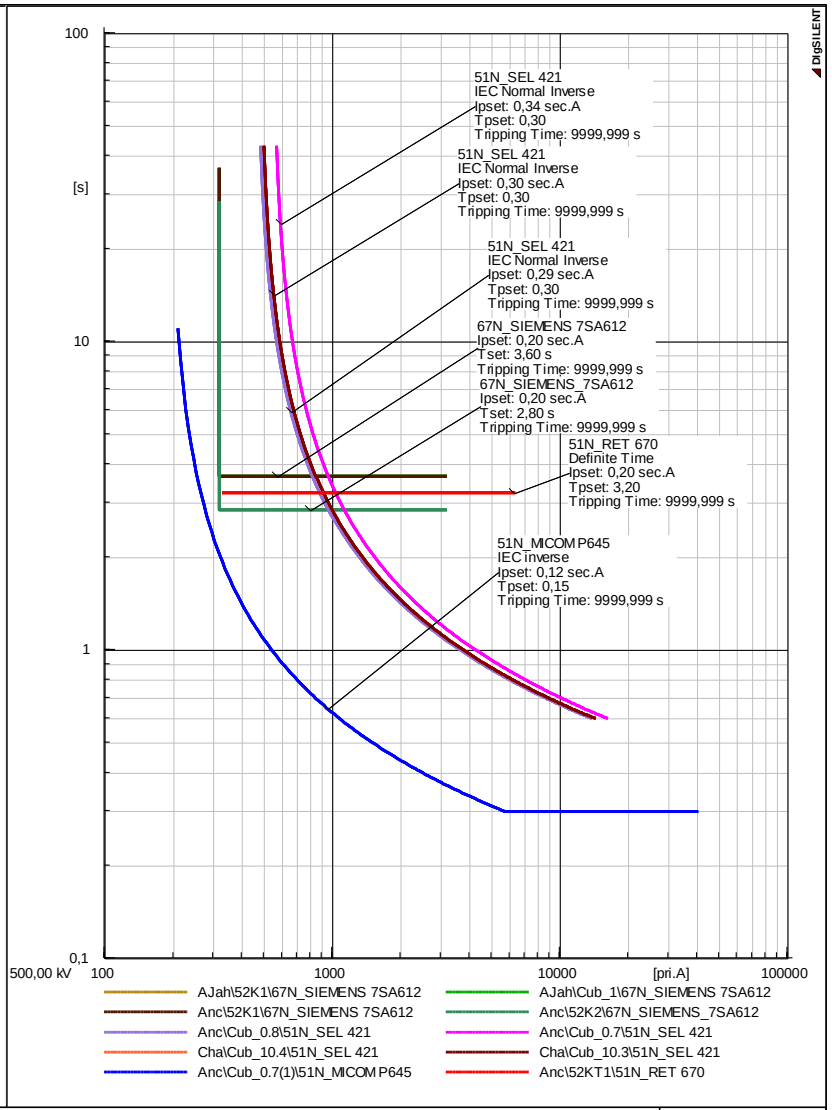
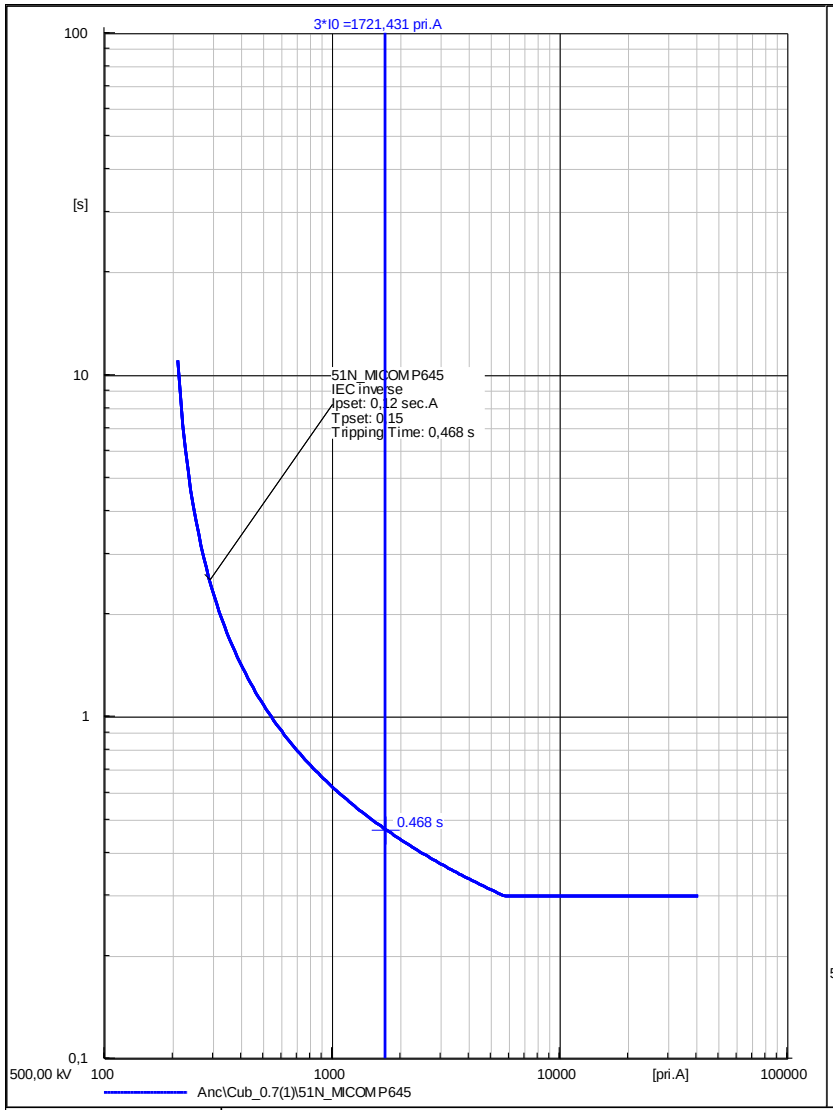
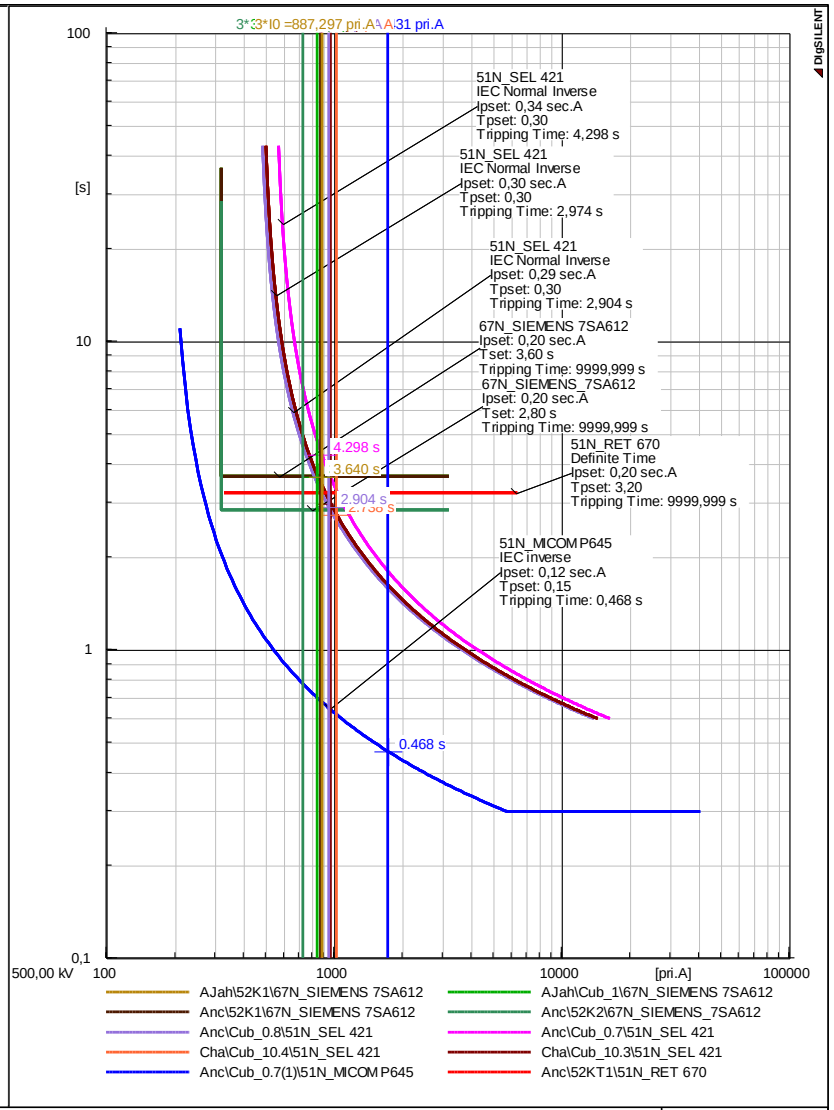




	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:





	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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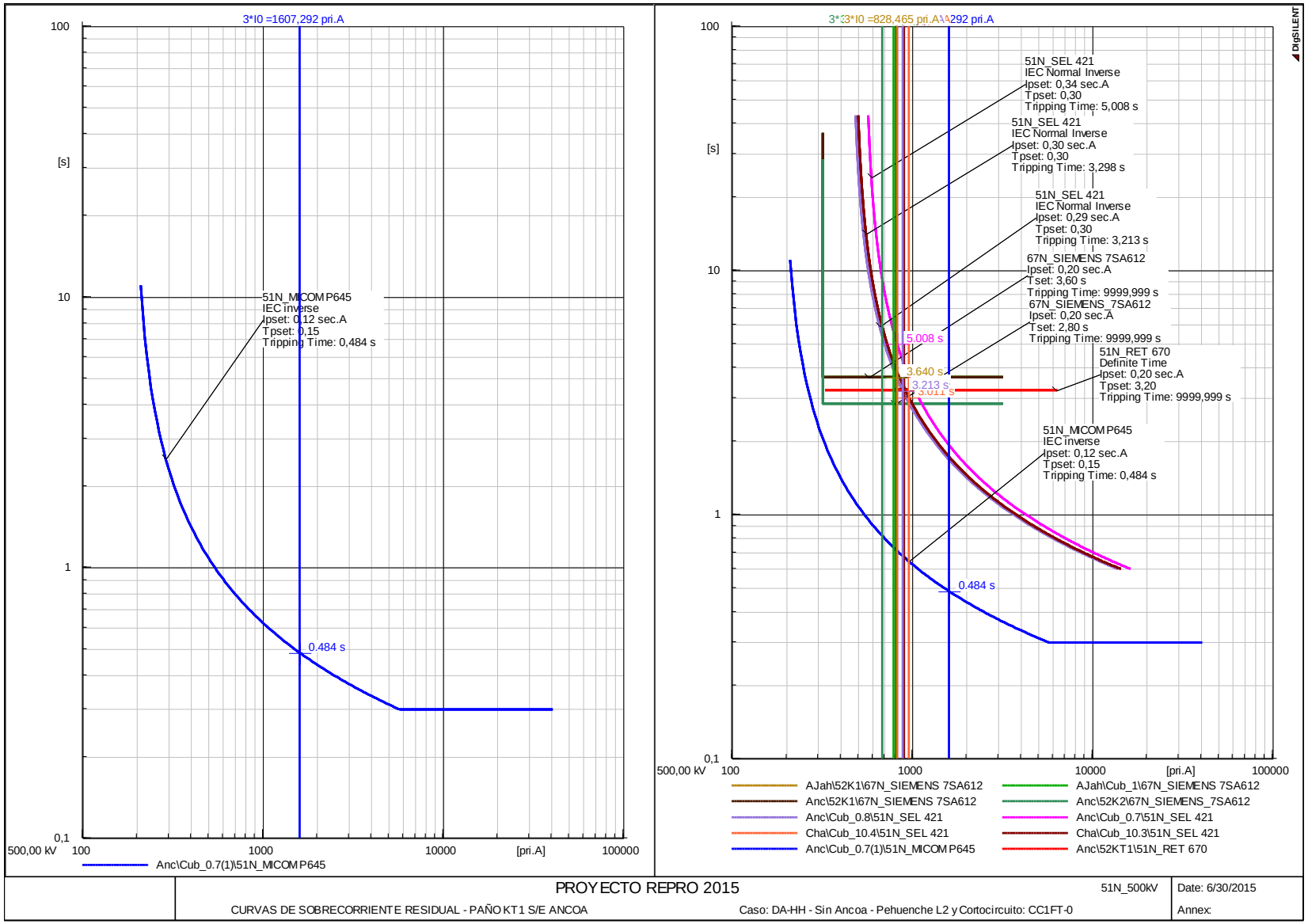

	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:

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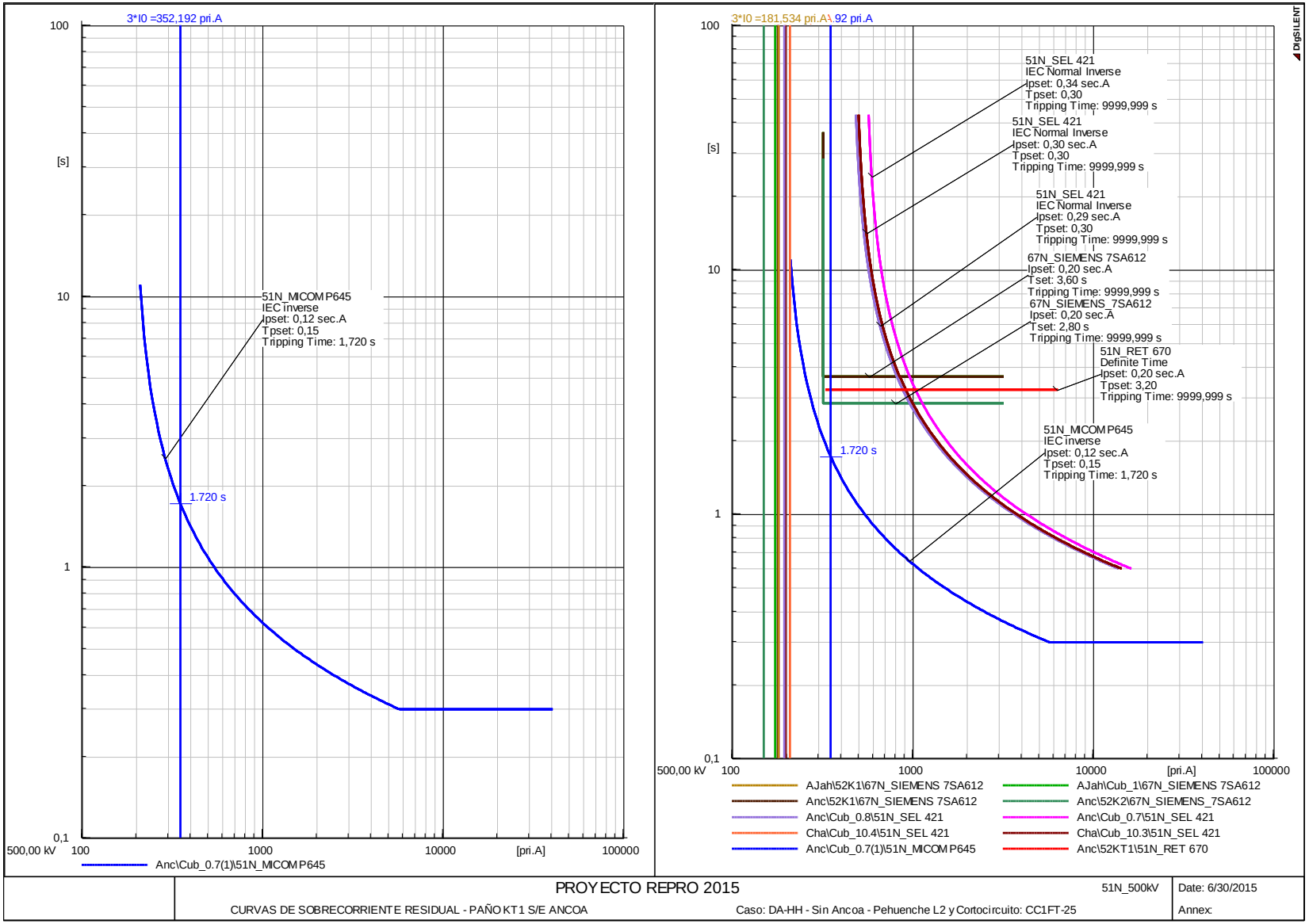

	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

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FALLA EN EL TERMINAL DE 230 KV DEL AUTOTRANSFORMADOR N°1

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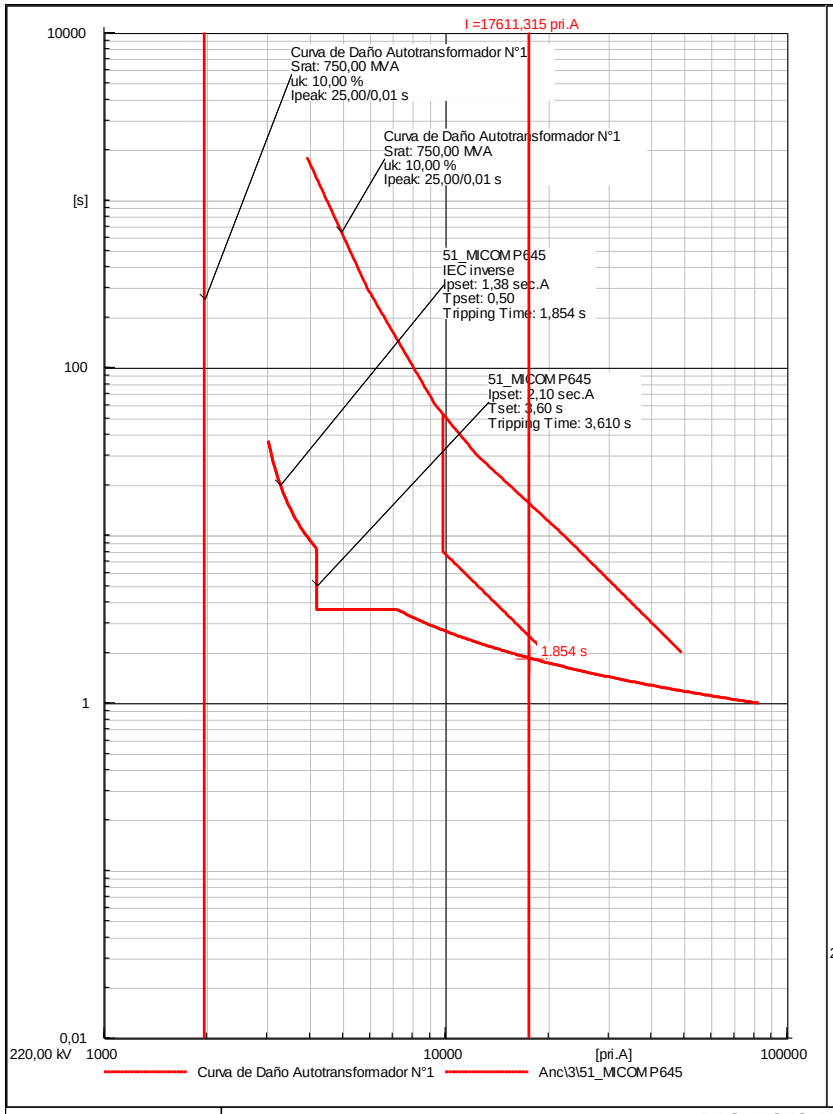
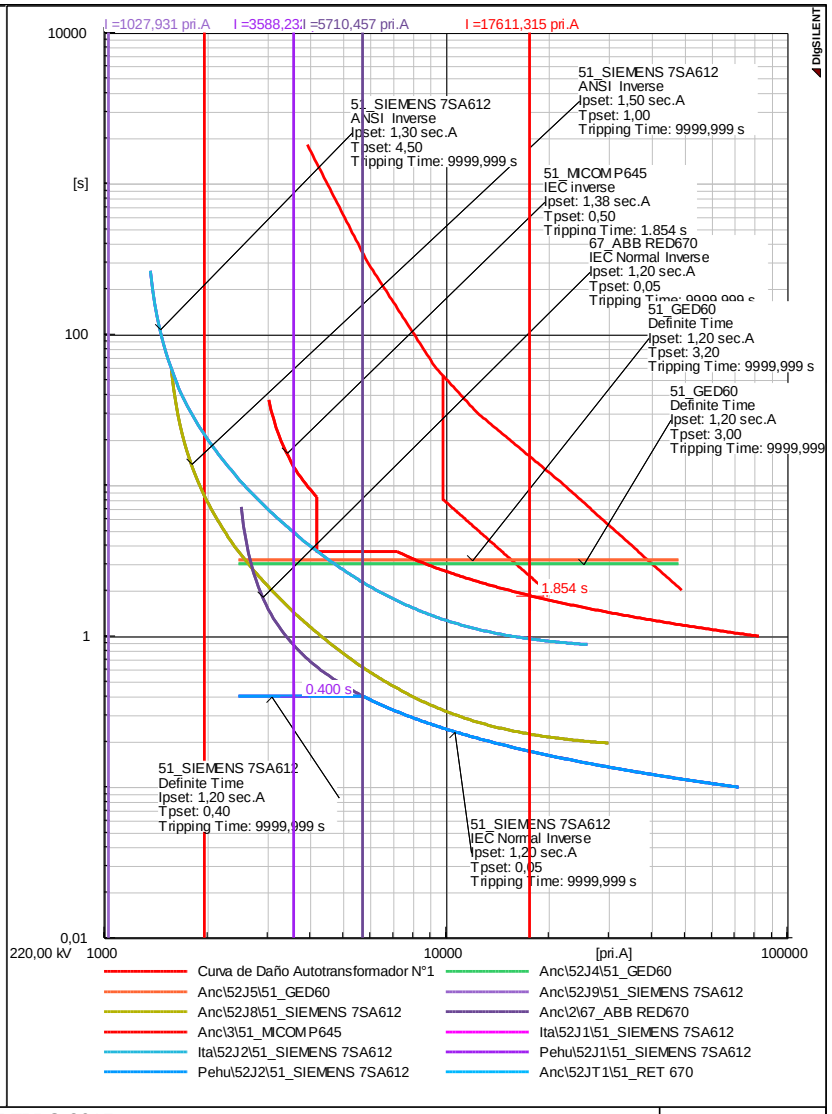
FUNCIÓN 51 LADO DE 220 KV





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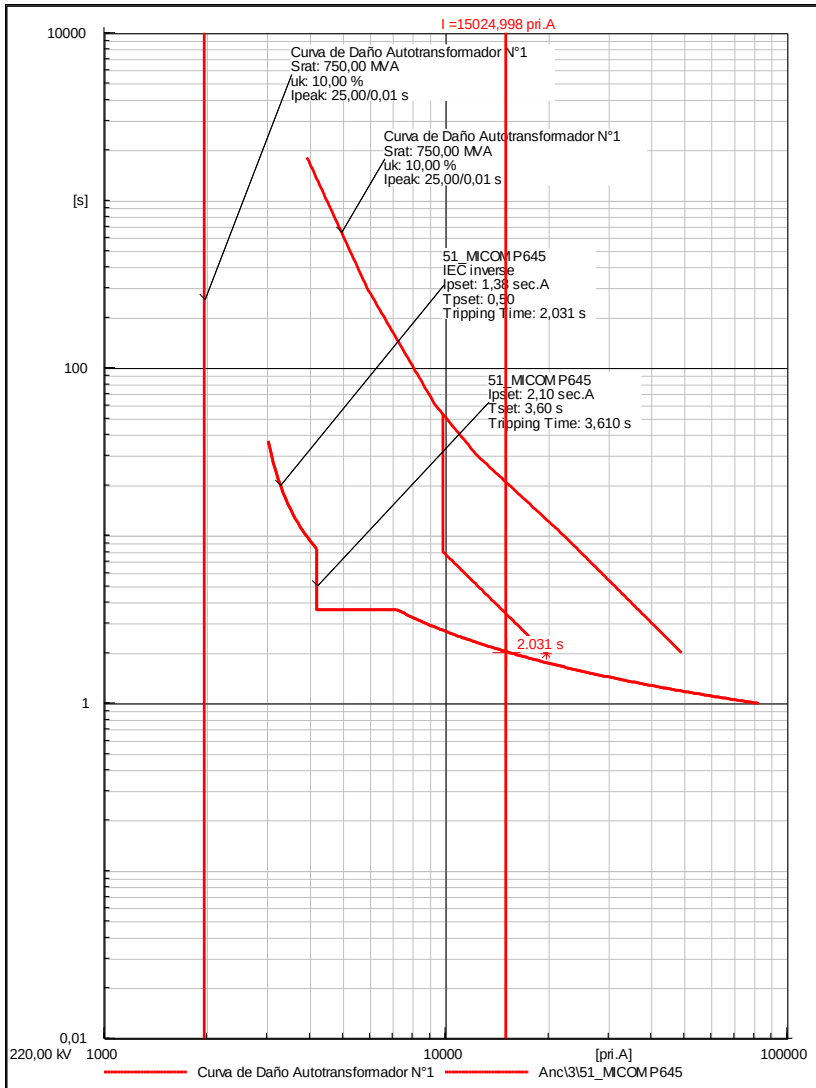
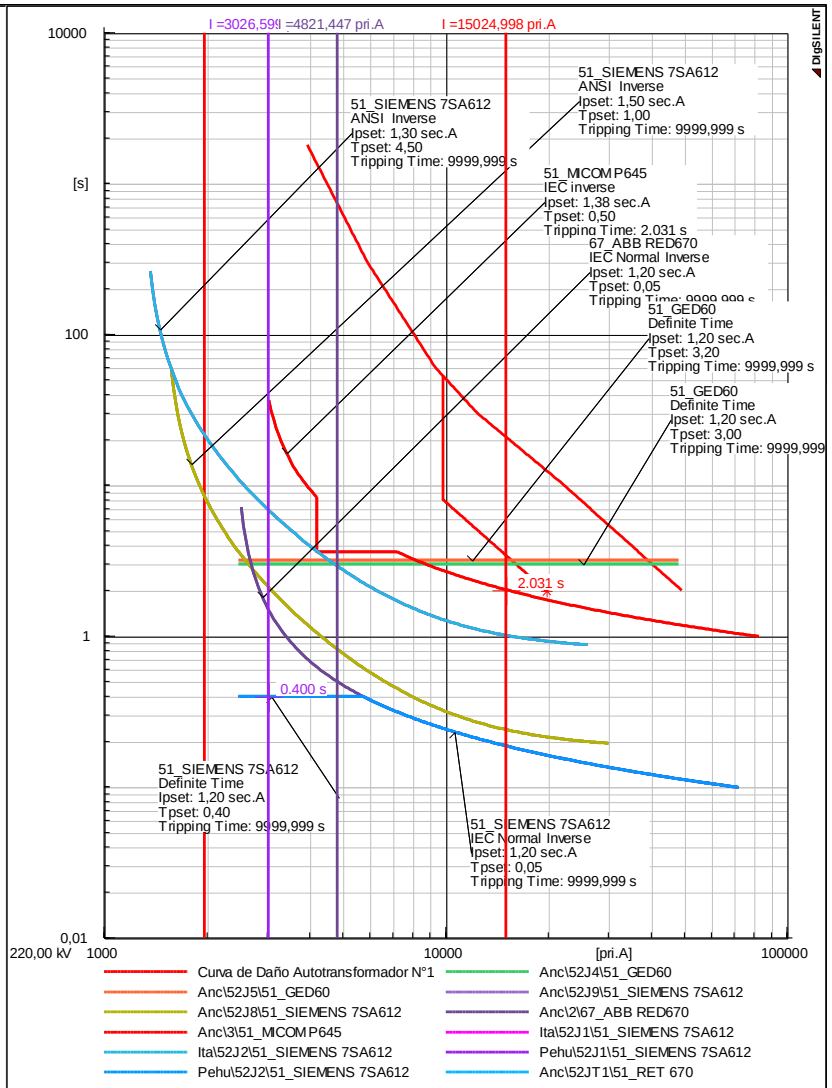
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:





	PROYECTO REPRO 2015	51_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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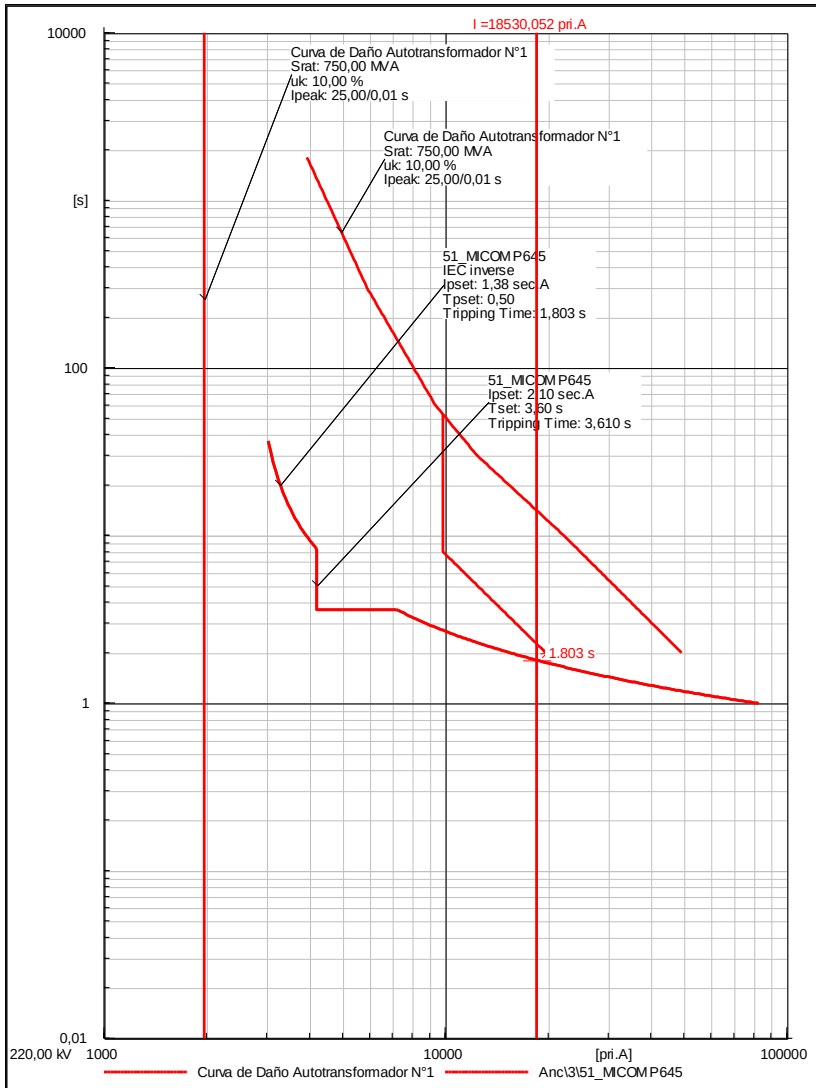
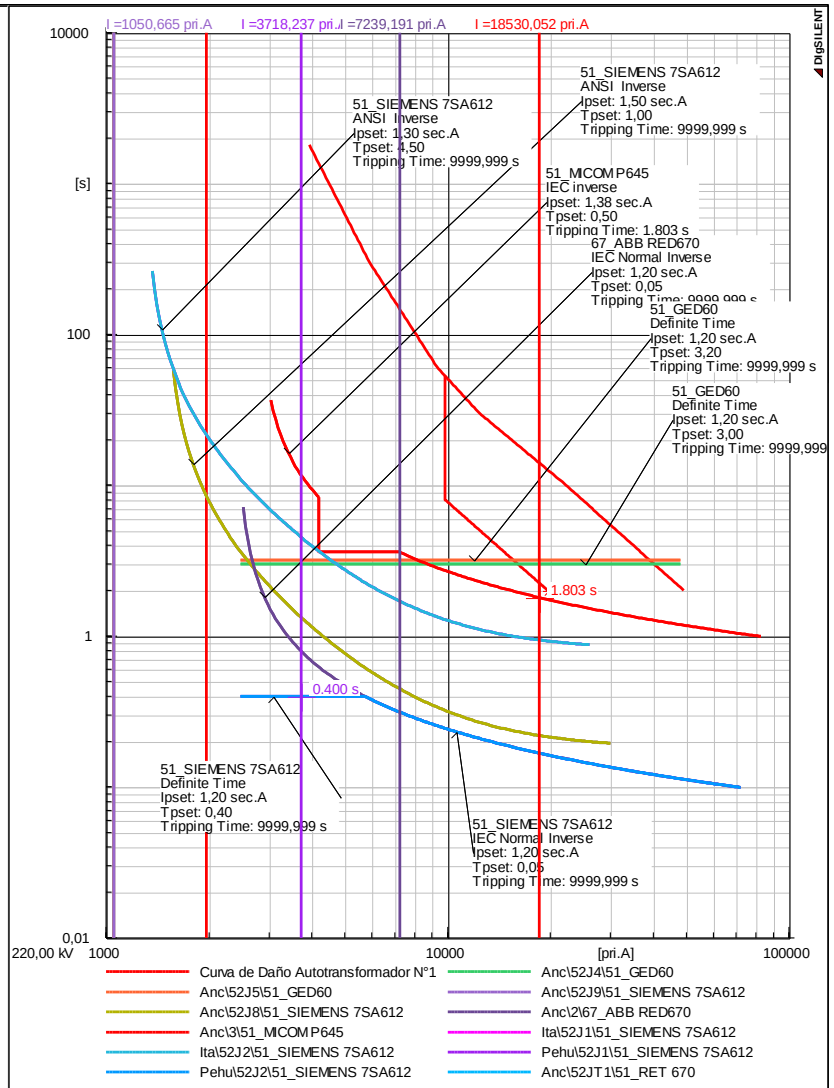
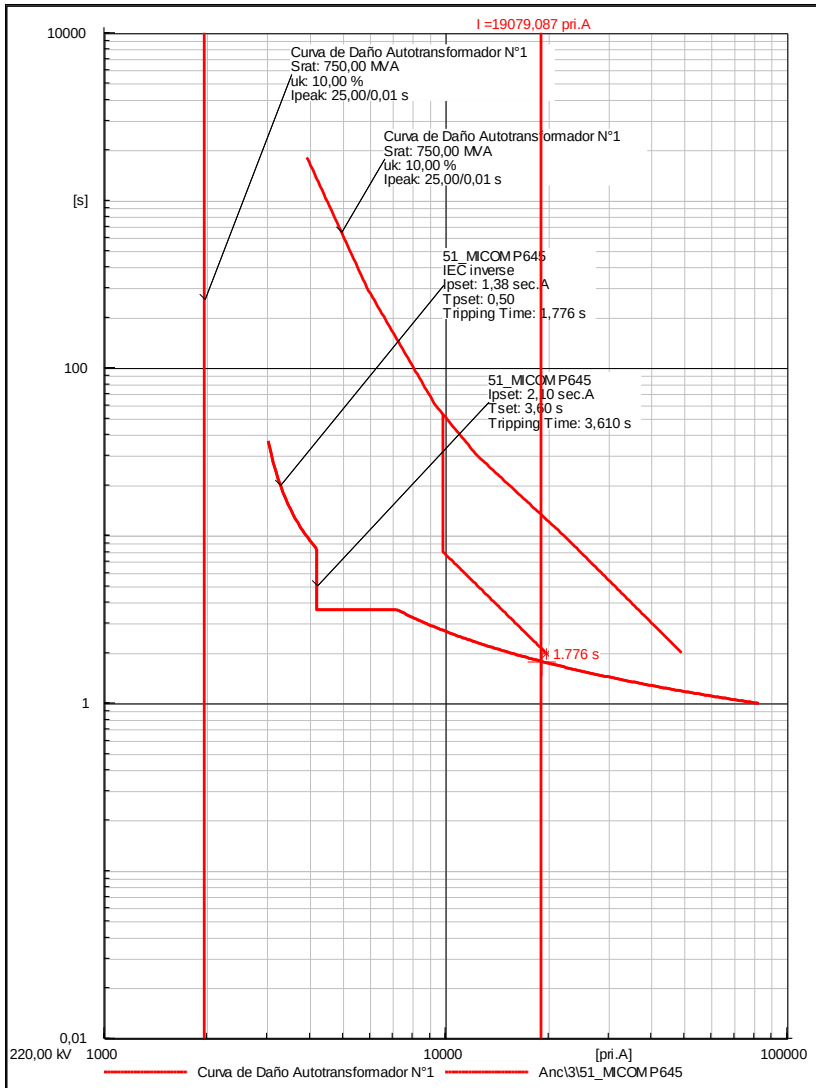
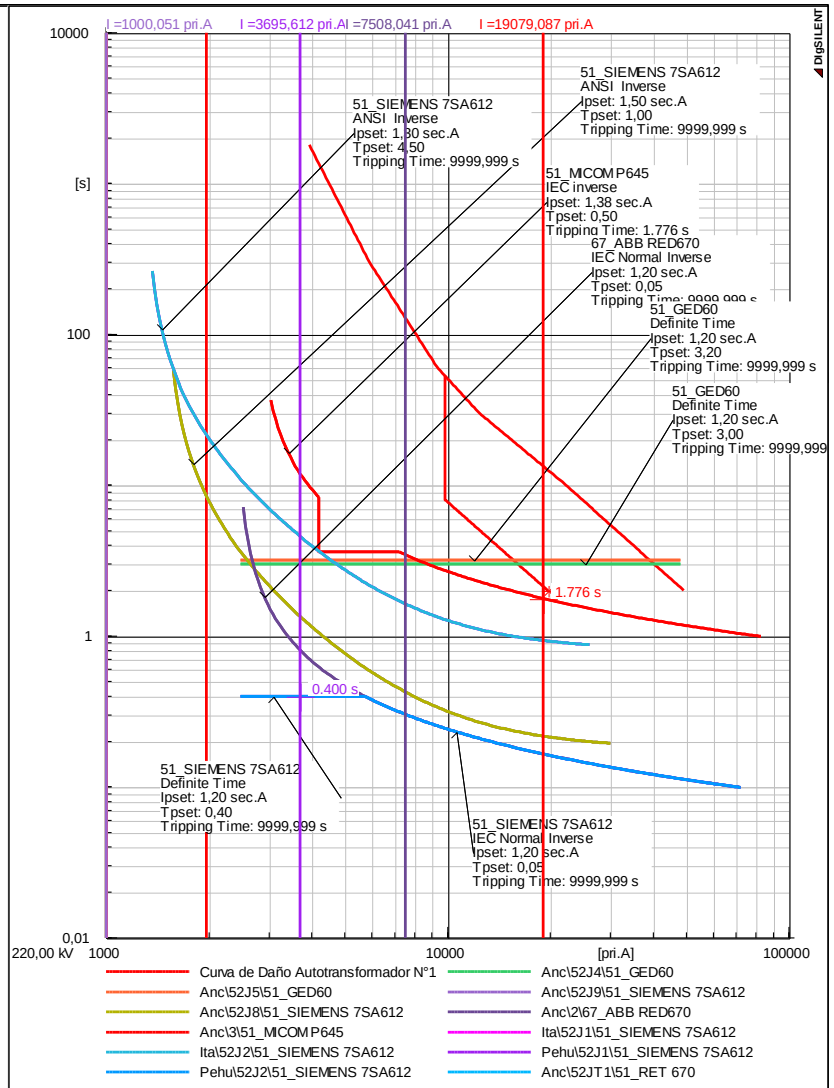


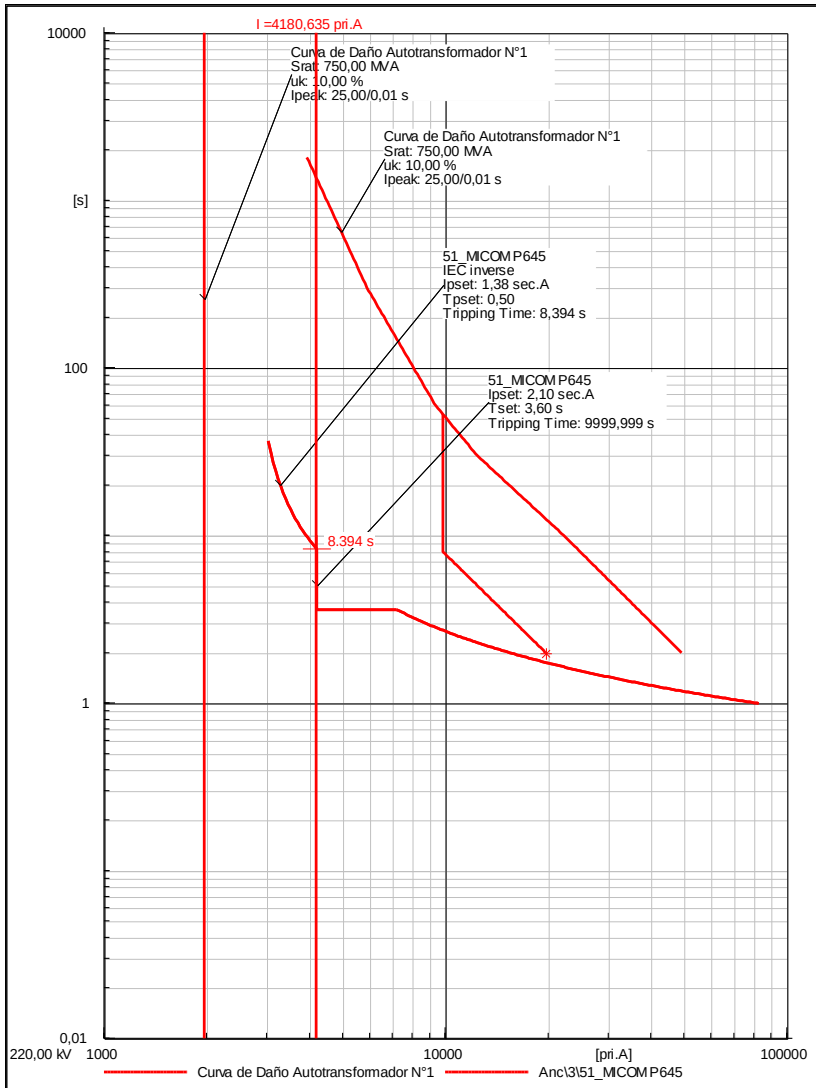


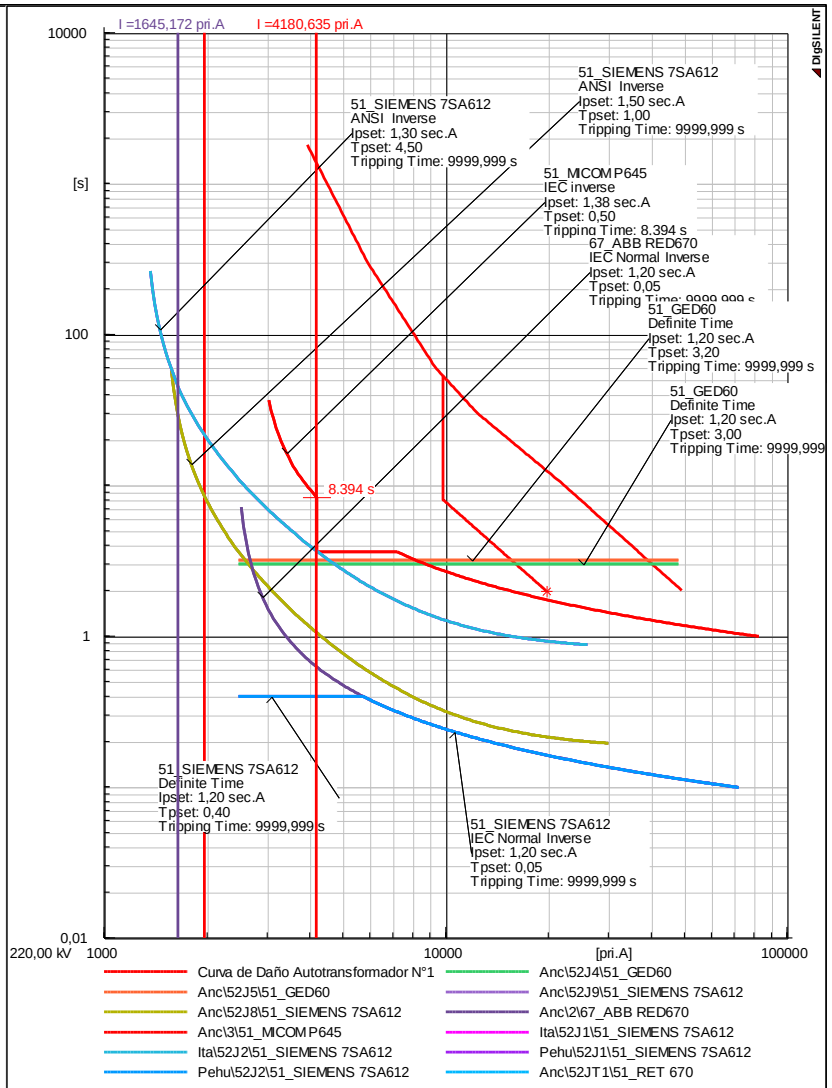
	PROYECTO REPRO 2015	51_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:





	PROYECTO REPRO 2015	51_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:





	PROYECTO REPRO 2015	51_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

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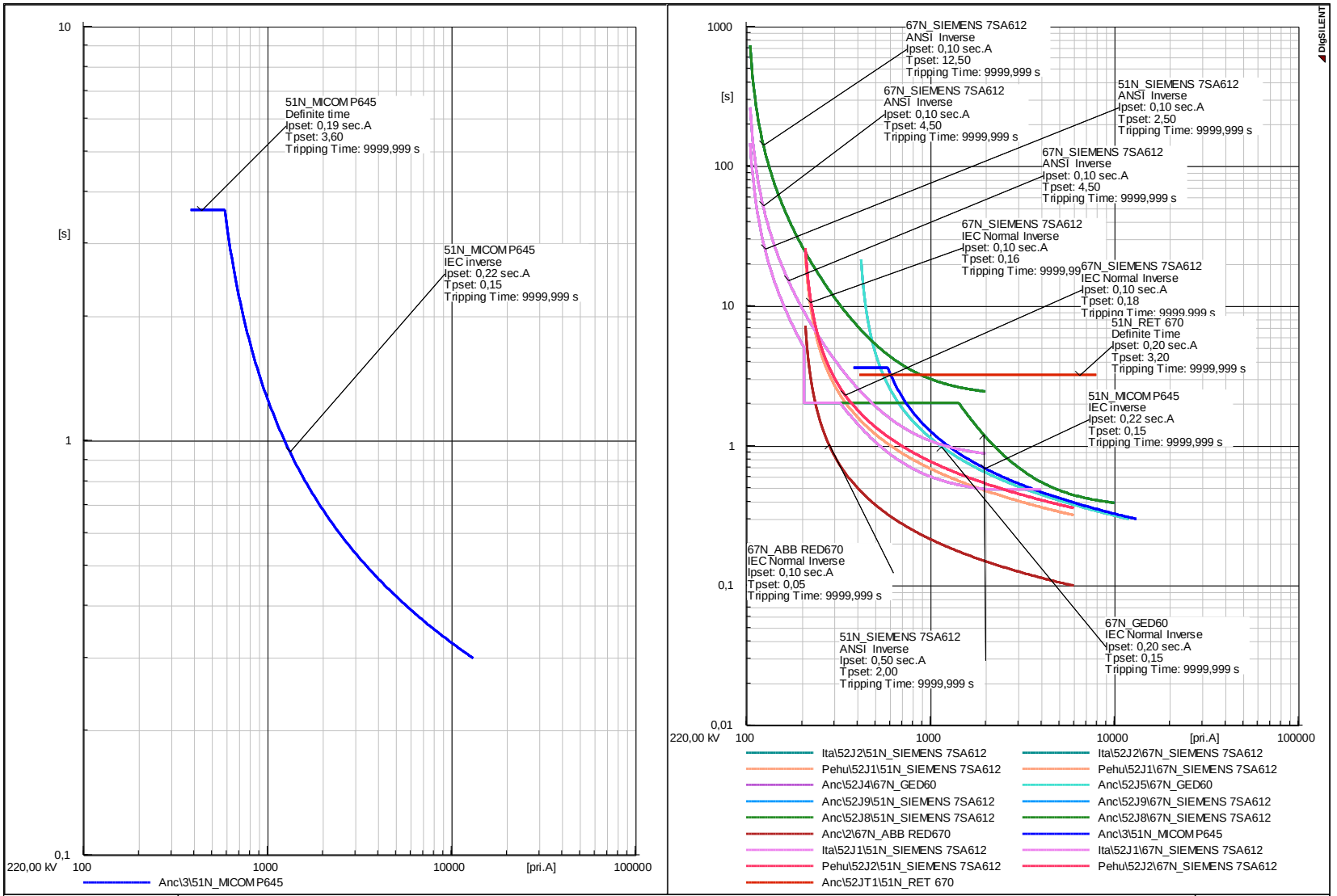
FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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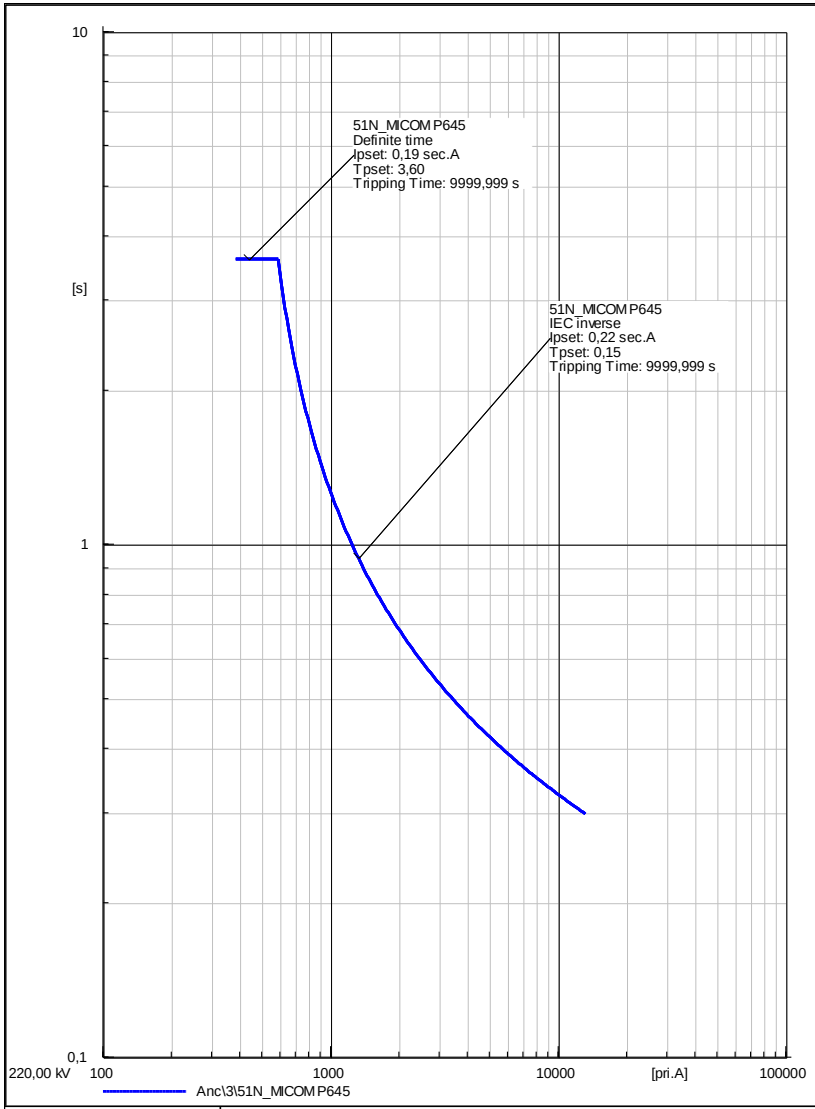

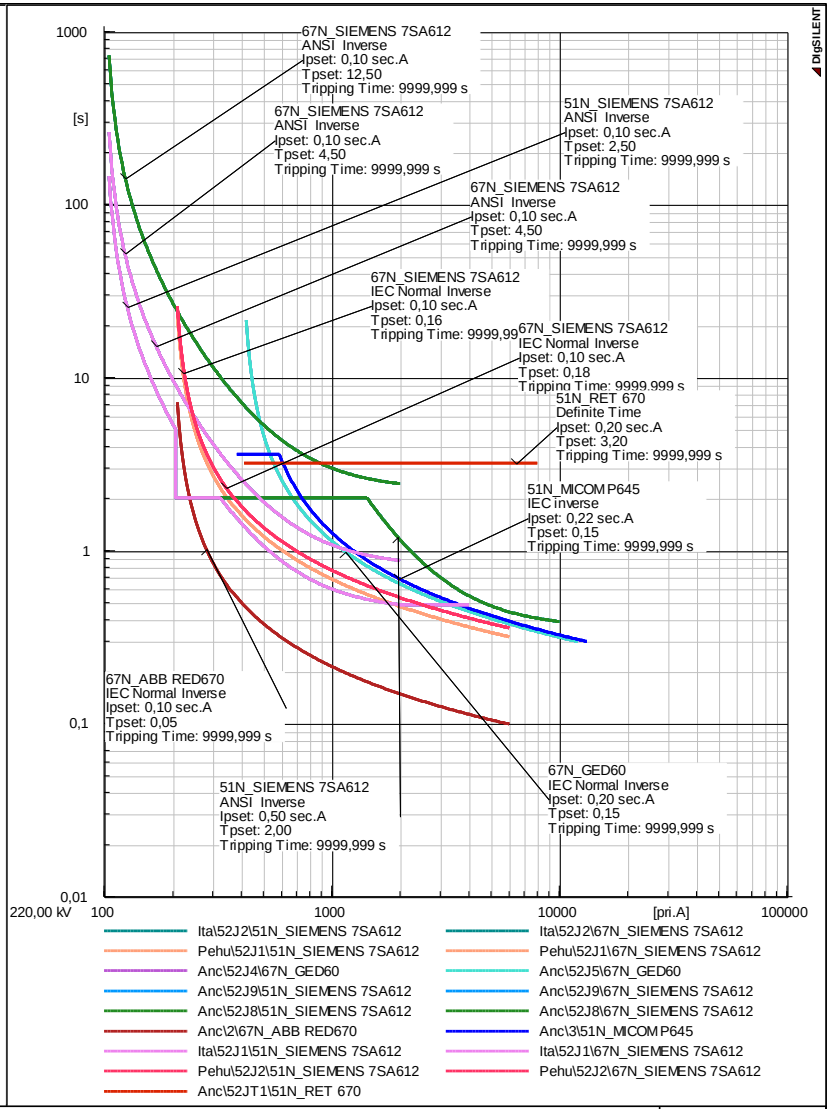

	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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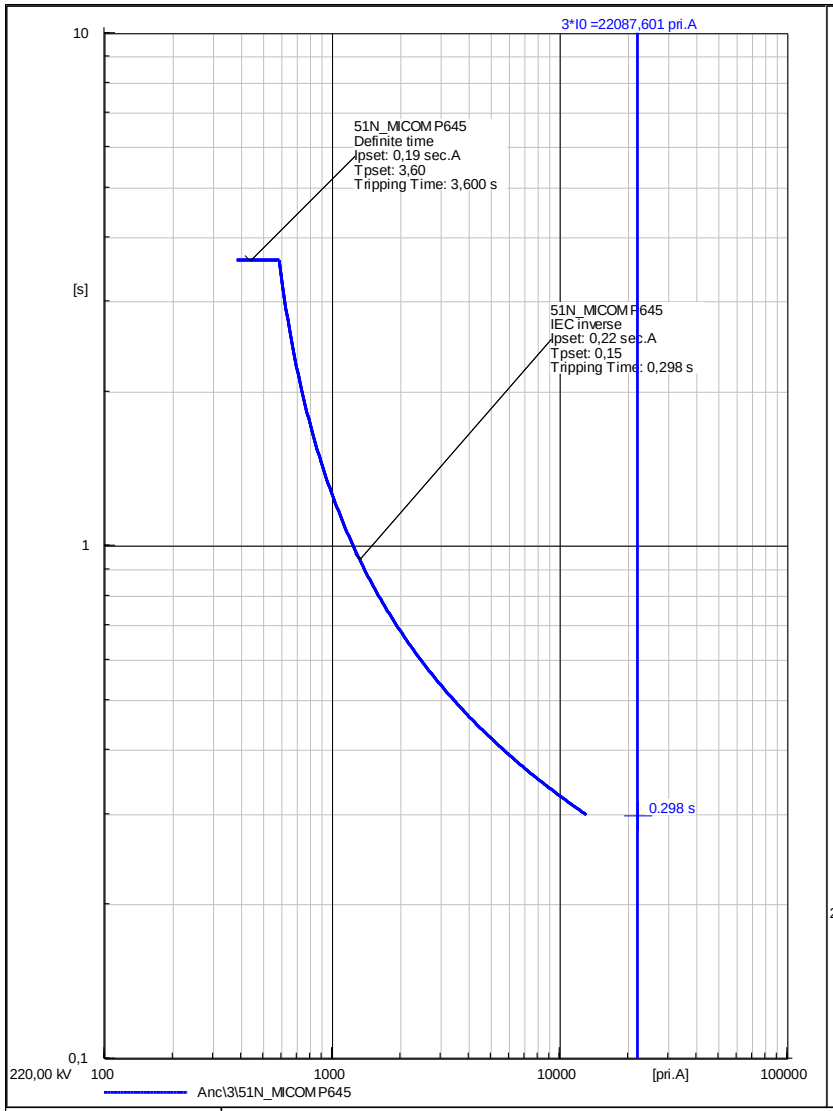

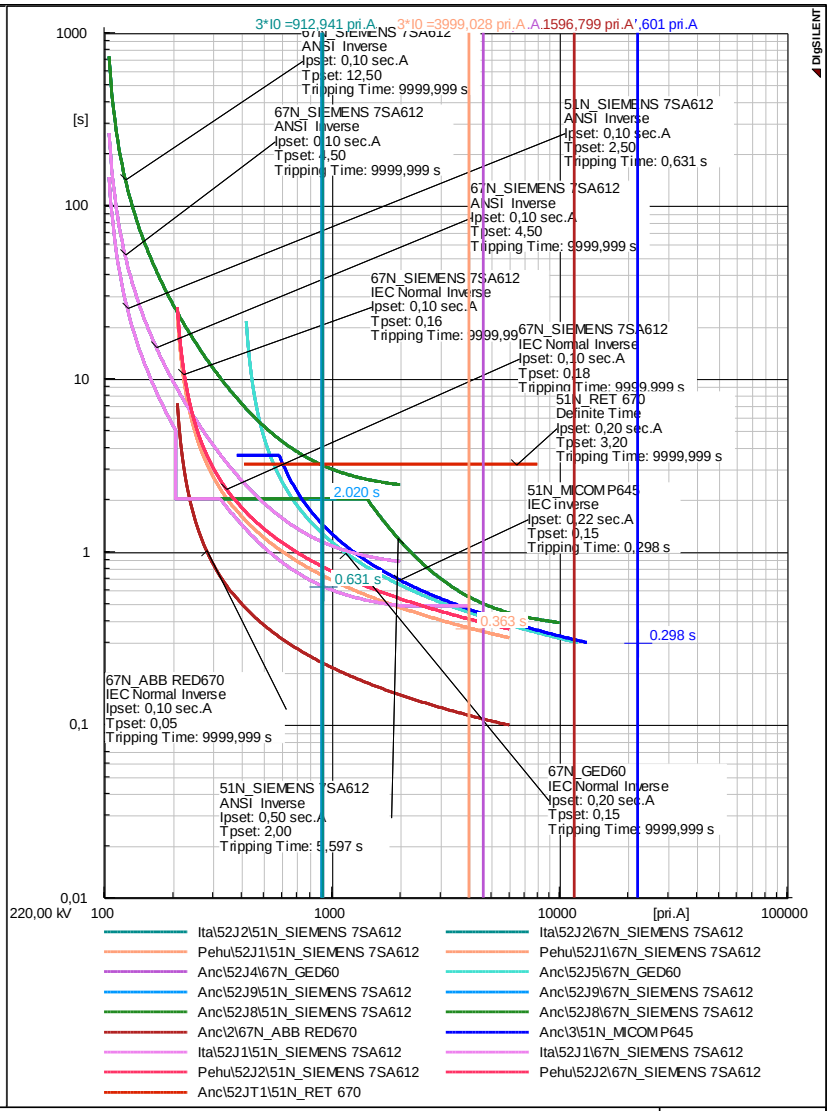

	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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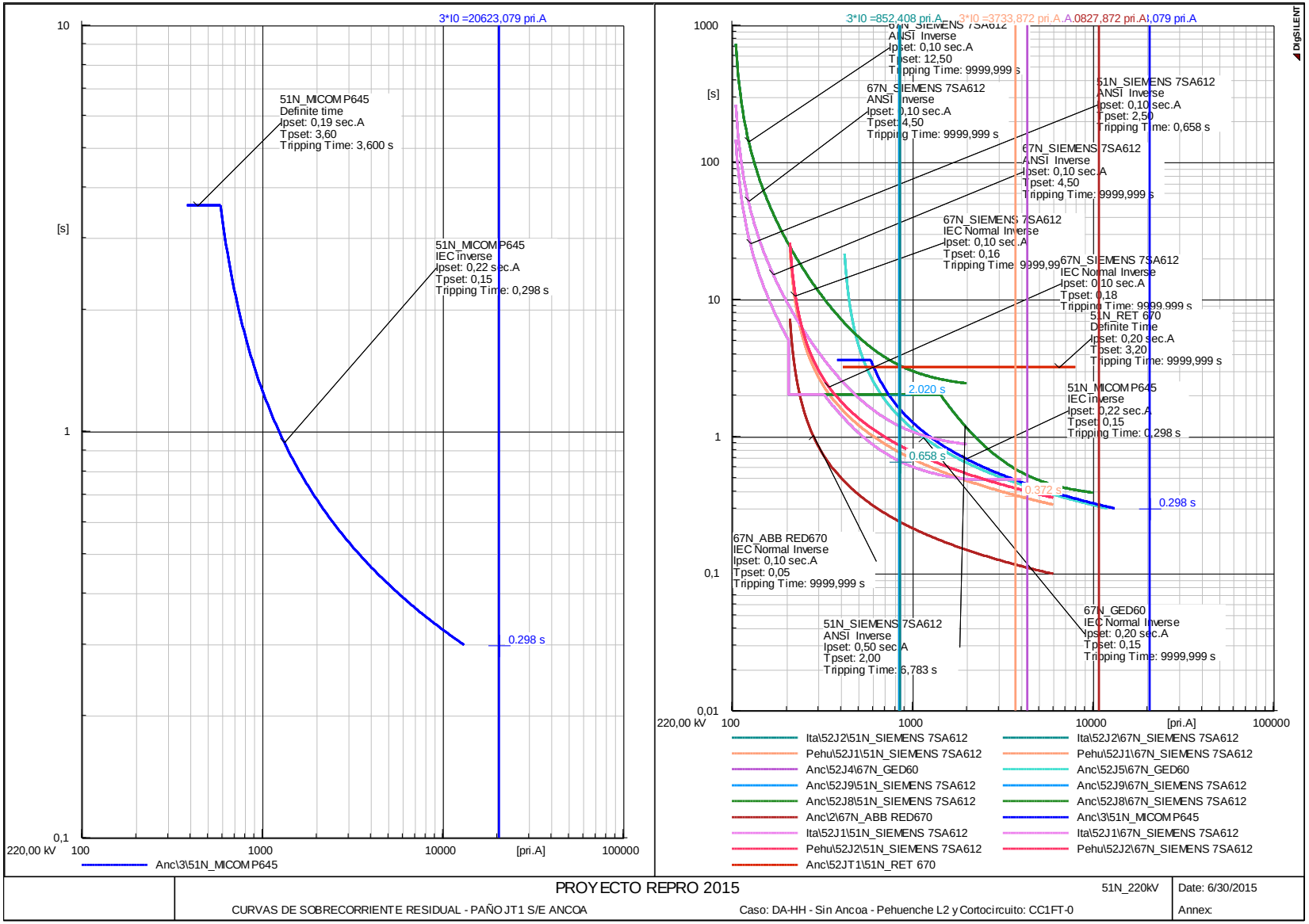

	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:

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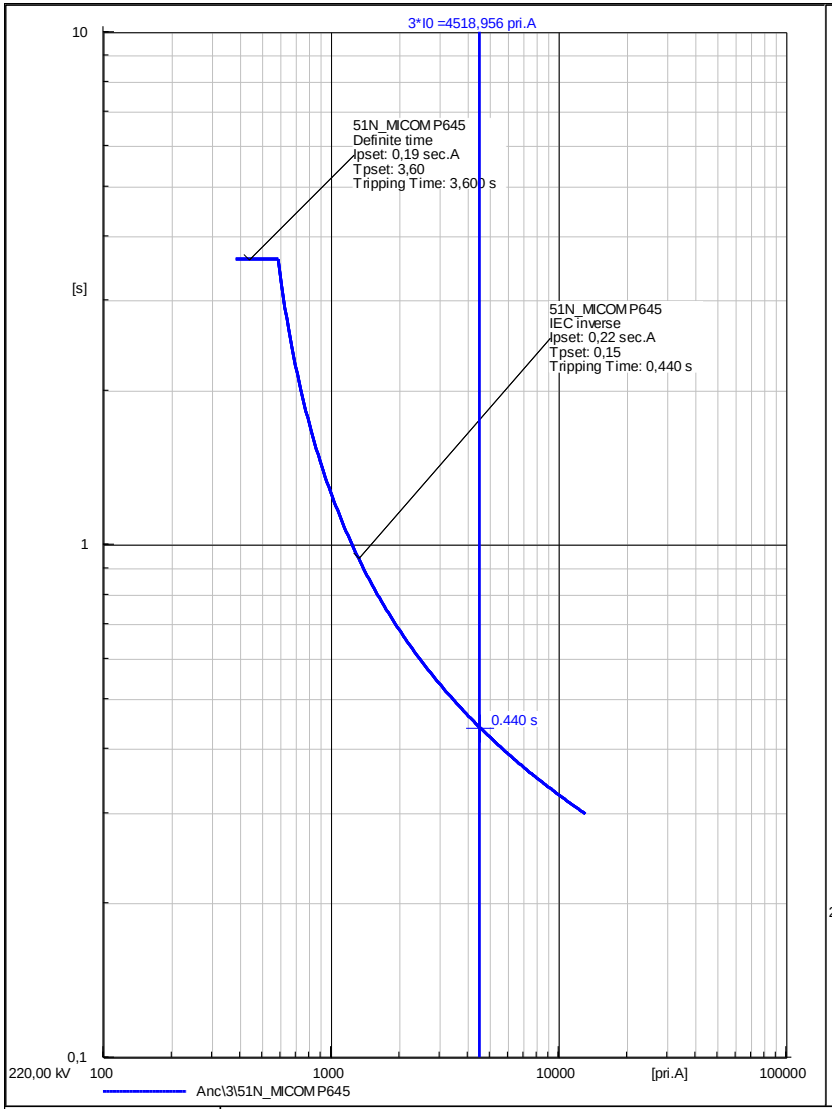

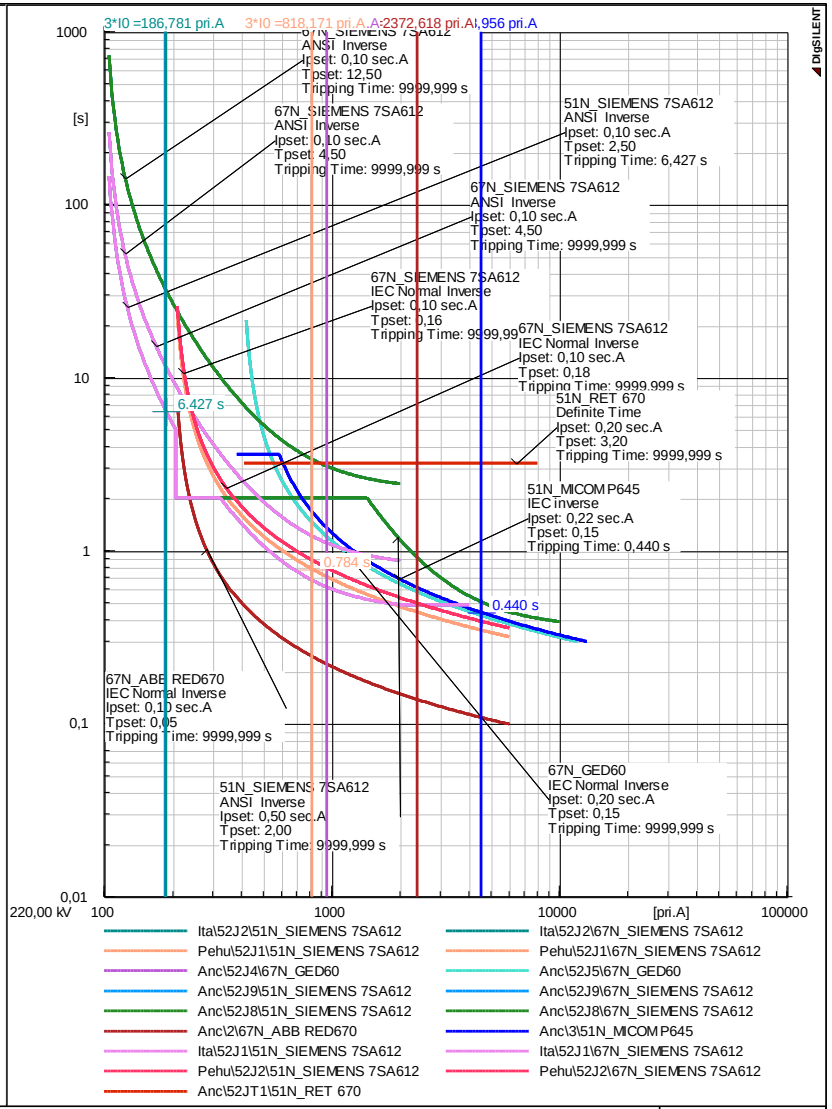

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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

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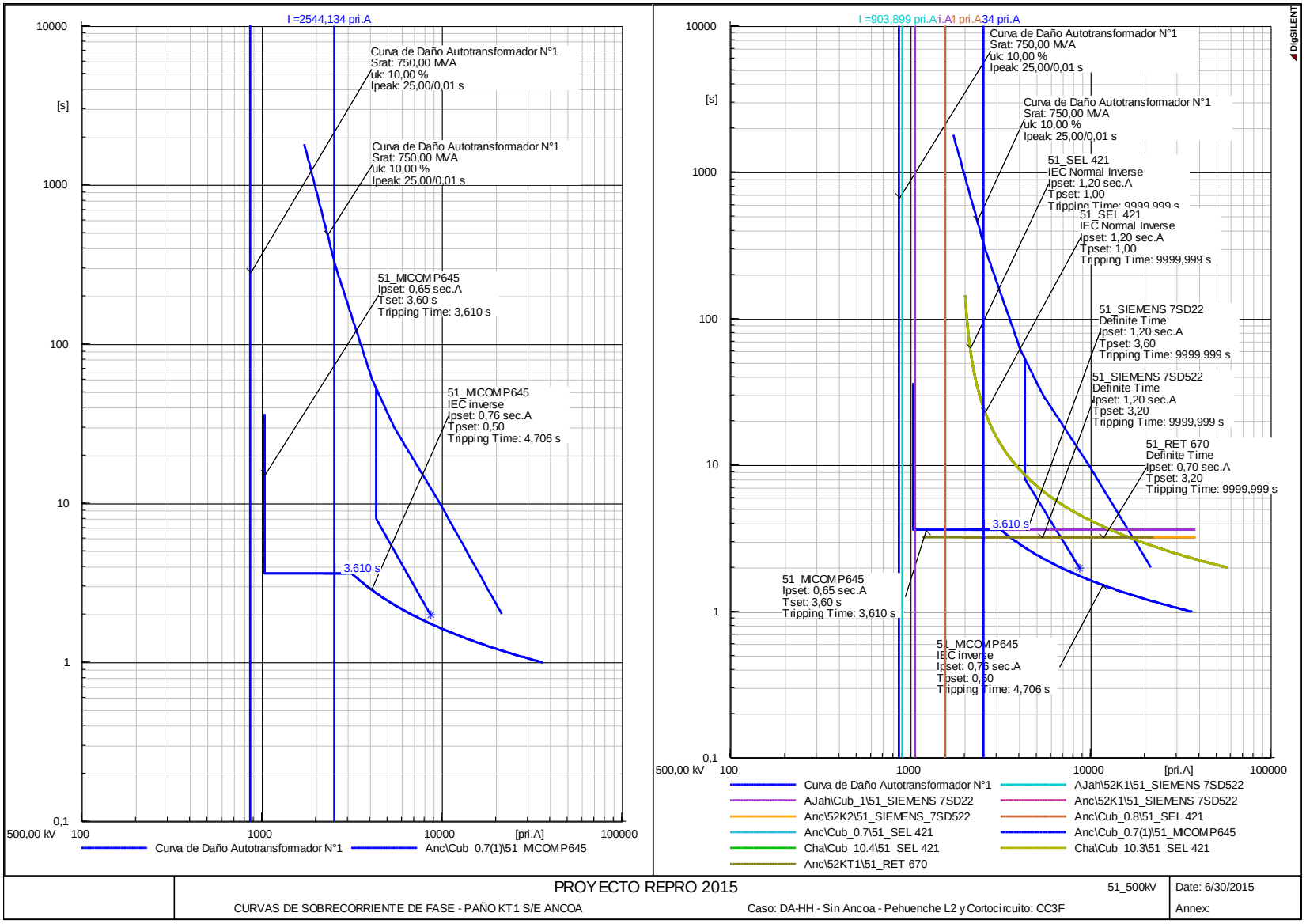
FUNCIÓN 51 LADO DE 500 KV



	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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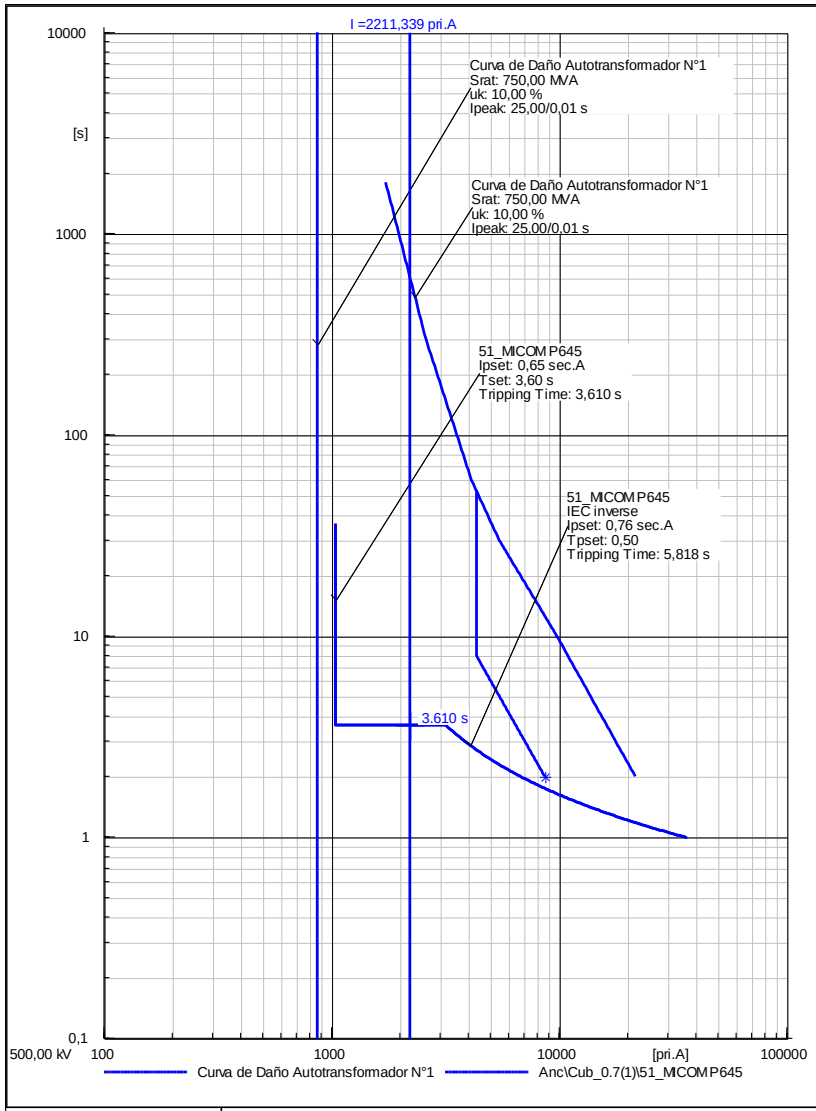

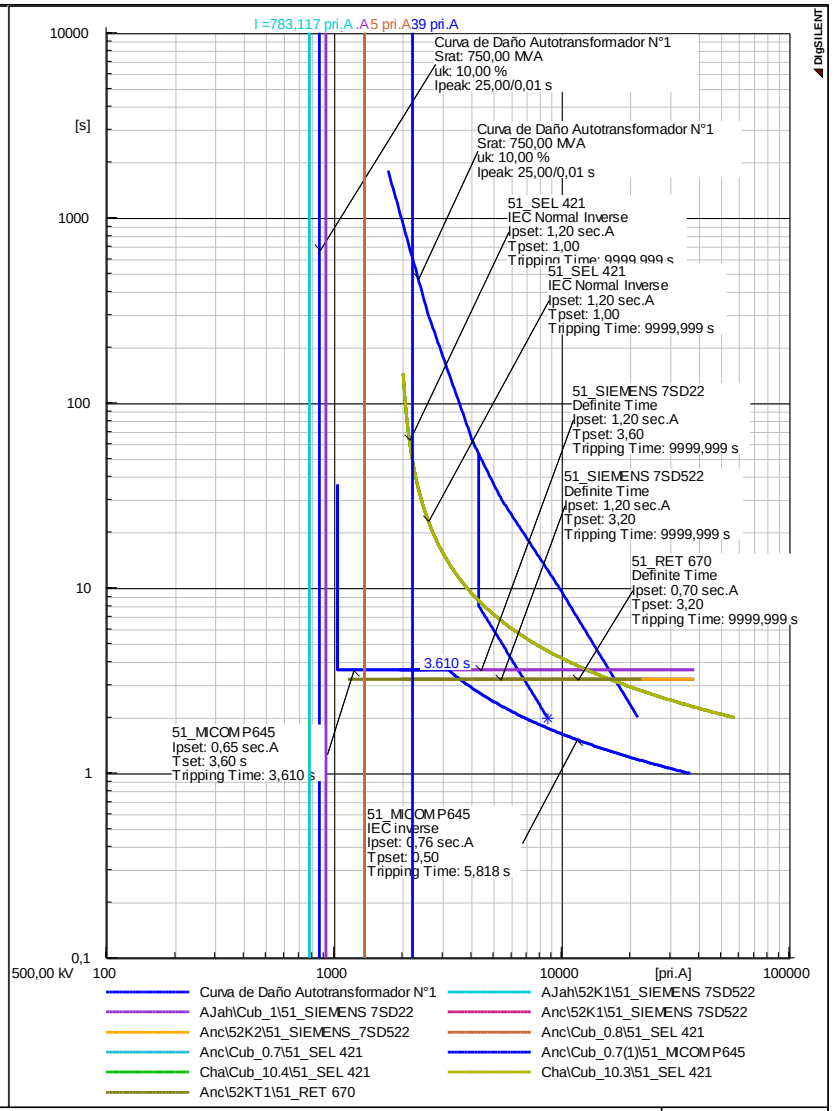

	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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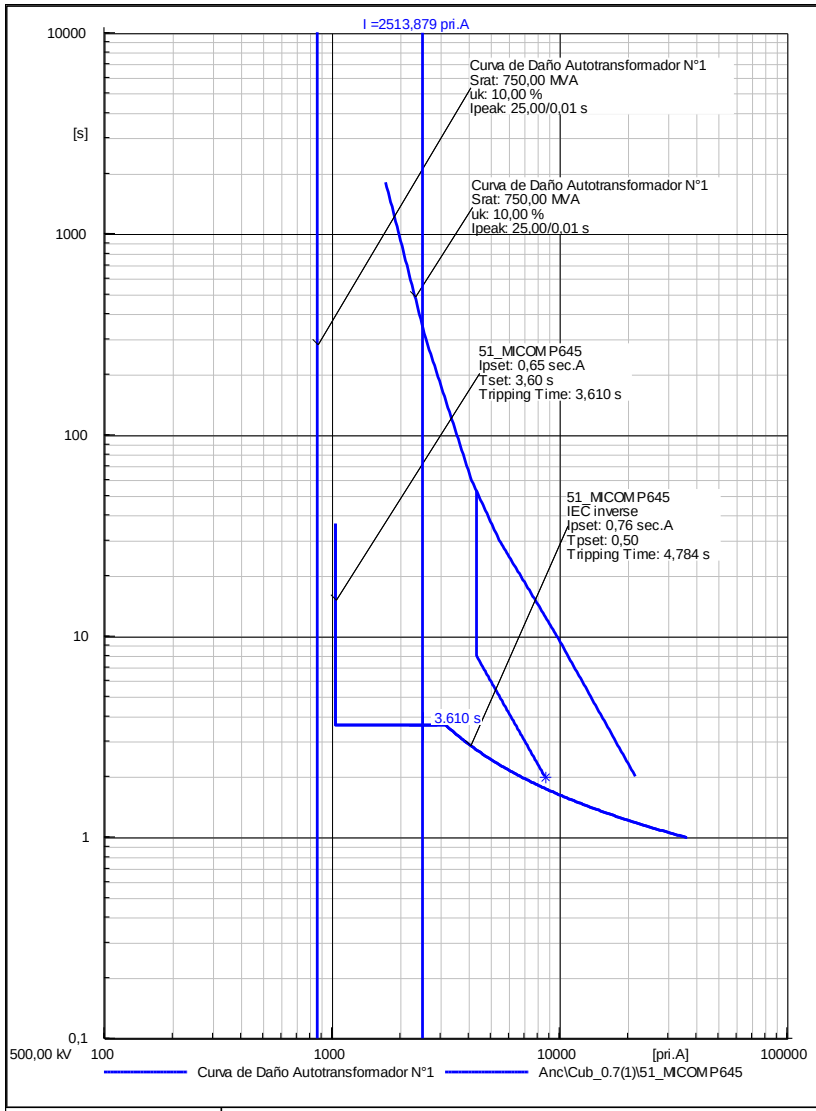

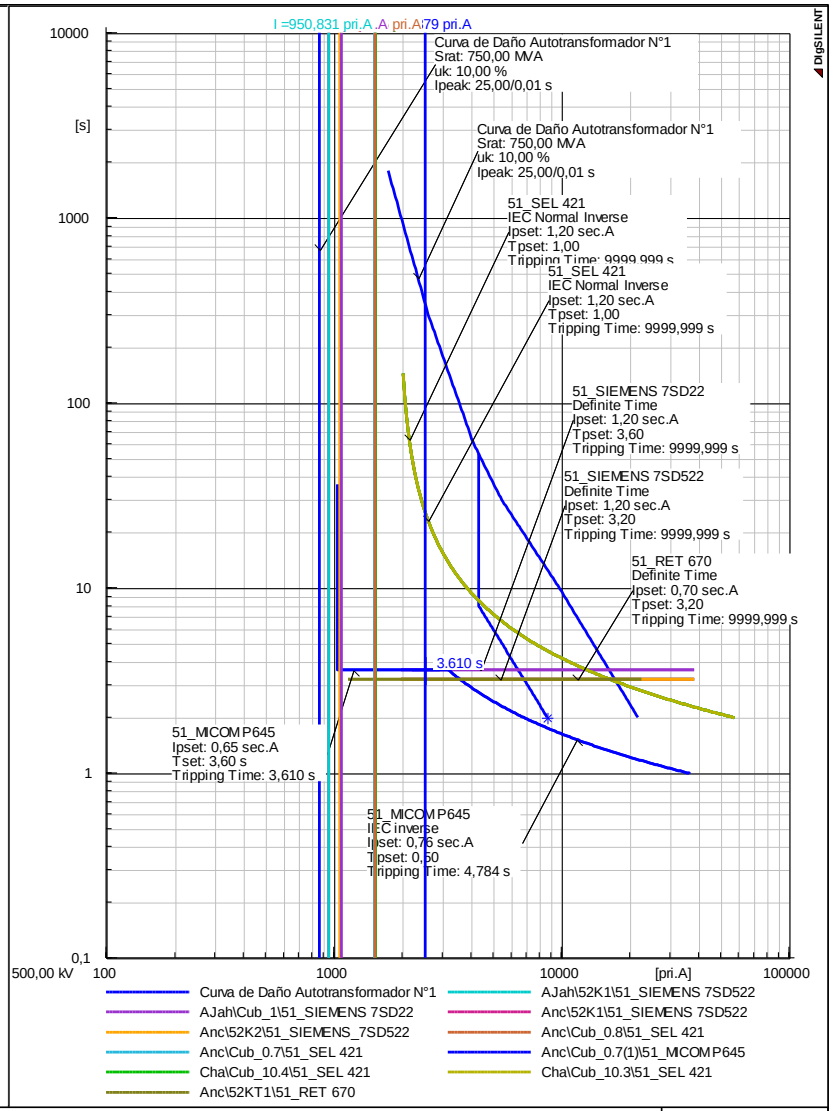

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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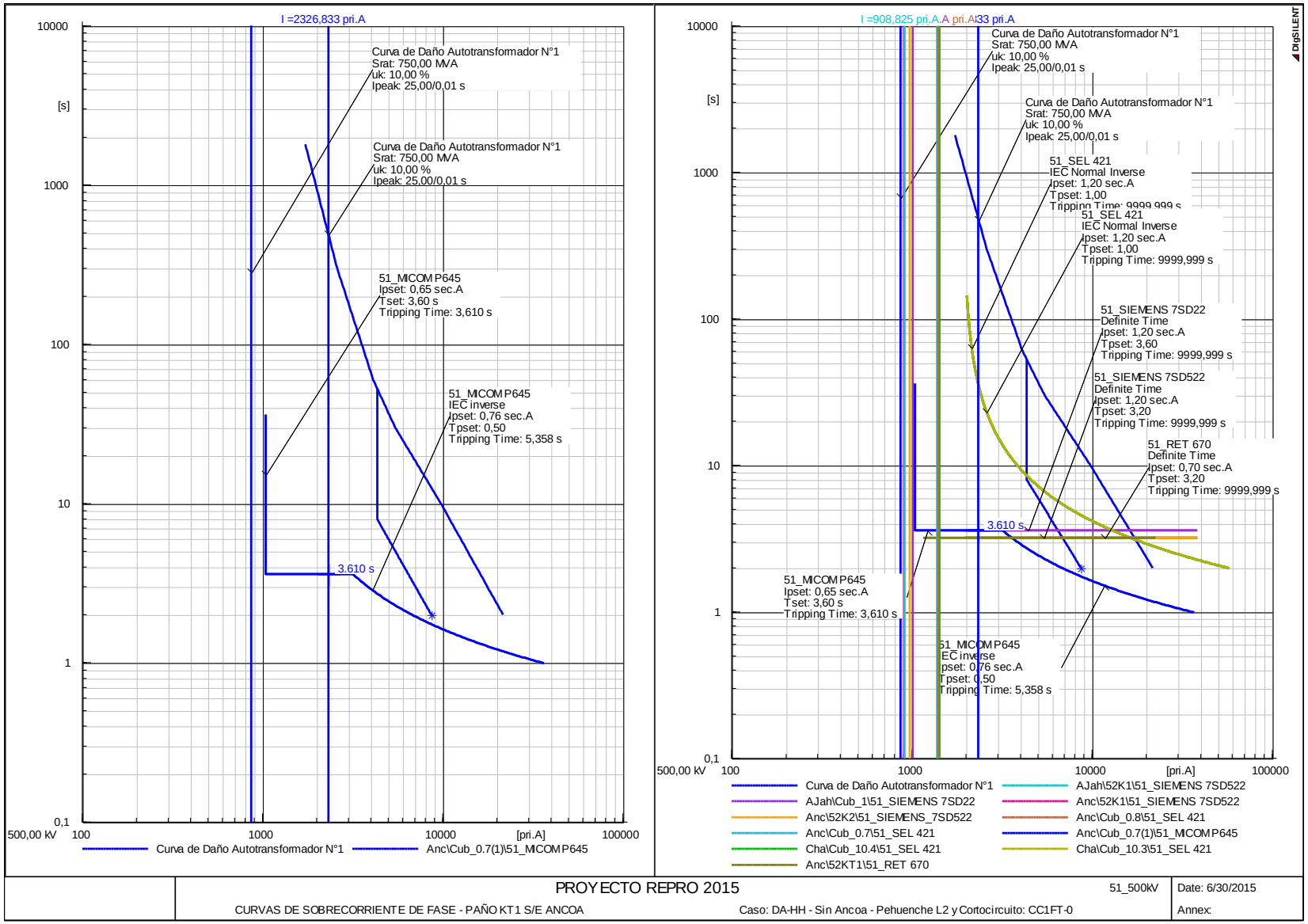

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:

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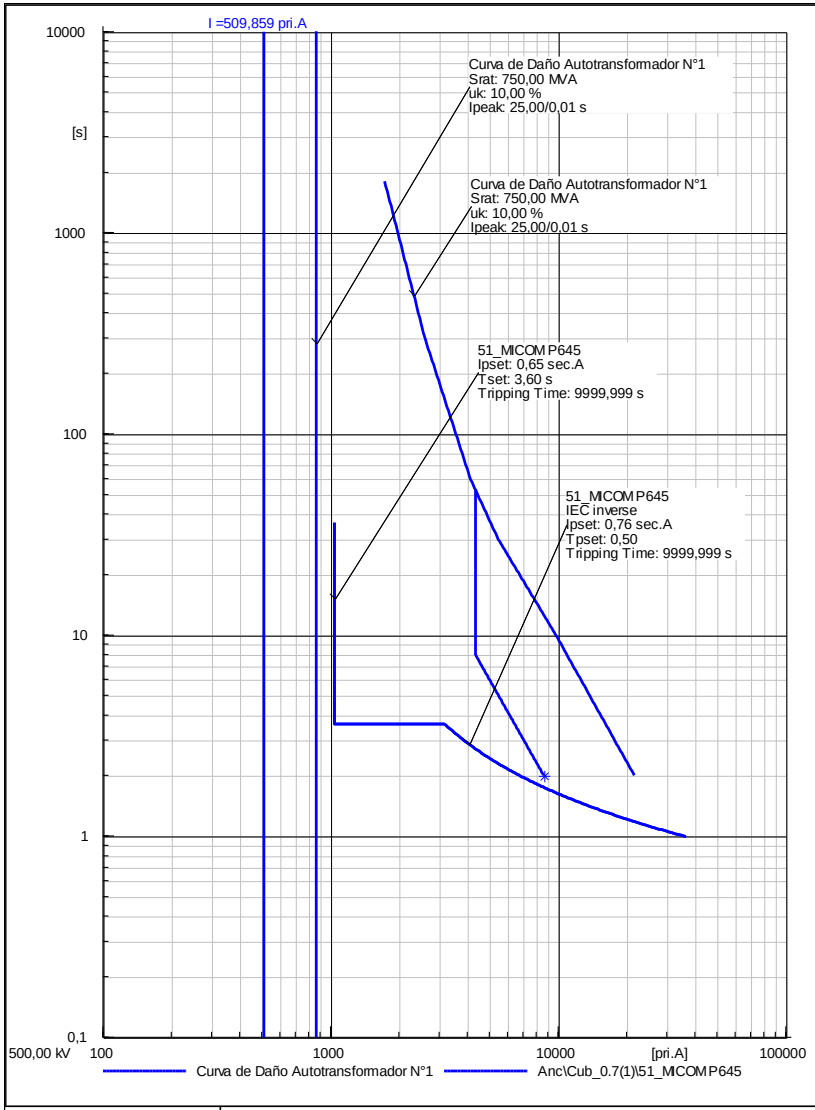

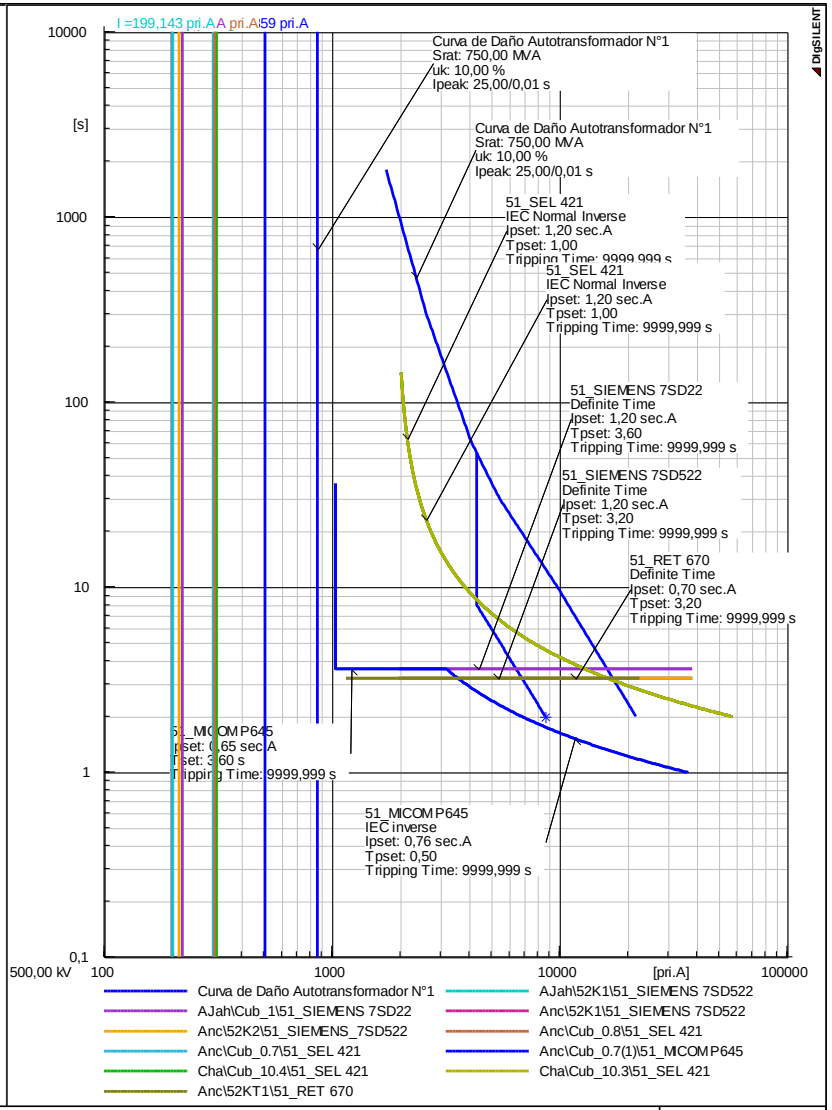

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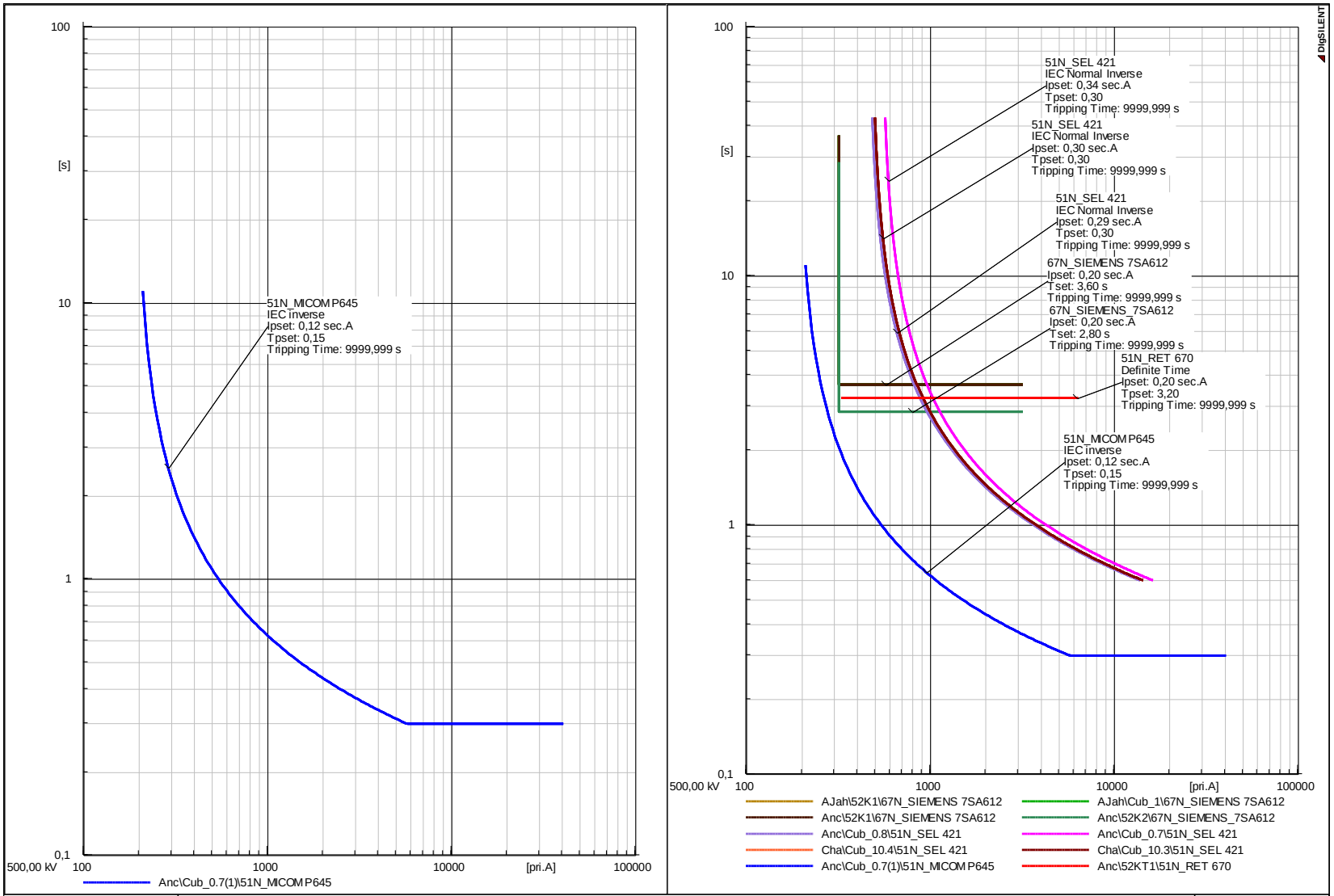
FUNCIÓN 51N LADO DE 500 KV



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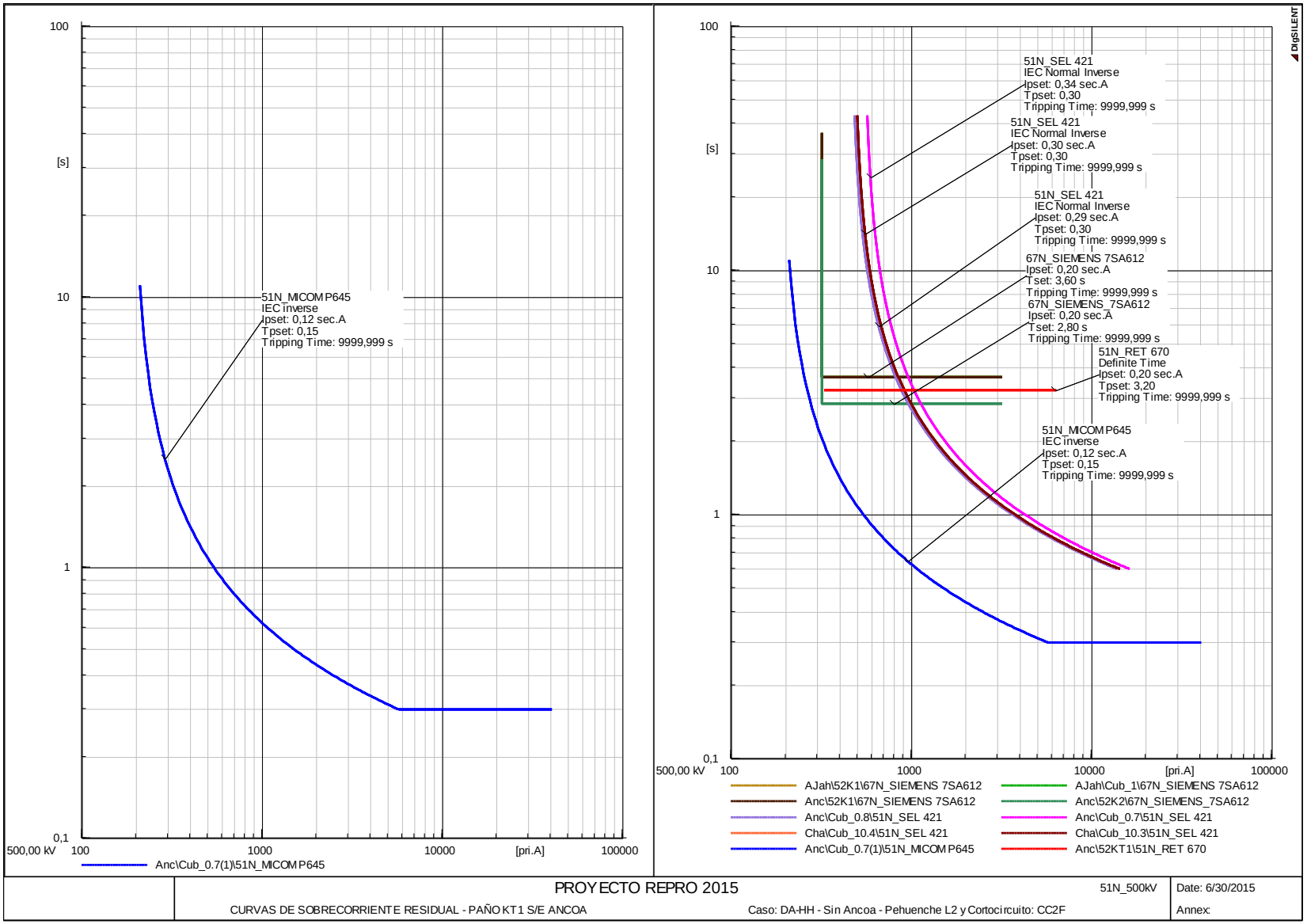

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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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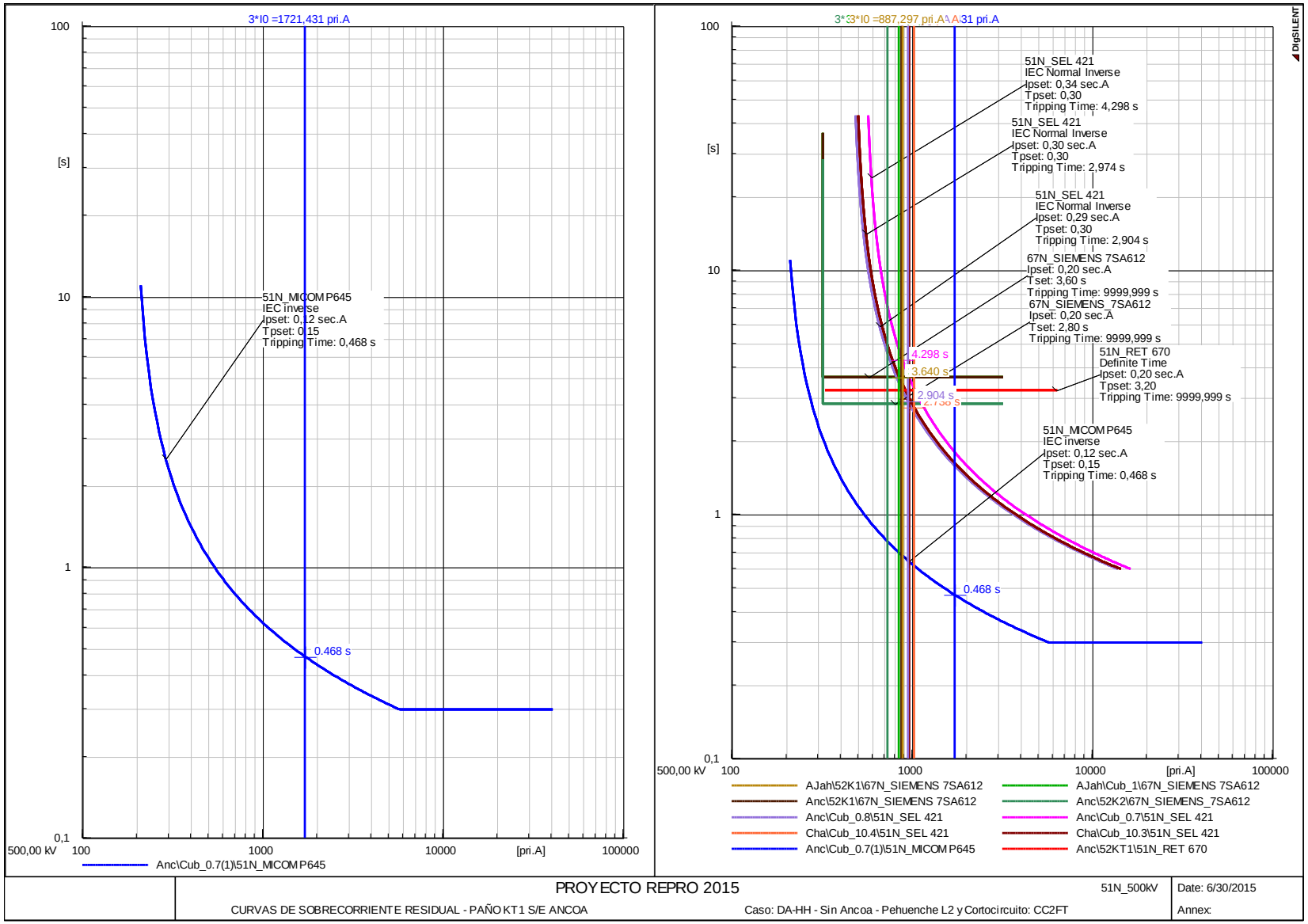

	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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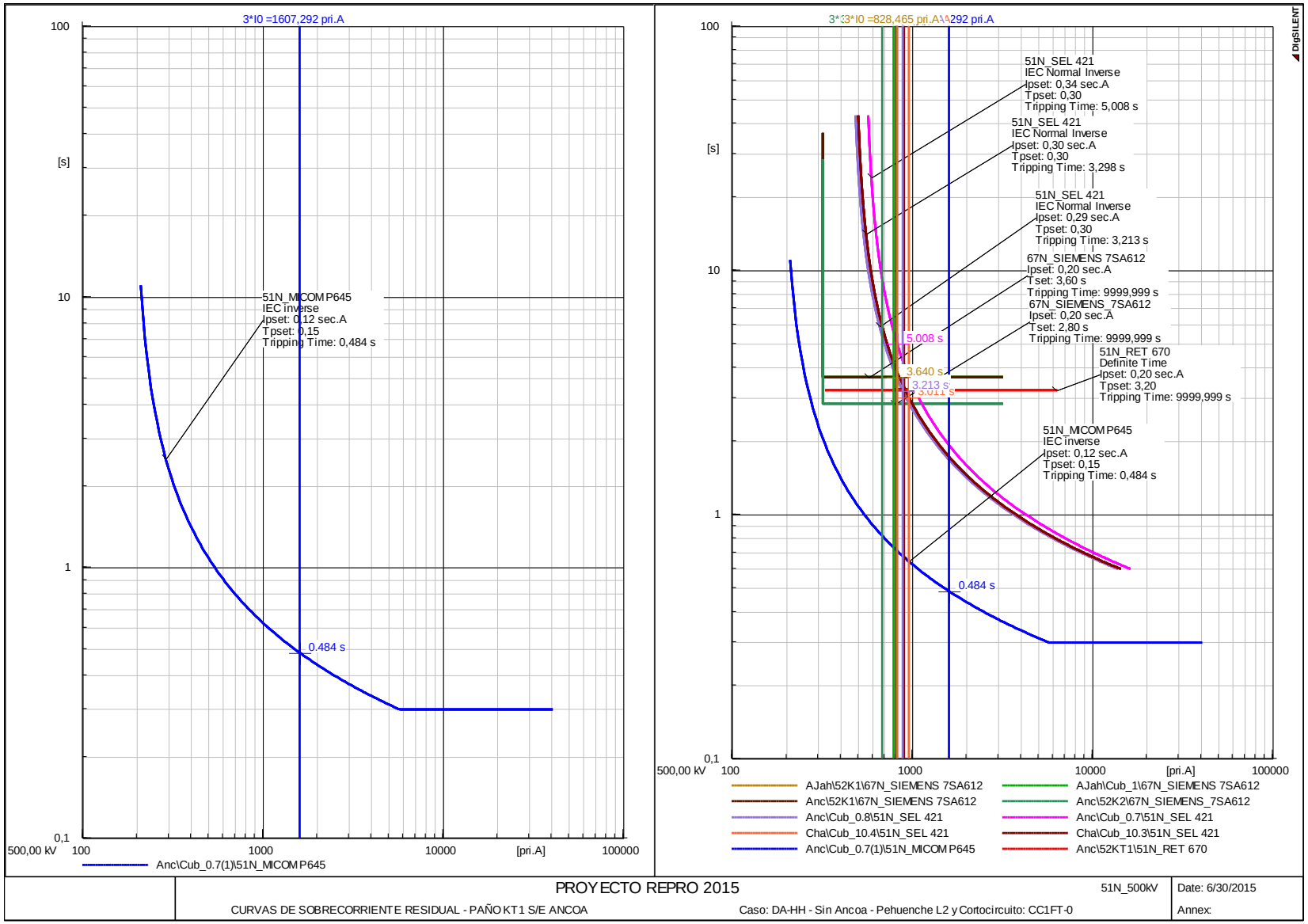
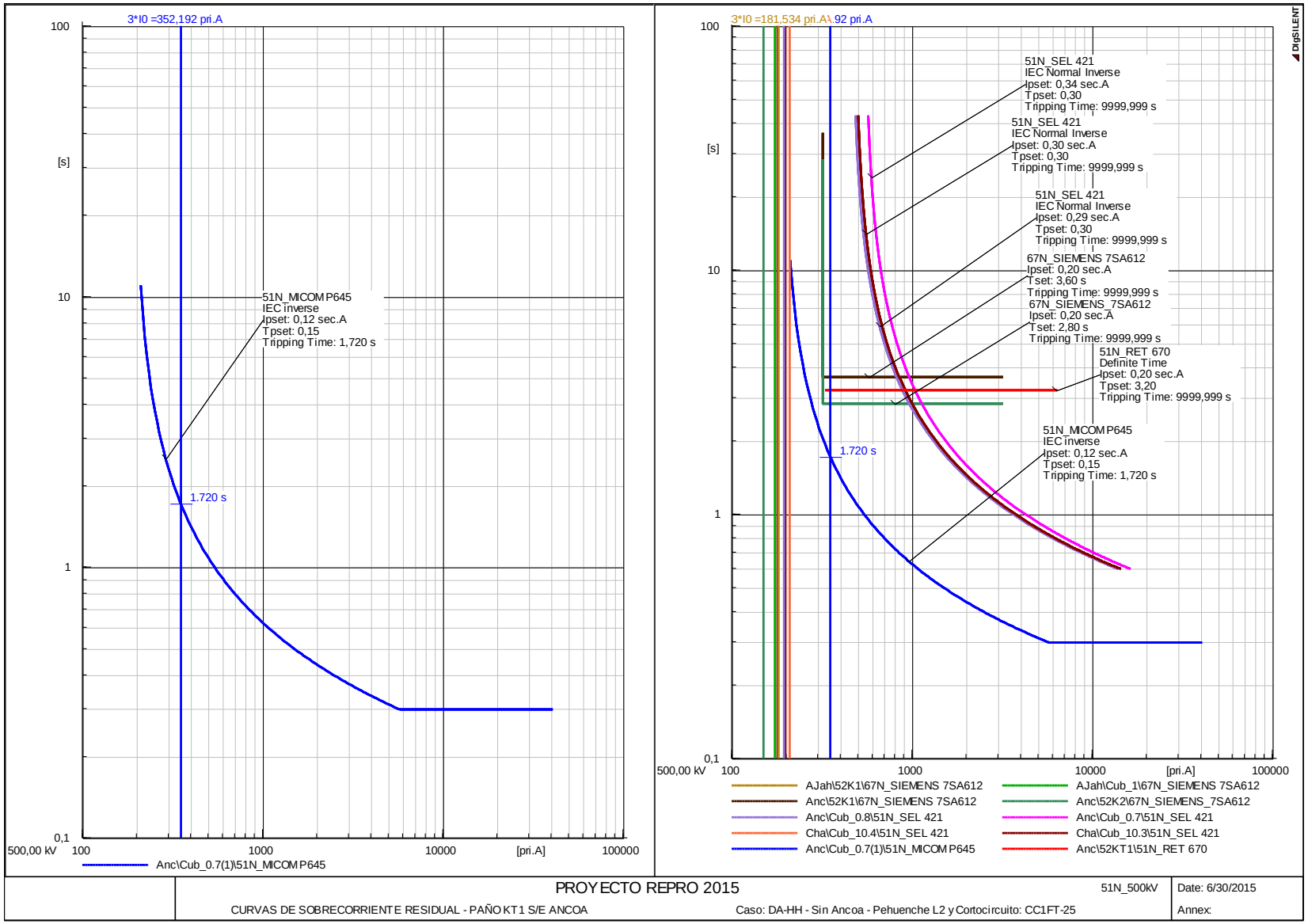


	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:



	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

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SIMULACIONES EN DEMANDA ALTA – HIDROLOGÍA SECA

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FALLA EN BARRA 500 KV S/E ANCOA

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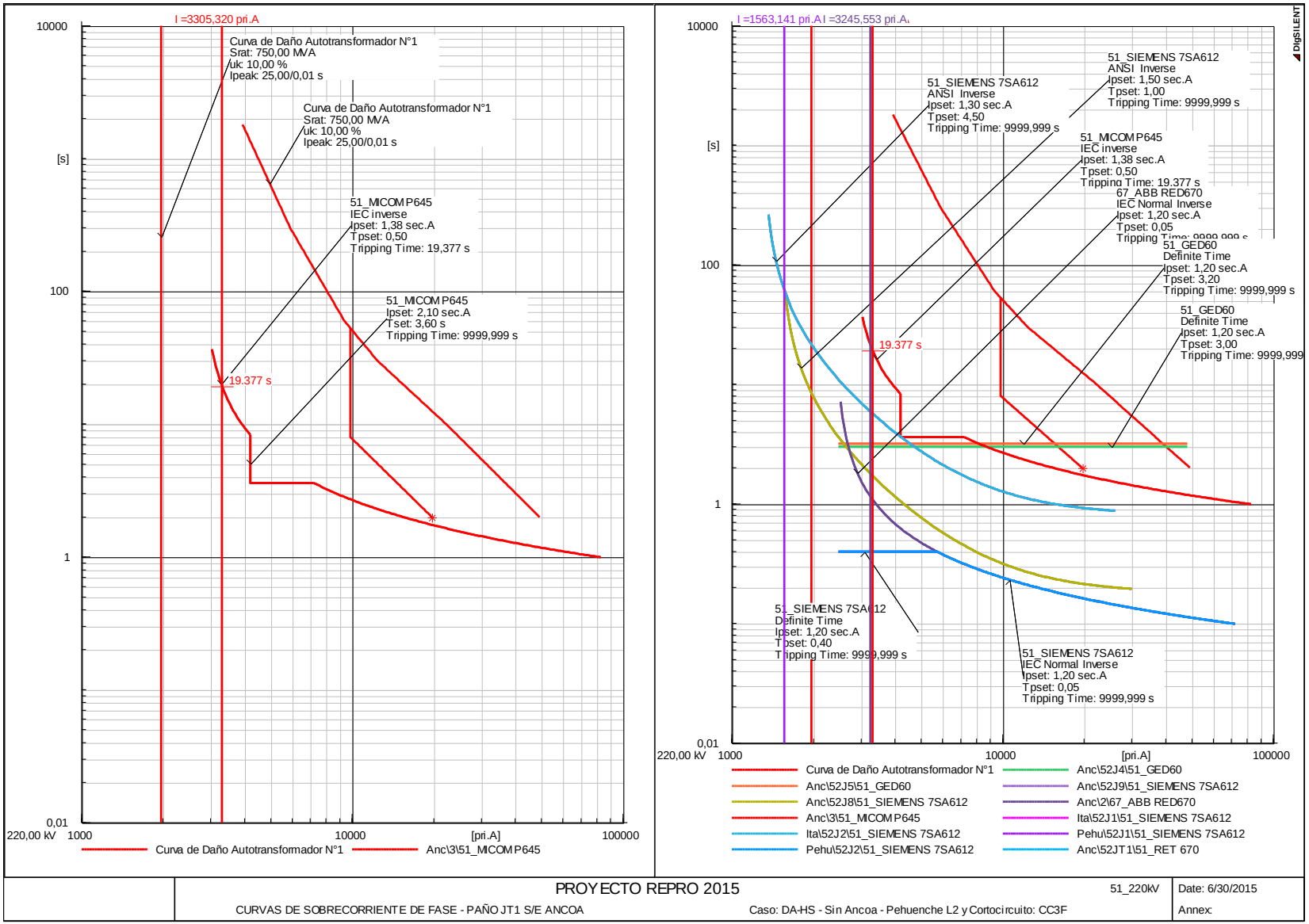
FUNCIÓN 51 LADO DE 220 KV



	PROYECTO REPRO 2015	51_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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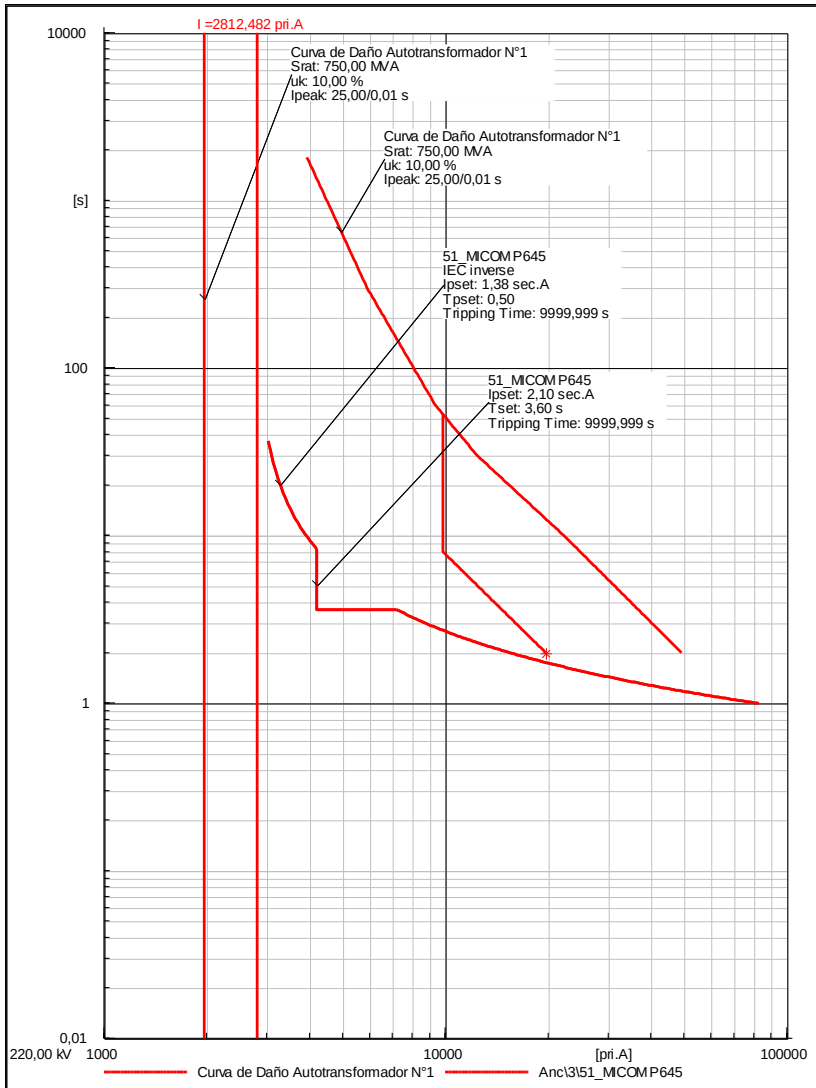
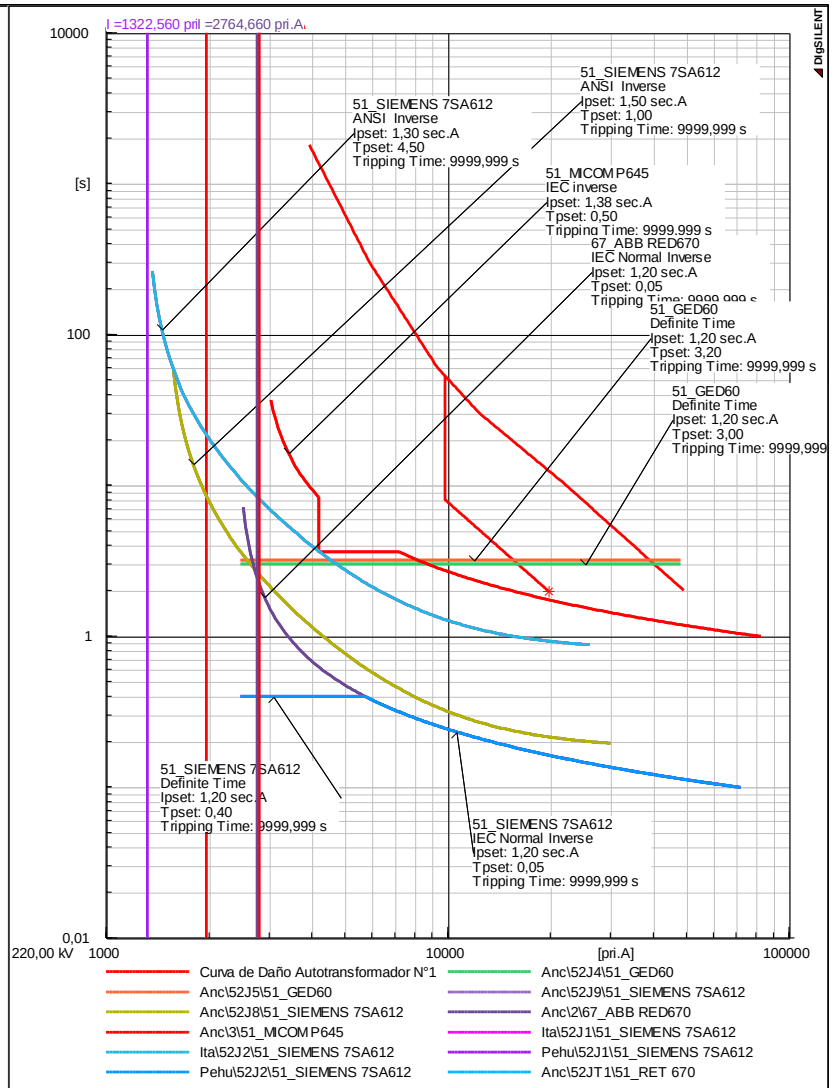
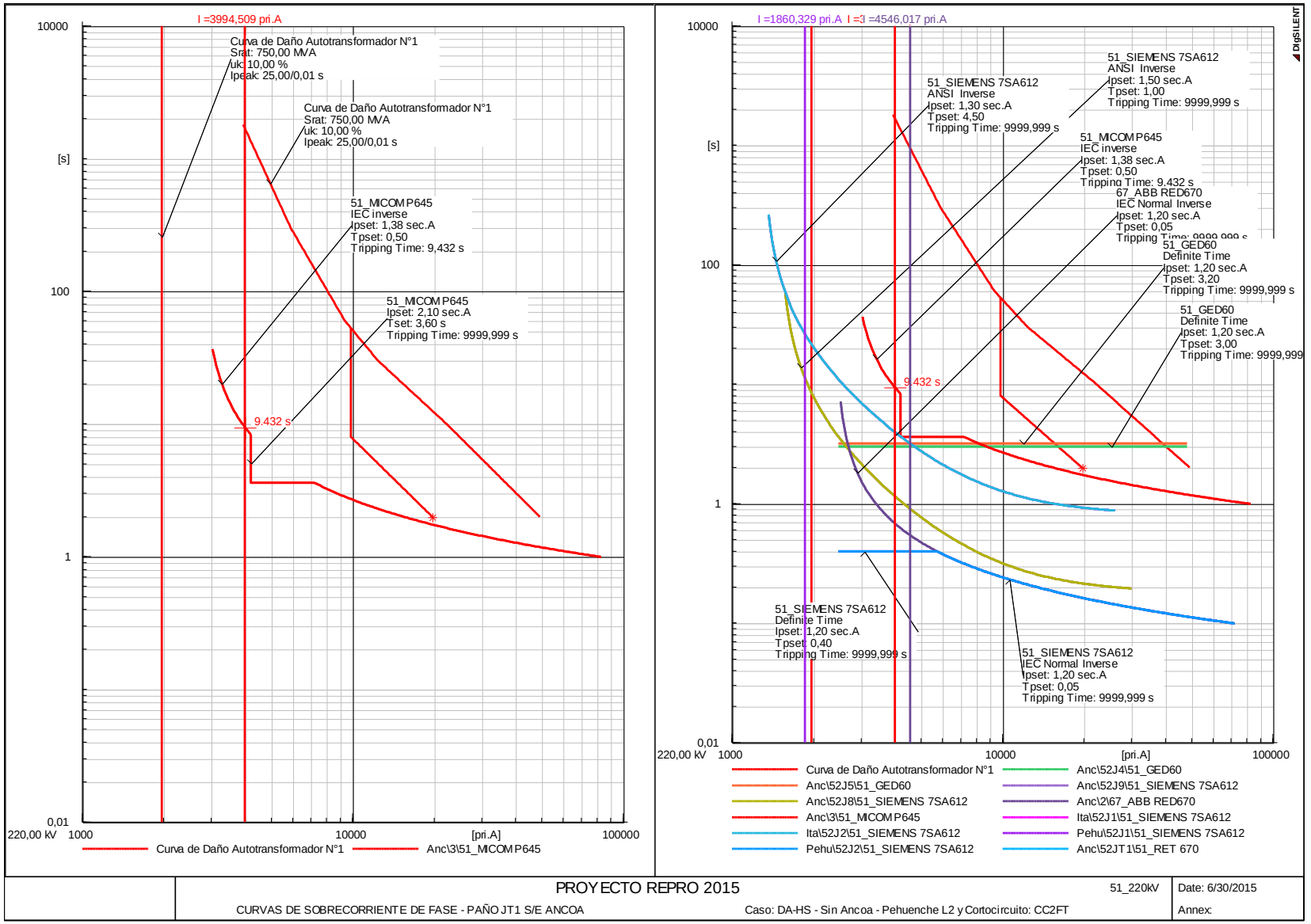




	PROYECTO REPRO 2015	51_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:



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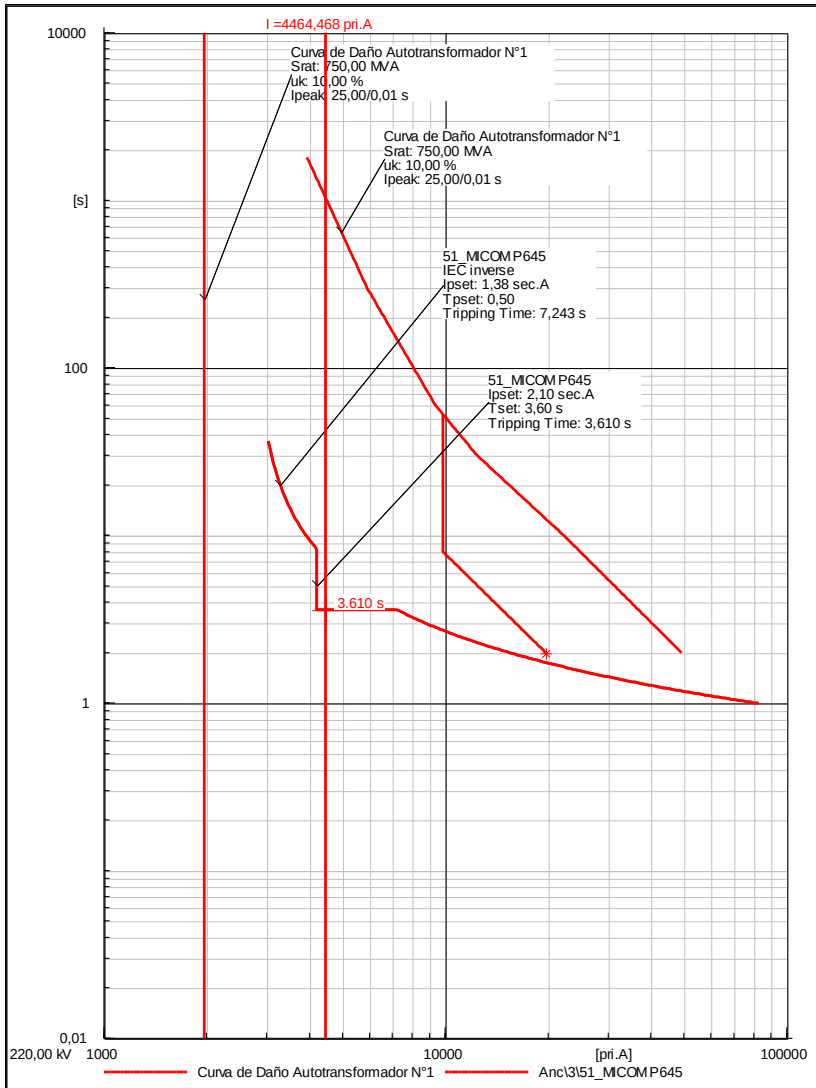

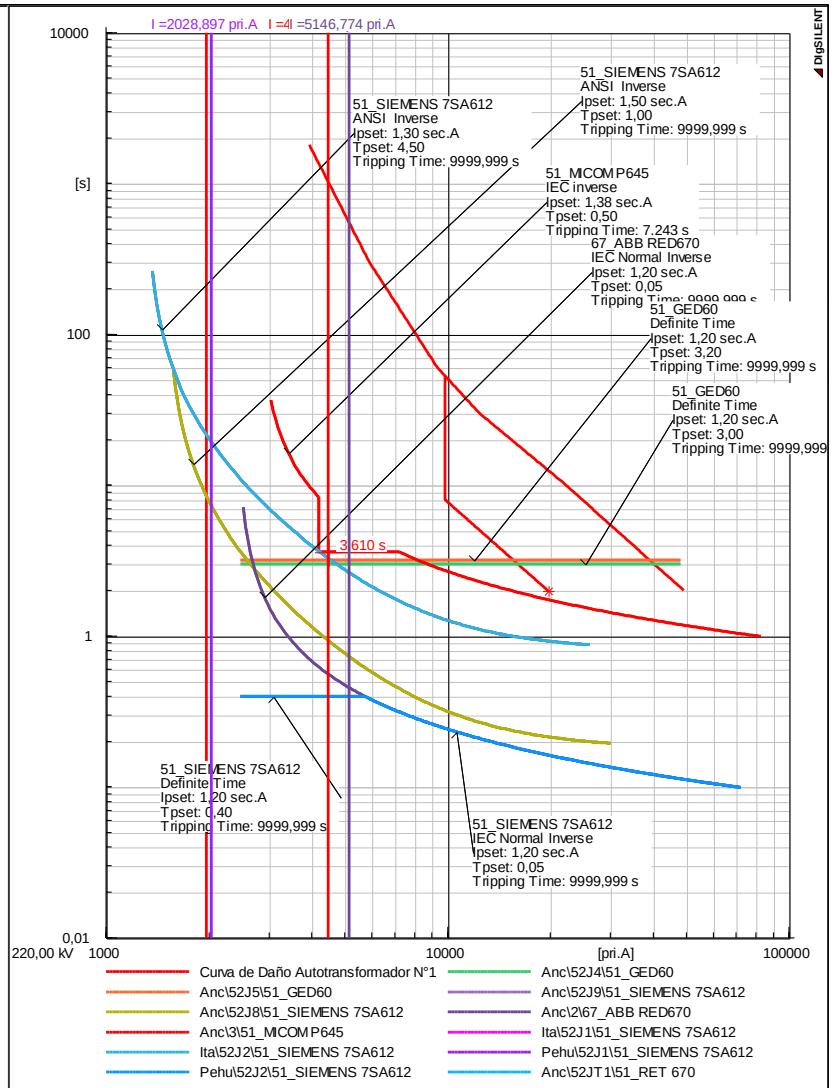

	PROYECTO REPRO 2015	51_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:

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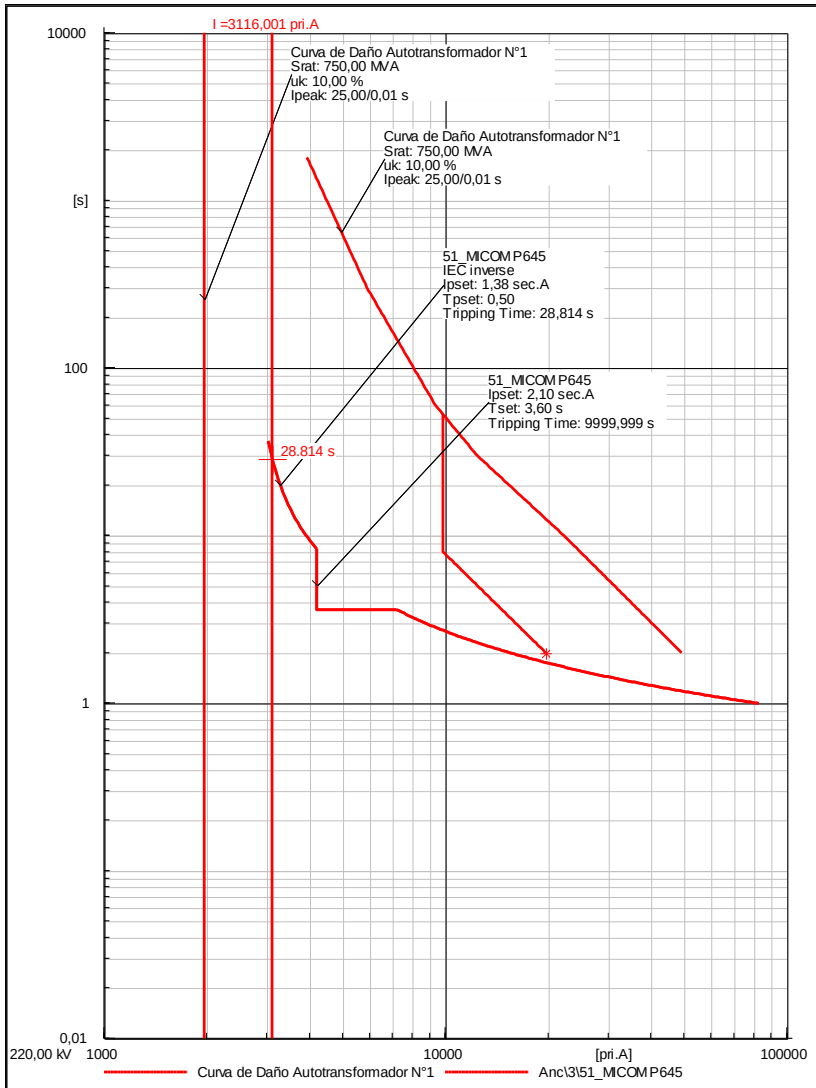

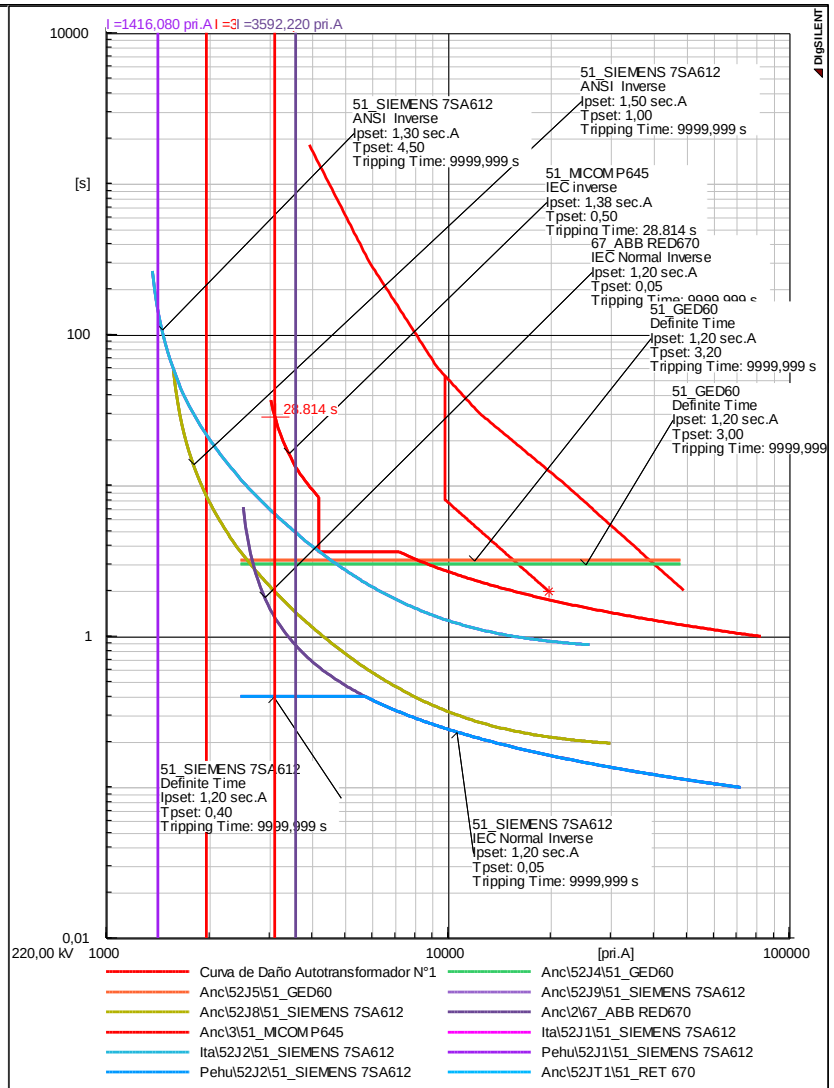

	PROYECTO REPRO 2015	51_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

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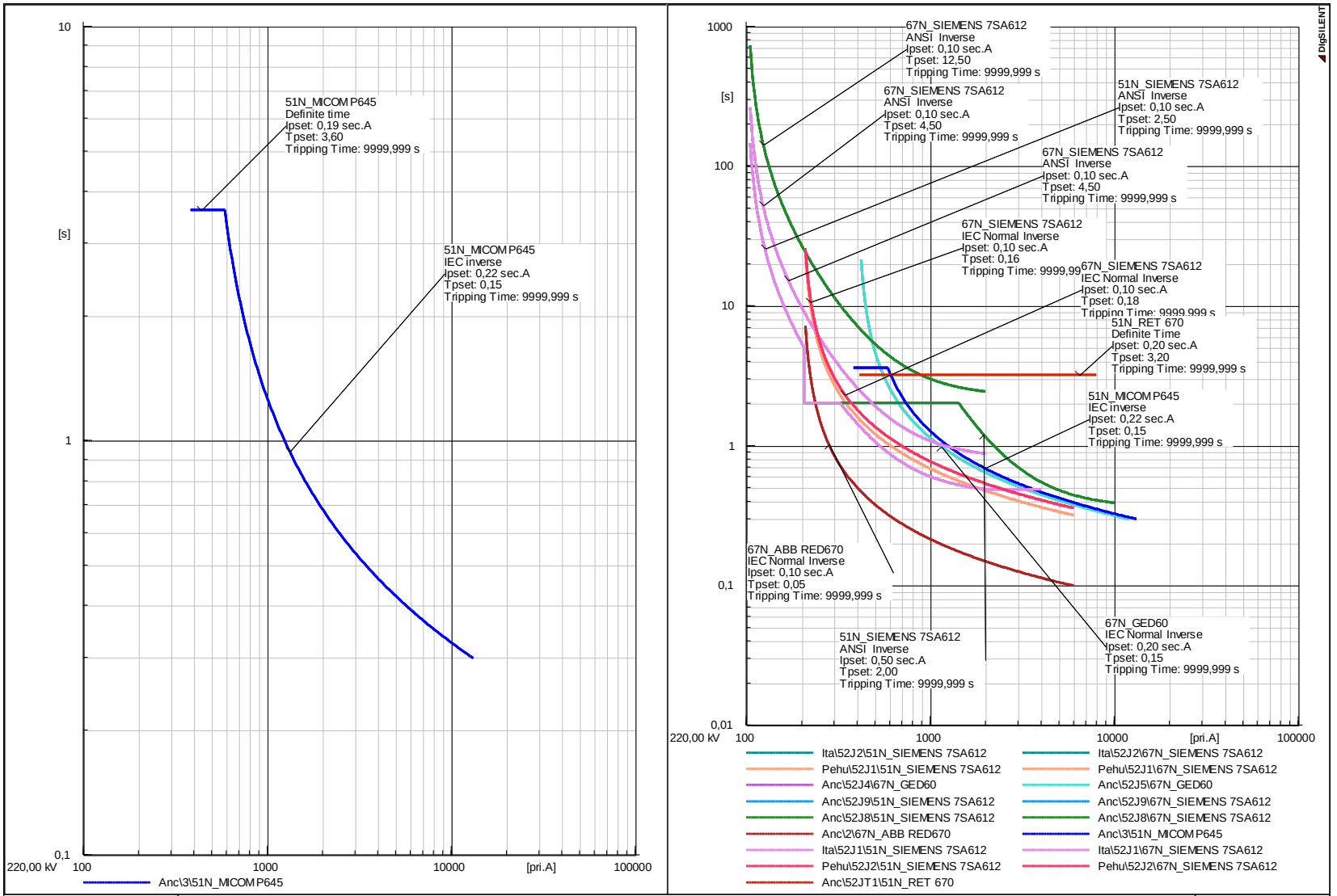
FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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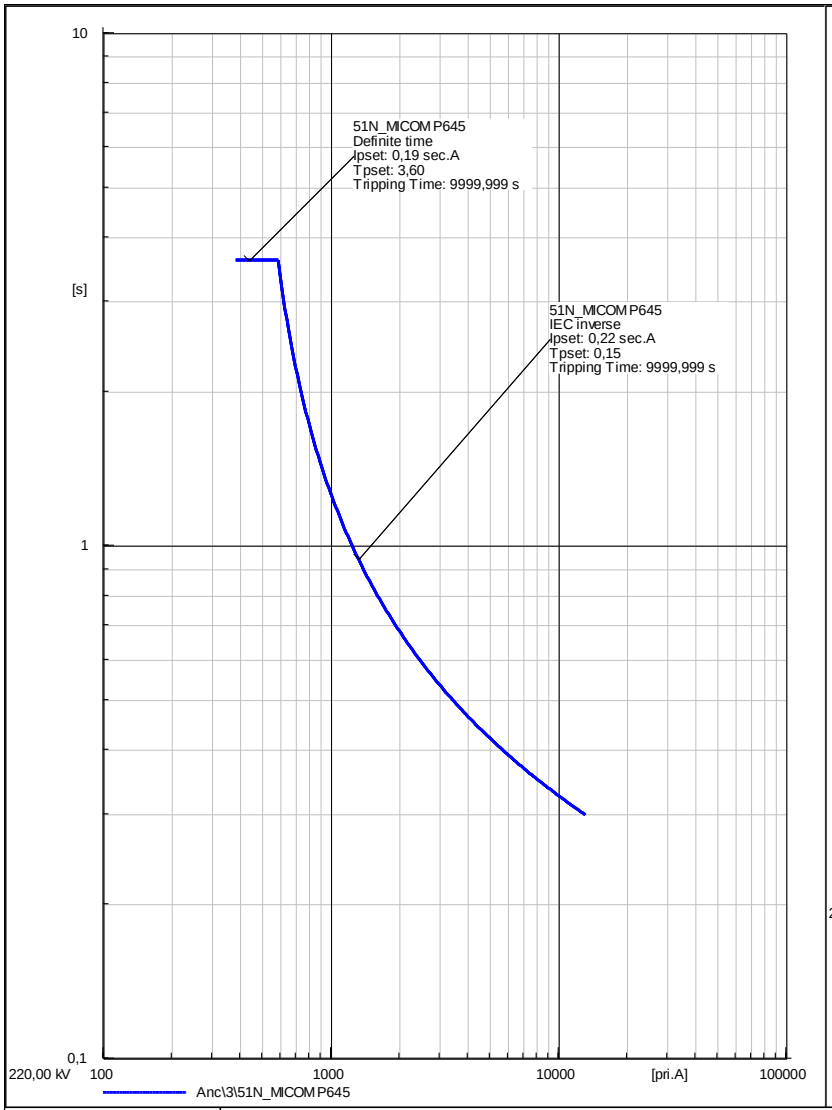

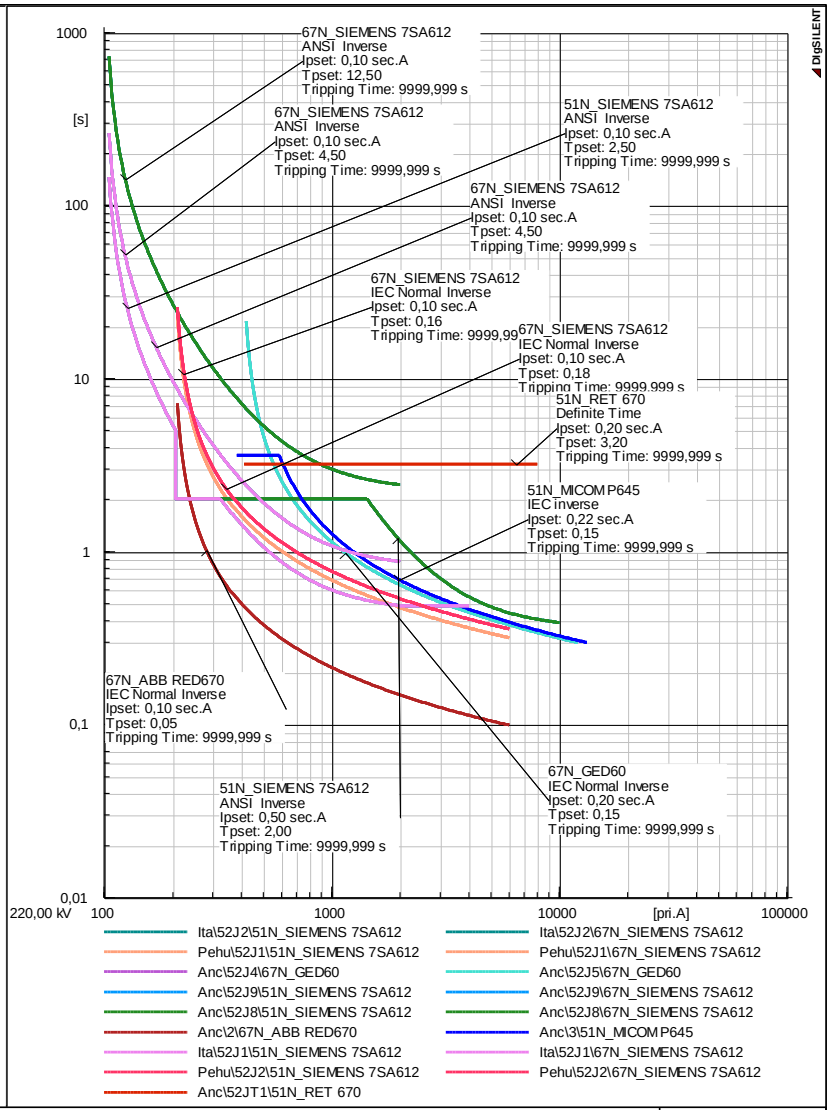

	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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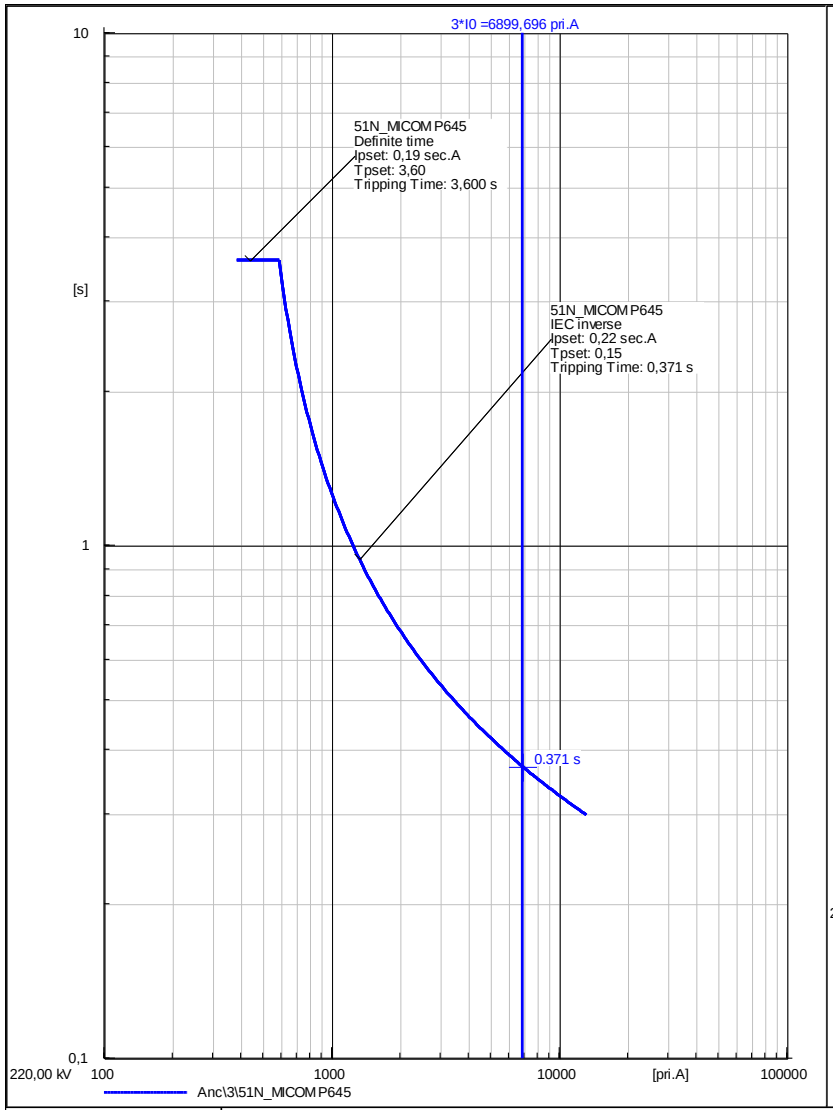

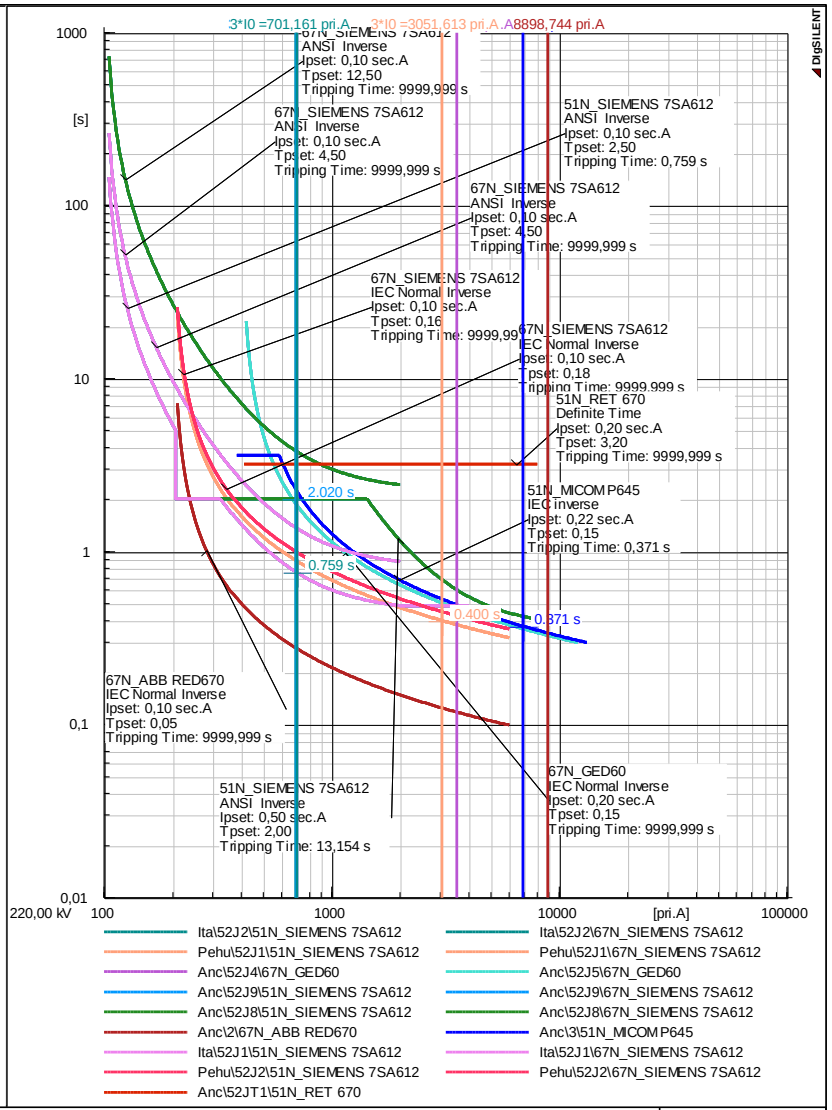

	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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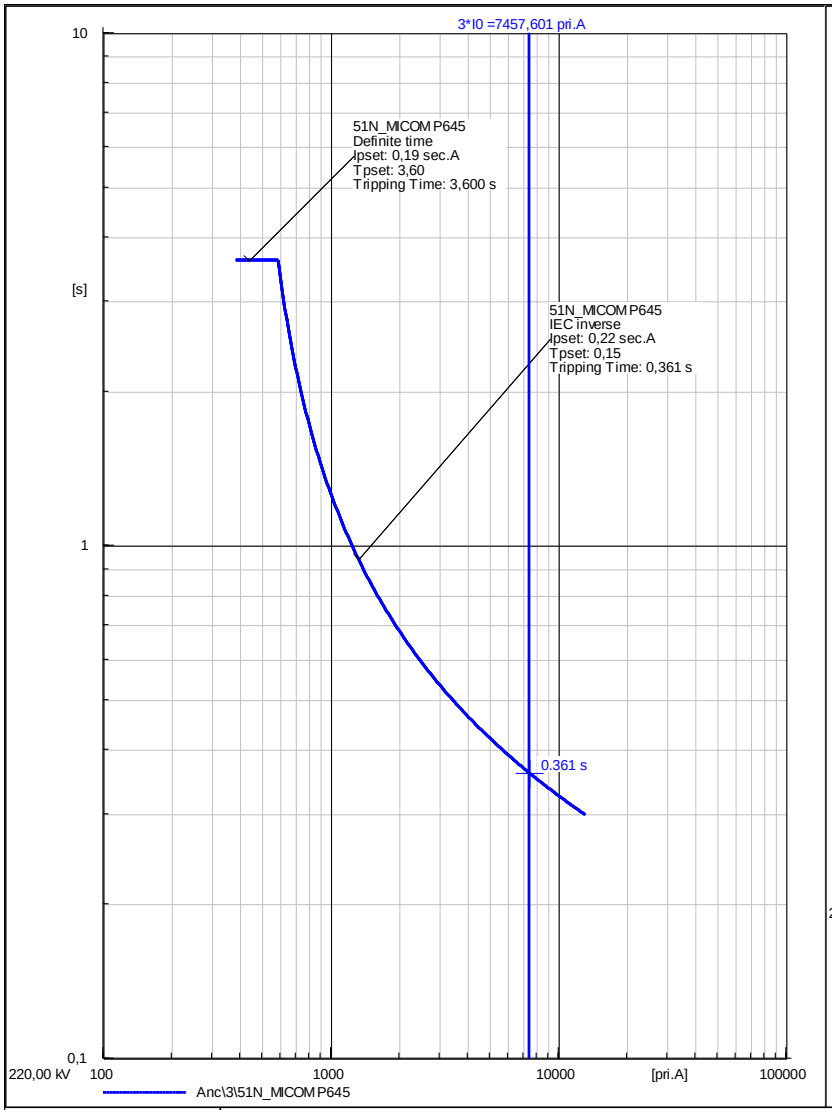
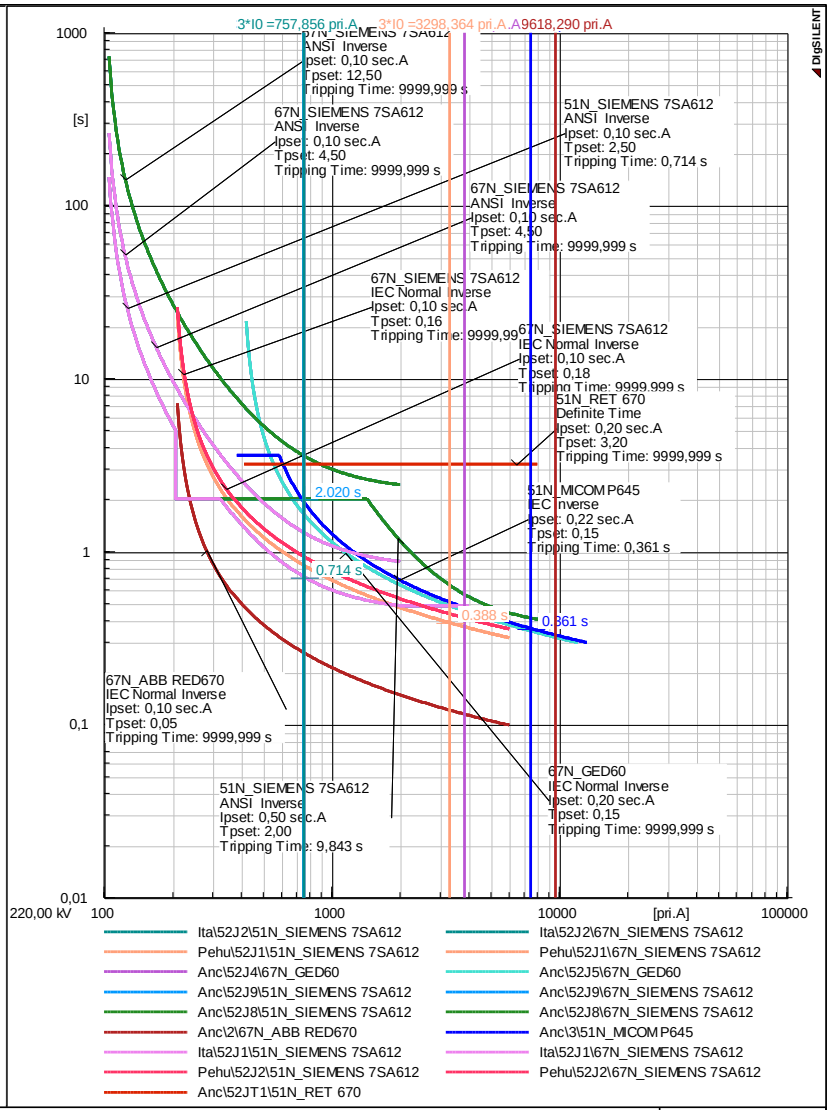
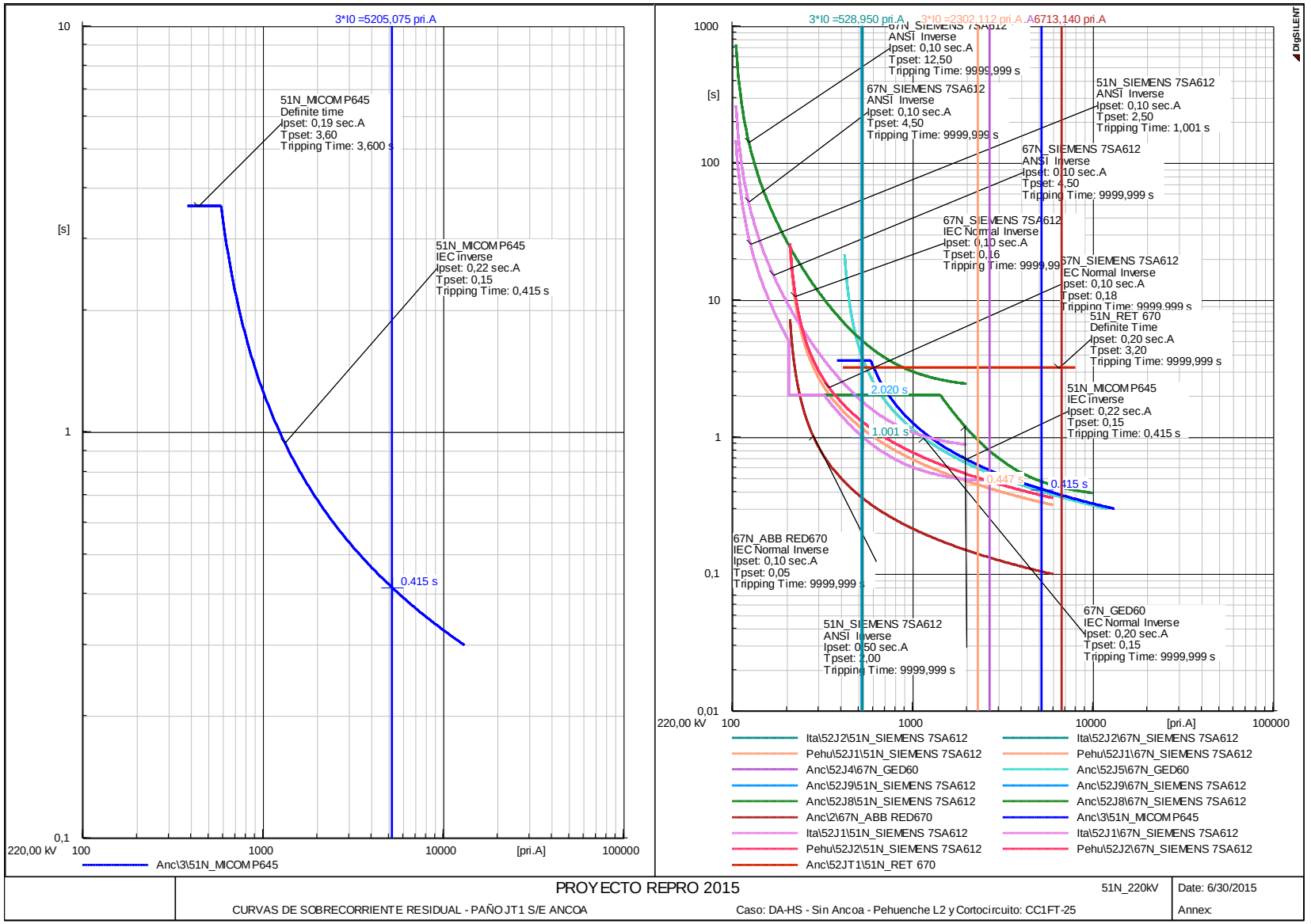




	PROYECTO REPRO 2015		51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0		Annex:



	PROYECTO REPRO 2015		51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25		Annex:

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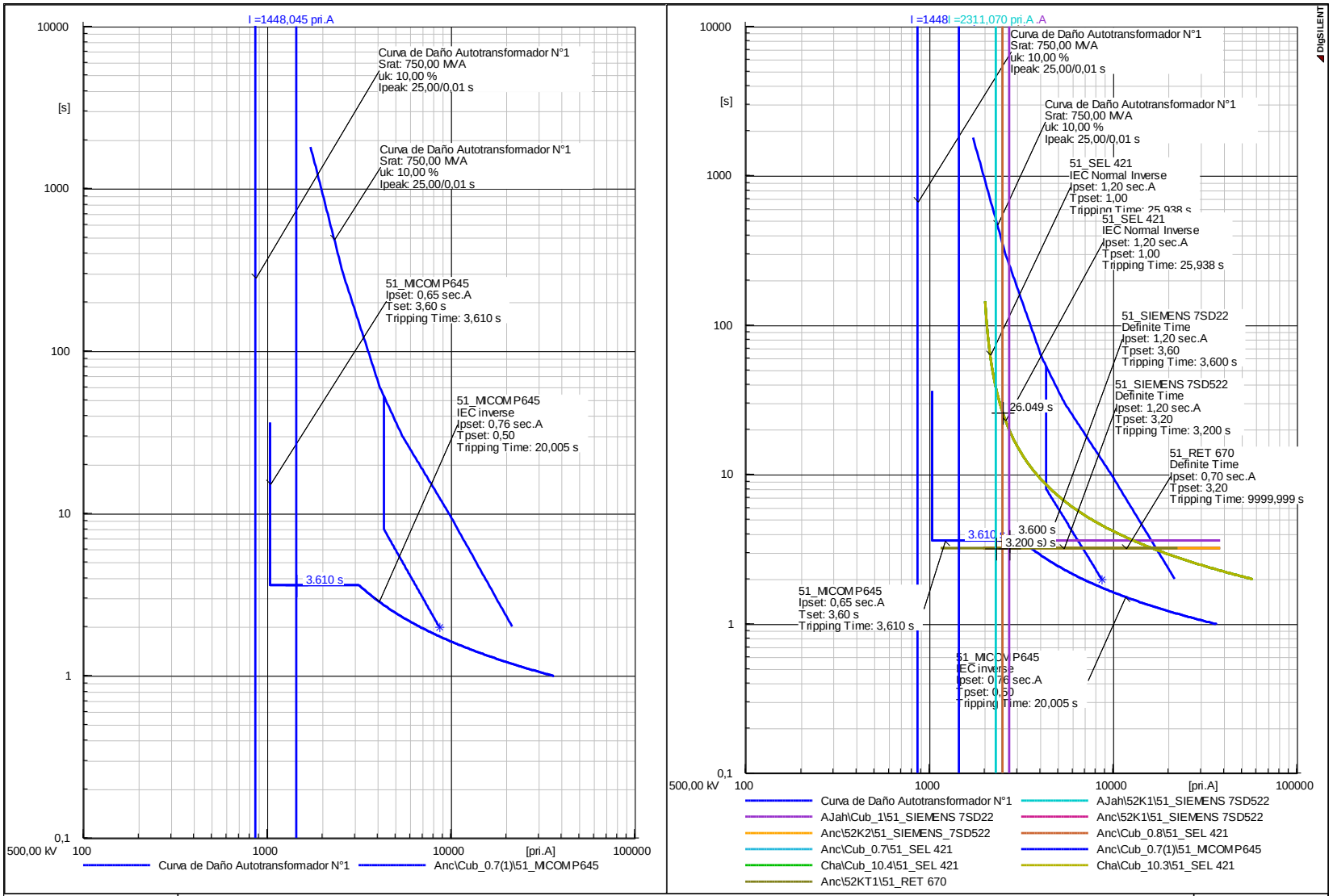
FUNCIÓN 51 LADO DE 500 KV



	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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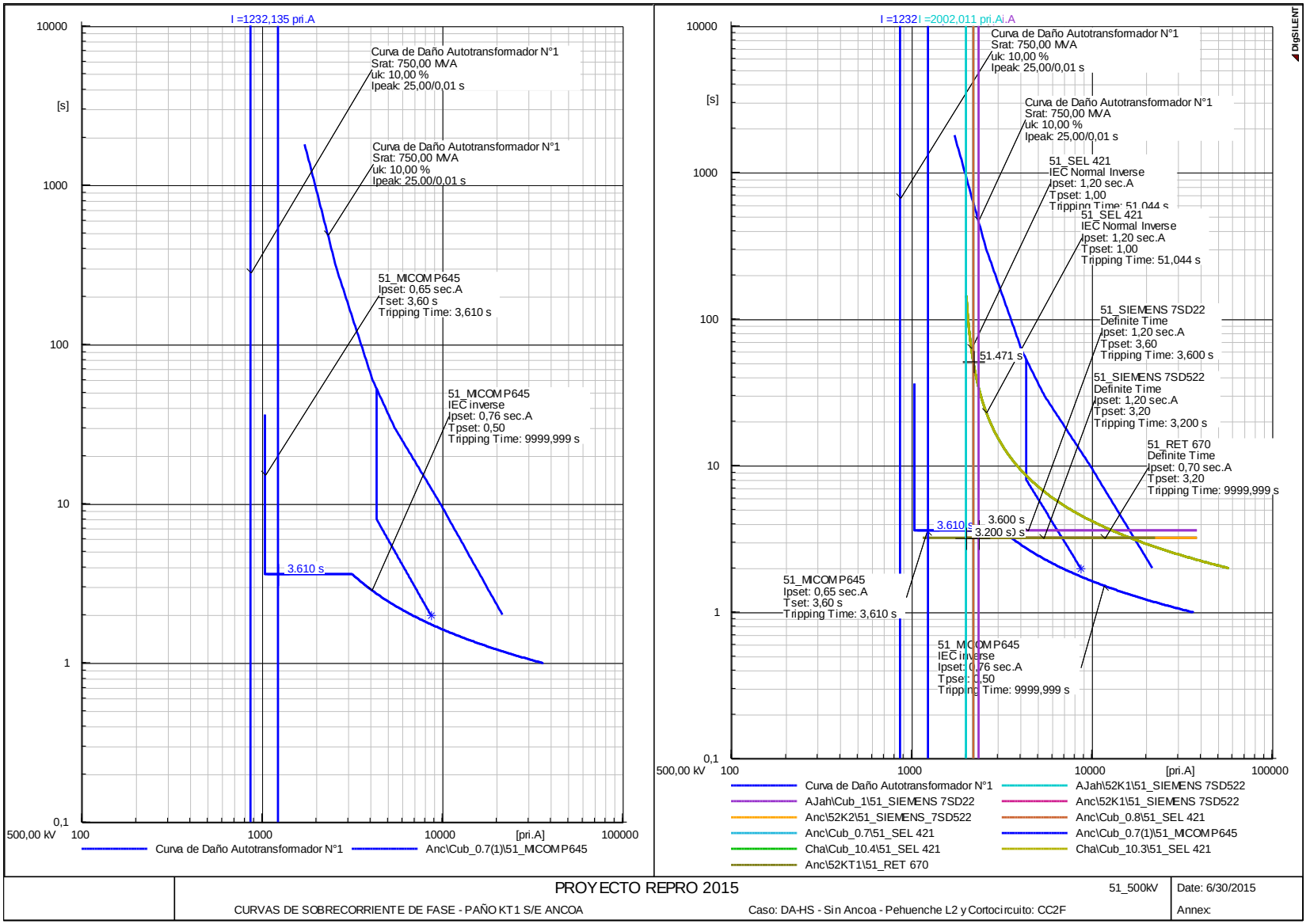

	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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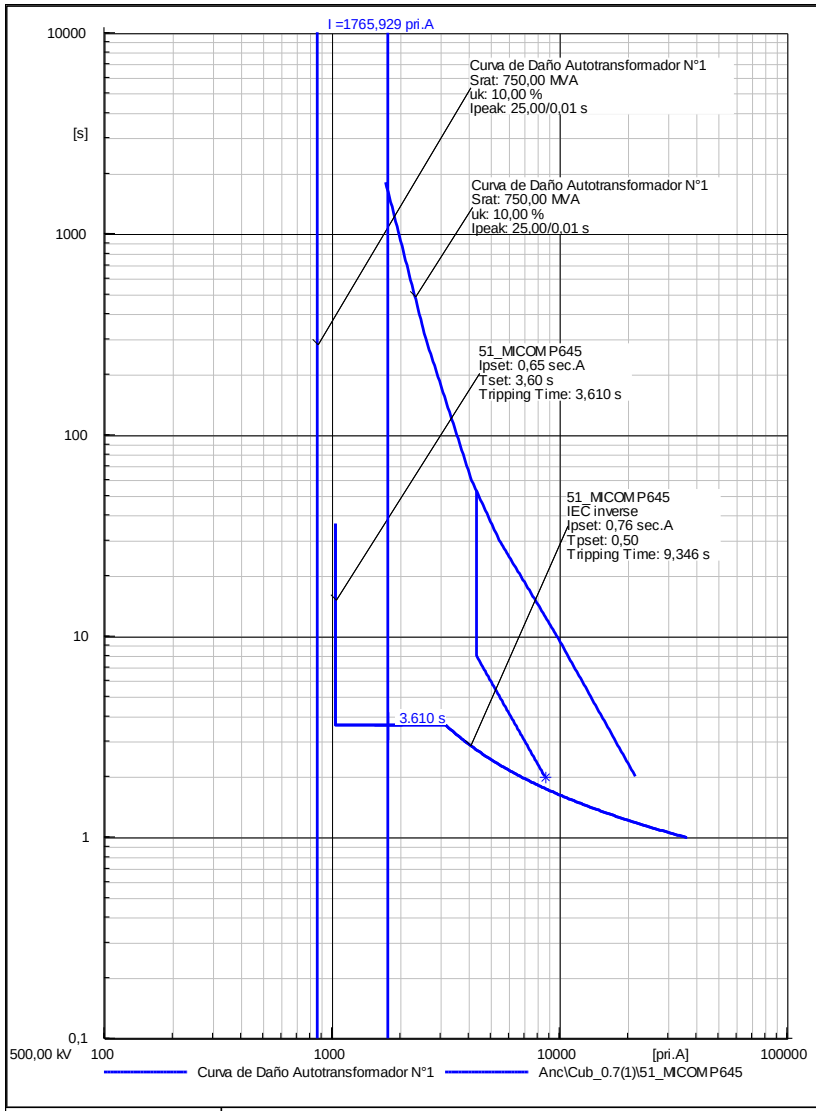

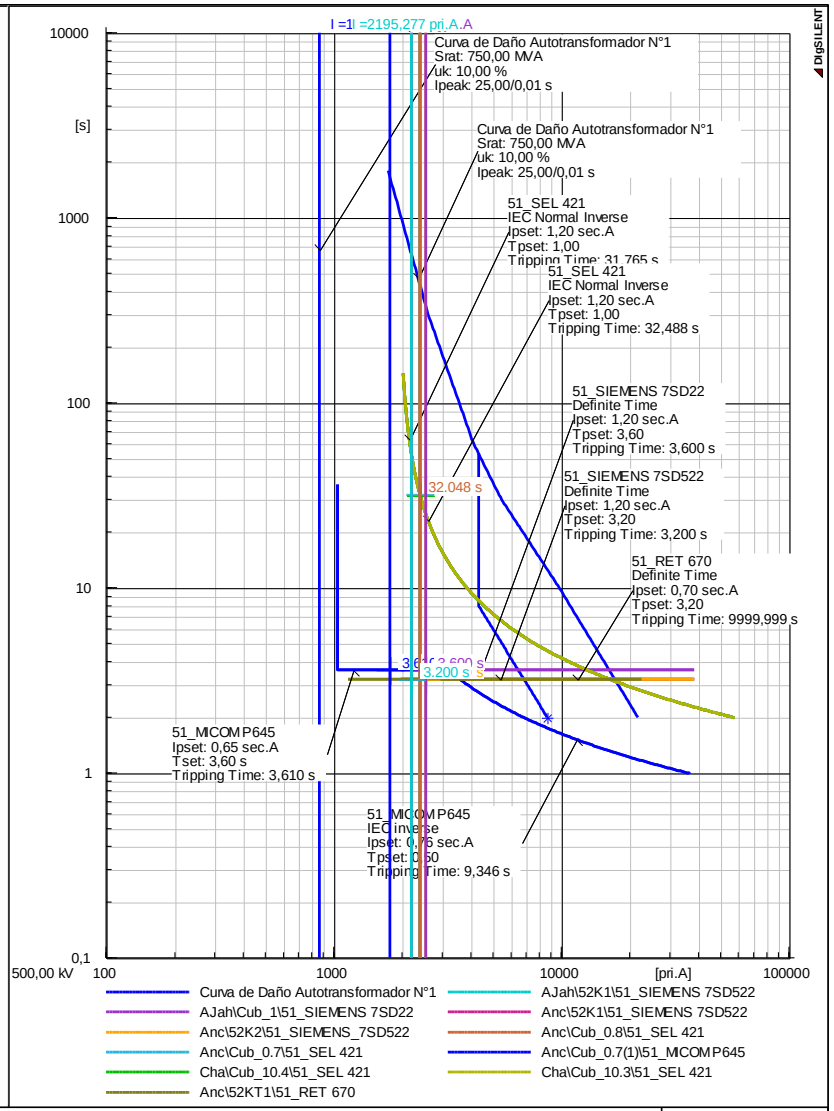

	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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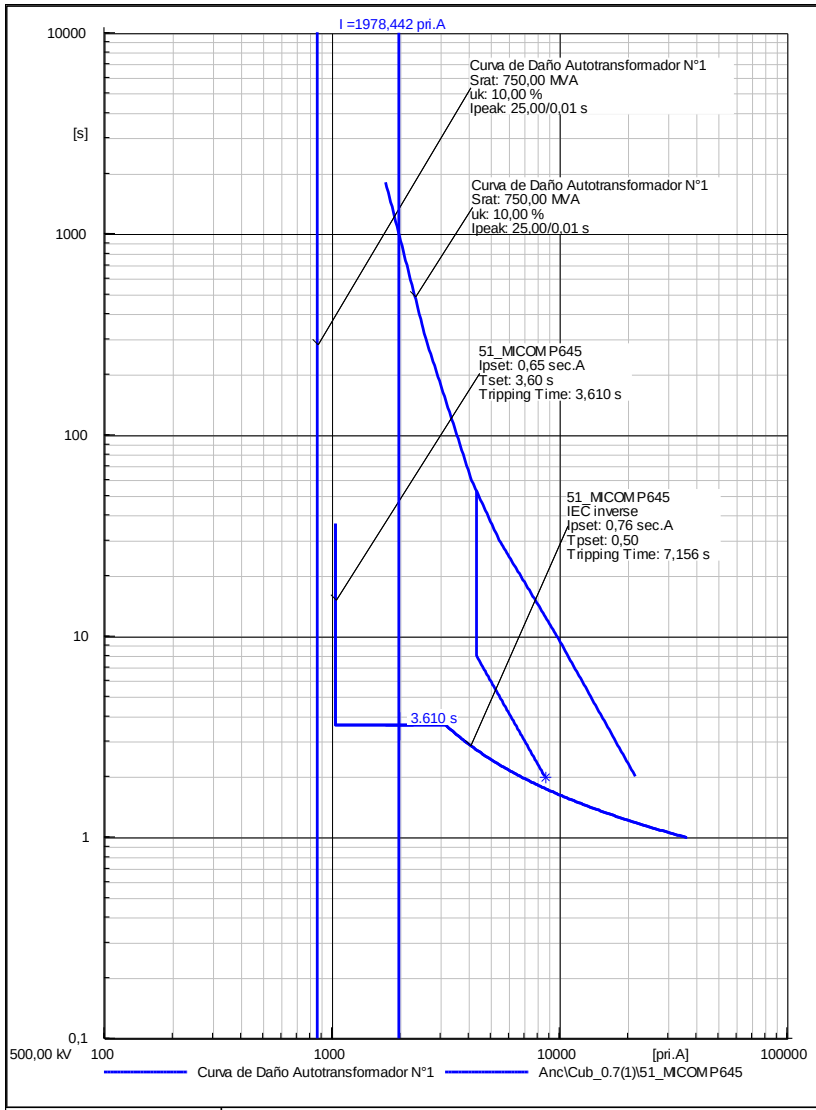

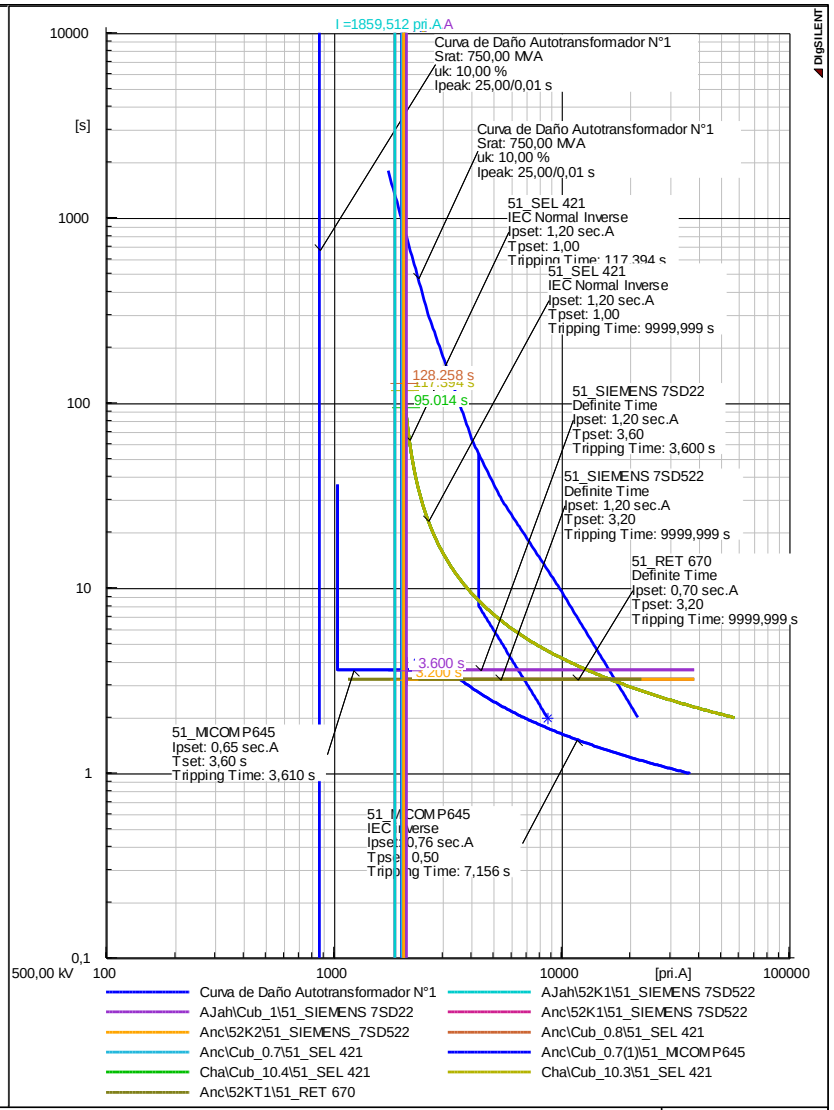

	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:

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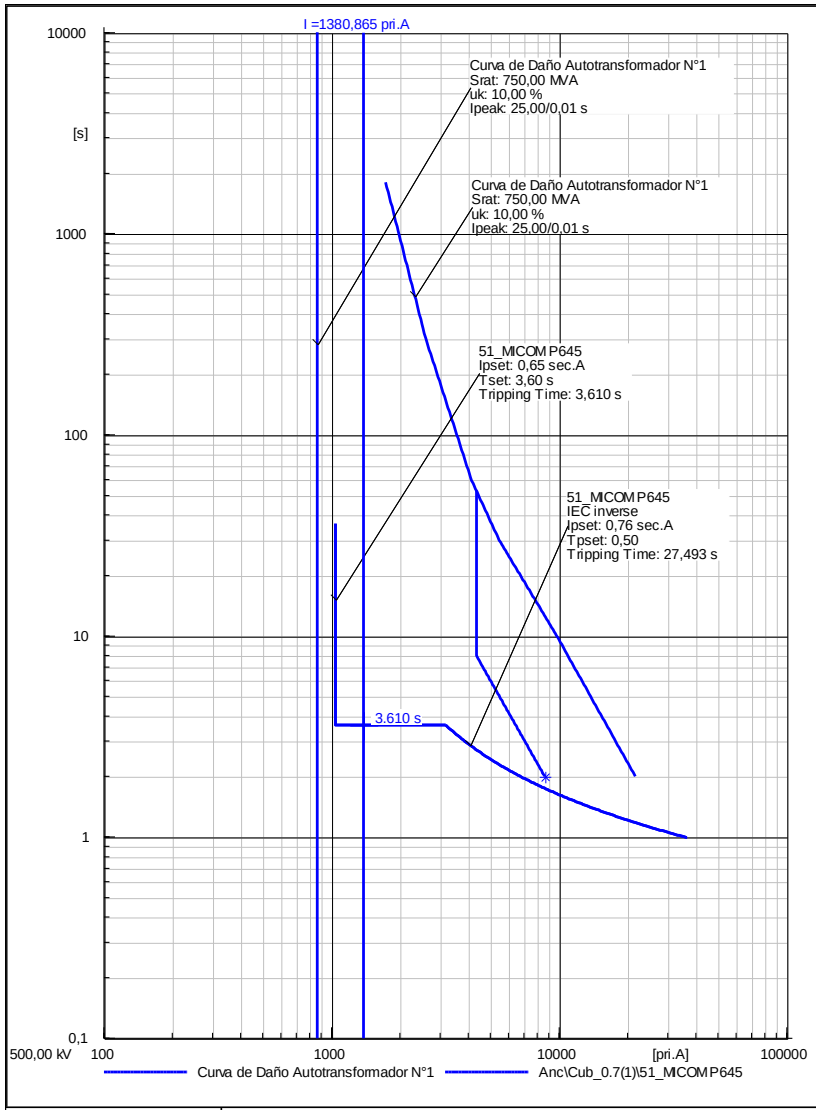

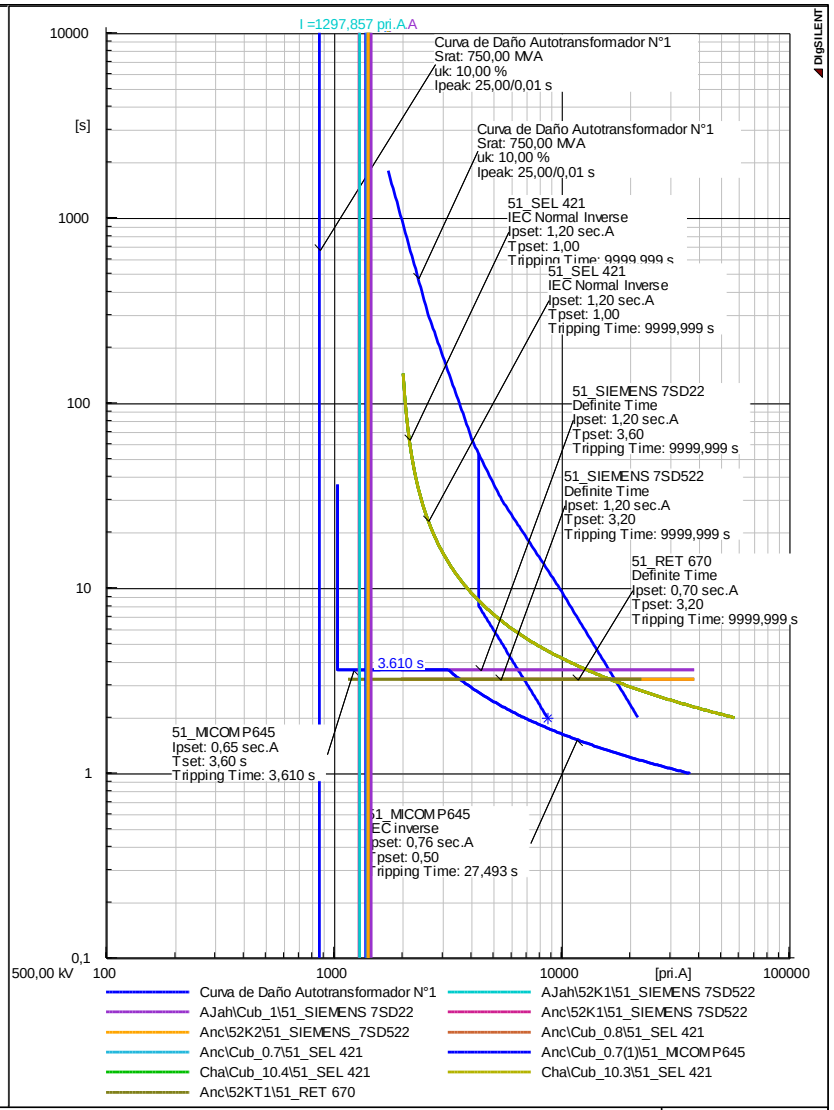

	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

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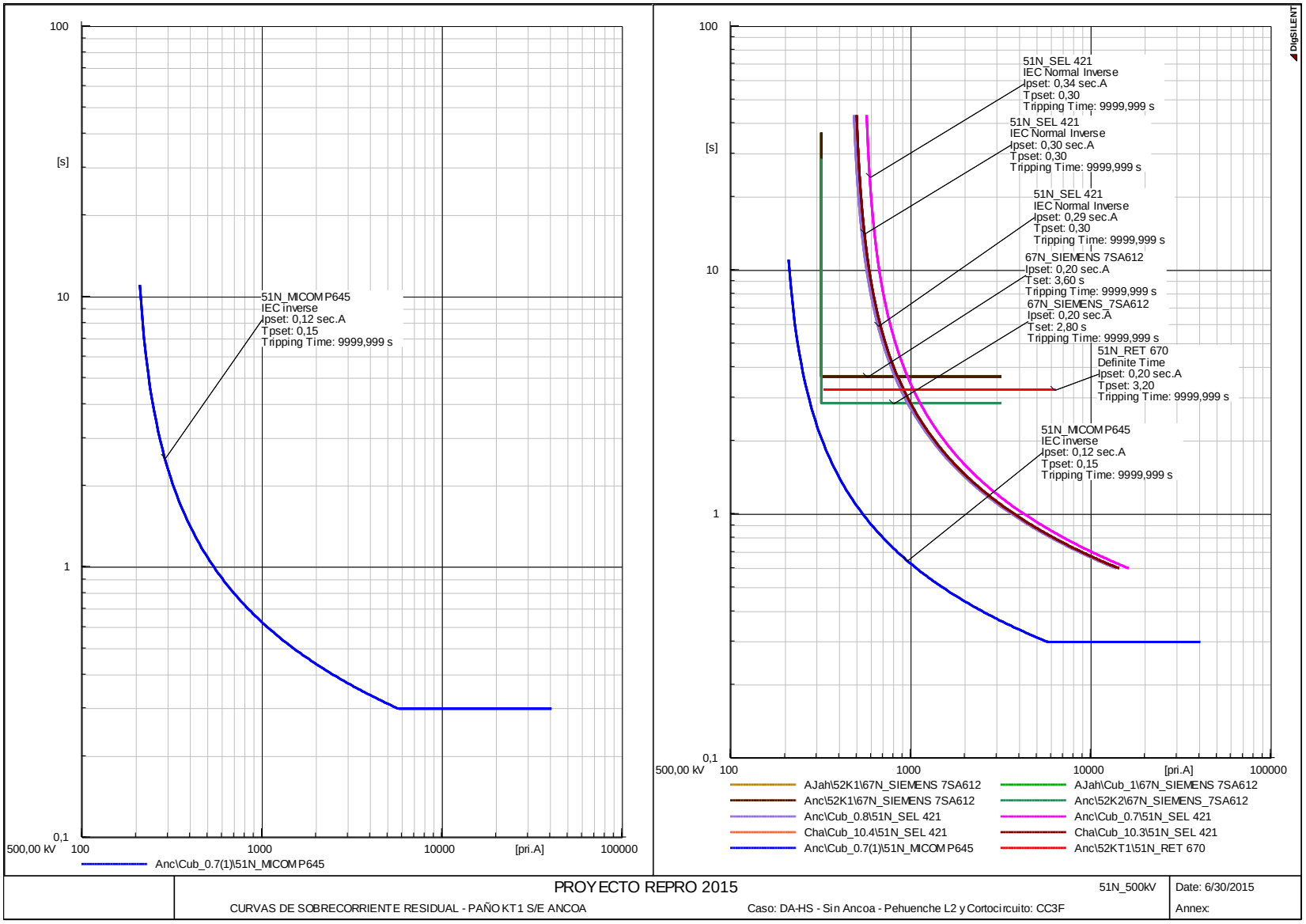
FUNCIÓN 51N LADO DE 500 KV



	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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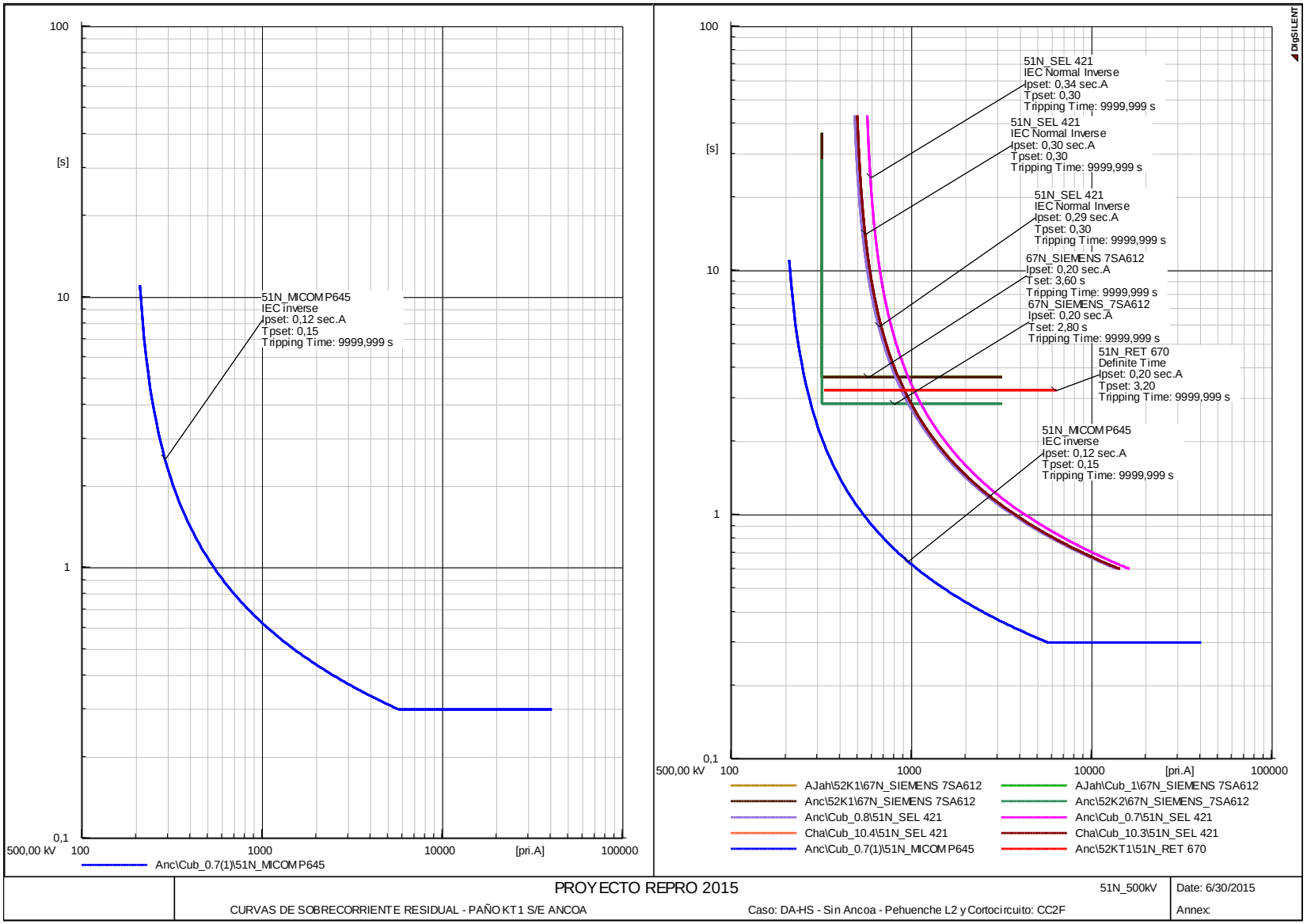

	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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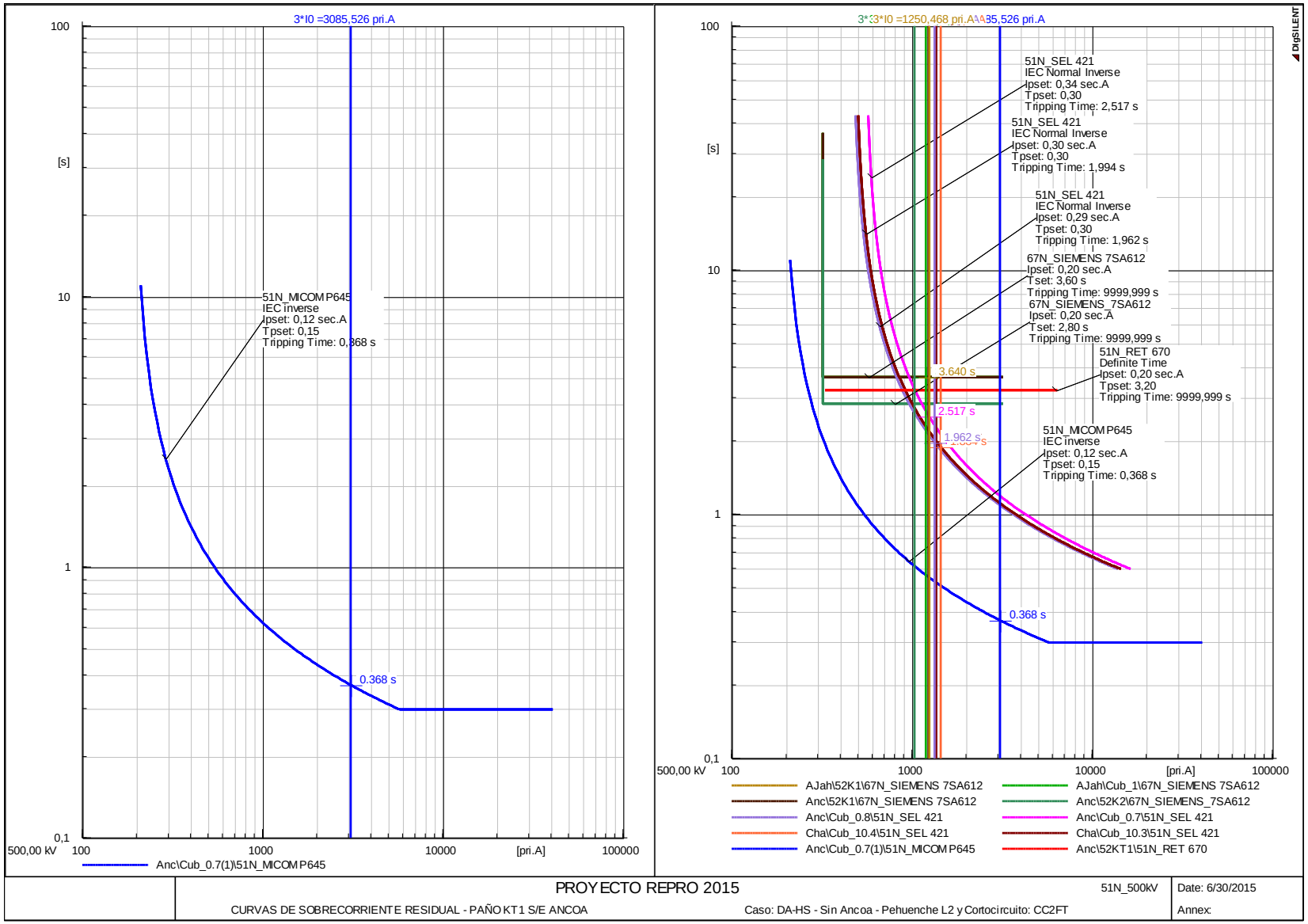

	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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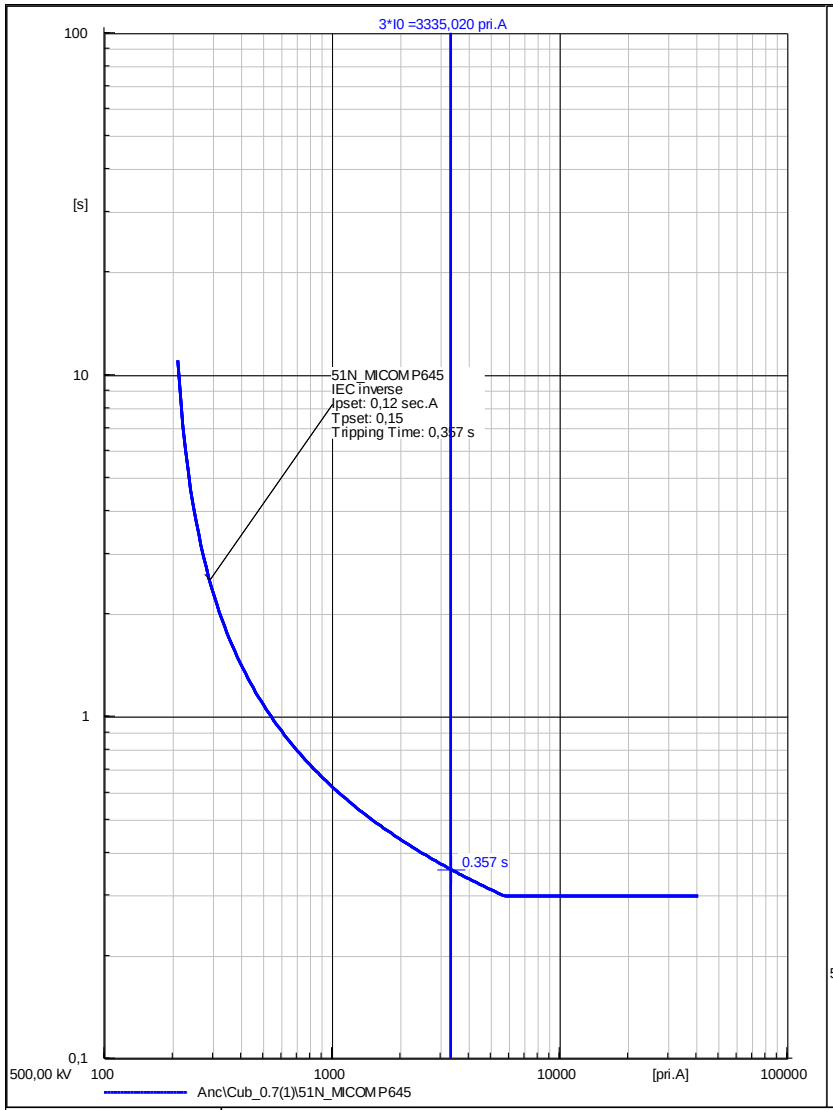

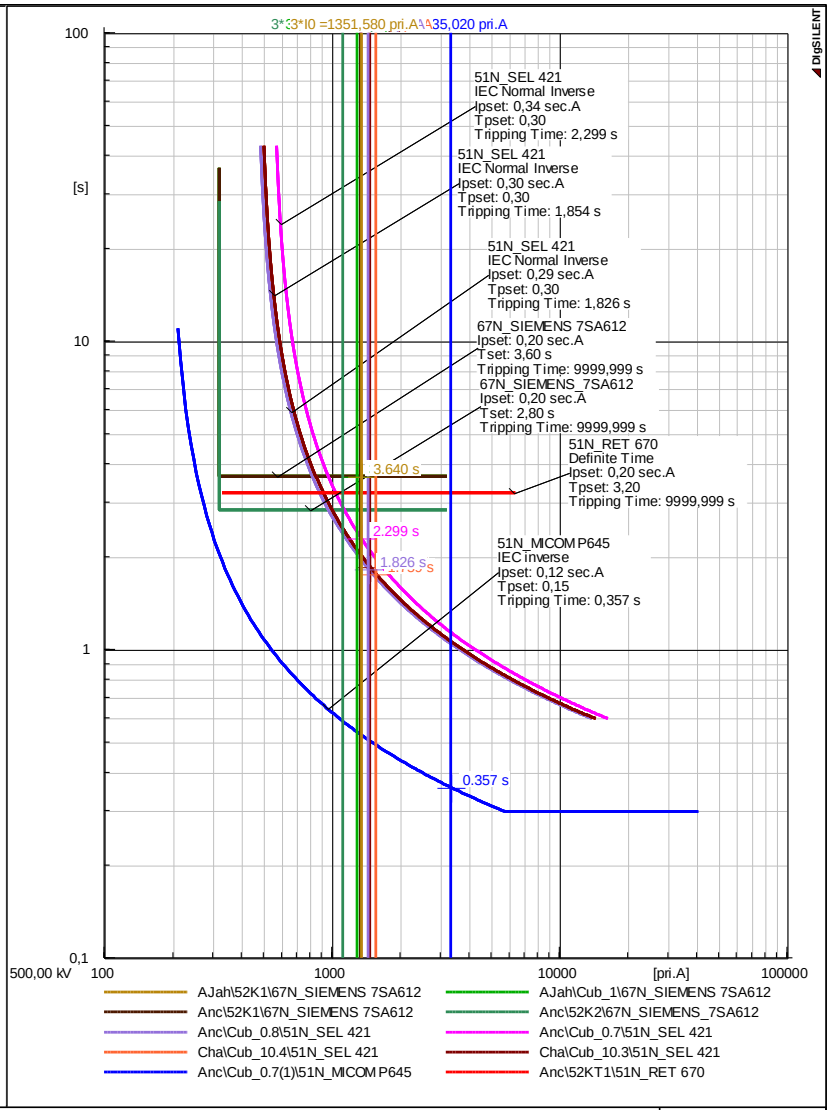

	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:

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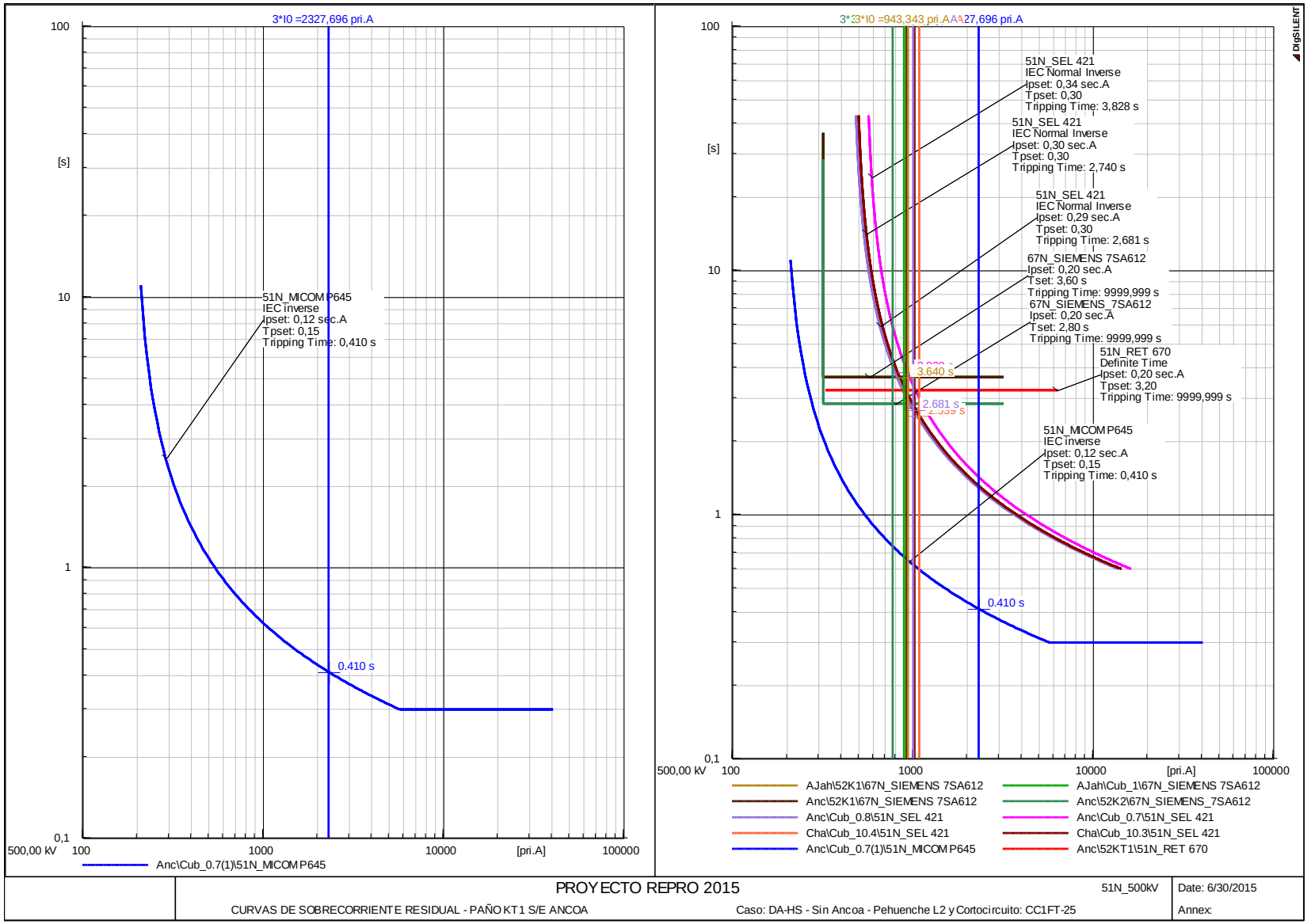

	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

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FALLA EN EL TERMINAL DE 525 KV DEL AUTOTRANSFORMADOR N°1

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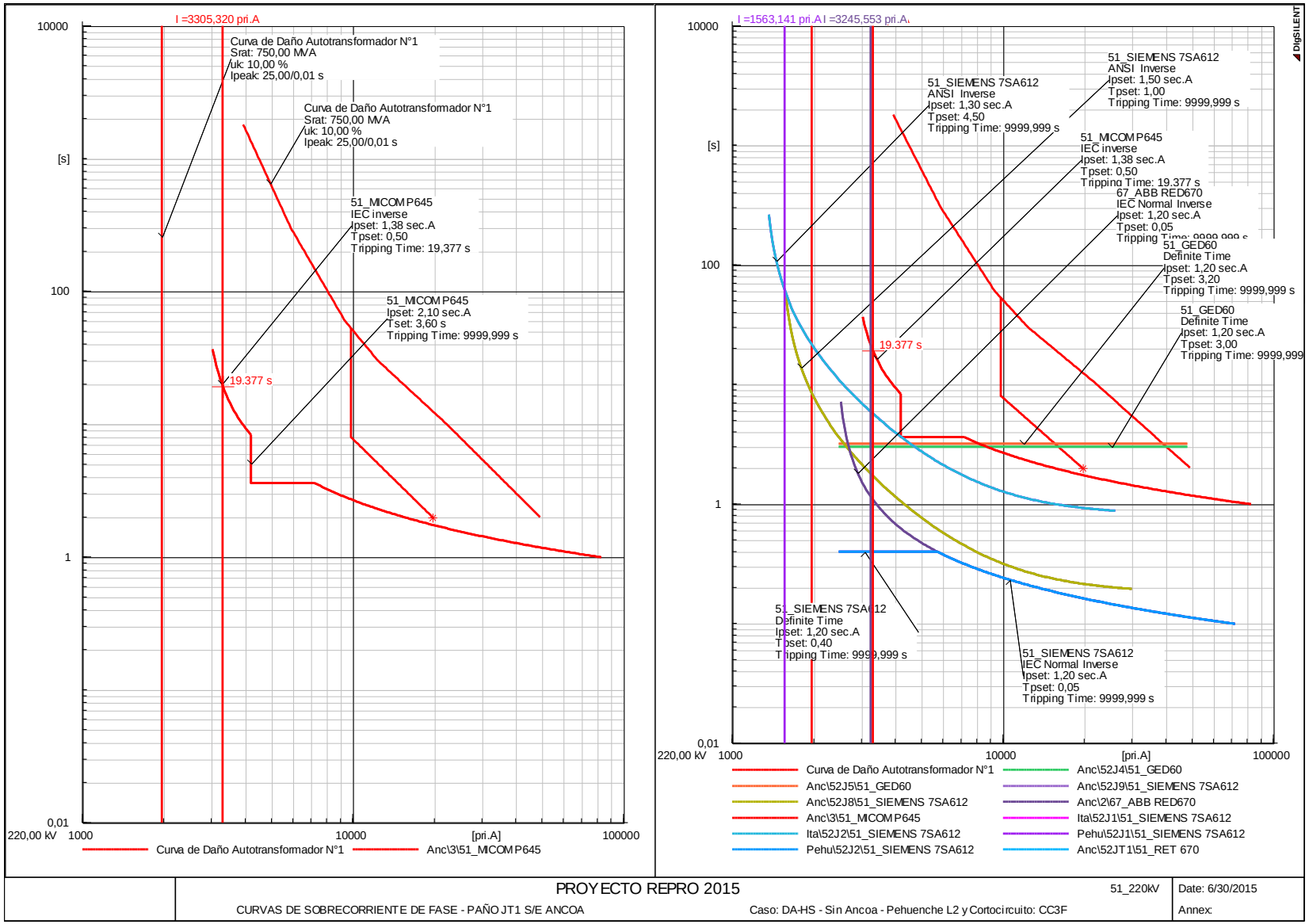
FUNCIÓN 51 LADO DE 220 KV



	PROYECTO REPRO 2015	51_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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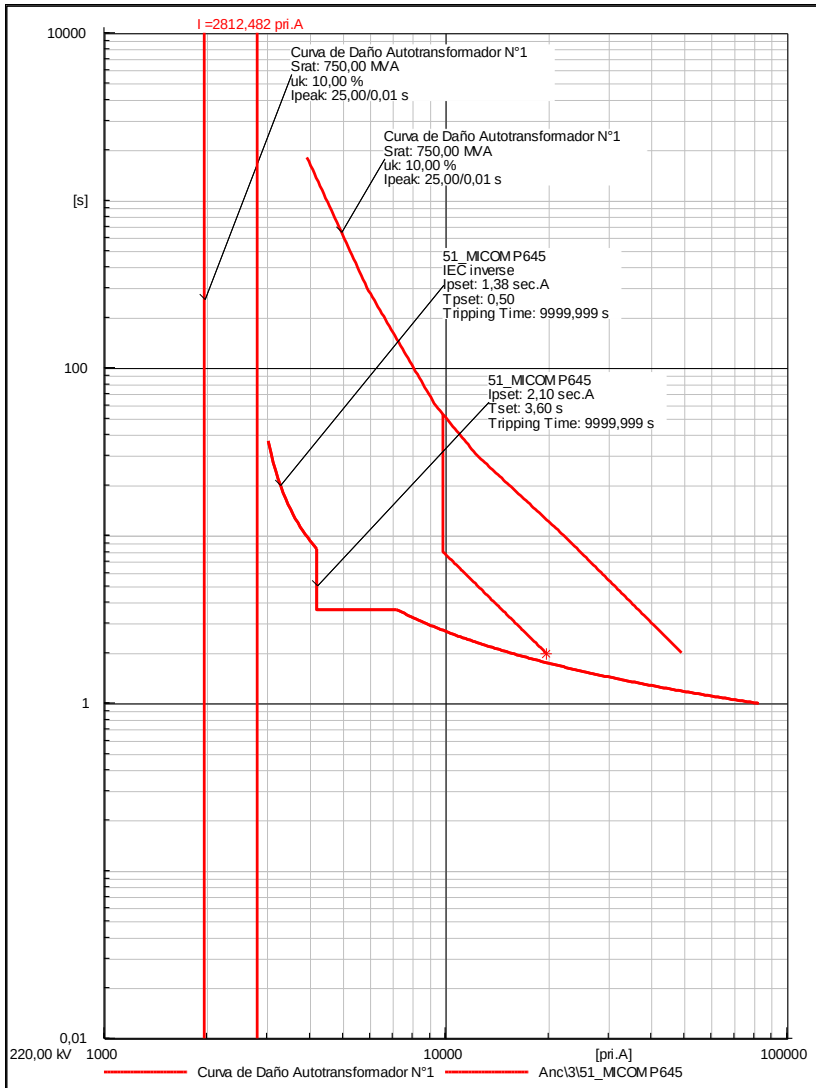
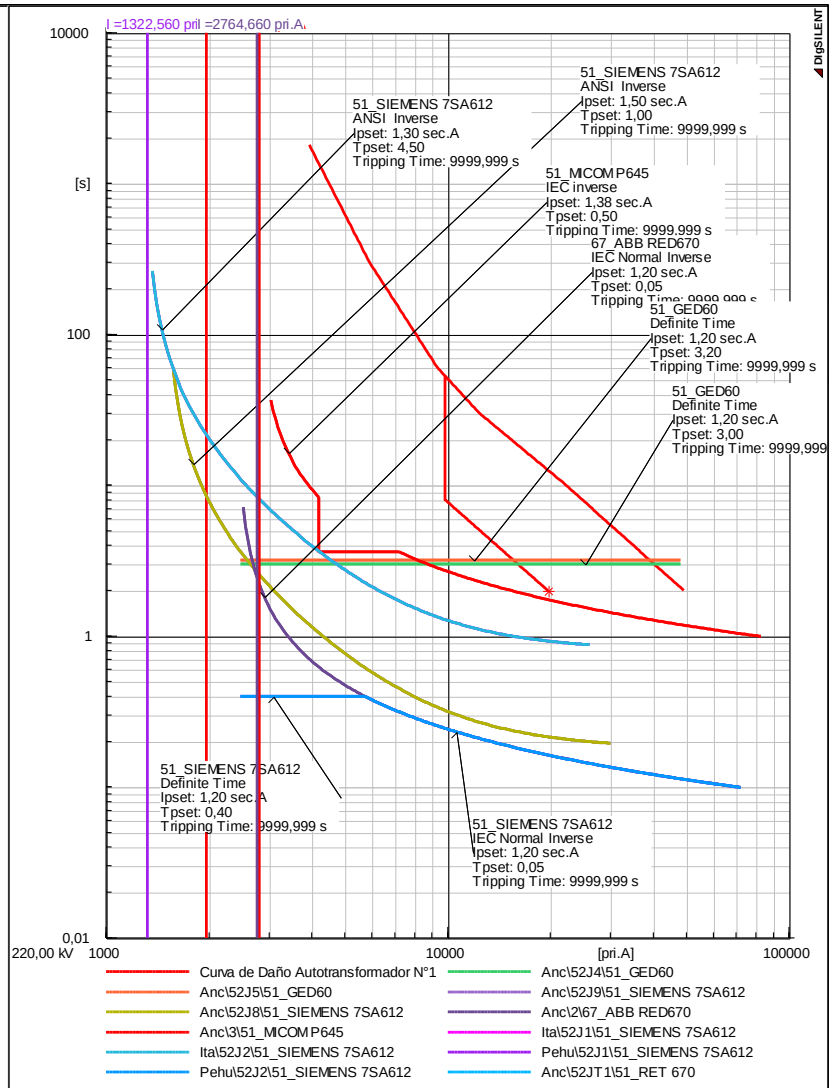
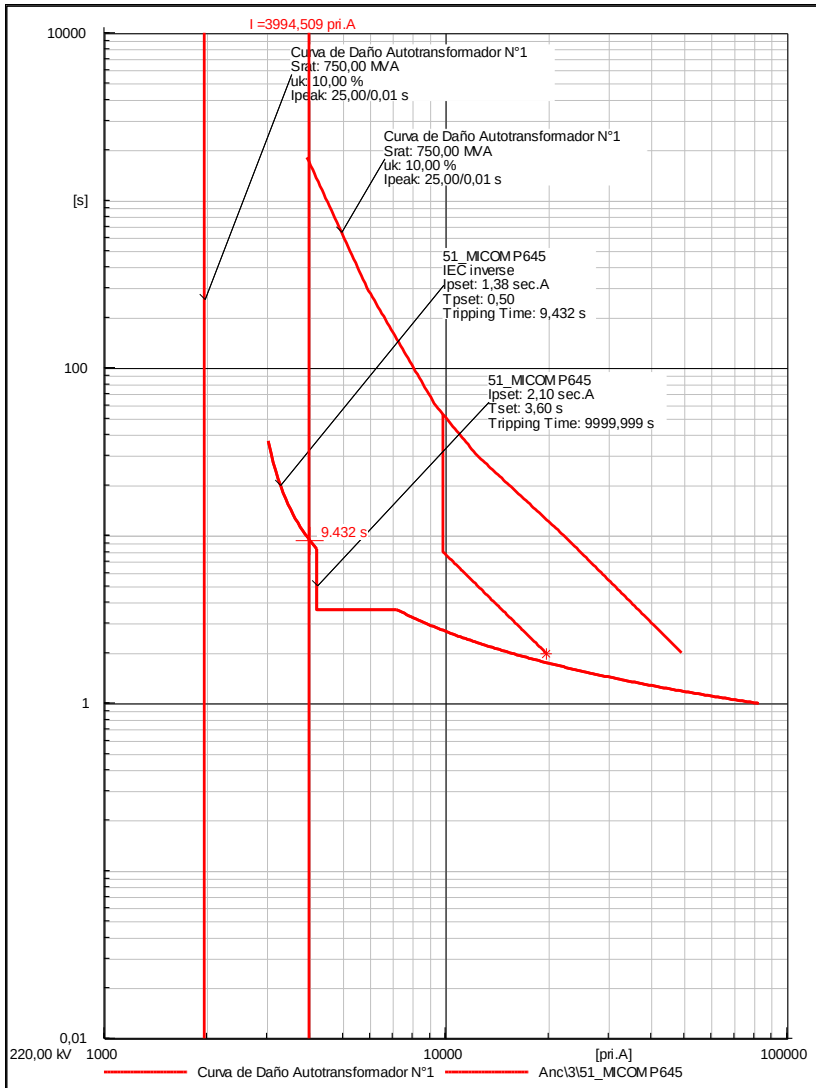
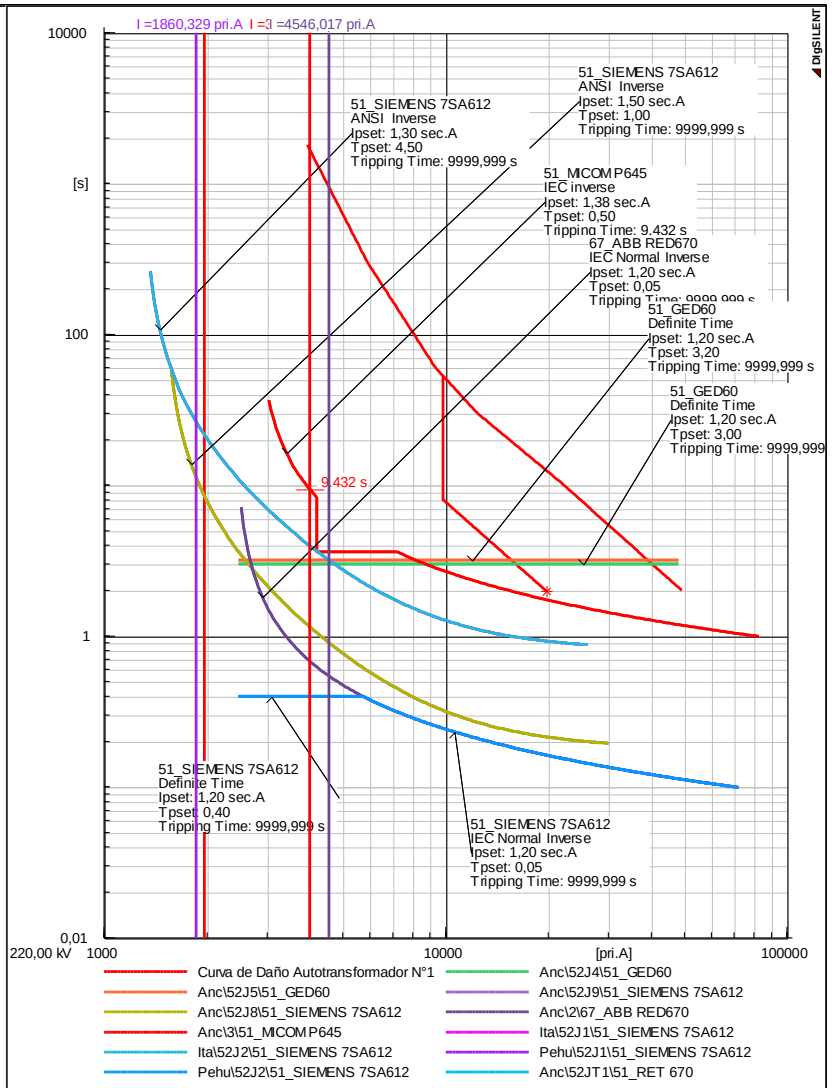




	PROYECTO REPRO 2015	51_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:





	PROYECTO REPRO 2015	51_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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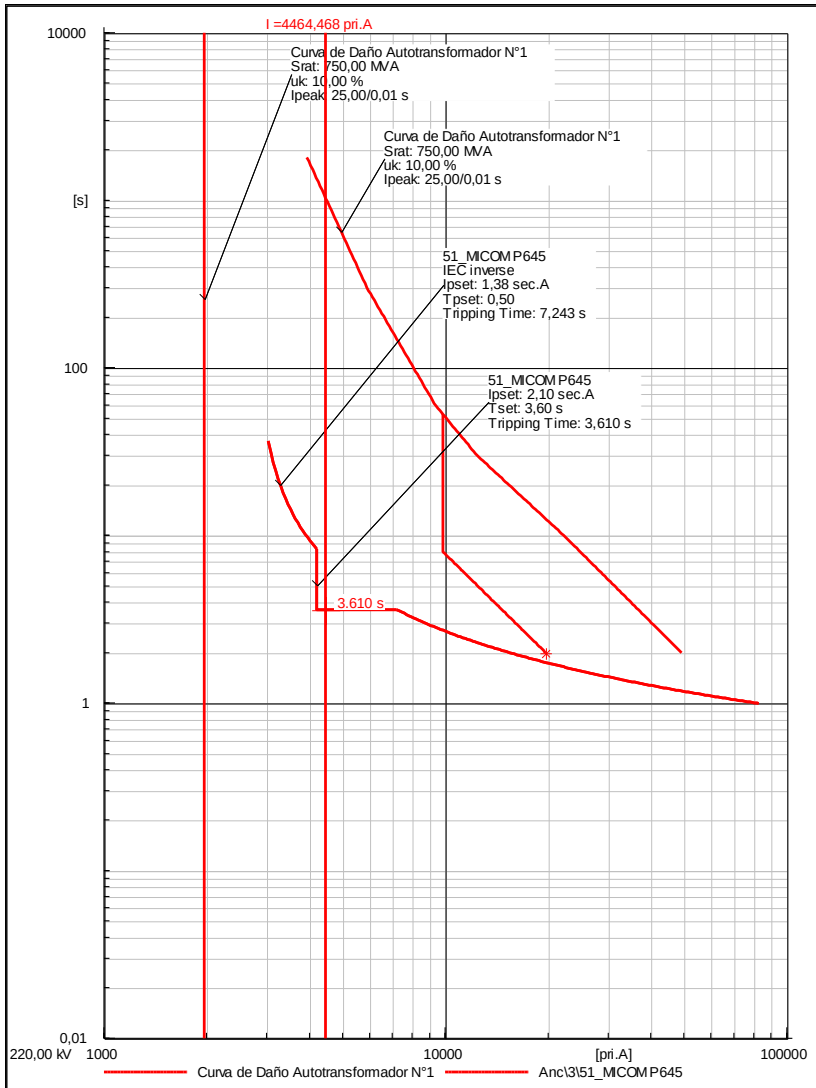

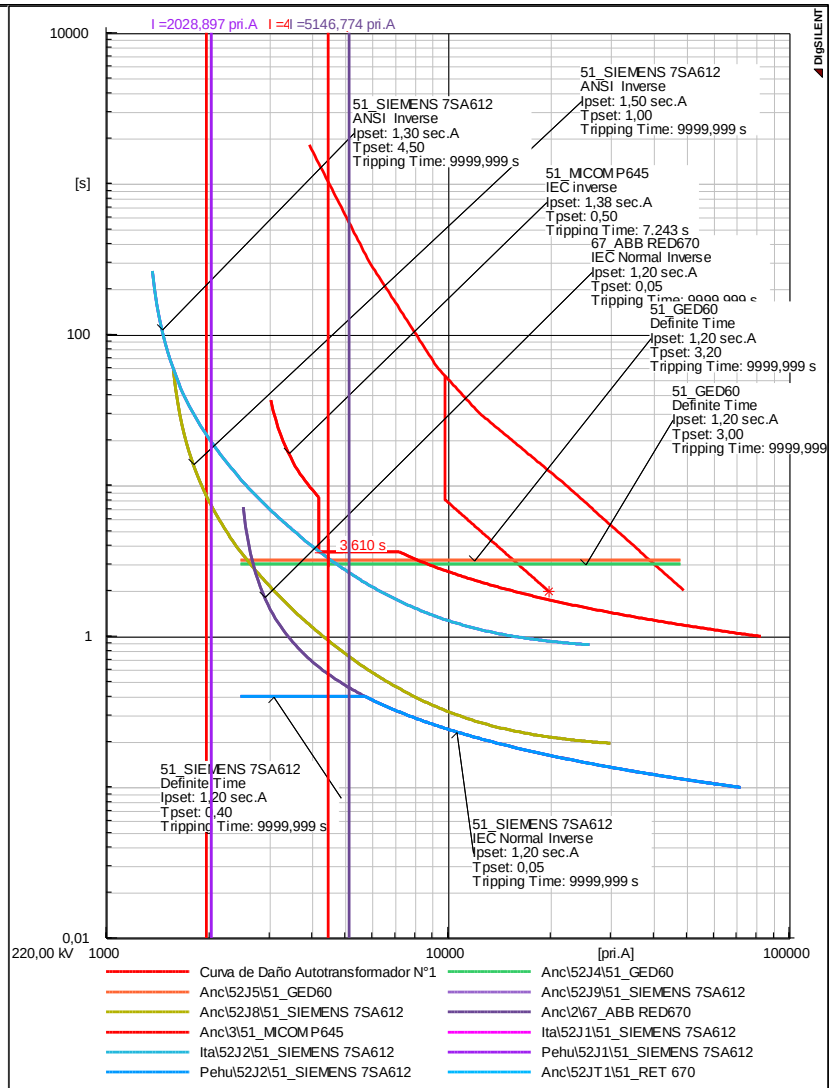

	PROYECTO REPRO 2015	51_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:

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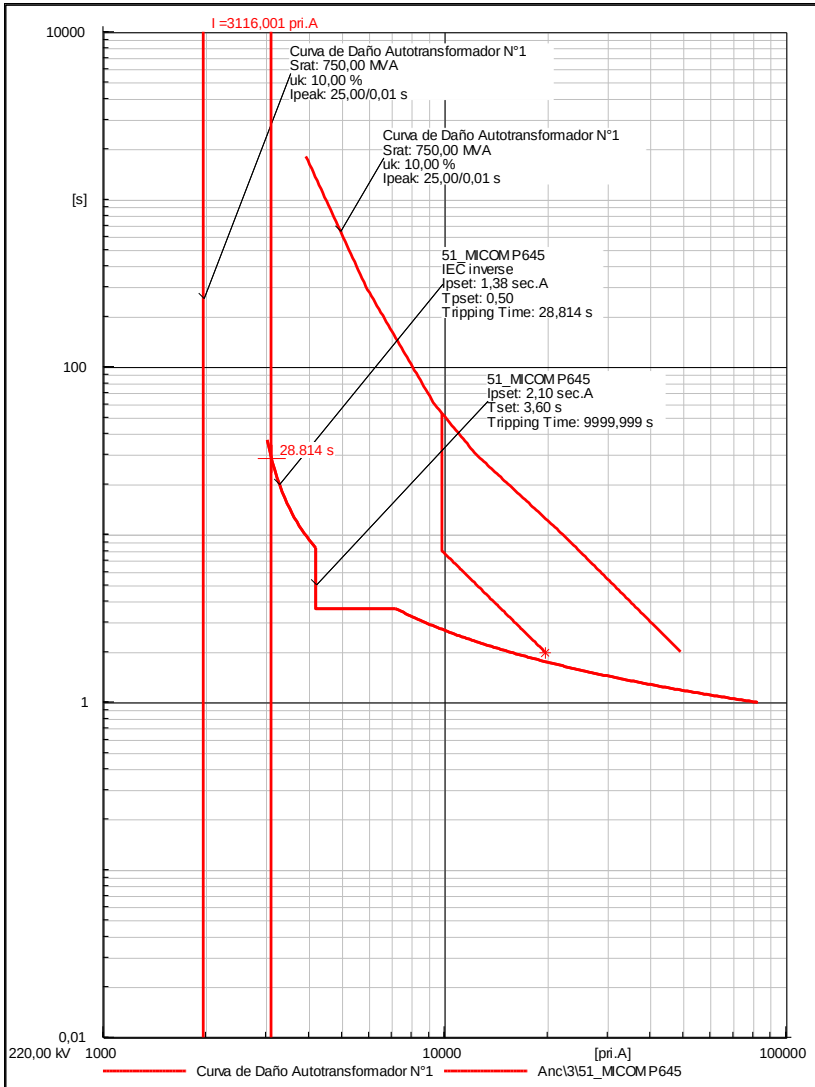

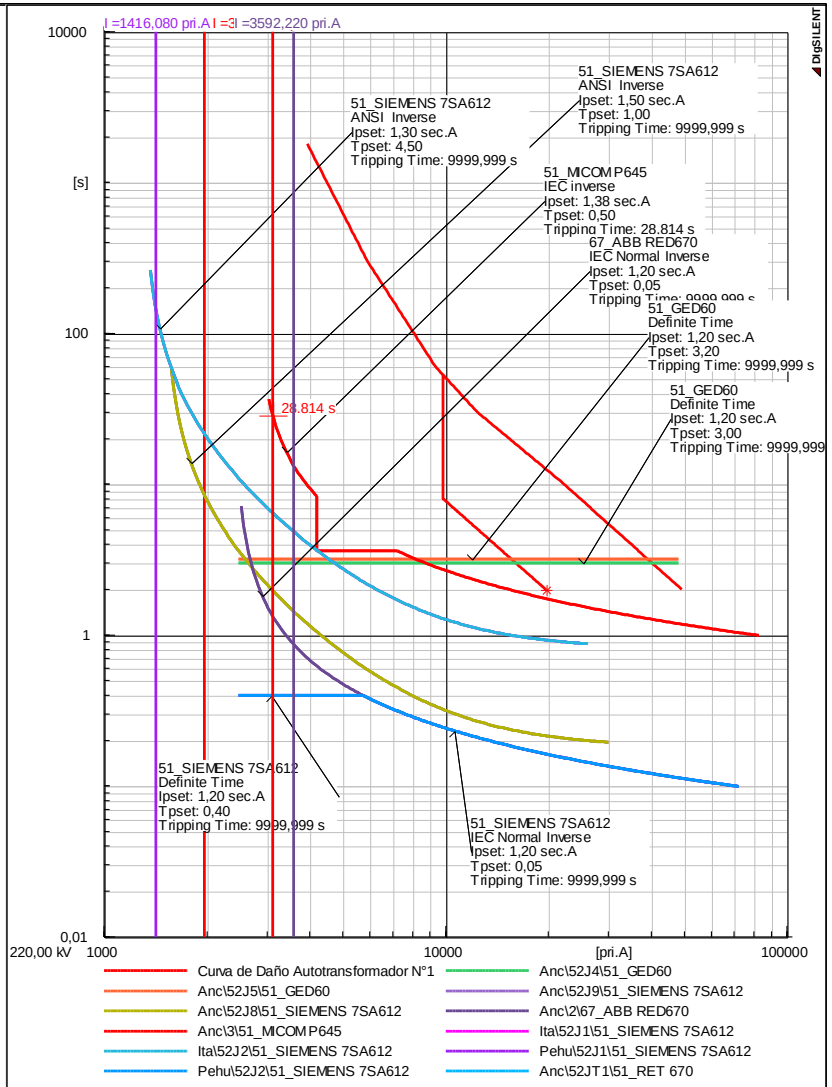

	PROYECTO REPRO 2015	51_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

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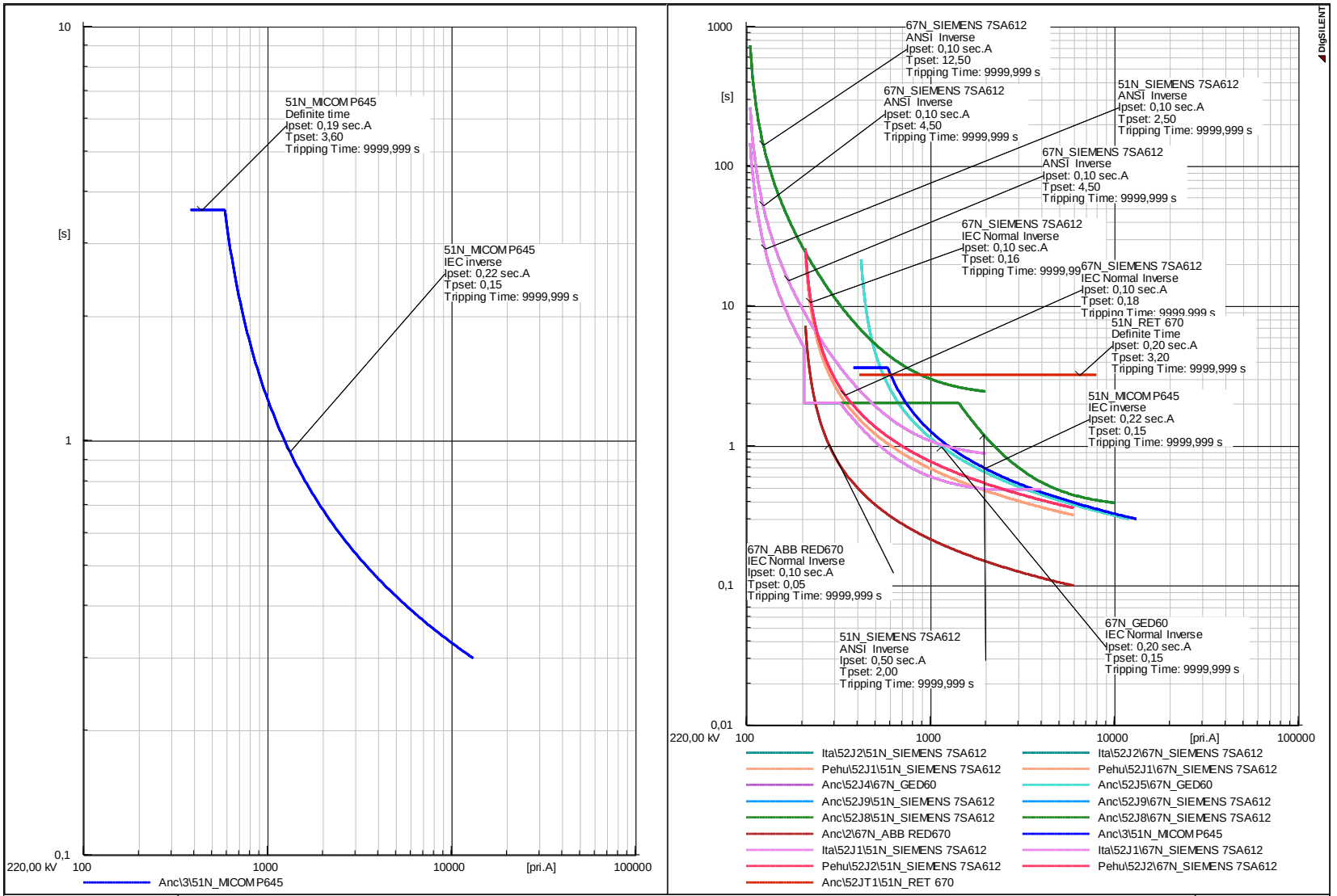
FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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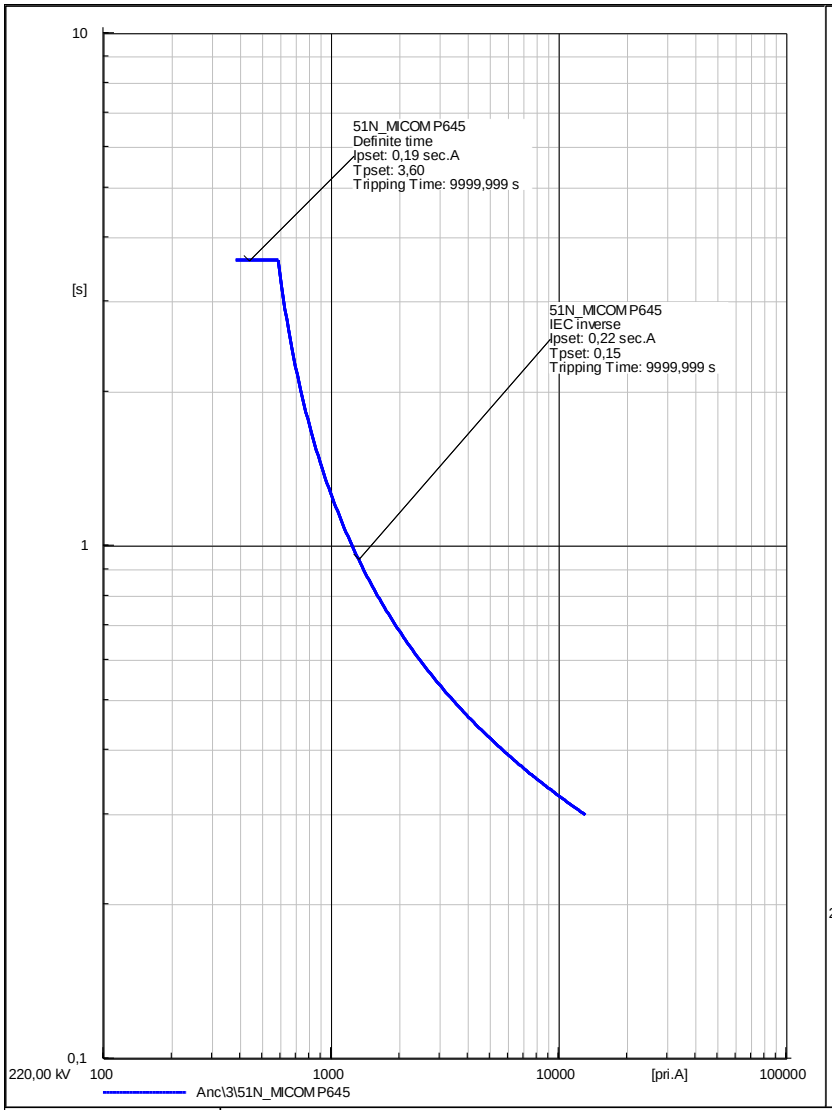

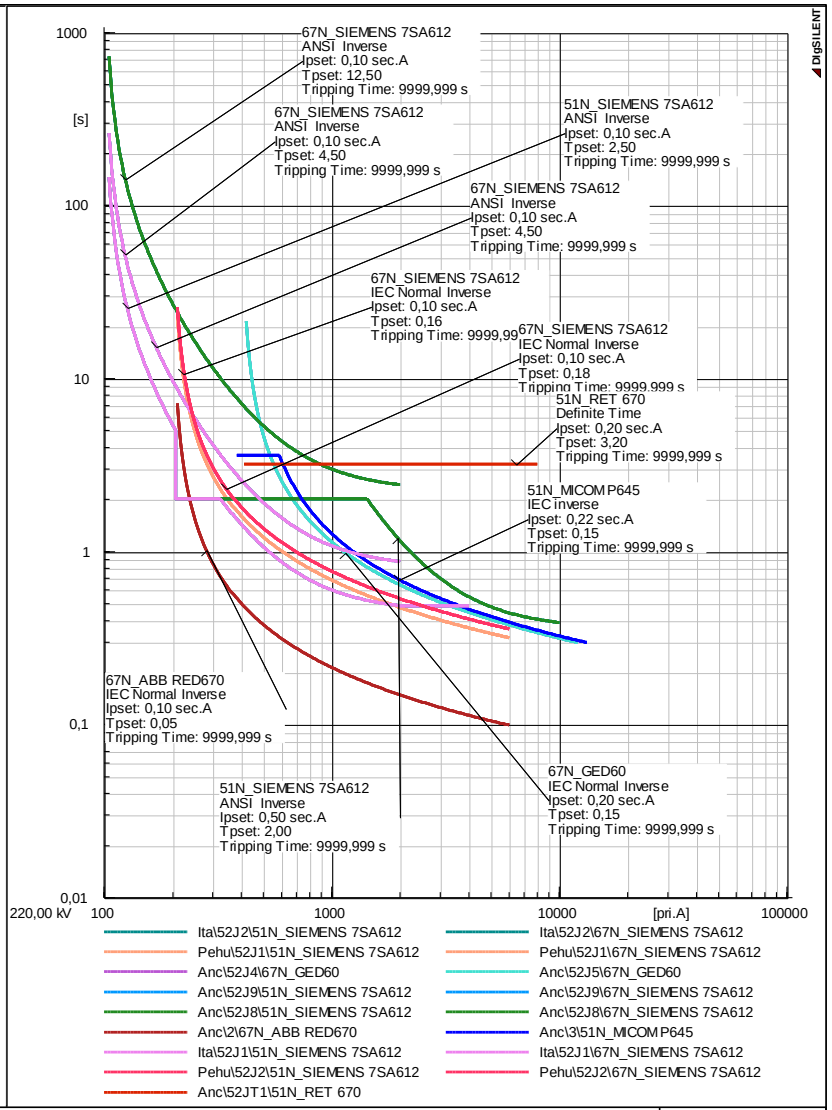

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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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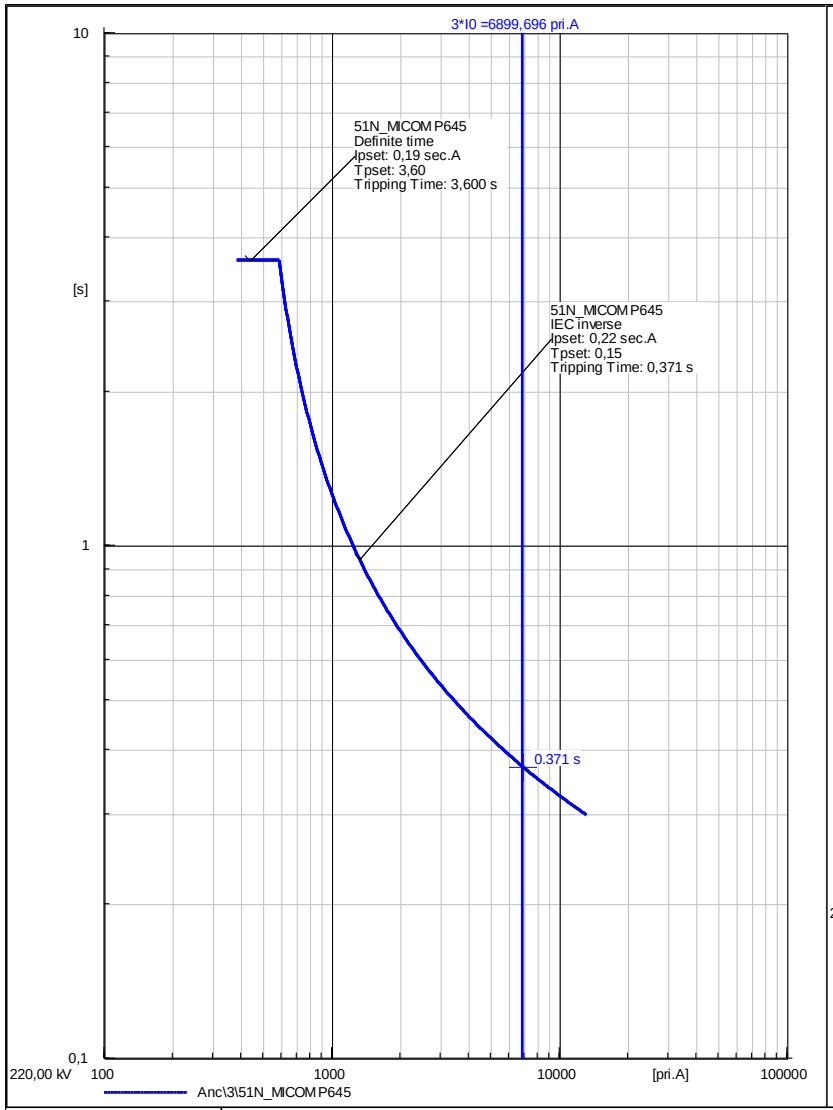

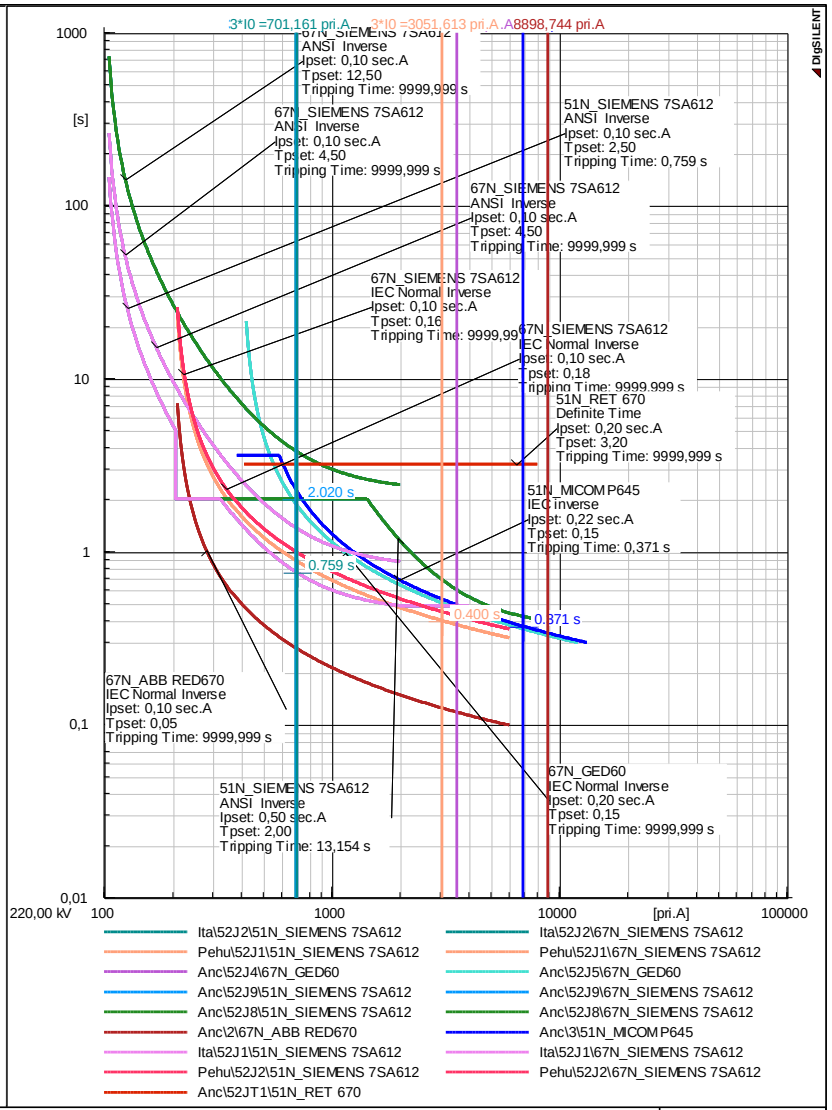

	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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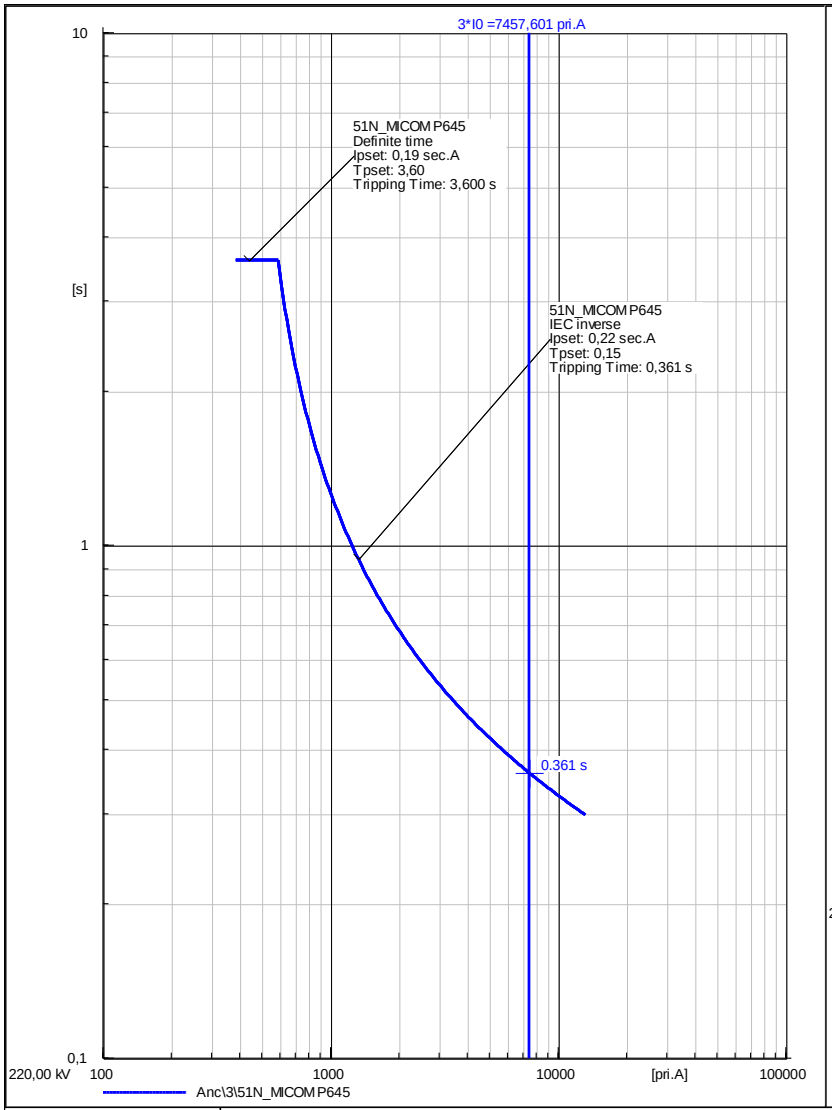

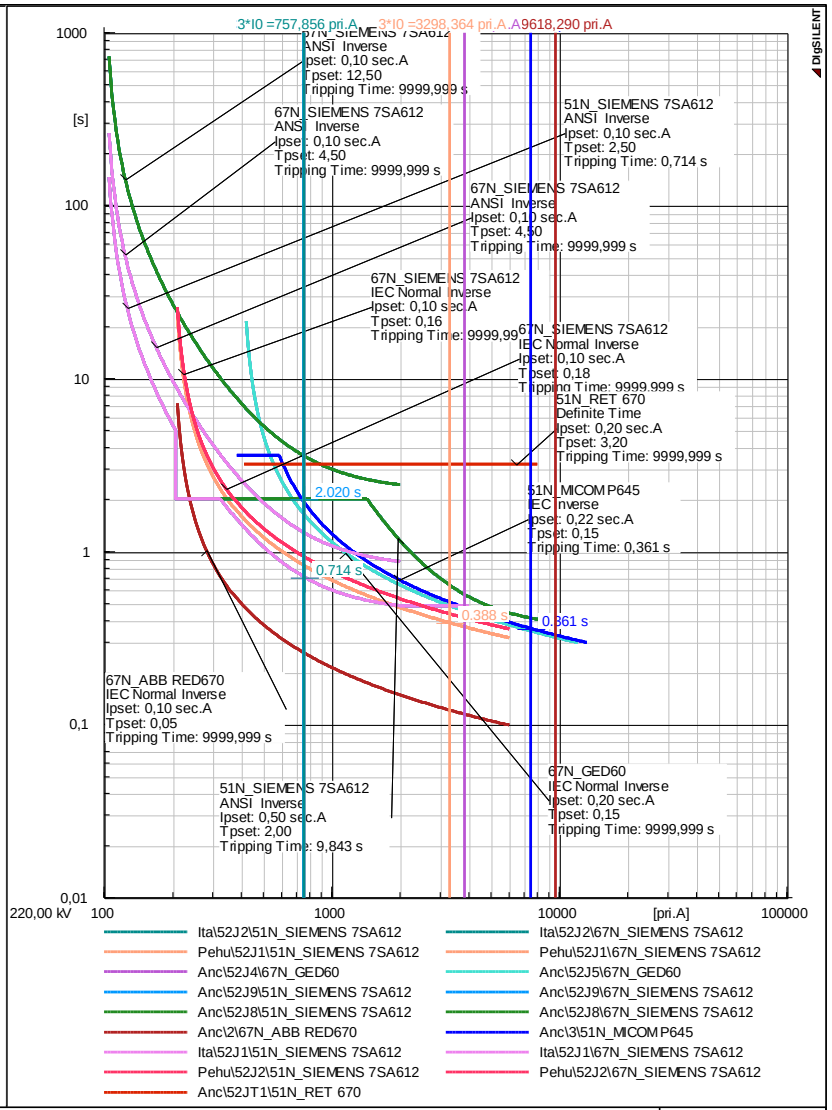

	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:

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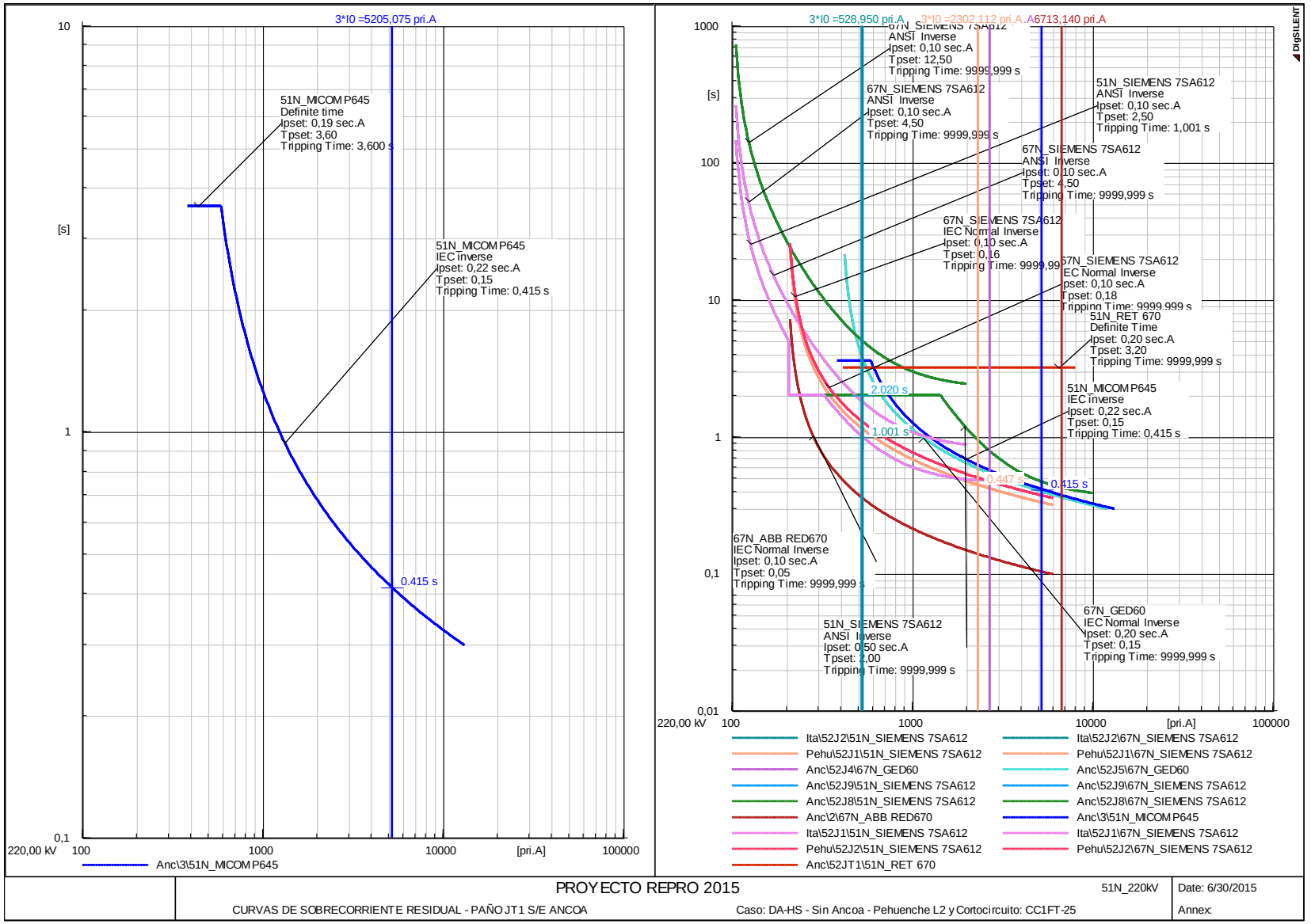

	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

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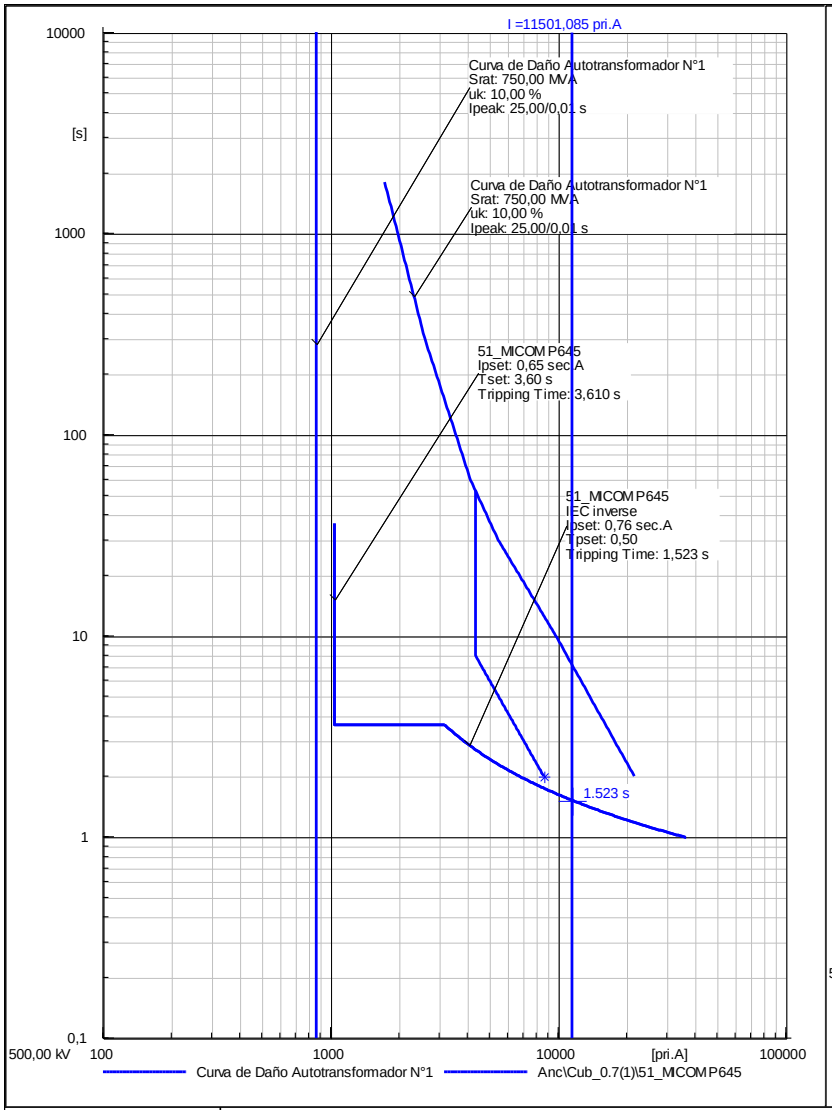
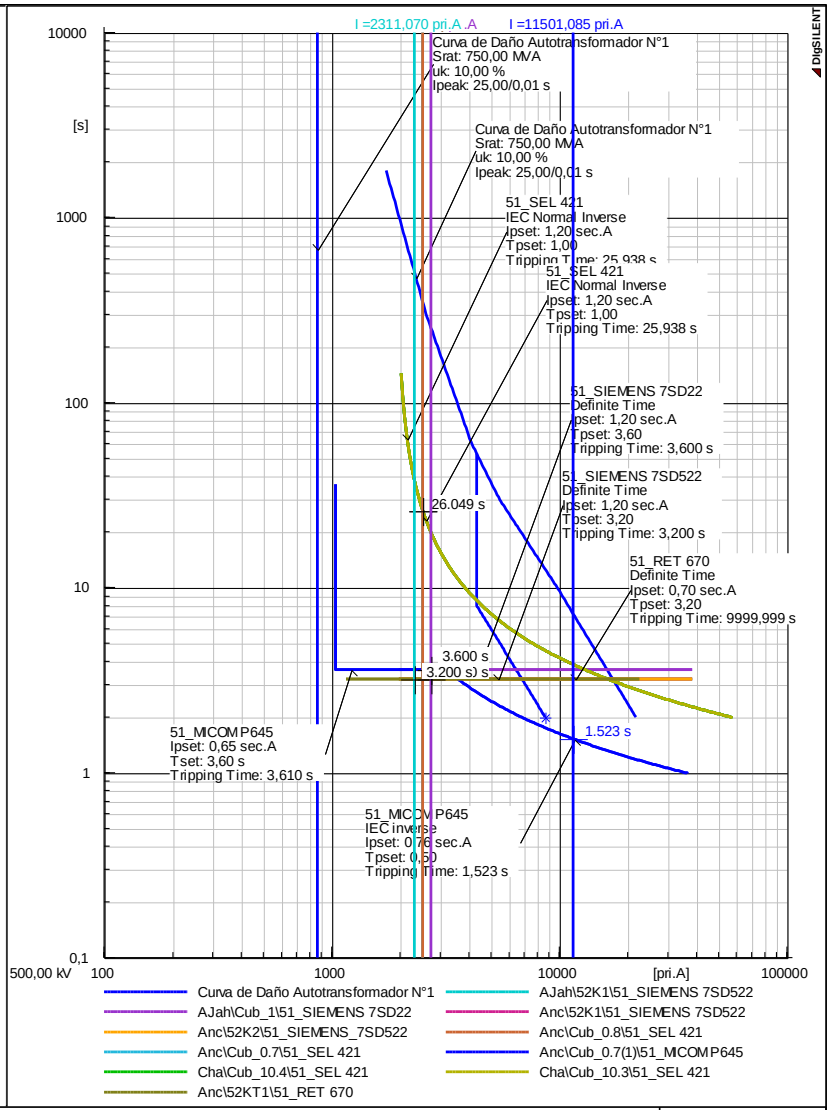
FUNCIÓN 51 LADO DE 500 KV





	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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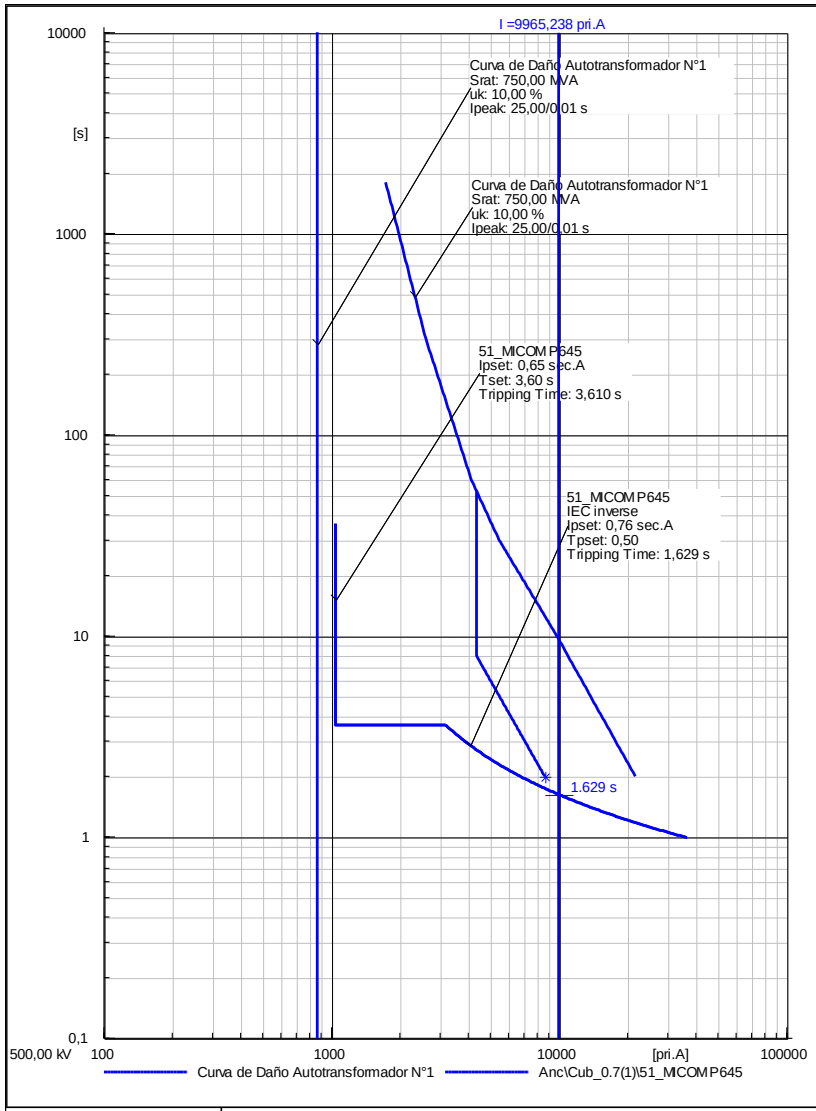

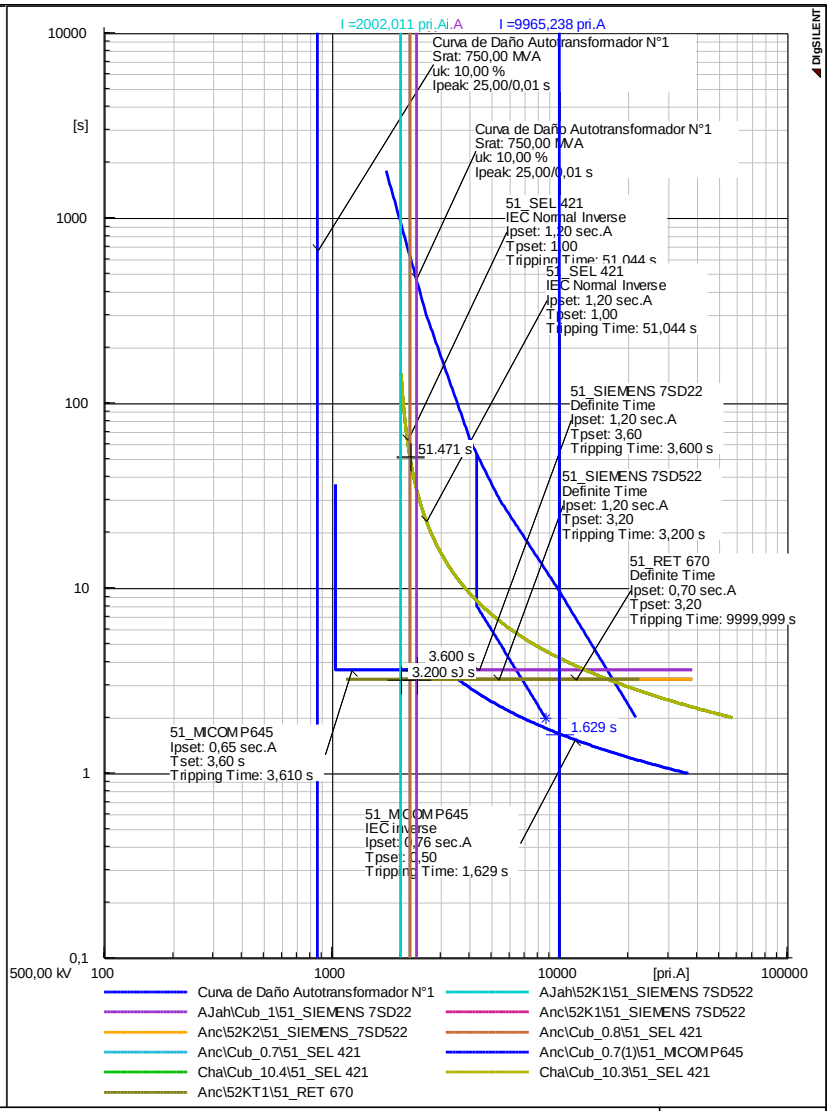

	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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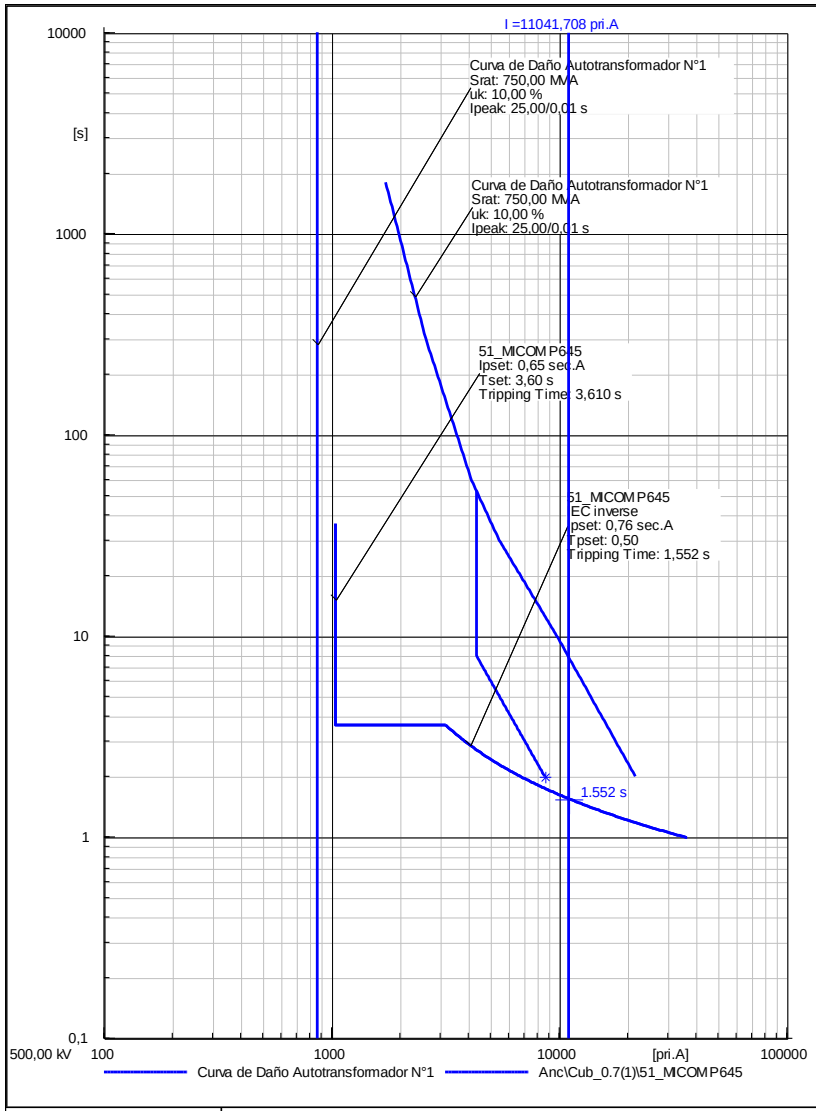

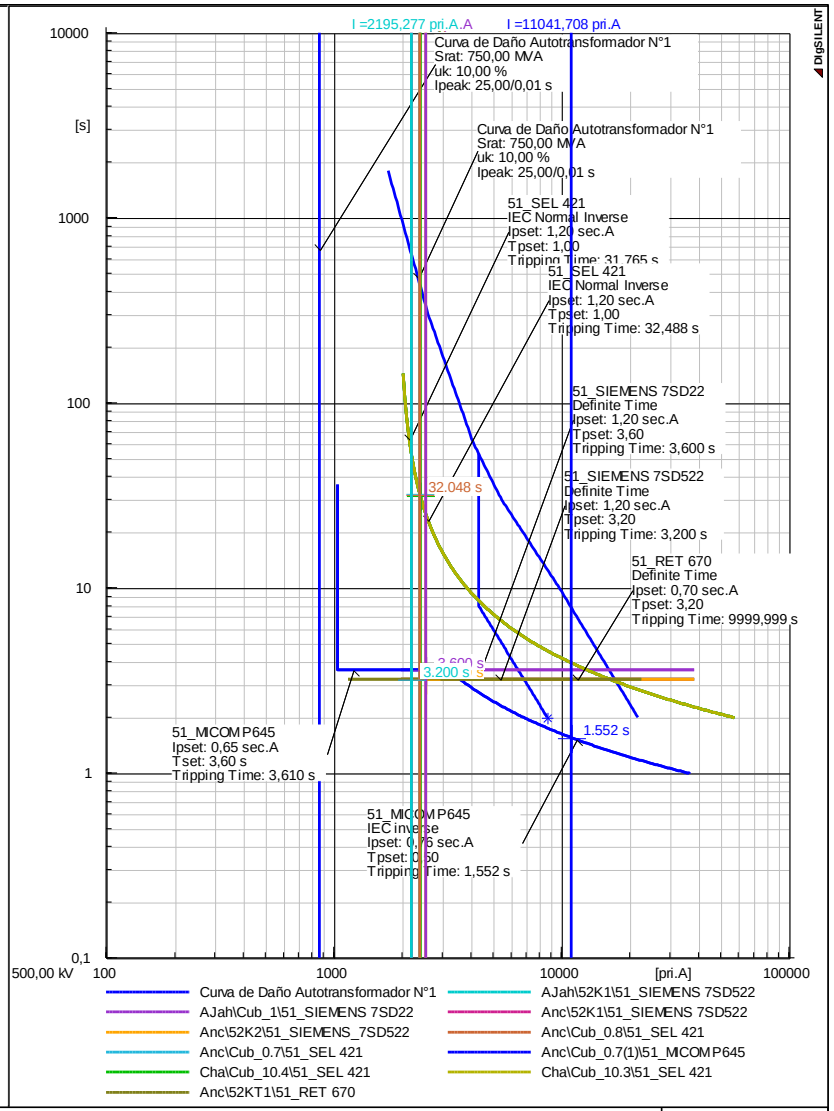

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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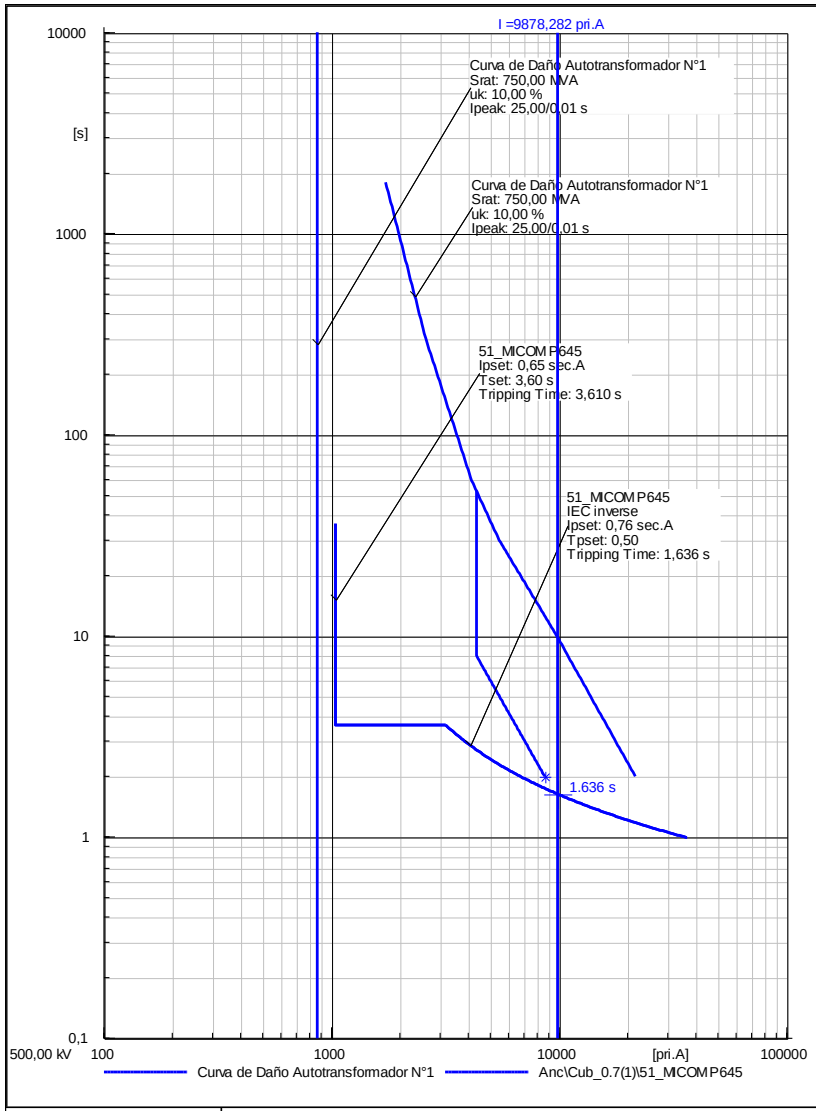

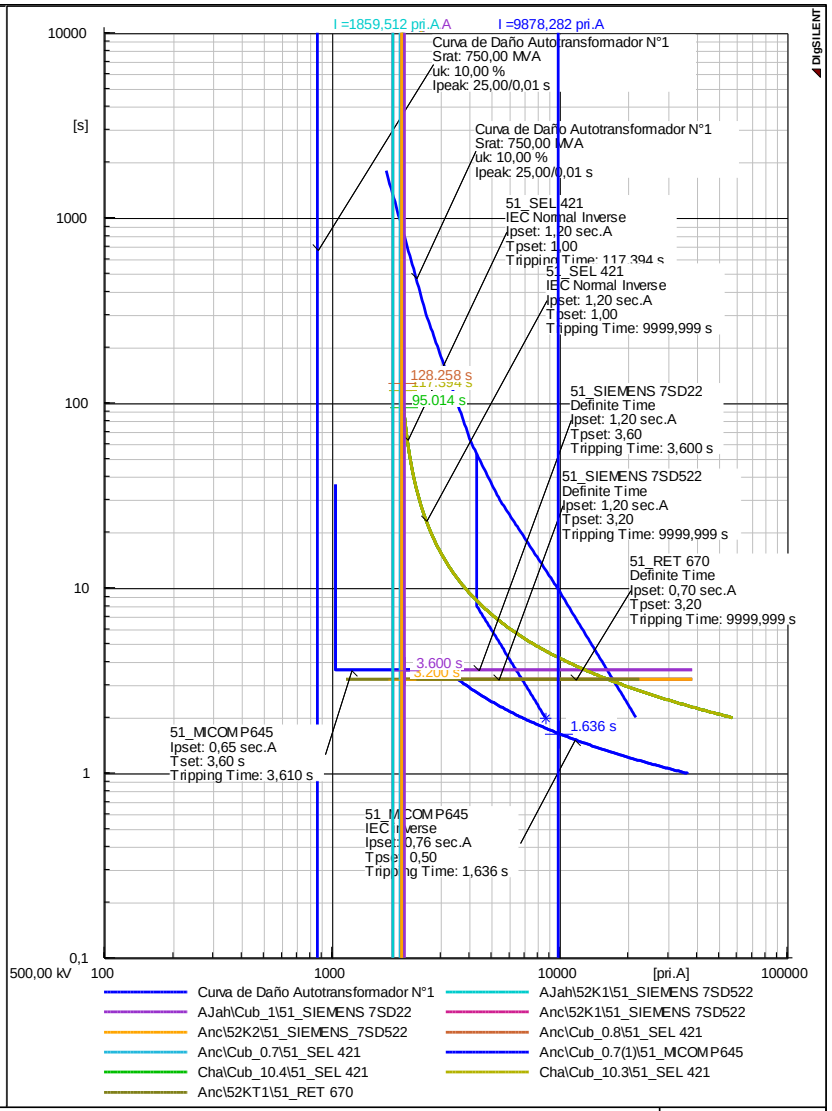

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:

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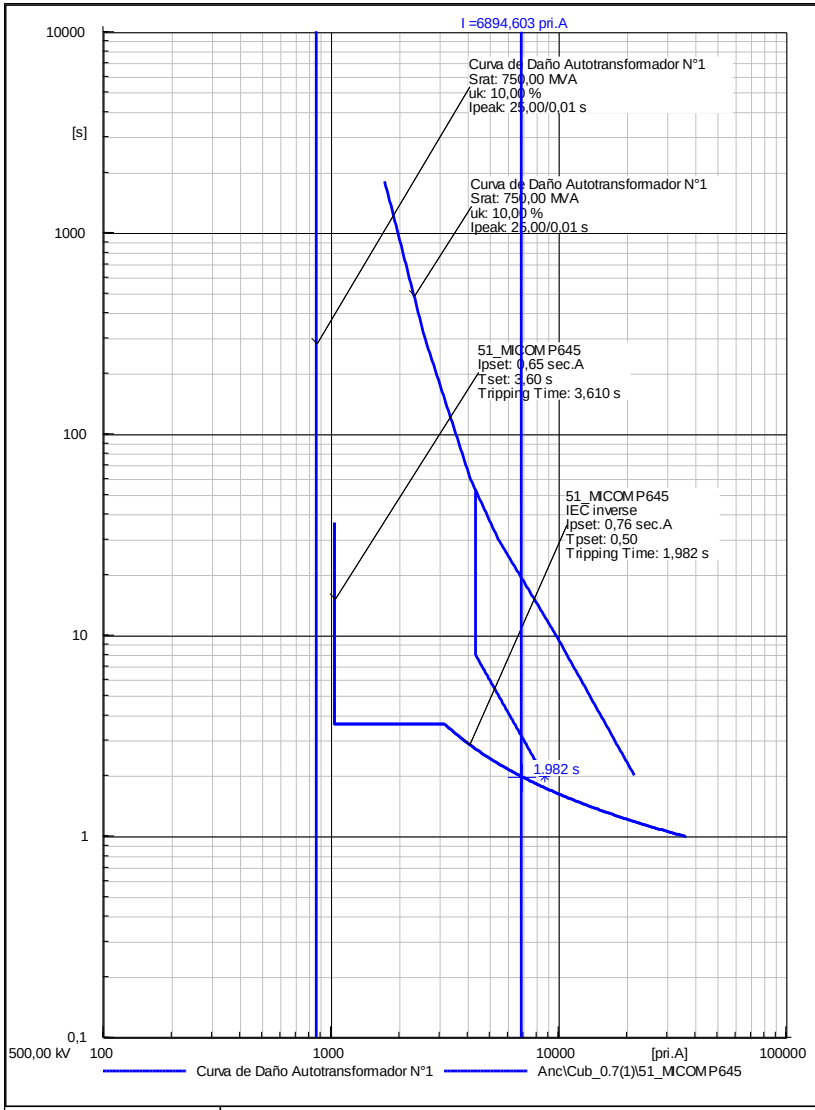

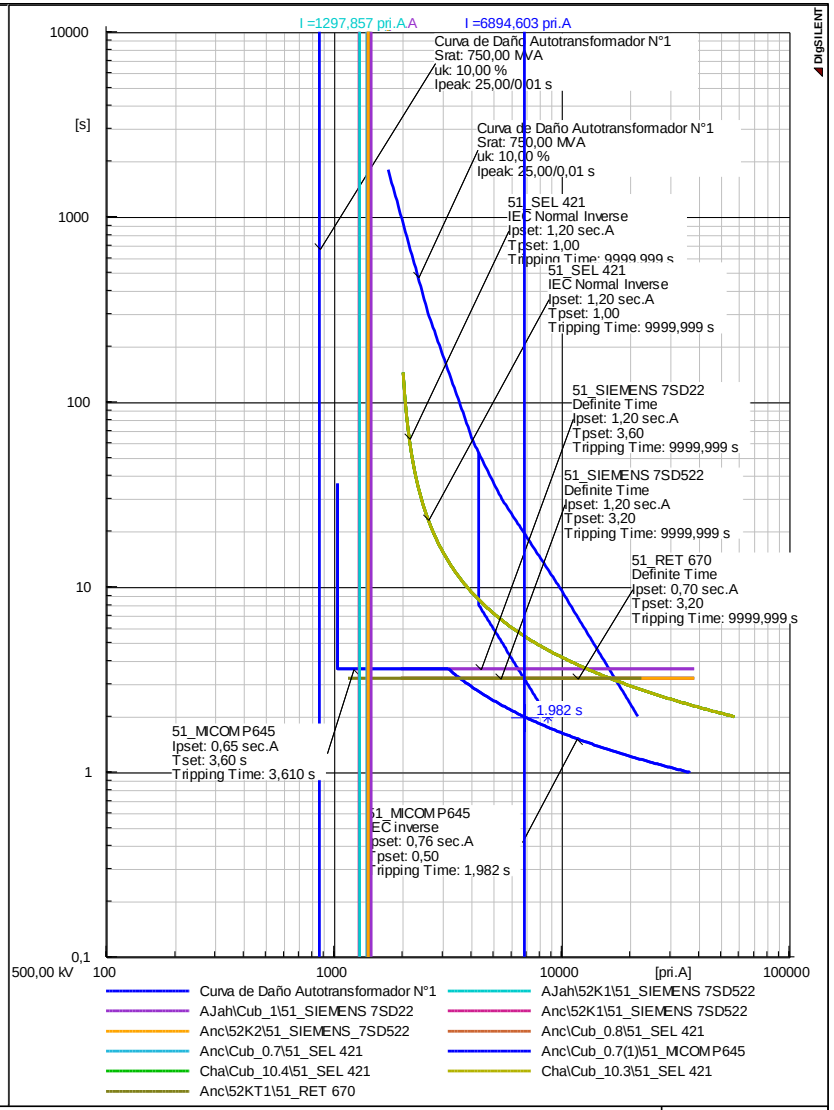

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

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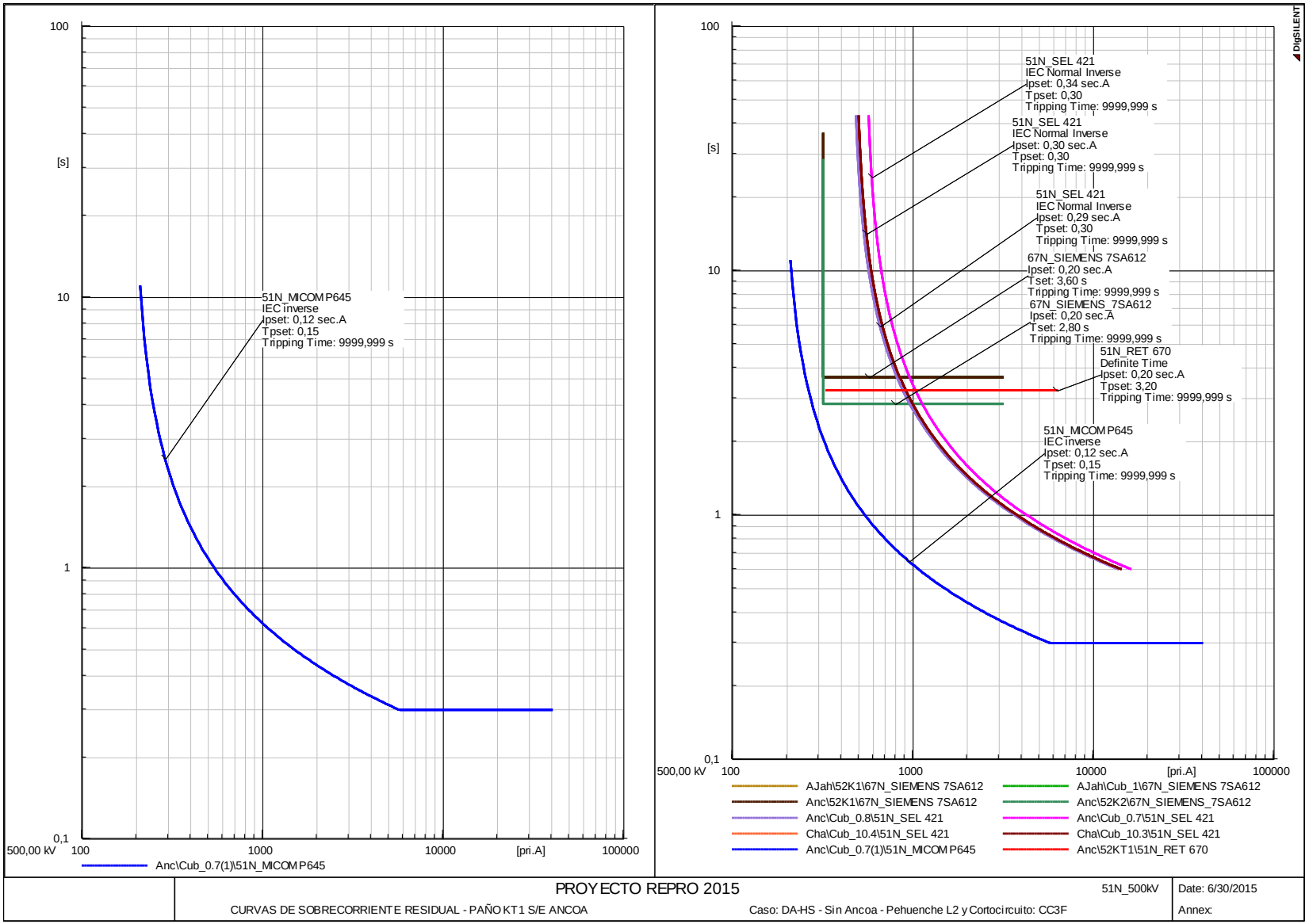
FUNCIÓN 51N LADO DE 500 KV



	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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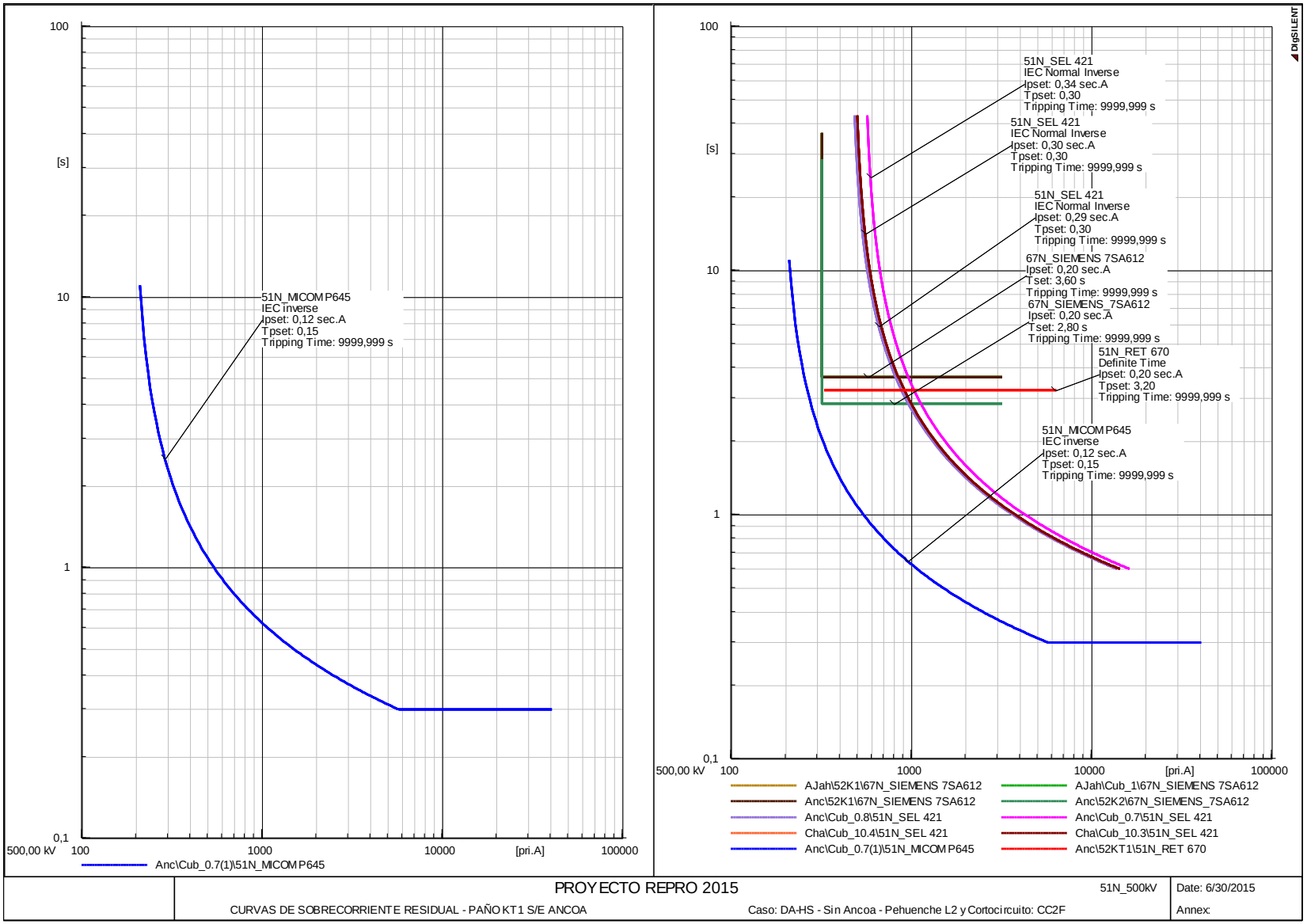

	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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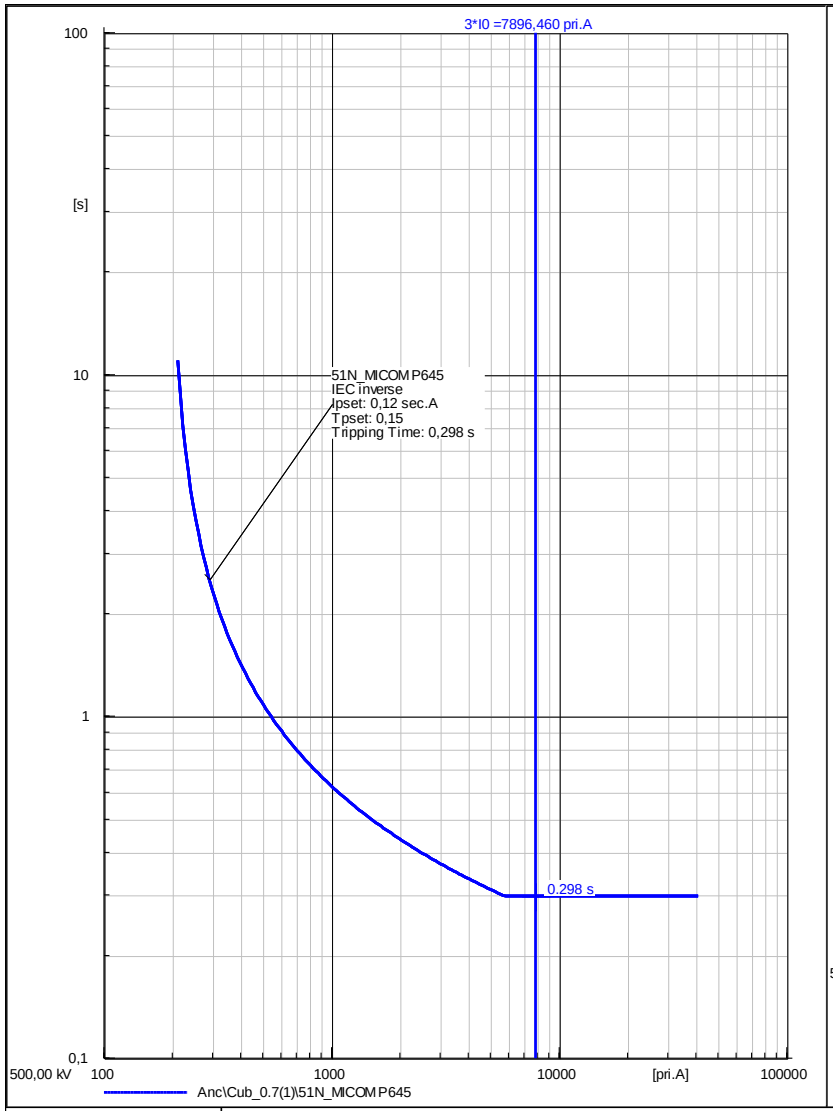

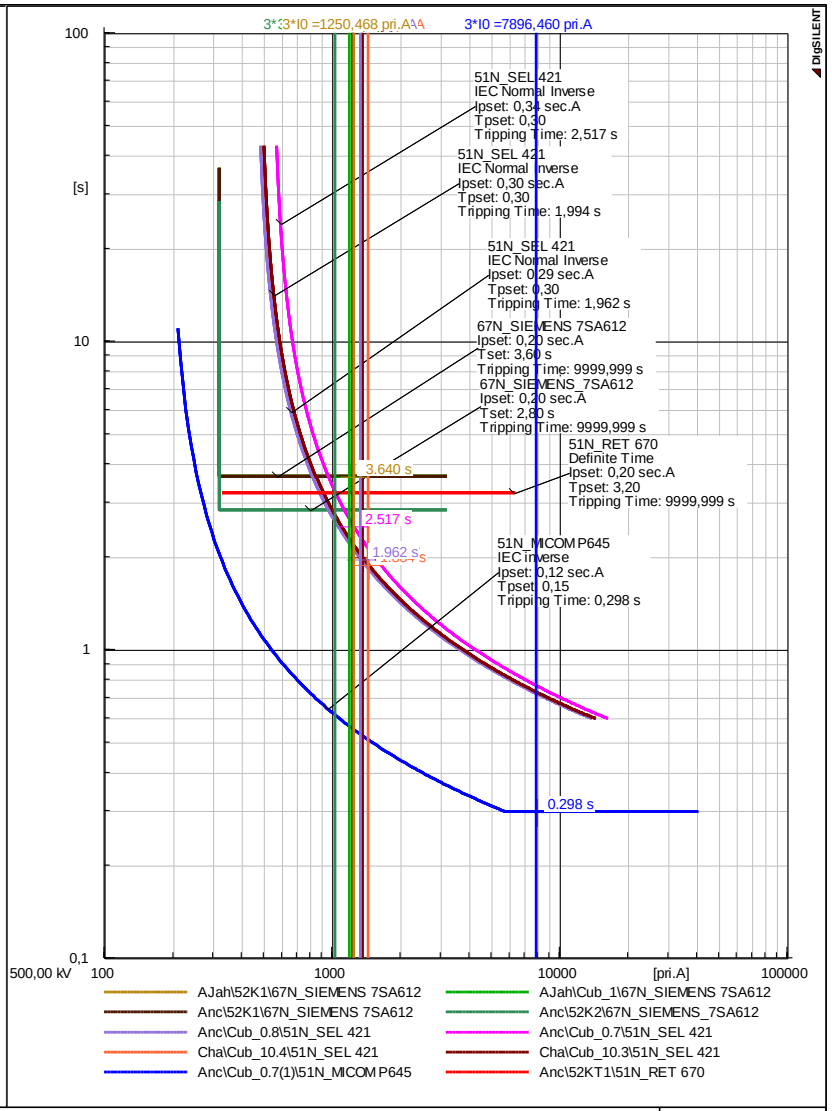

	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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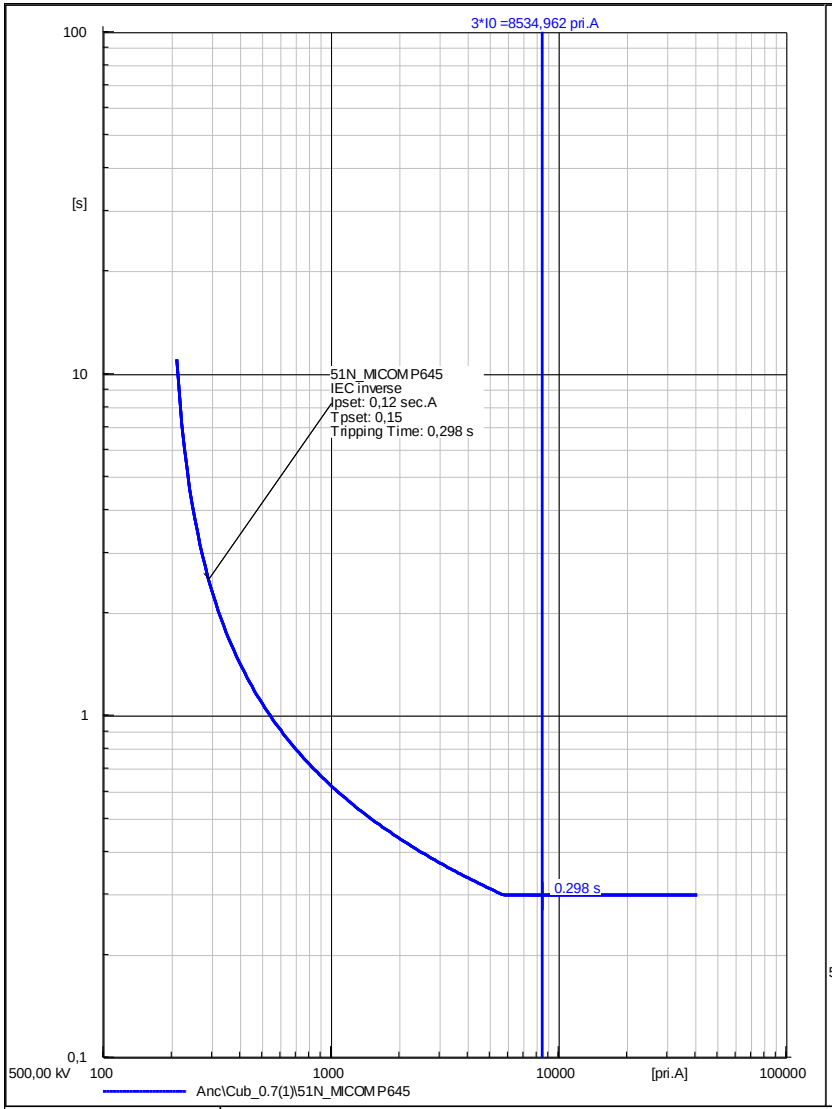

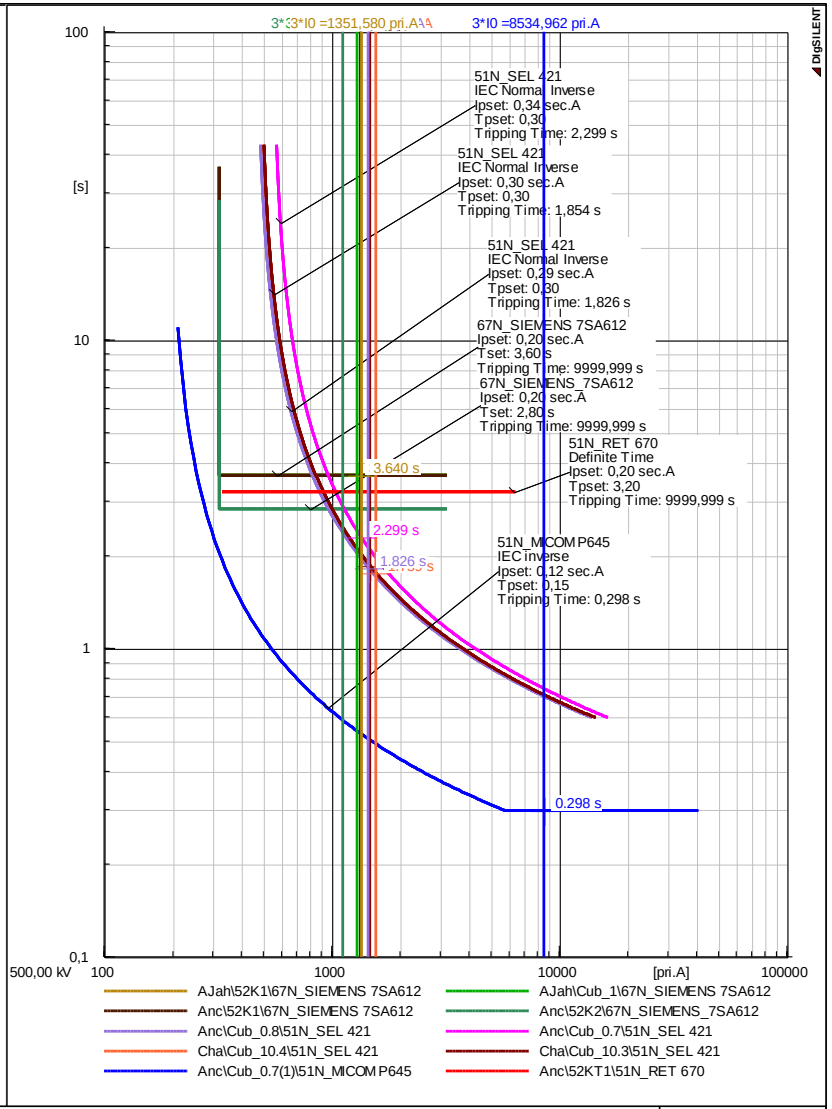

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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:

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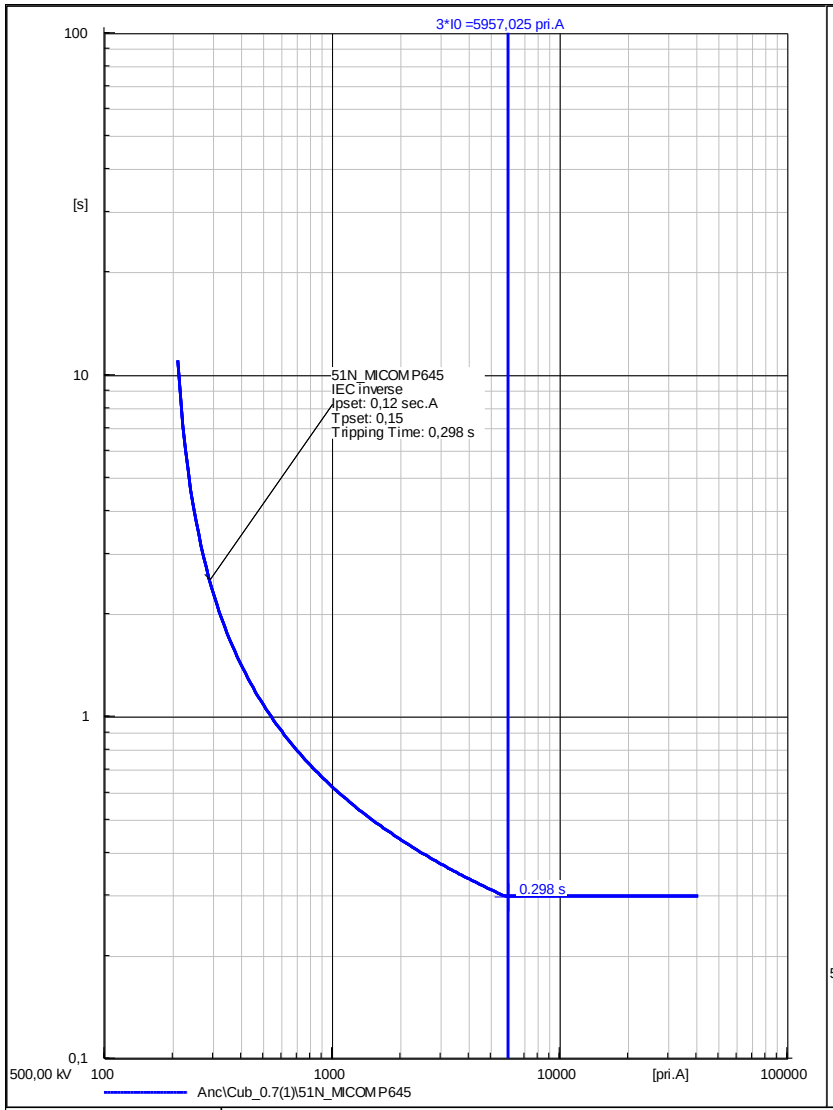

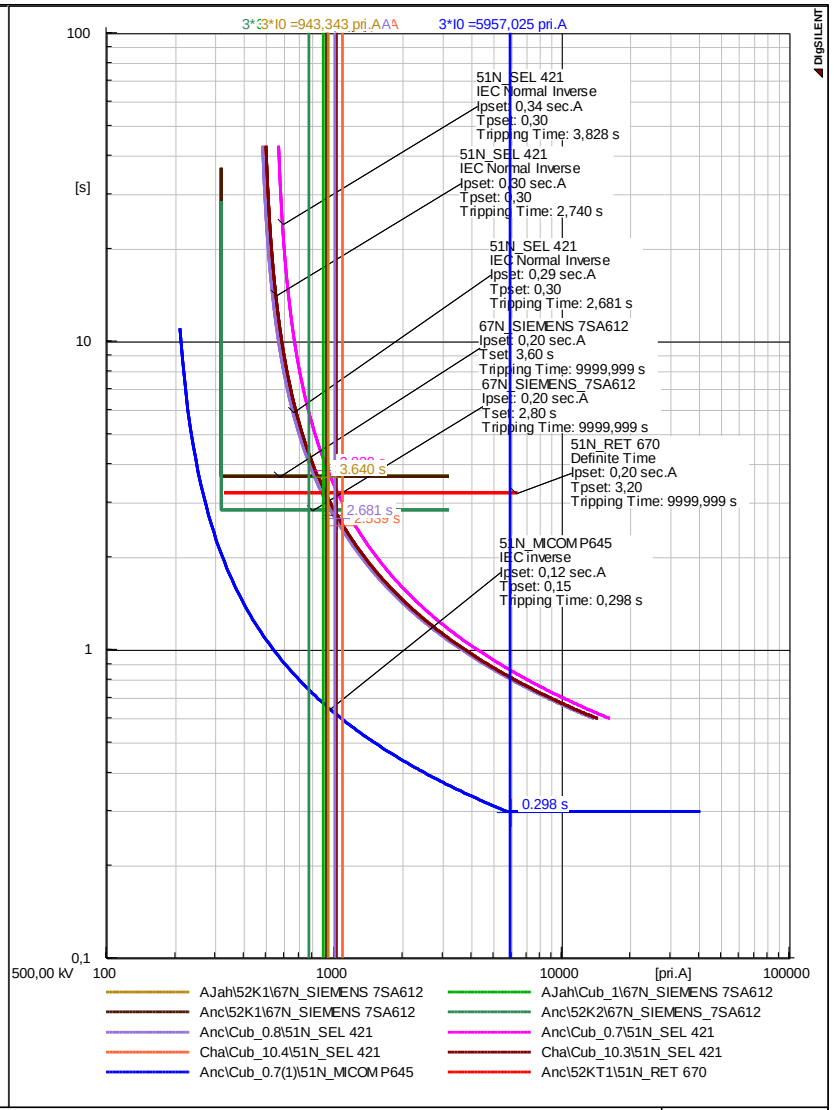

	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

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FALLA EN BARRA 220 KV S/E ANCOA

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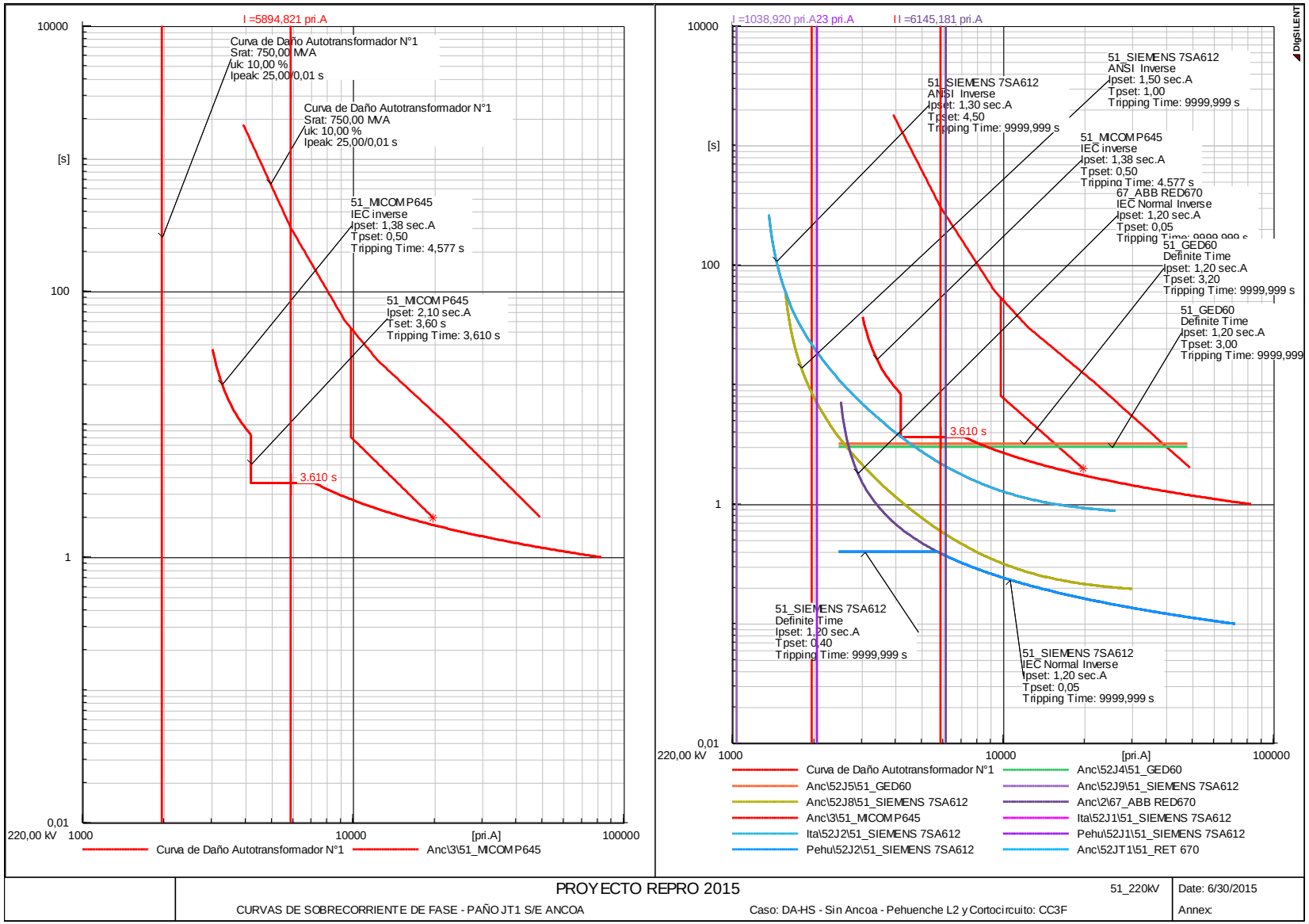
FUNCIÓN 51 LADO DE 220 KV



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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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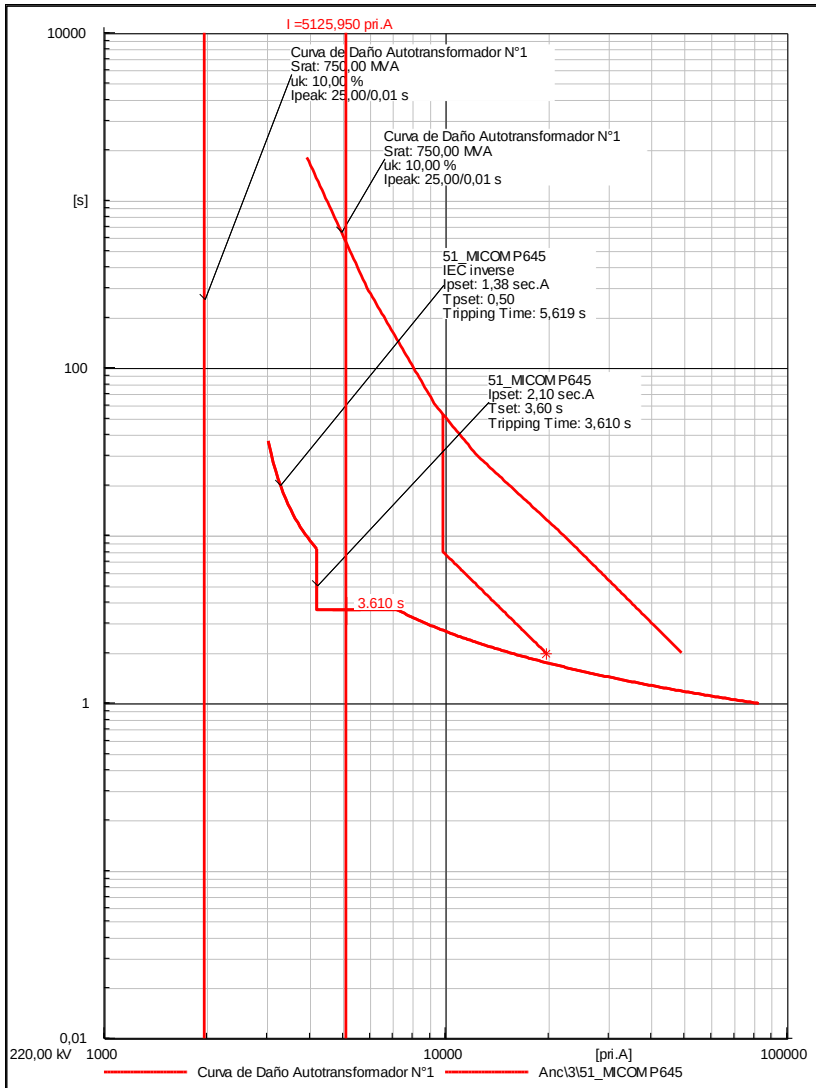

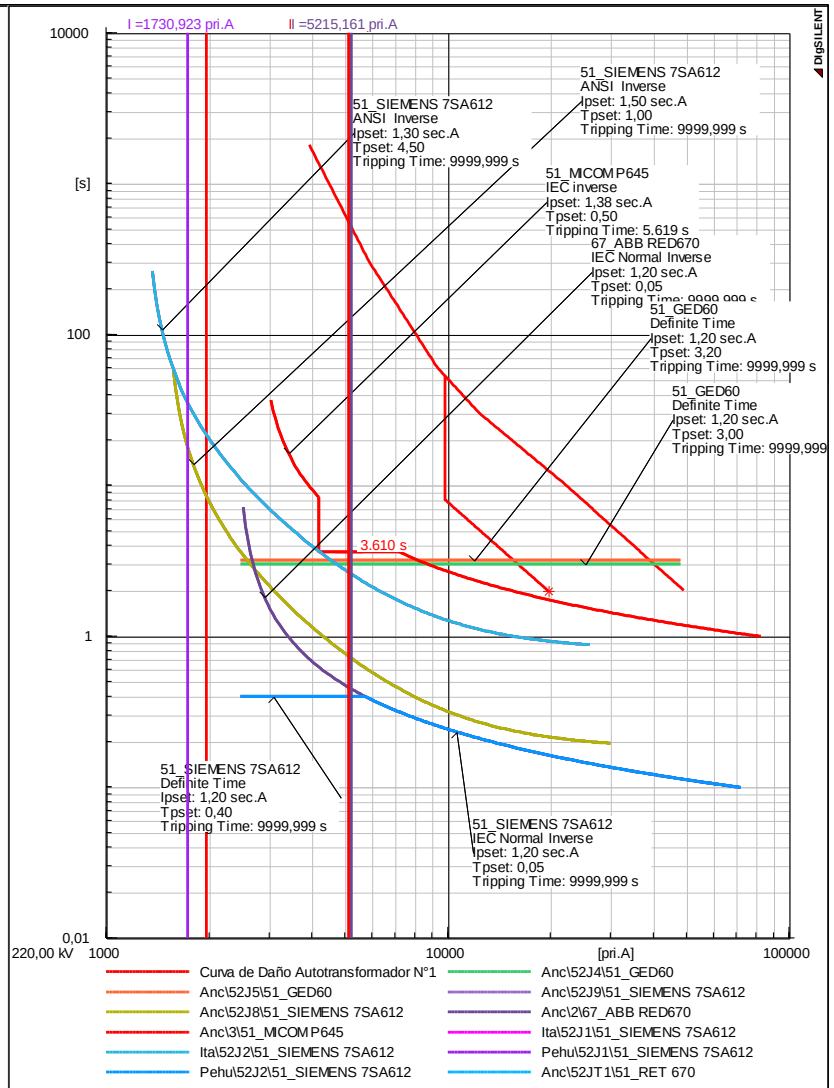

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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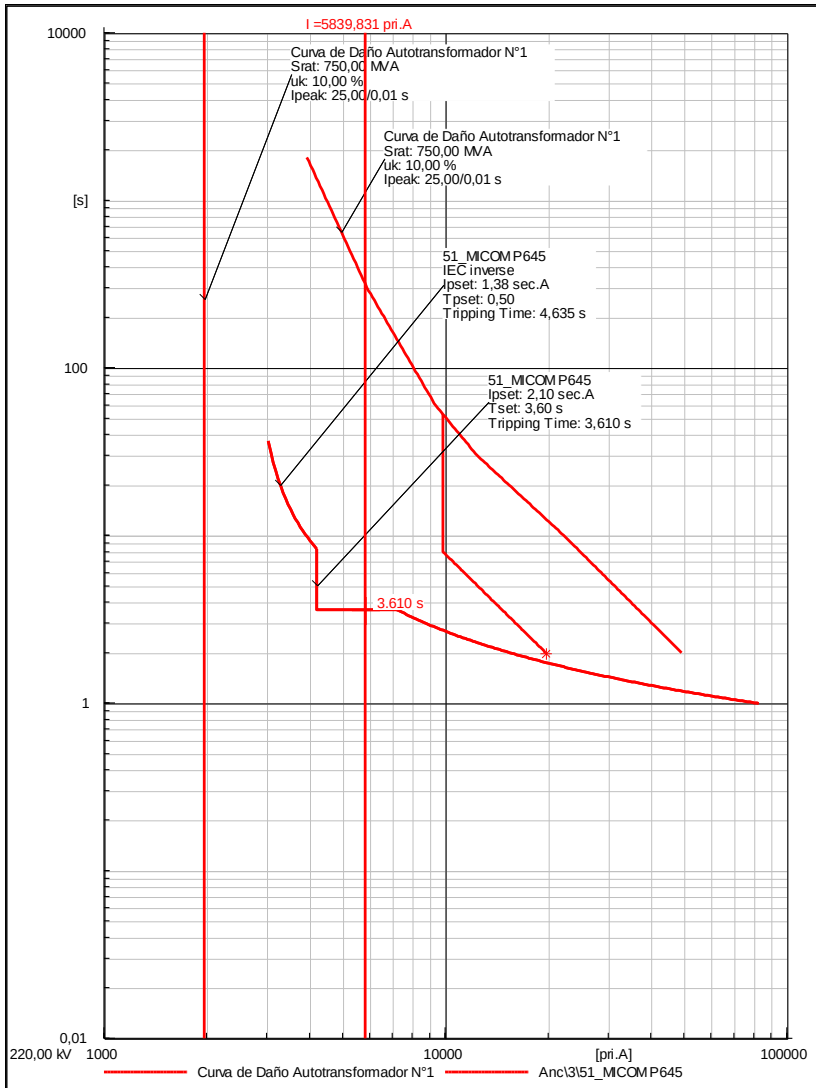

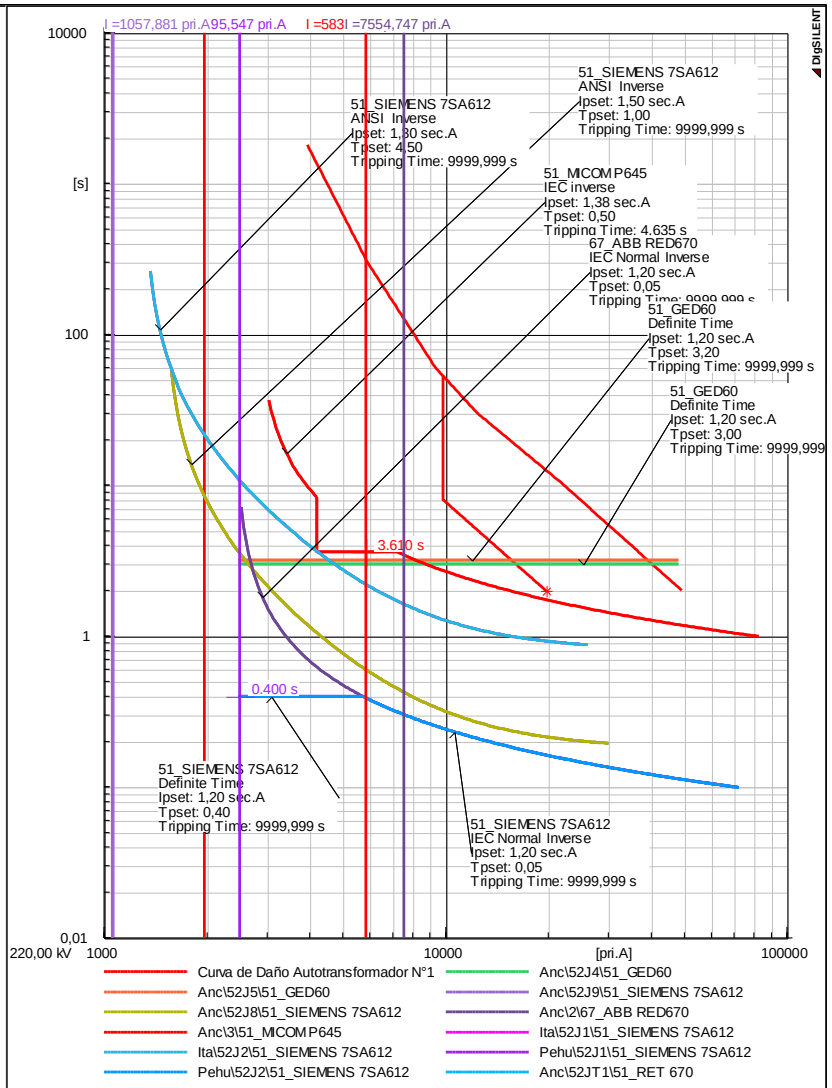

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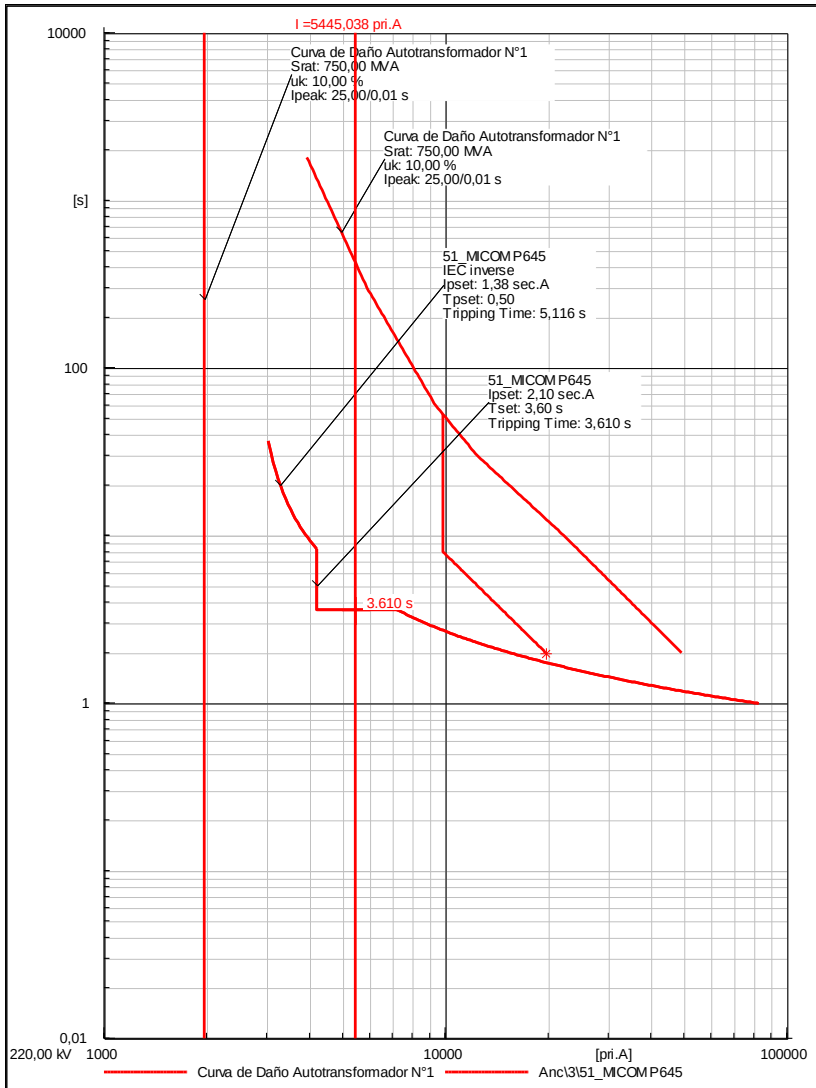

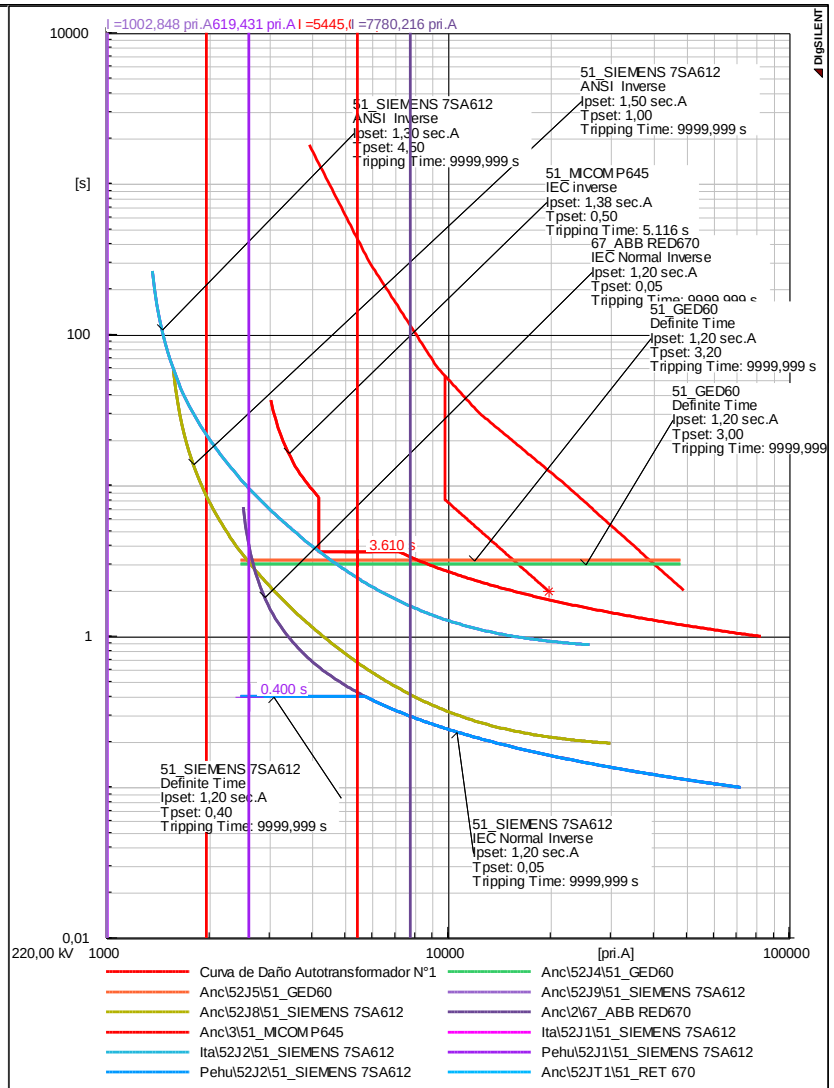

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:

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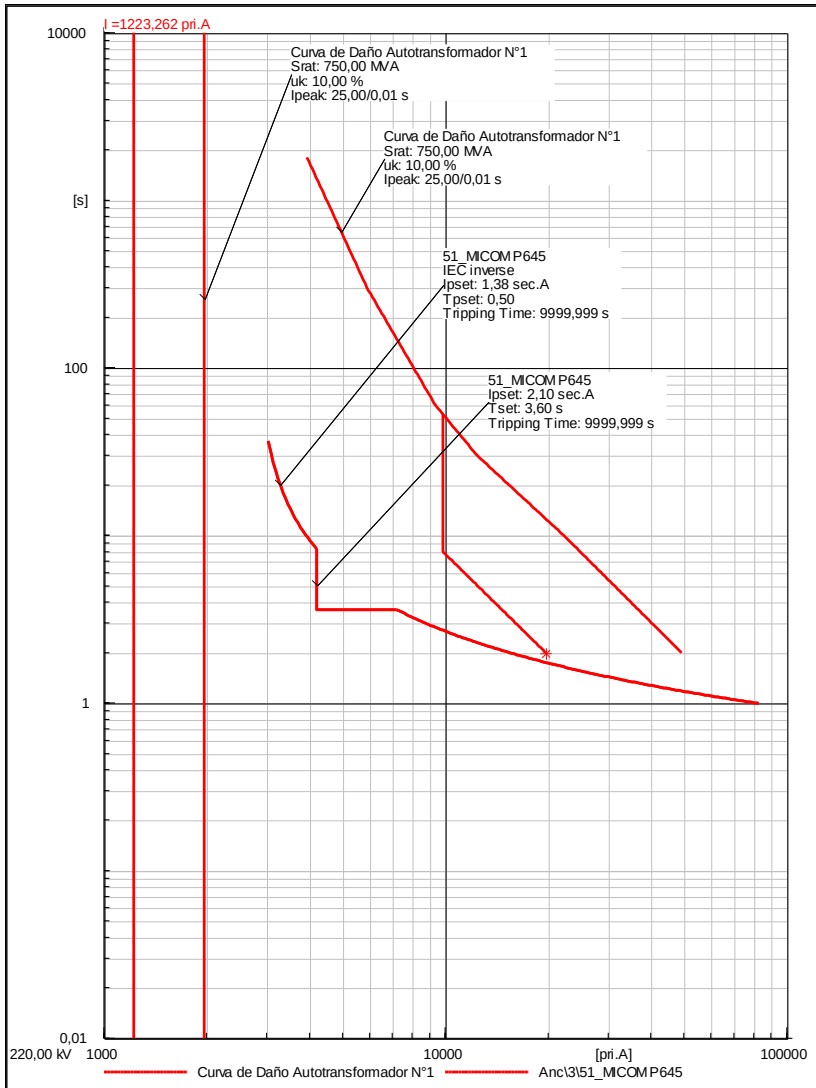
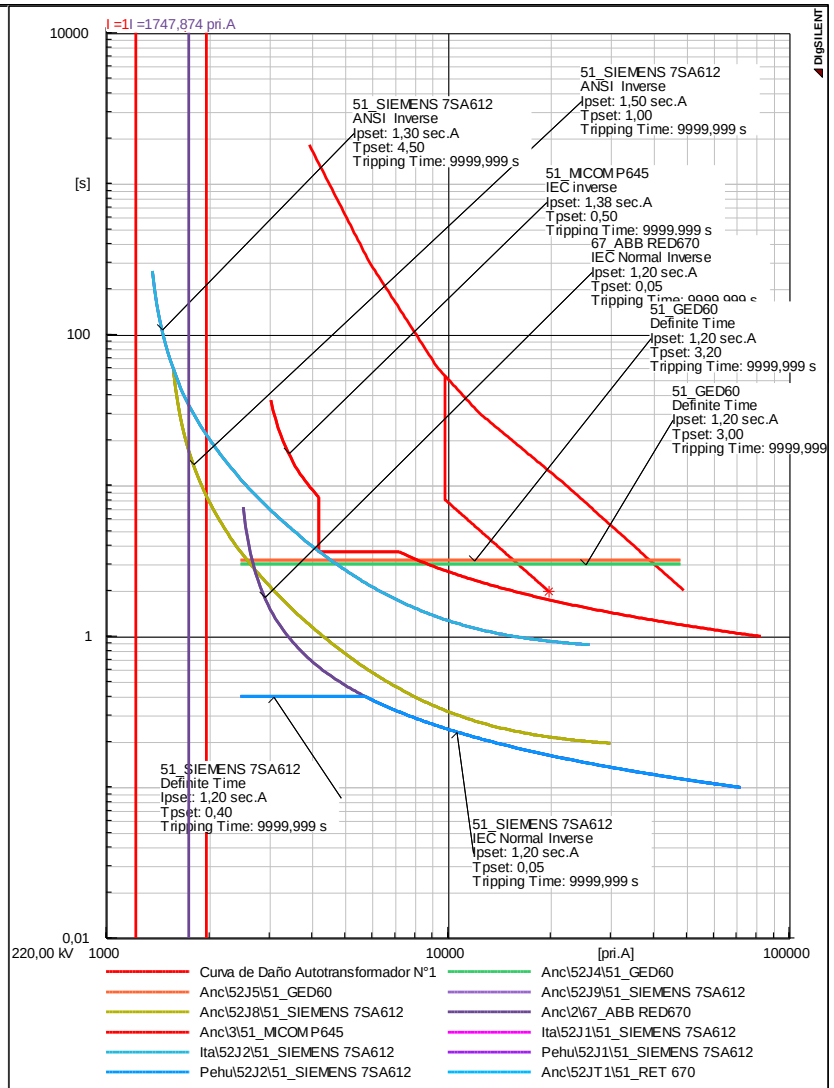
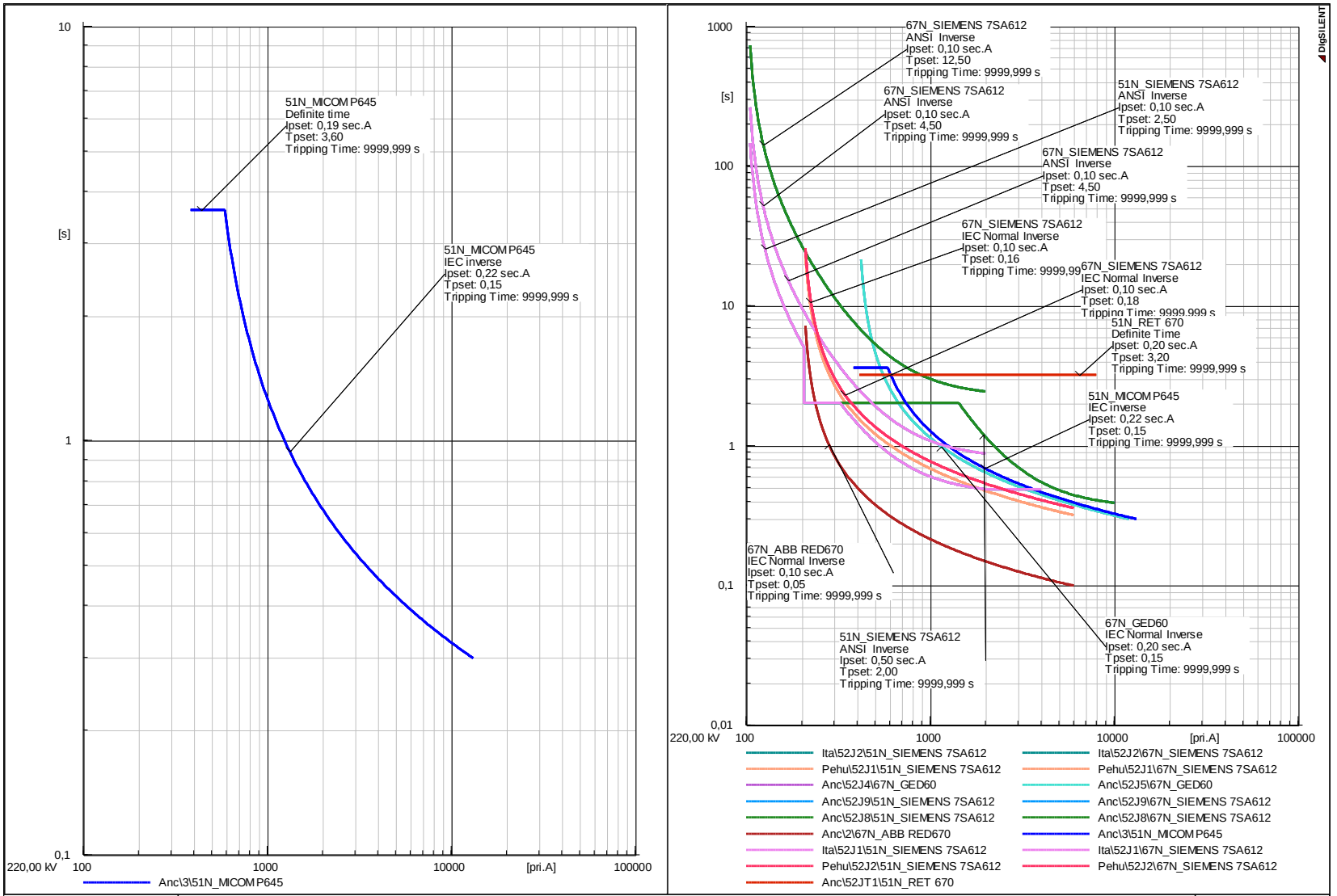




	PROYECTO REPRO 2015	51_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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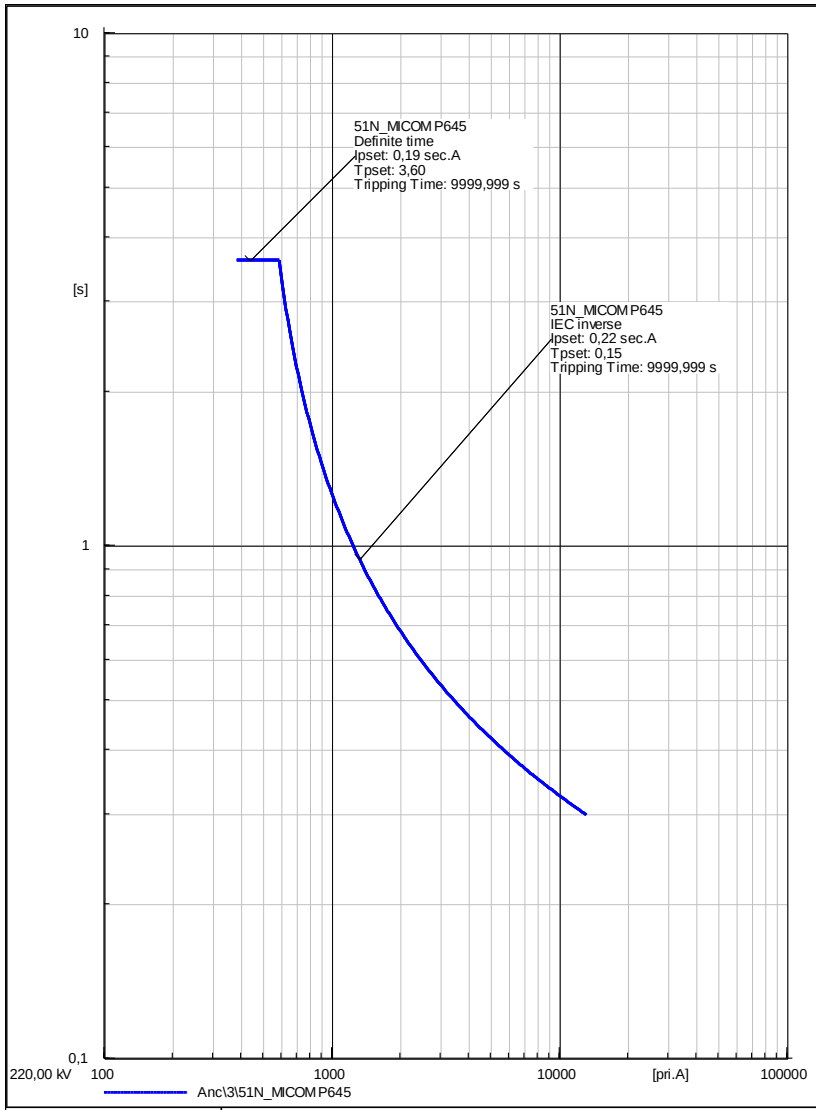

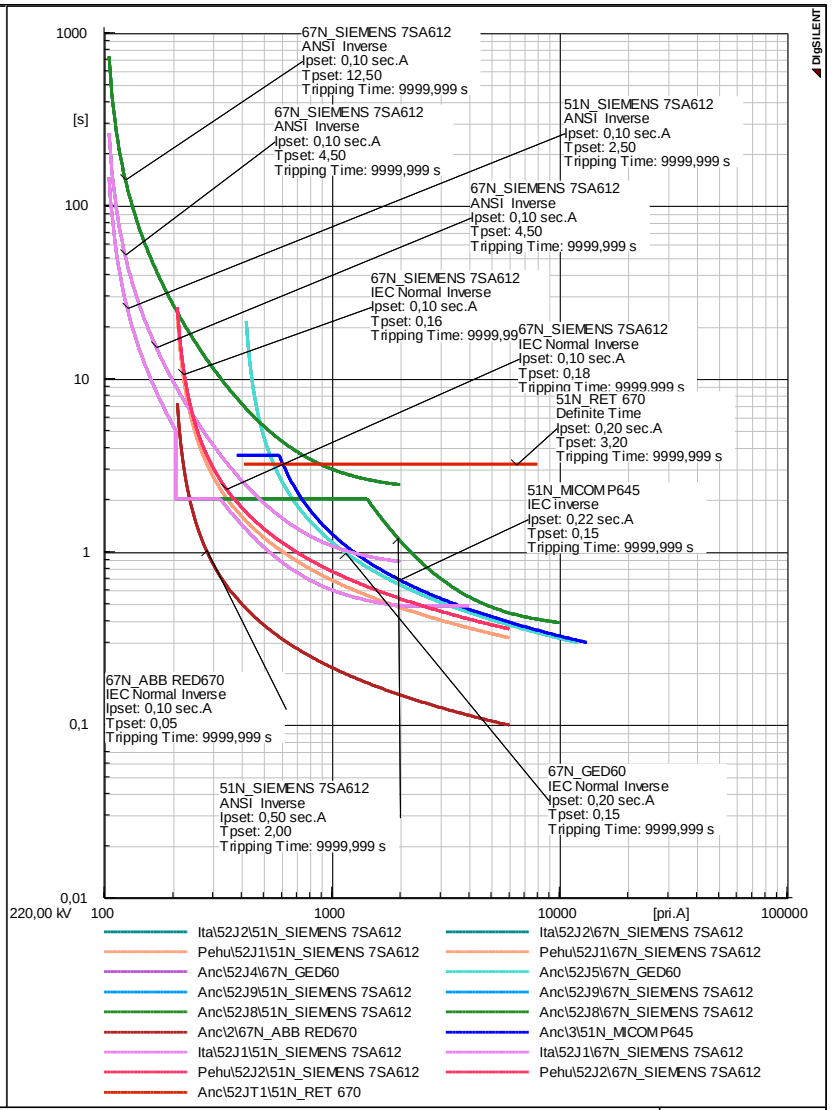

	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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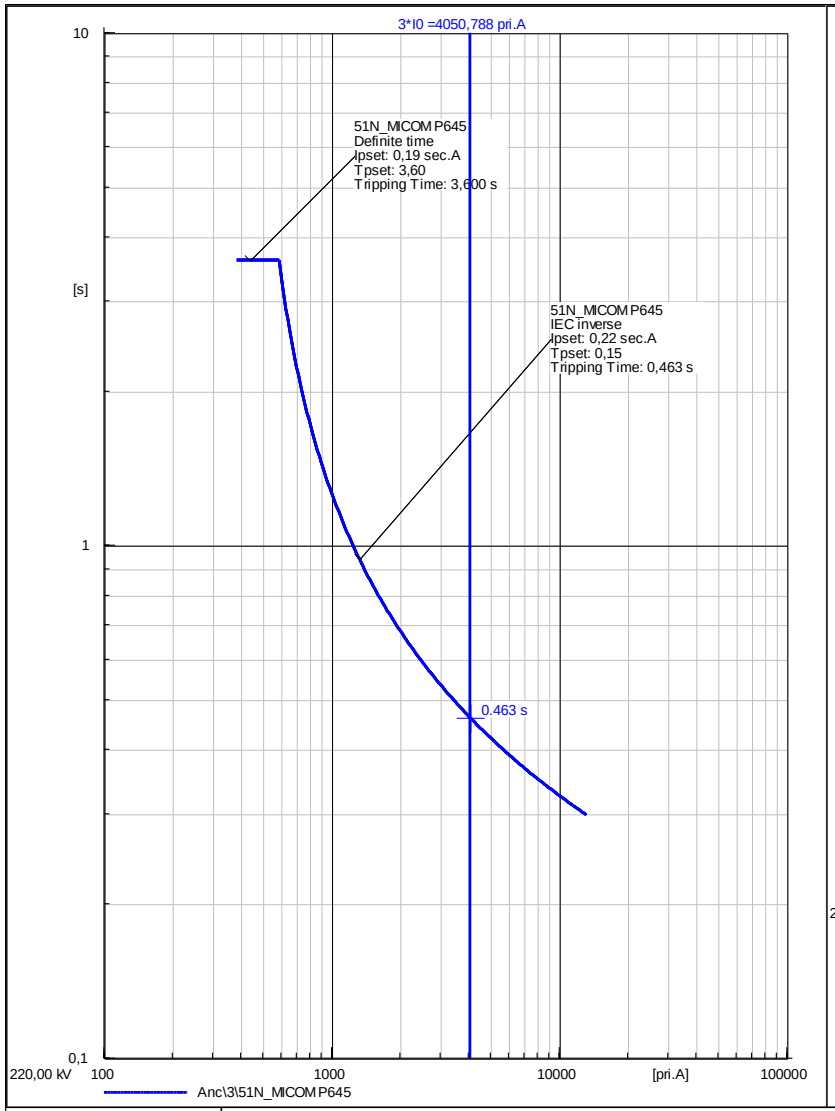
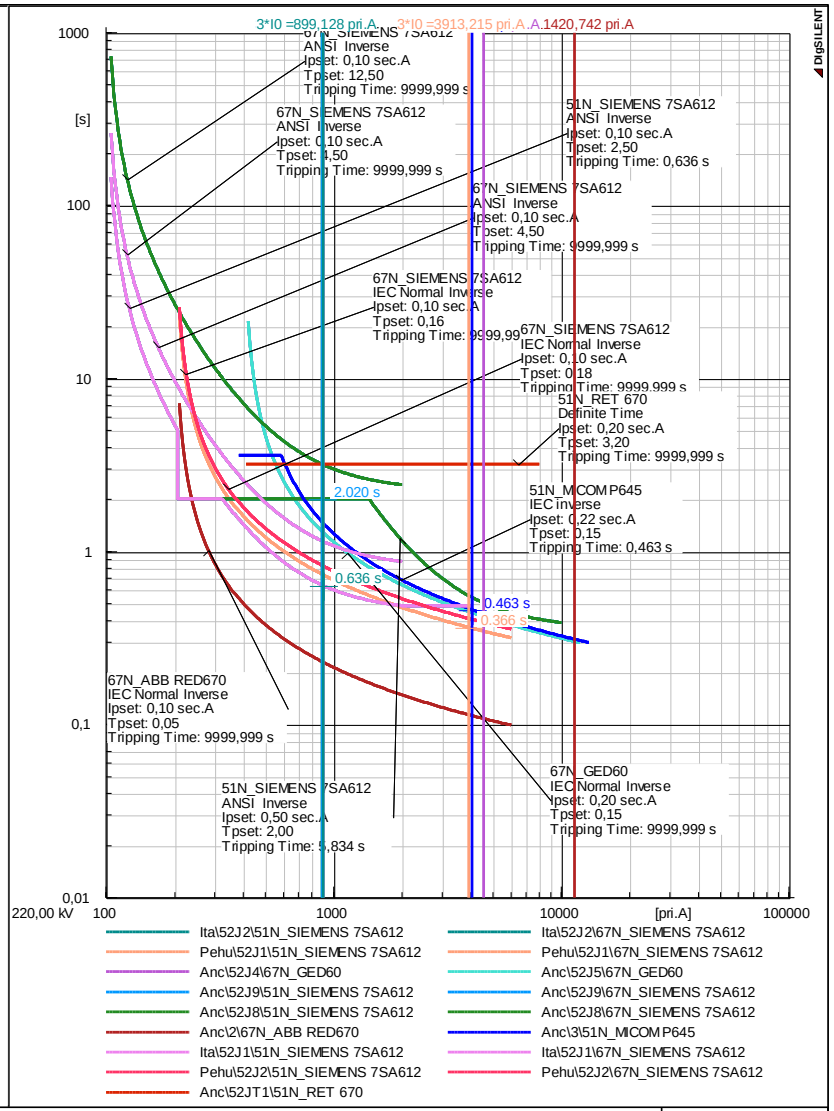
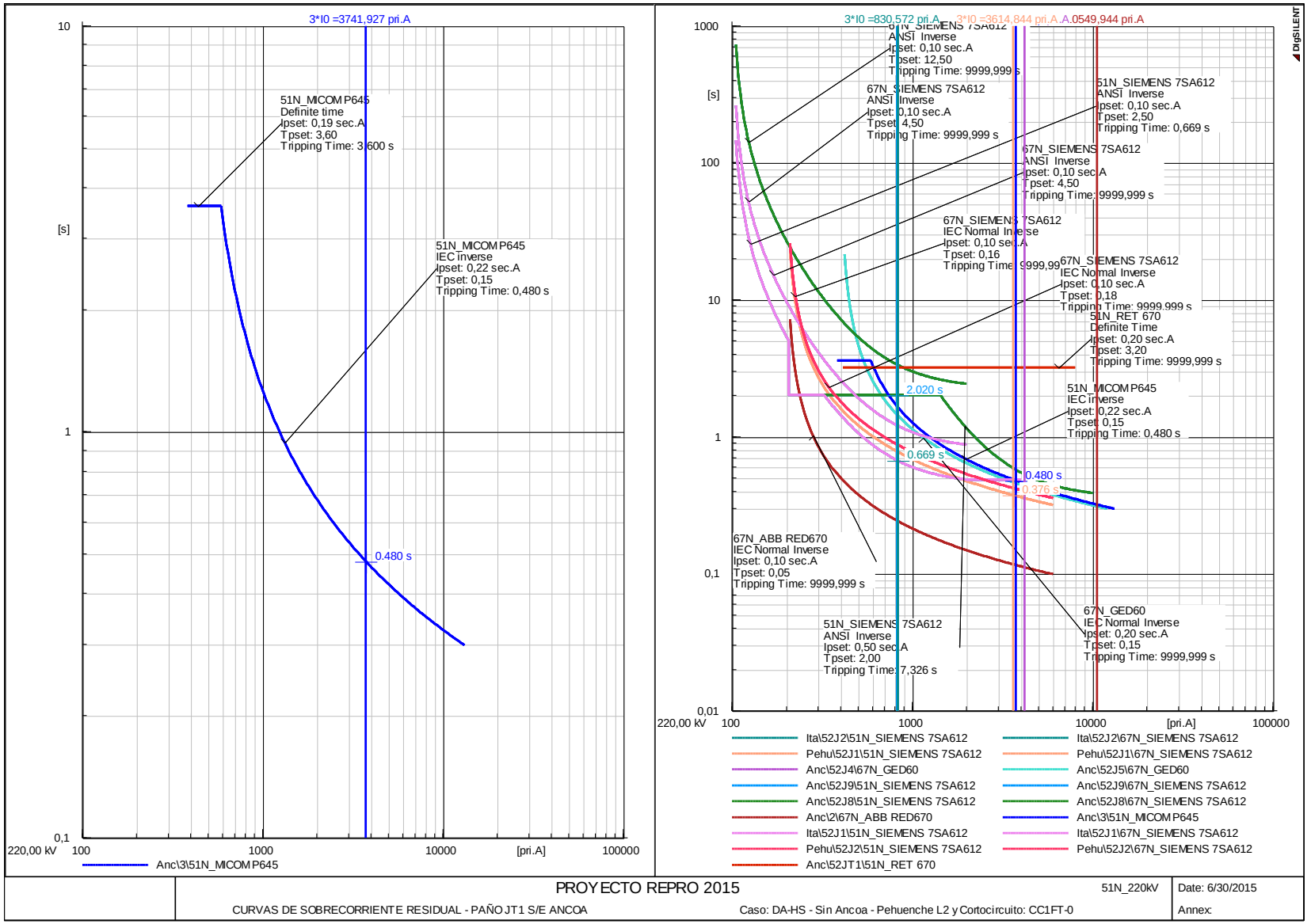




	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:



	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:

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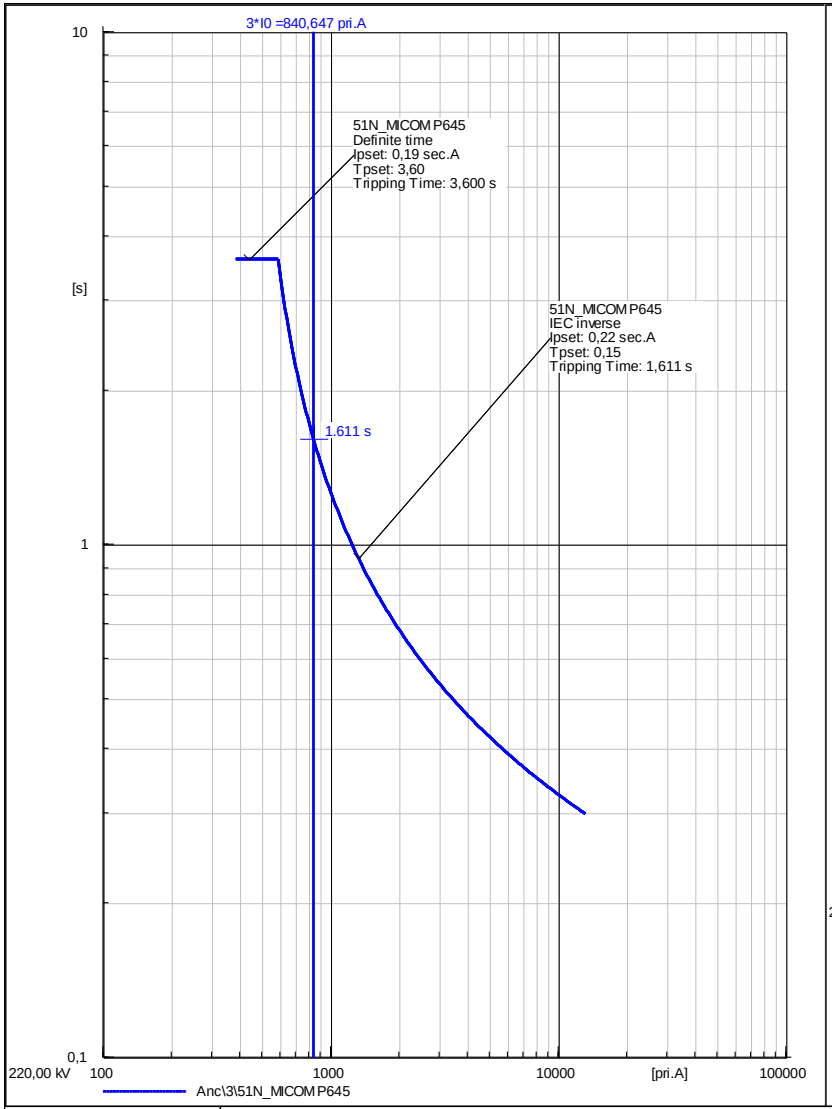

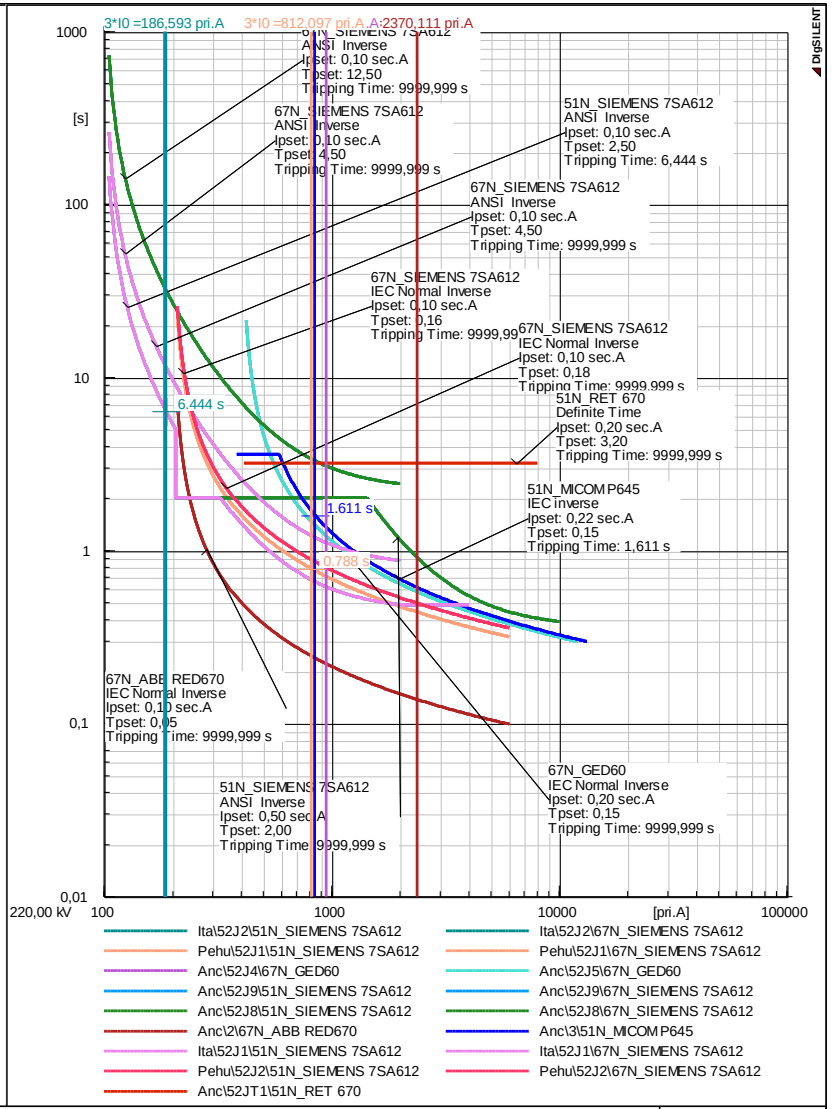

	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

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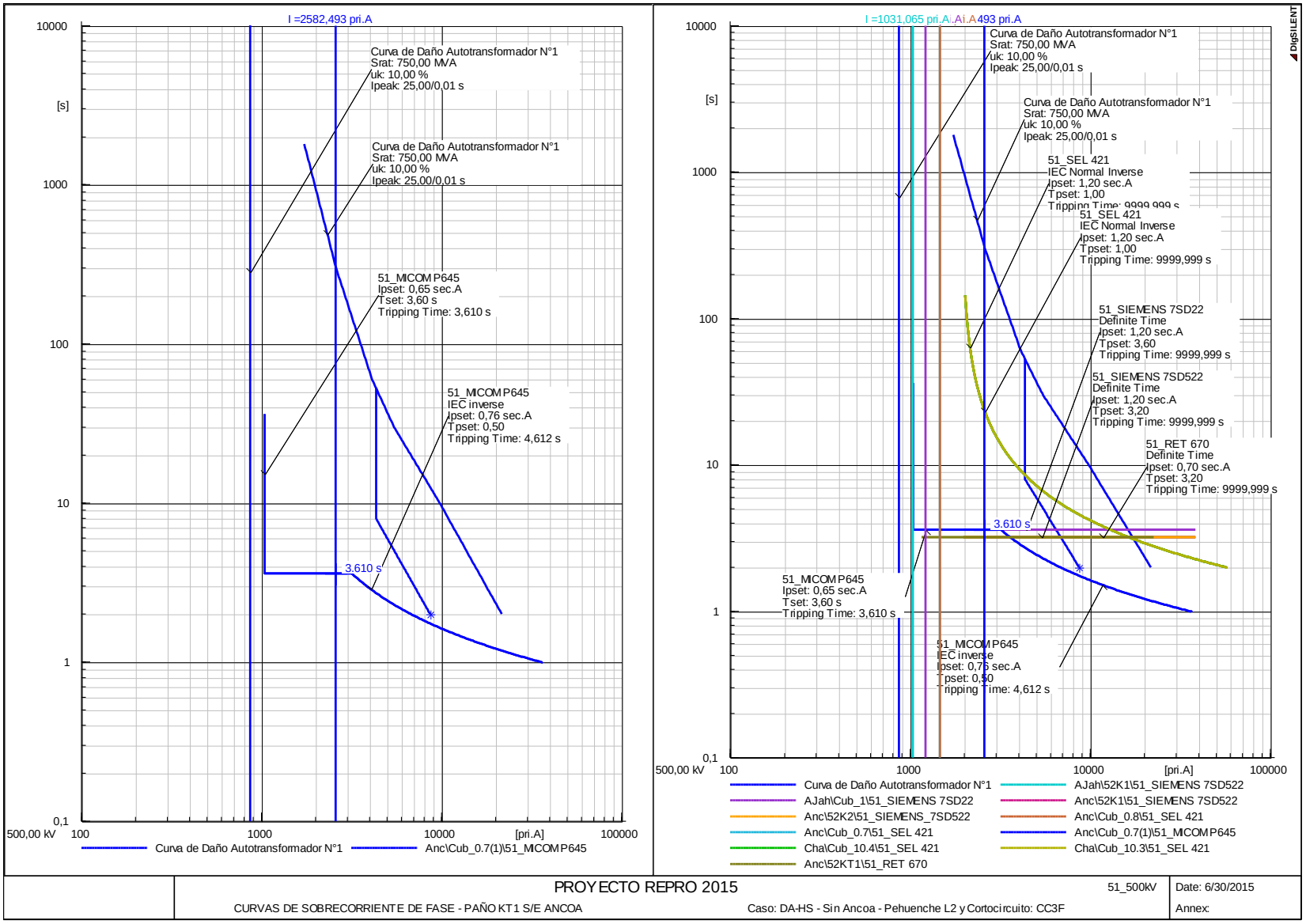
FUNCIÓN 51 LADO DE 500 KV



	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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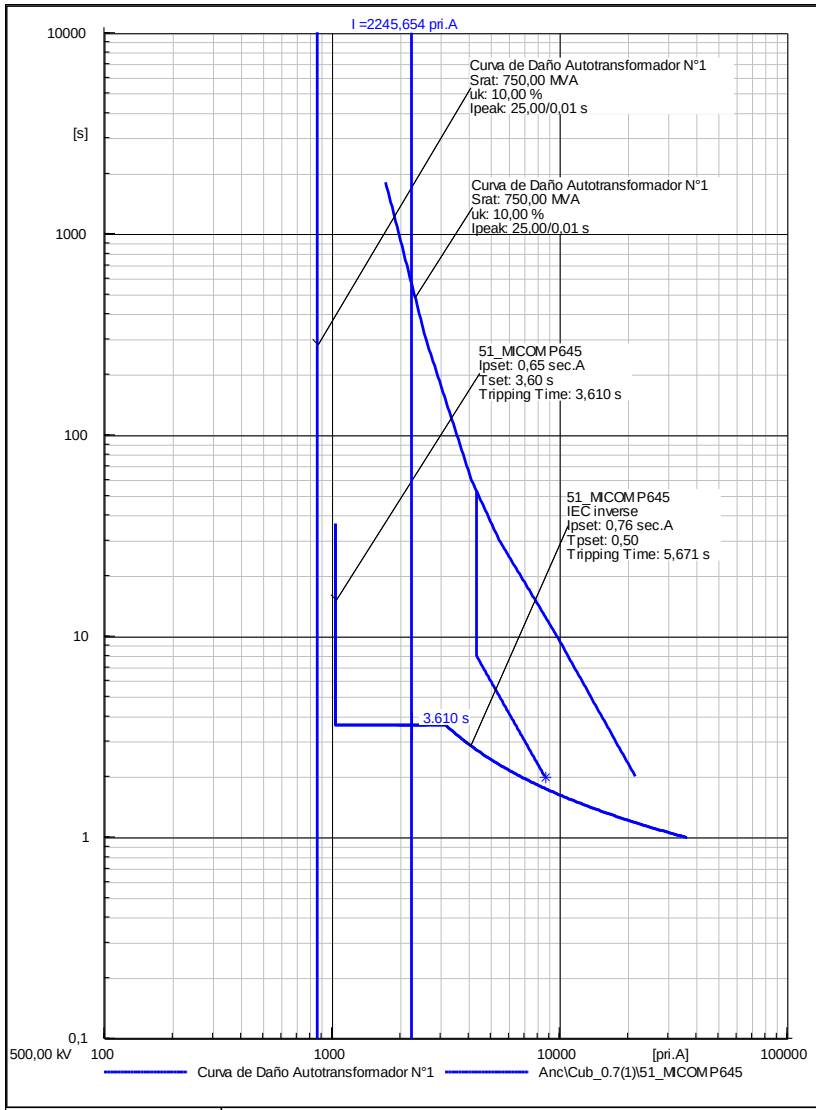

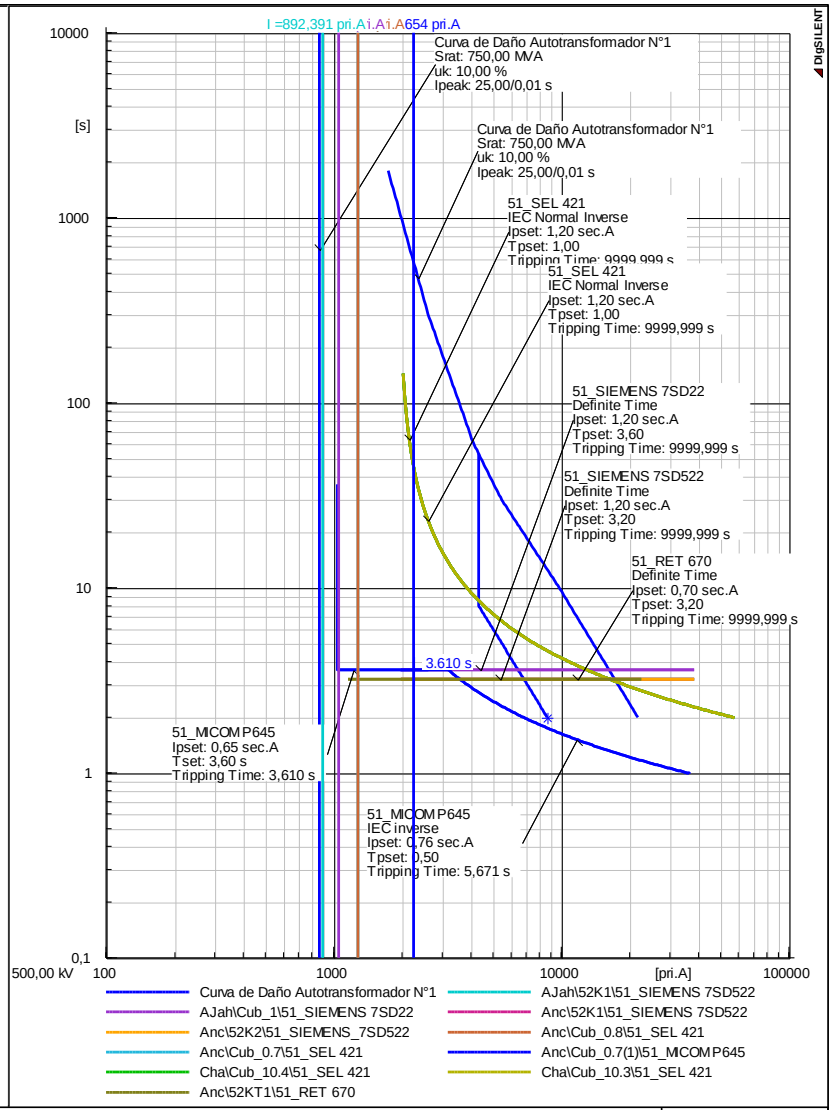

	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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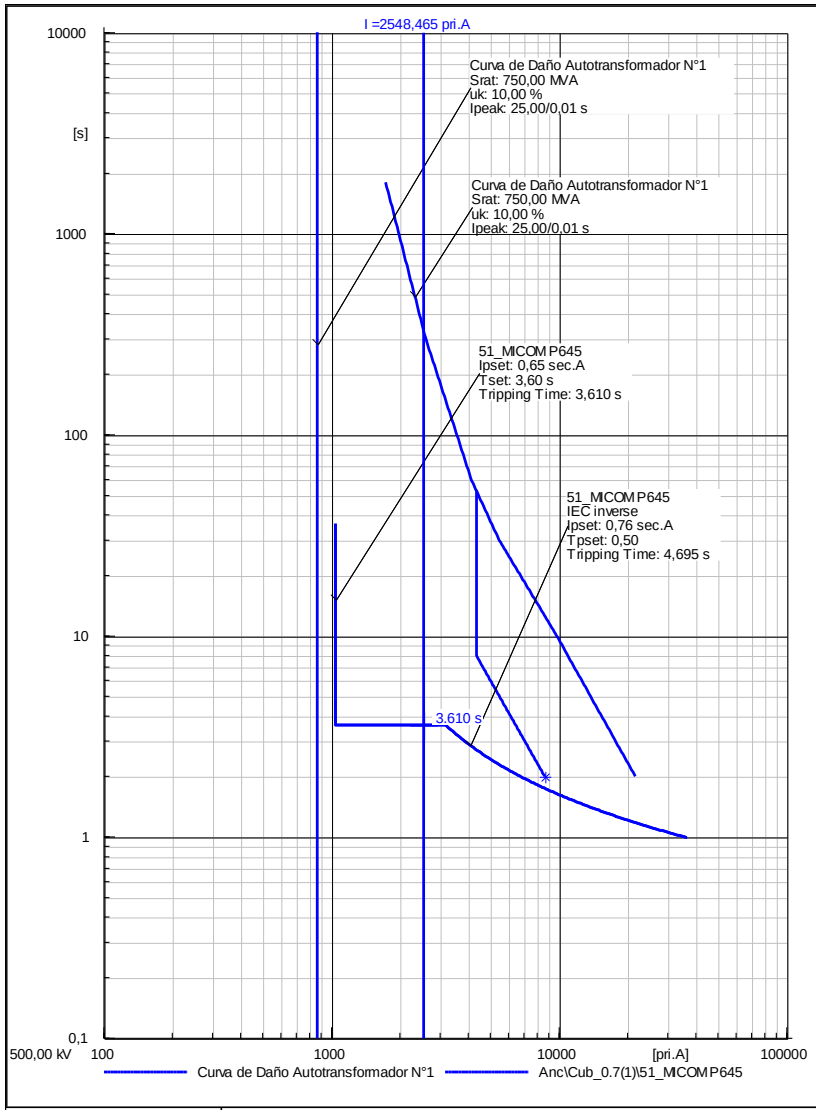

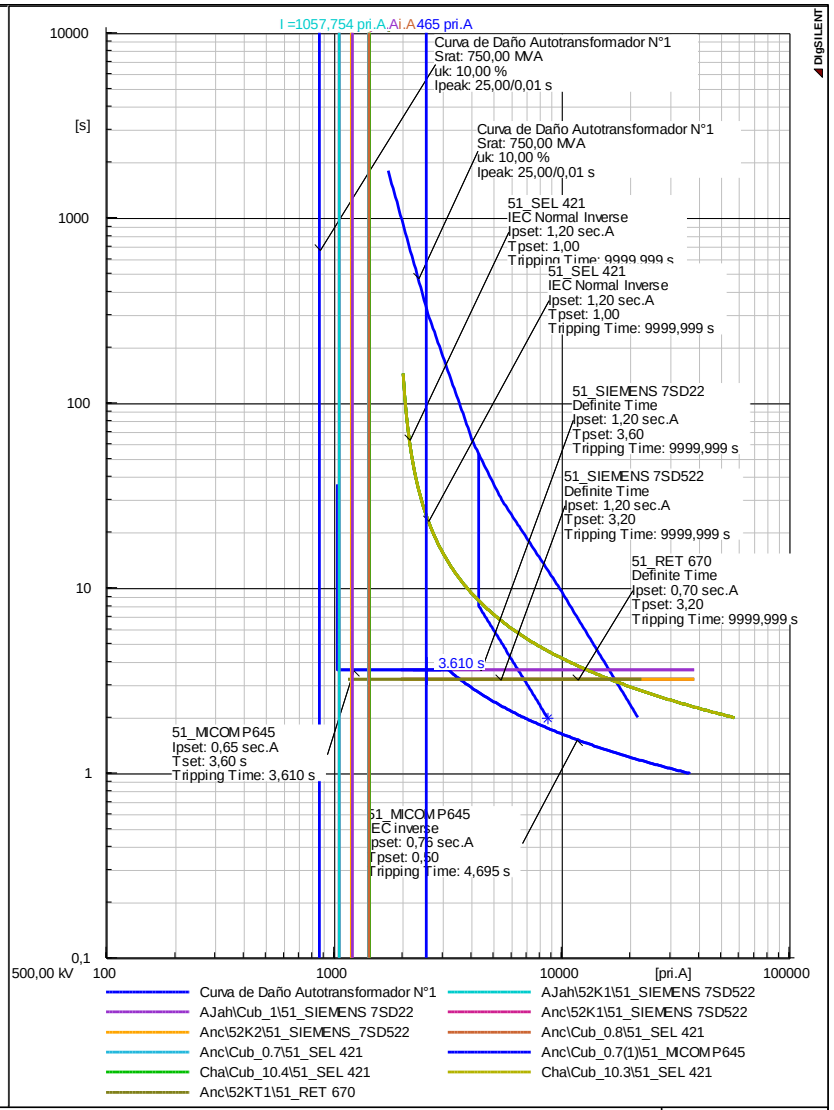

	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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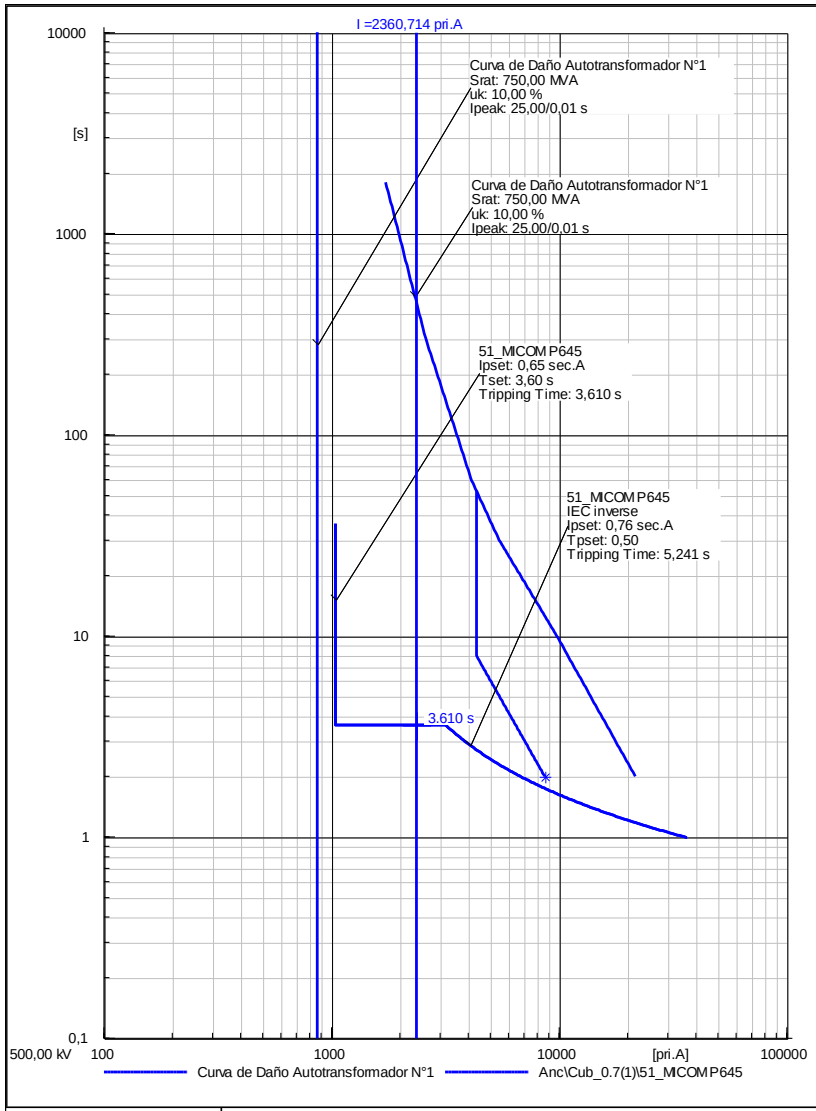
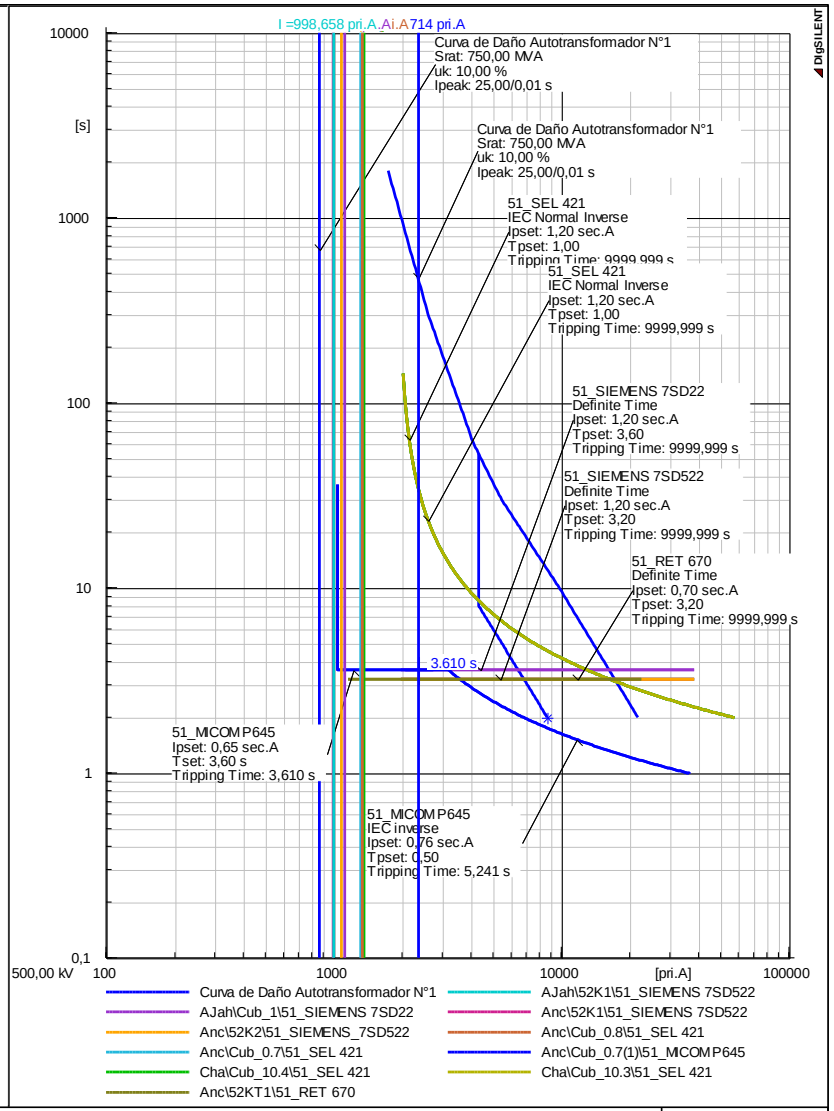
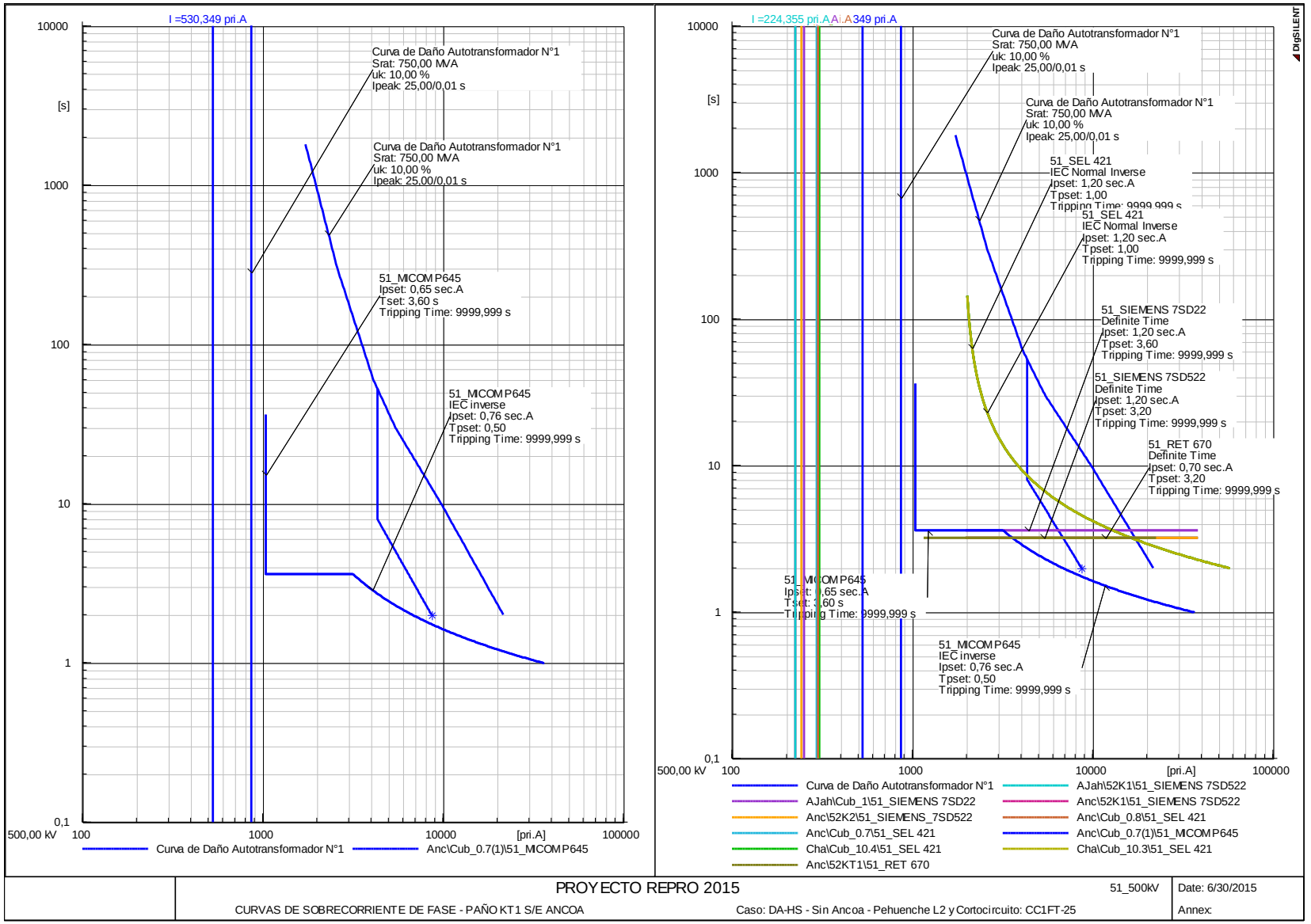




	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:



	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

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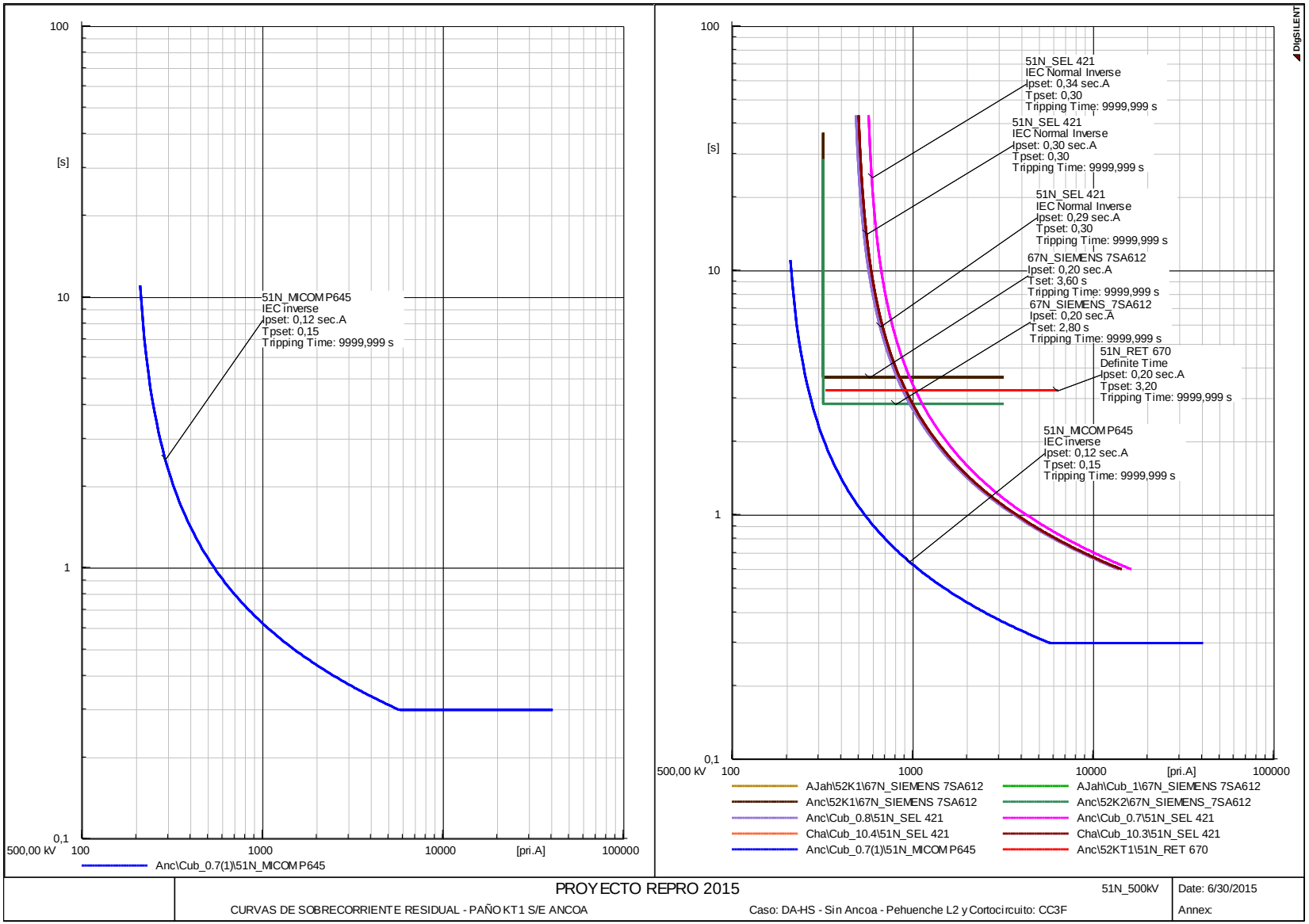
FUNCIÓN 51N LADO DE 500 KV



	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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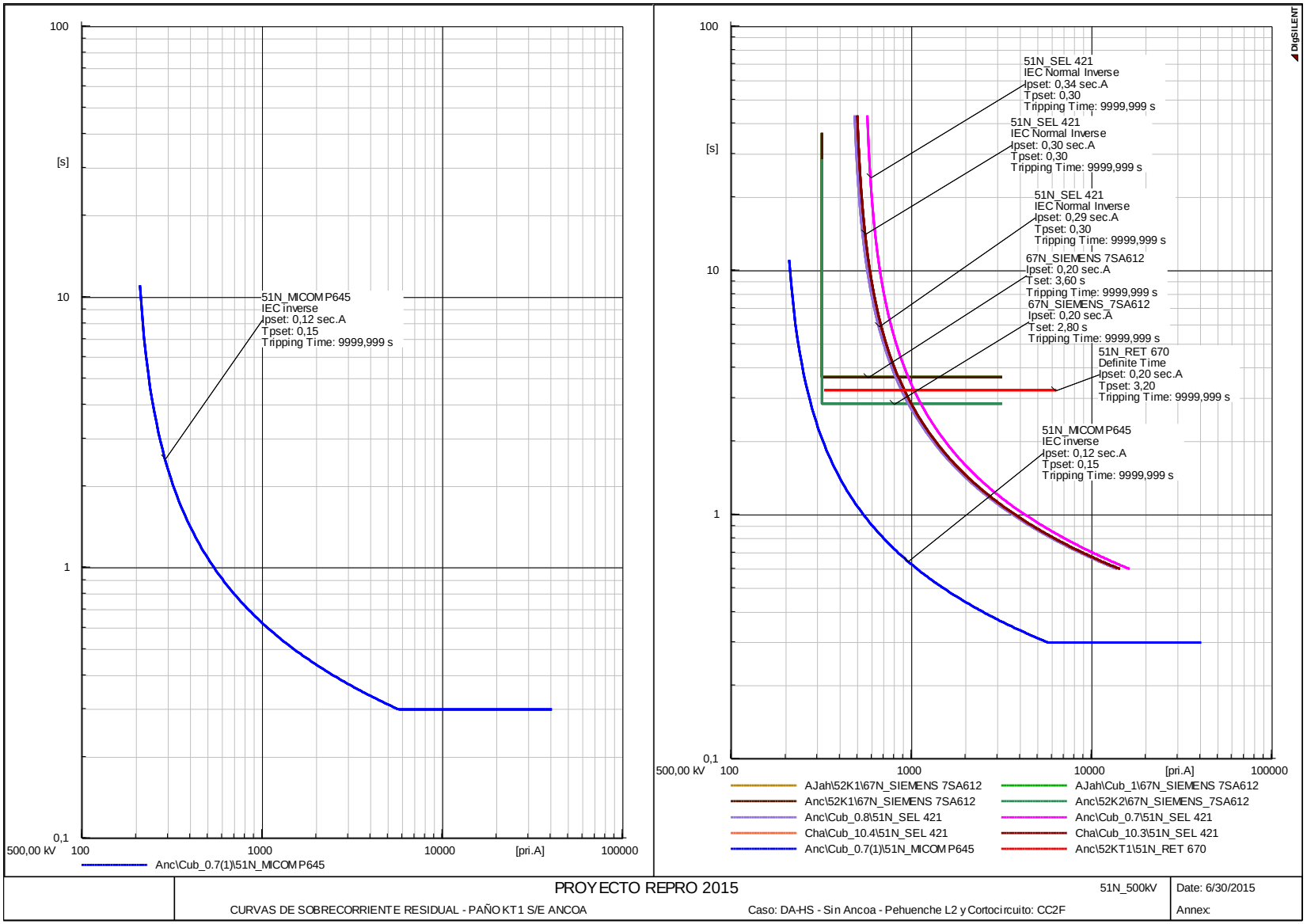

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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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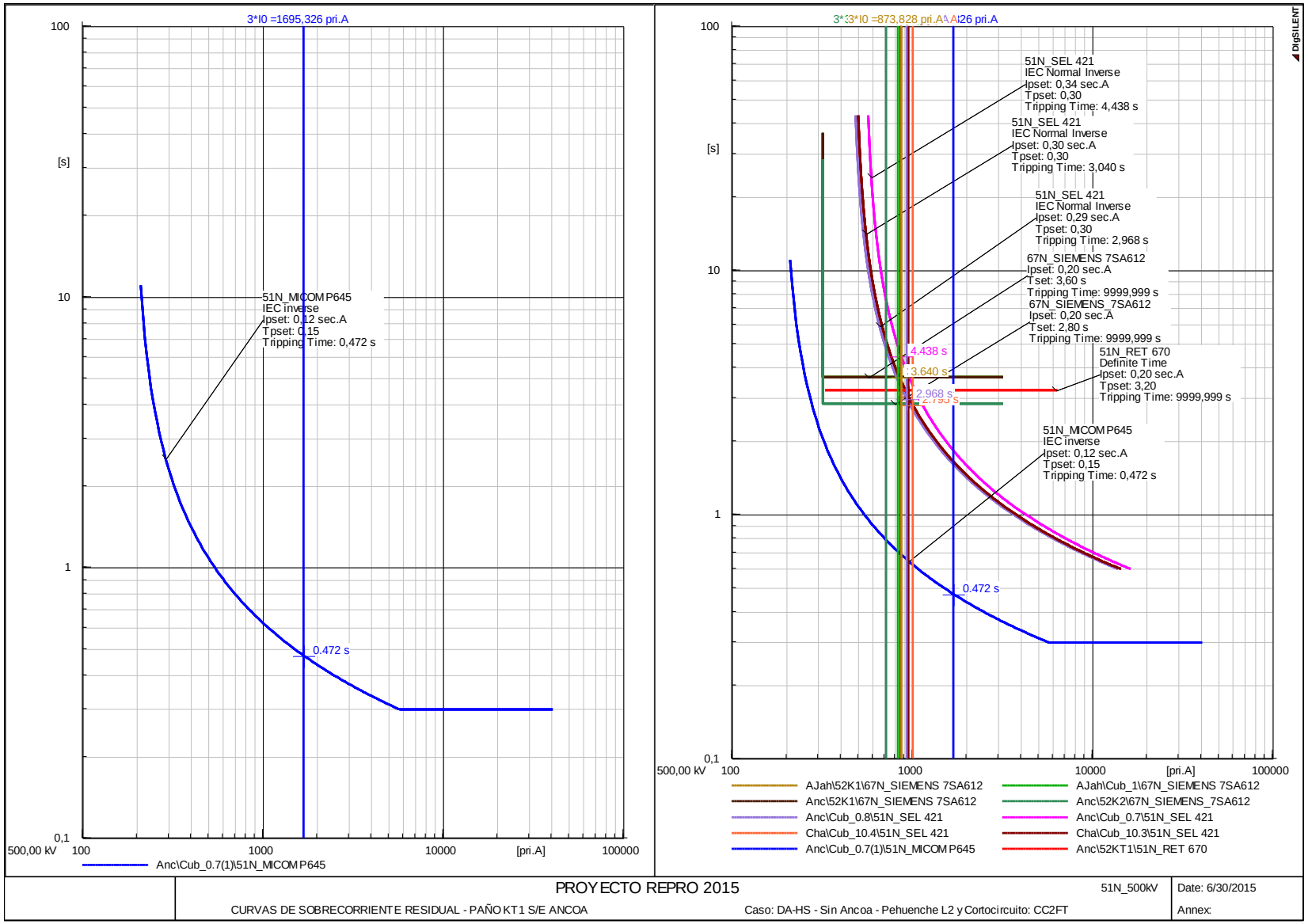

	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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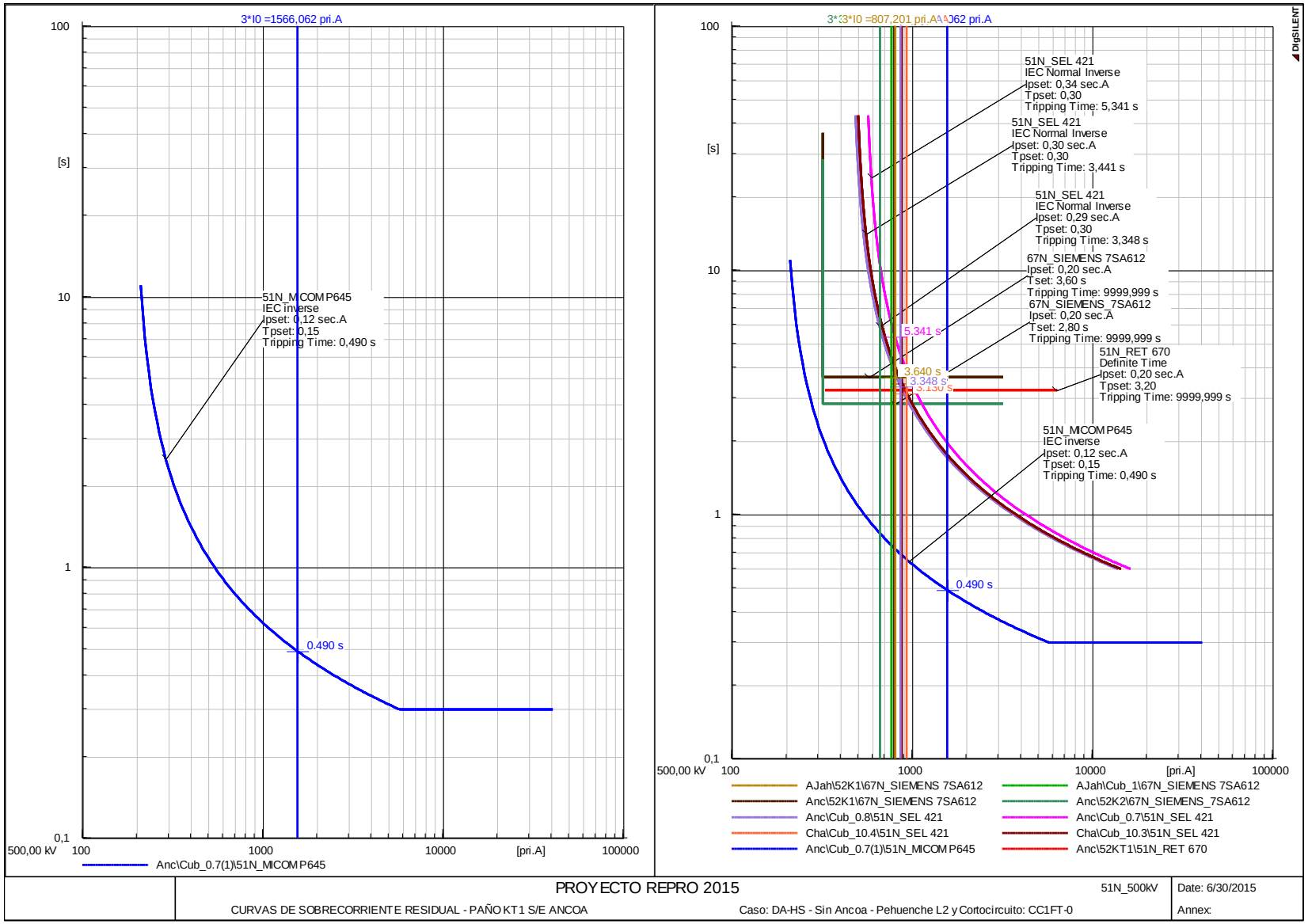

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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:

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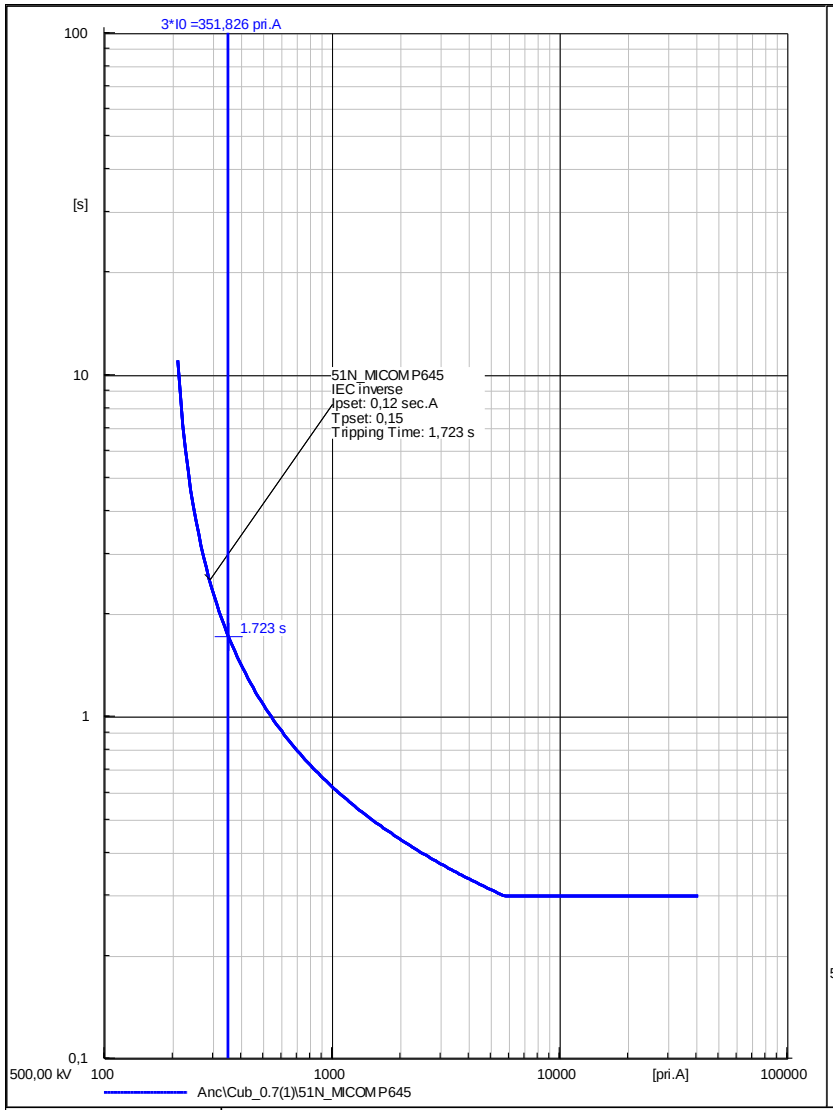

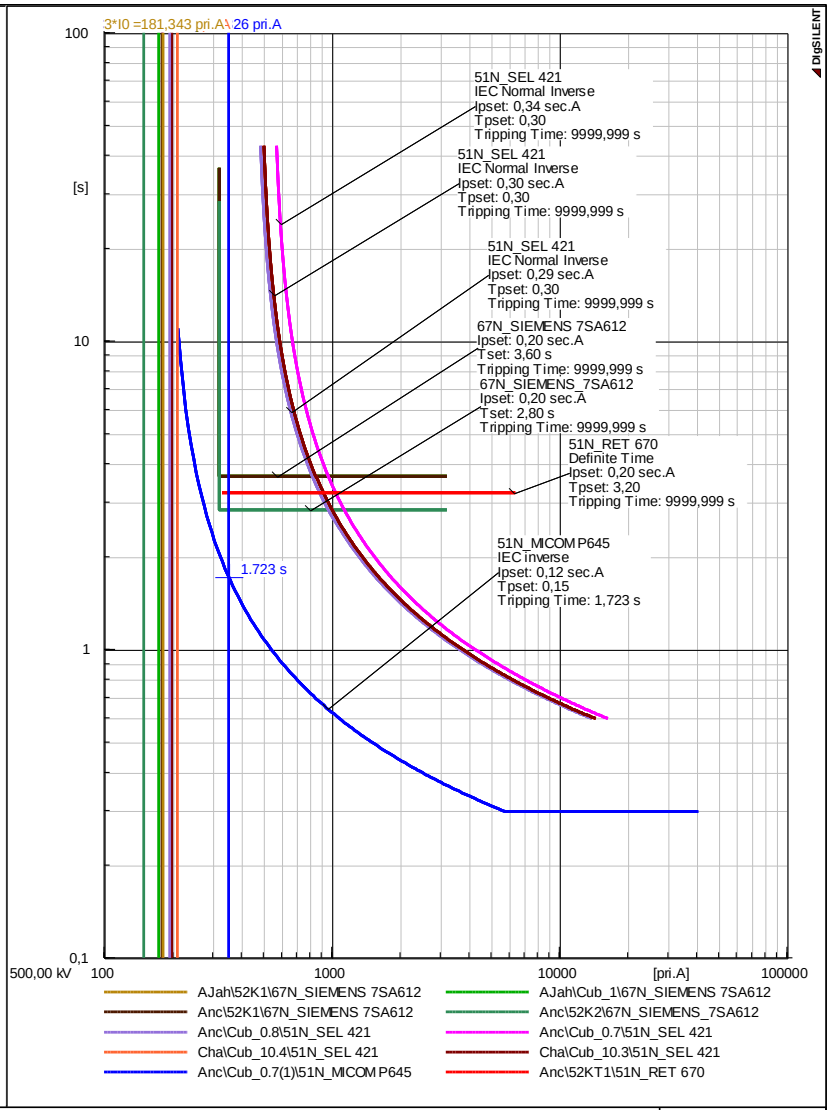

	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

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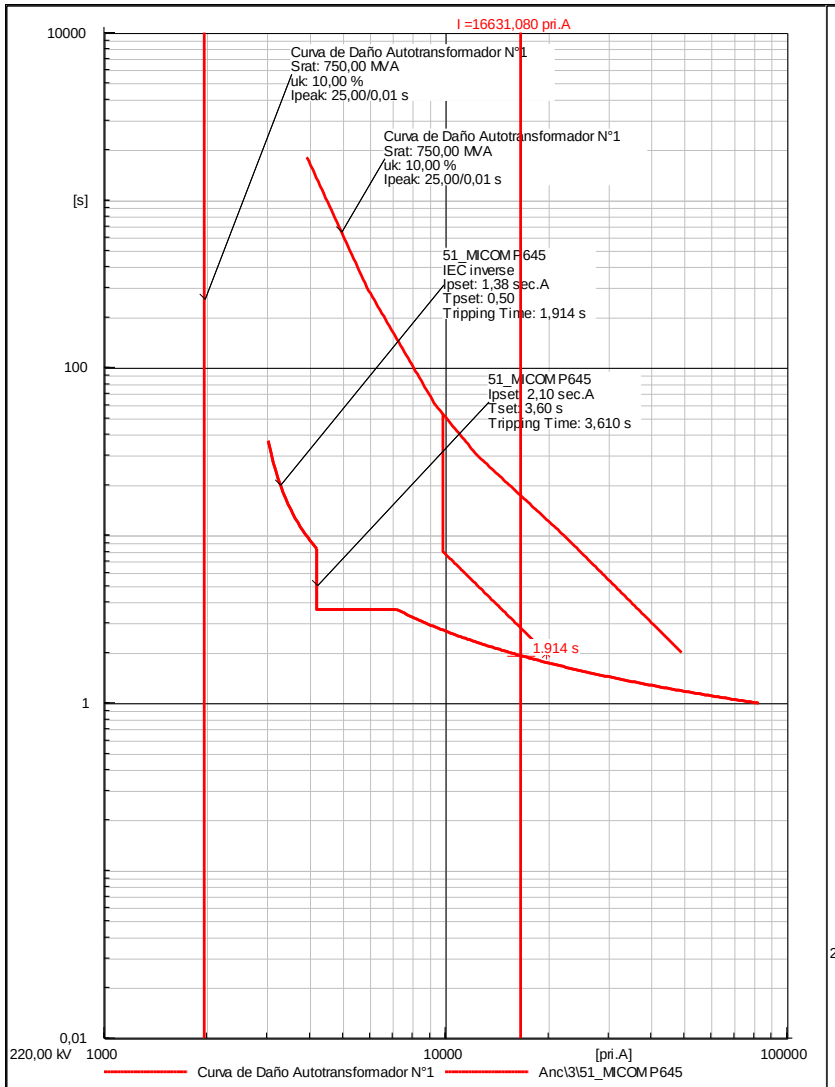
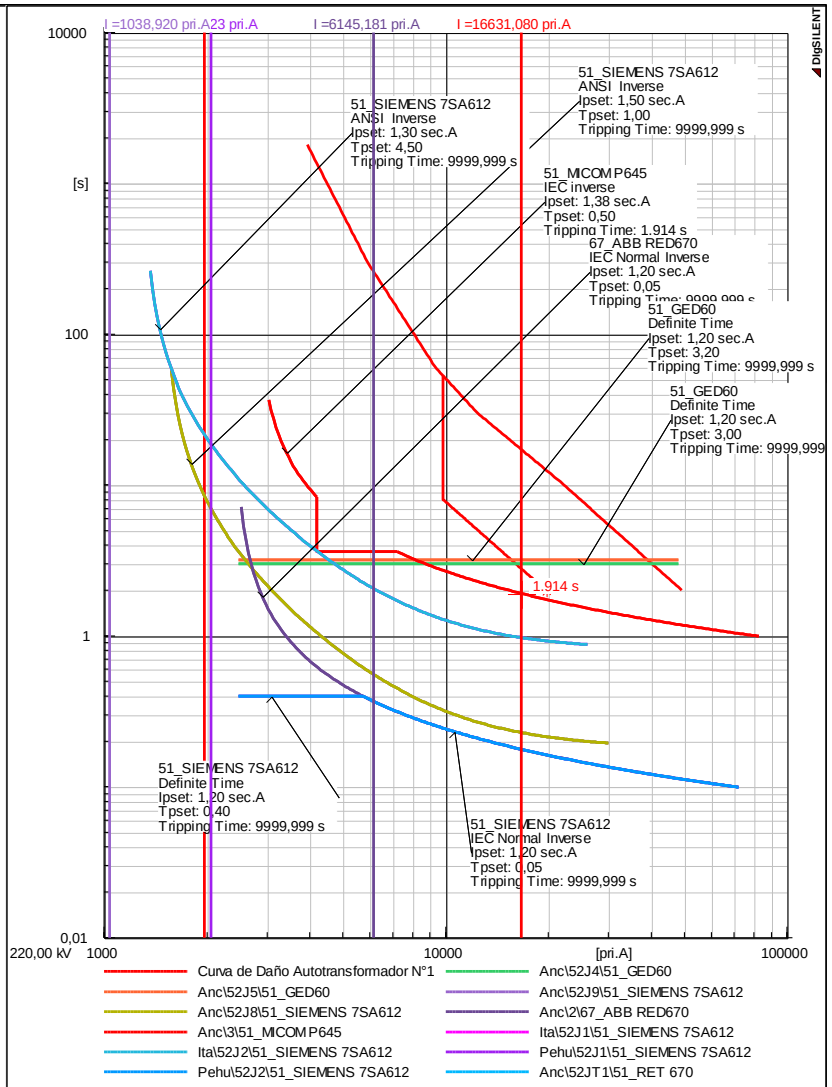
FALLA EN EL TERMINAL DE 230 KV DEL AUTOTRANSFORMADOR N°1

FUNCIÓN 51 LADO DE 220 KV





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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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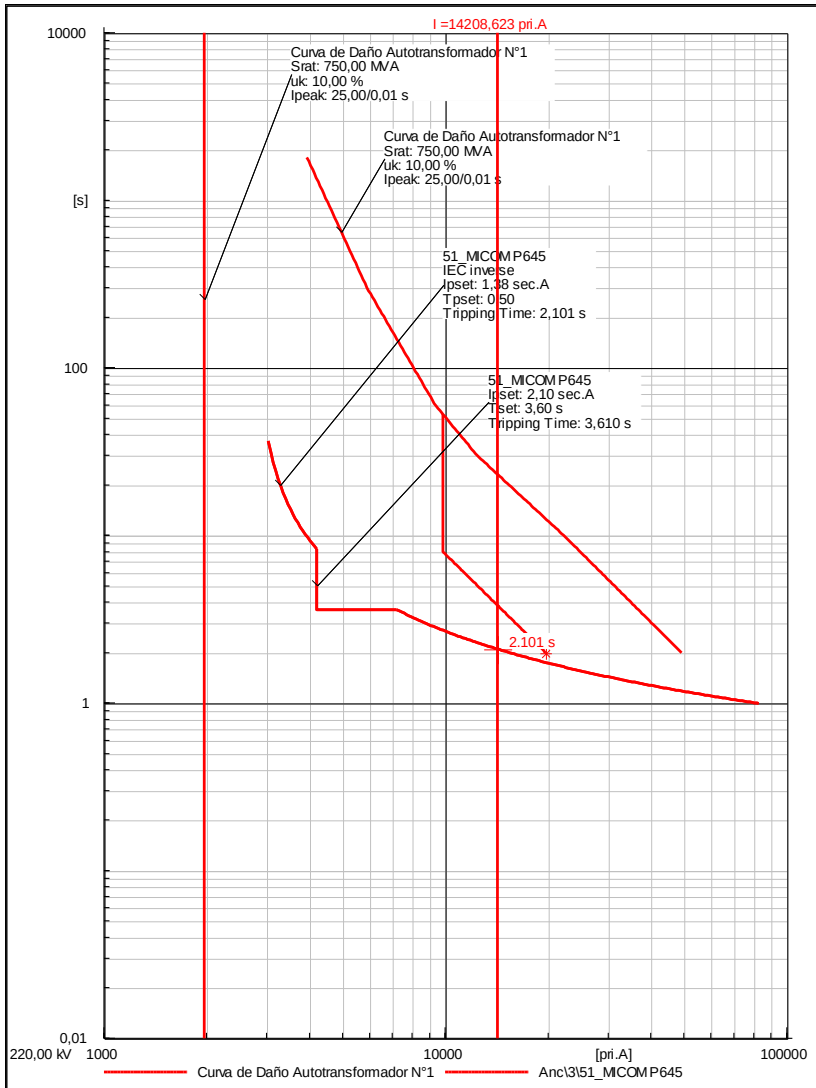

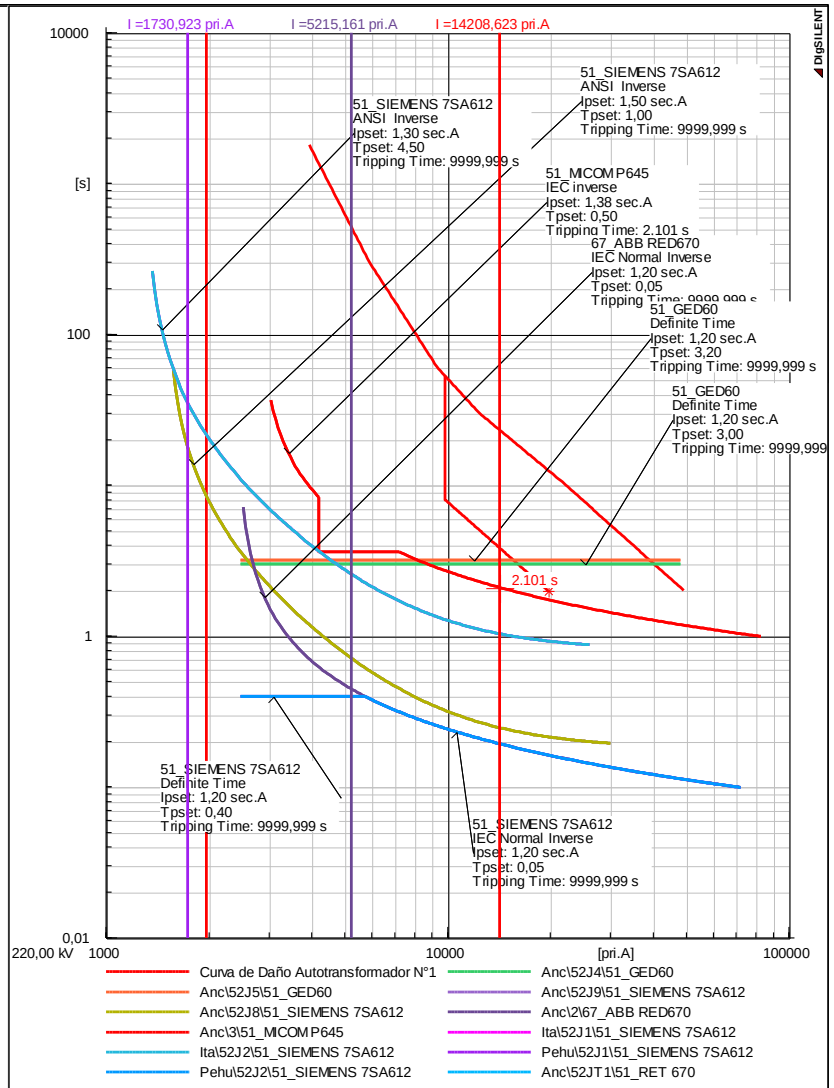

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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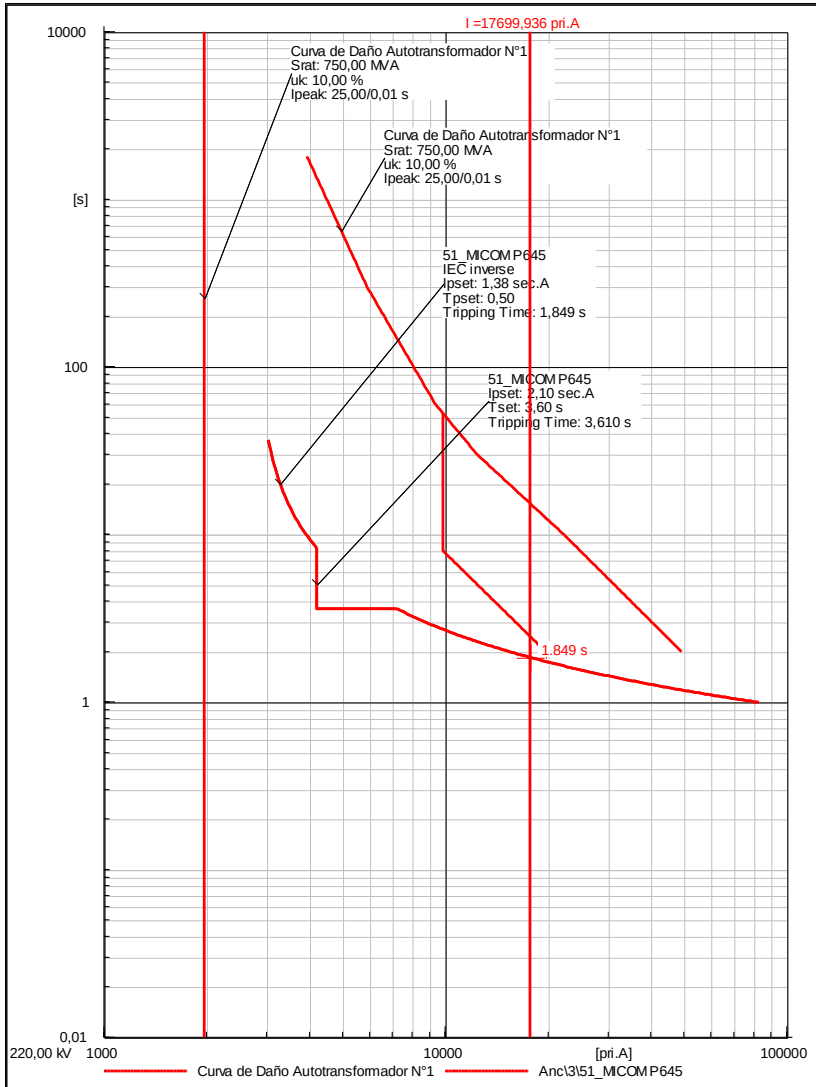

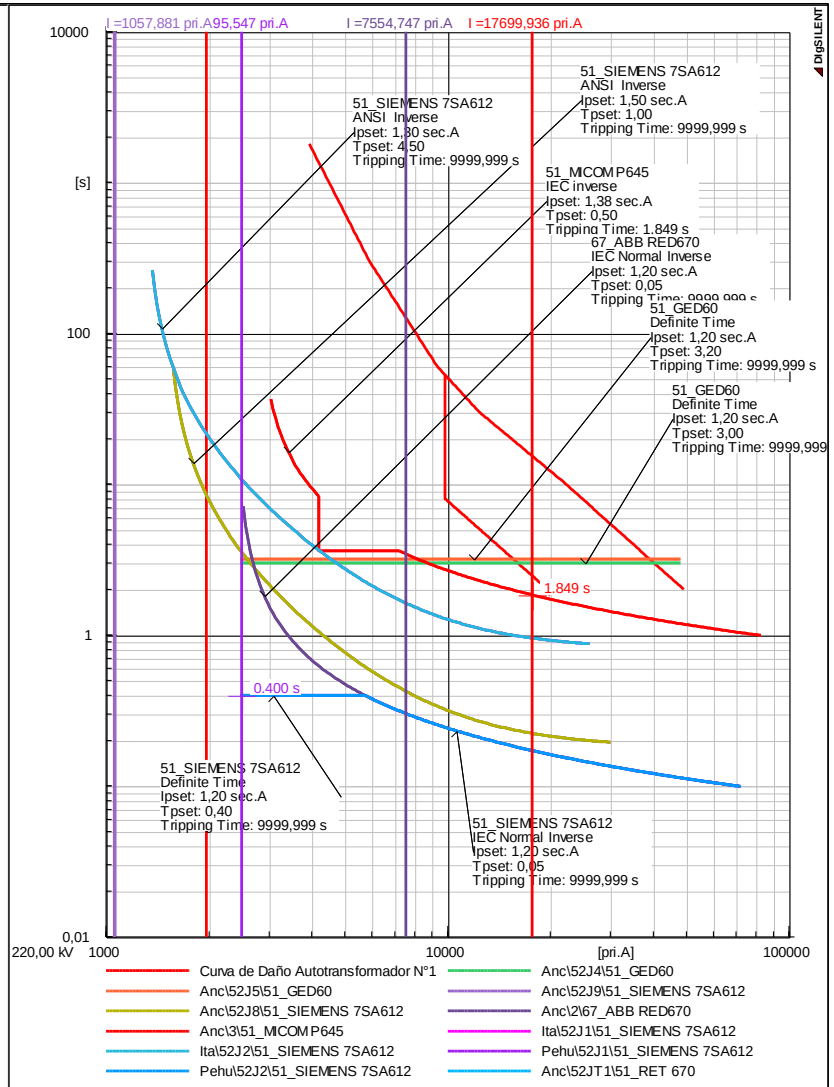

	PROYECTO REPRO 2015	51_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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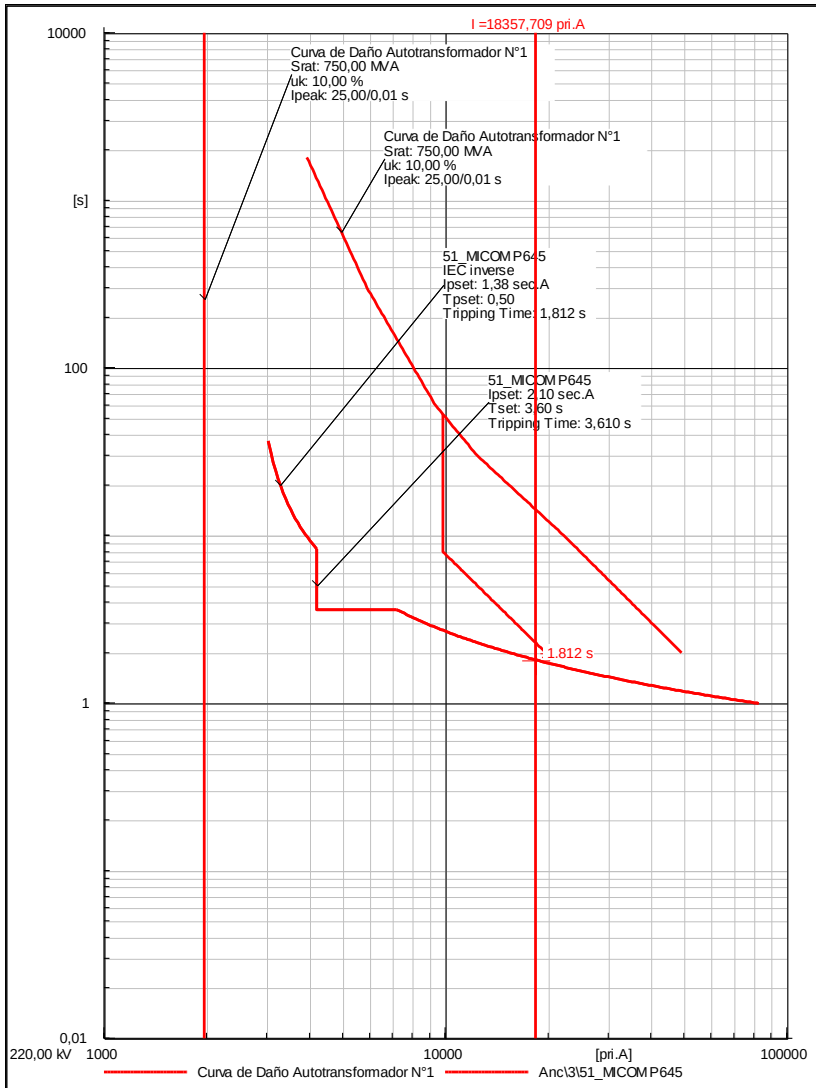

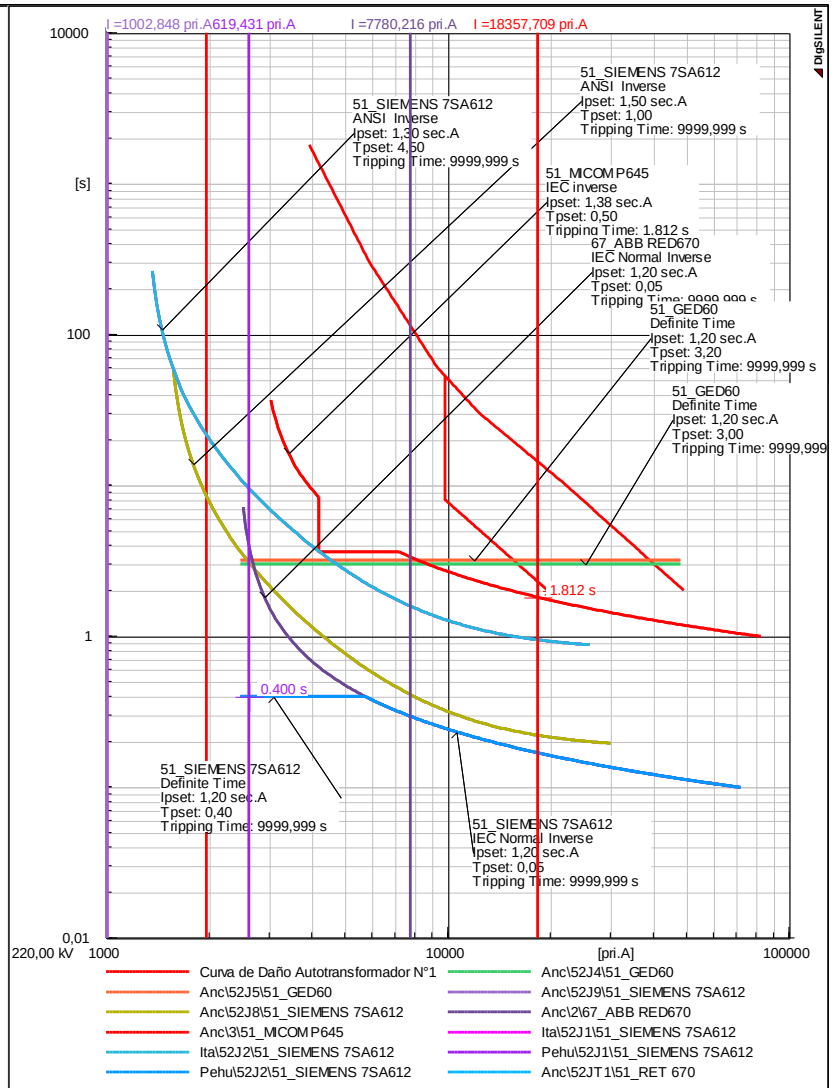

	PROYECTO REPRO 2015	51_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:

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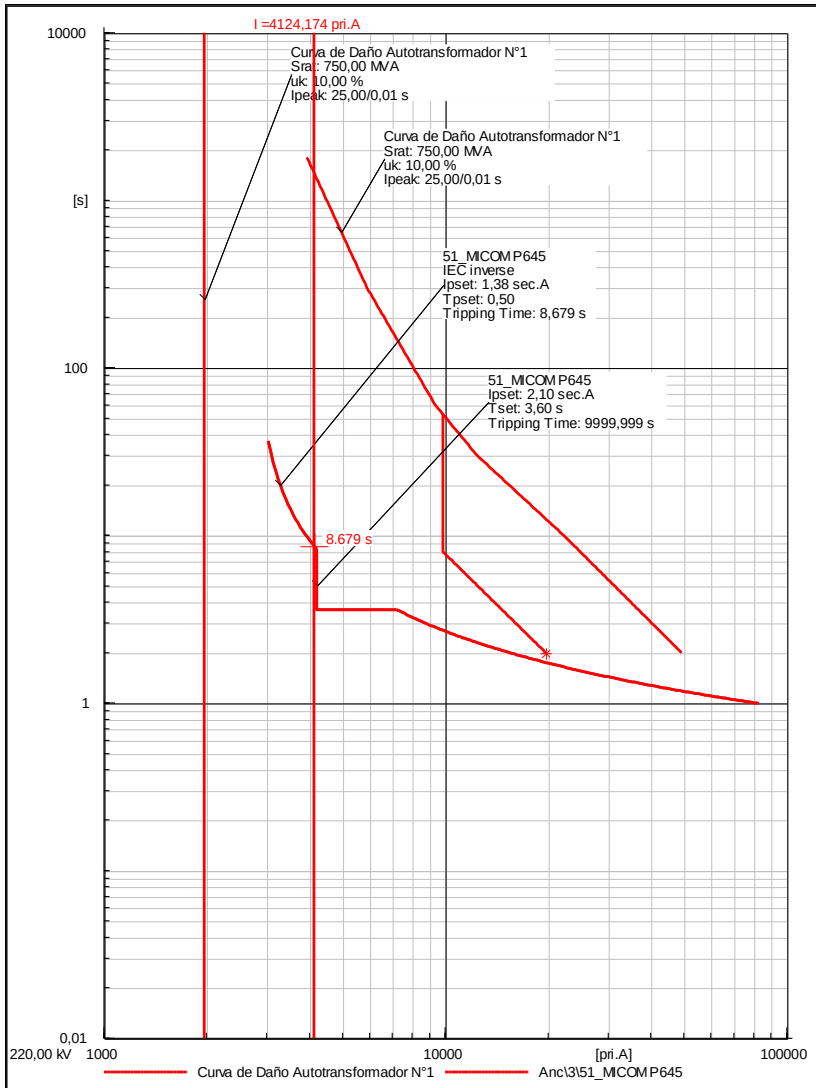

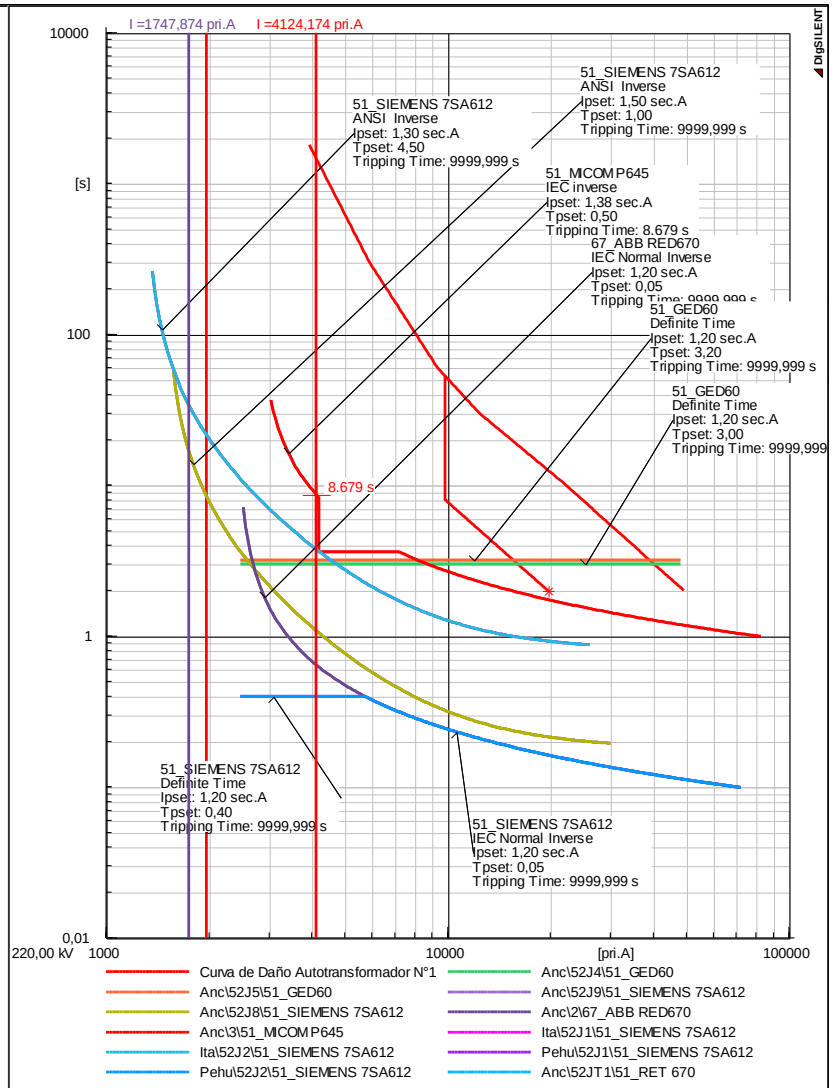

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

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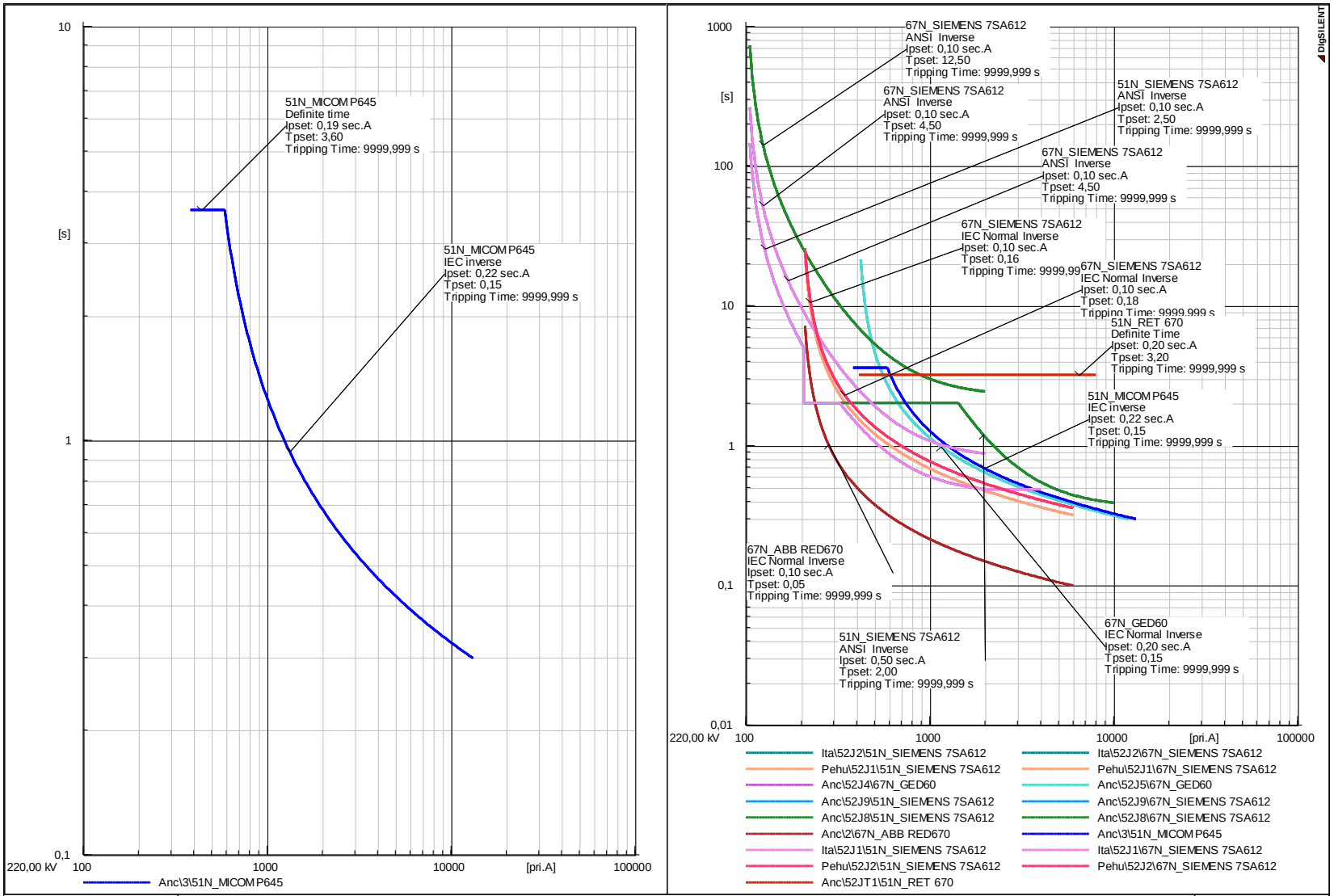
FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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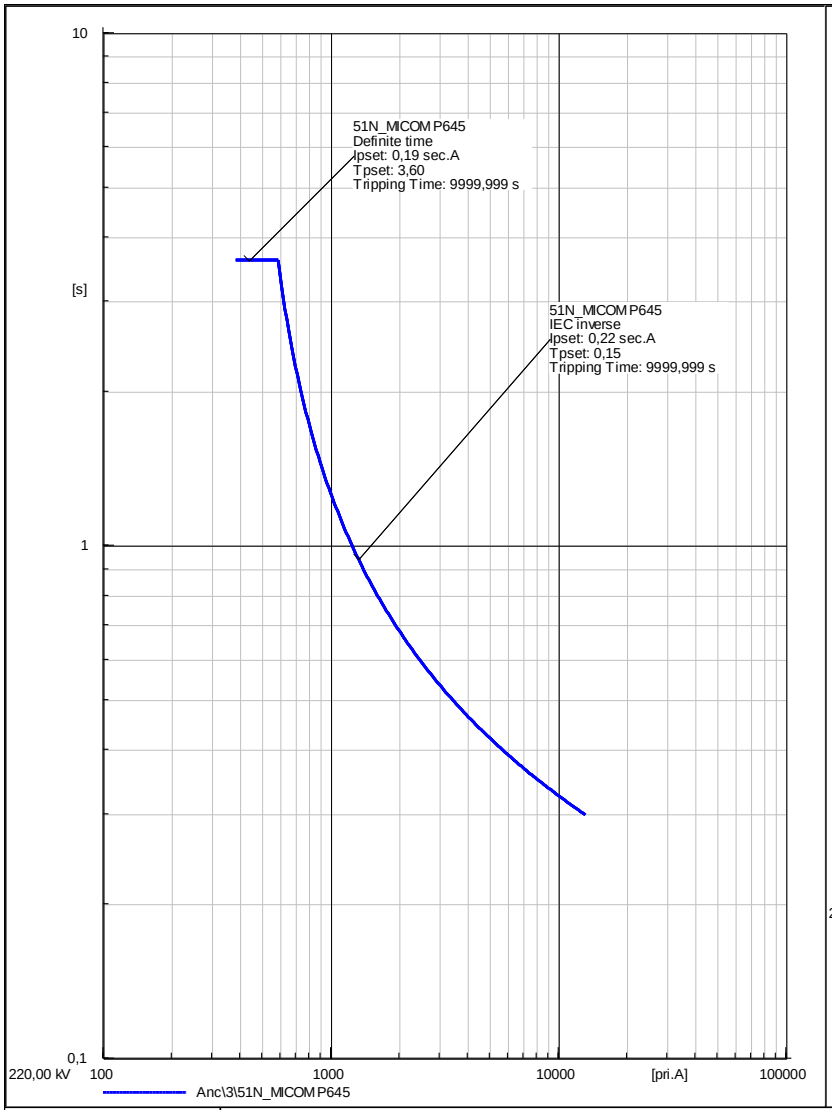

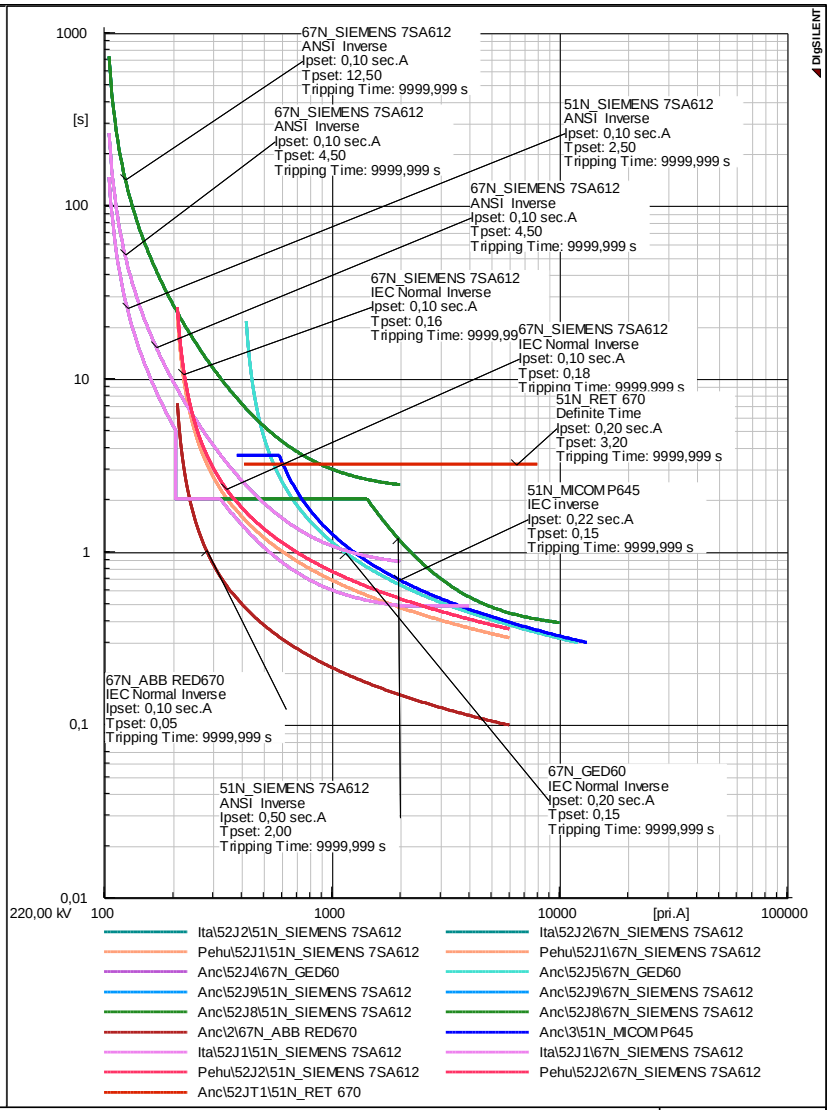

	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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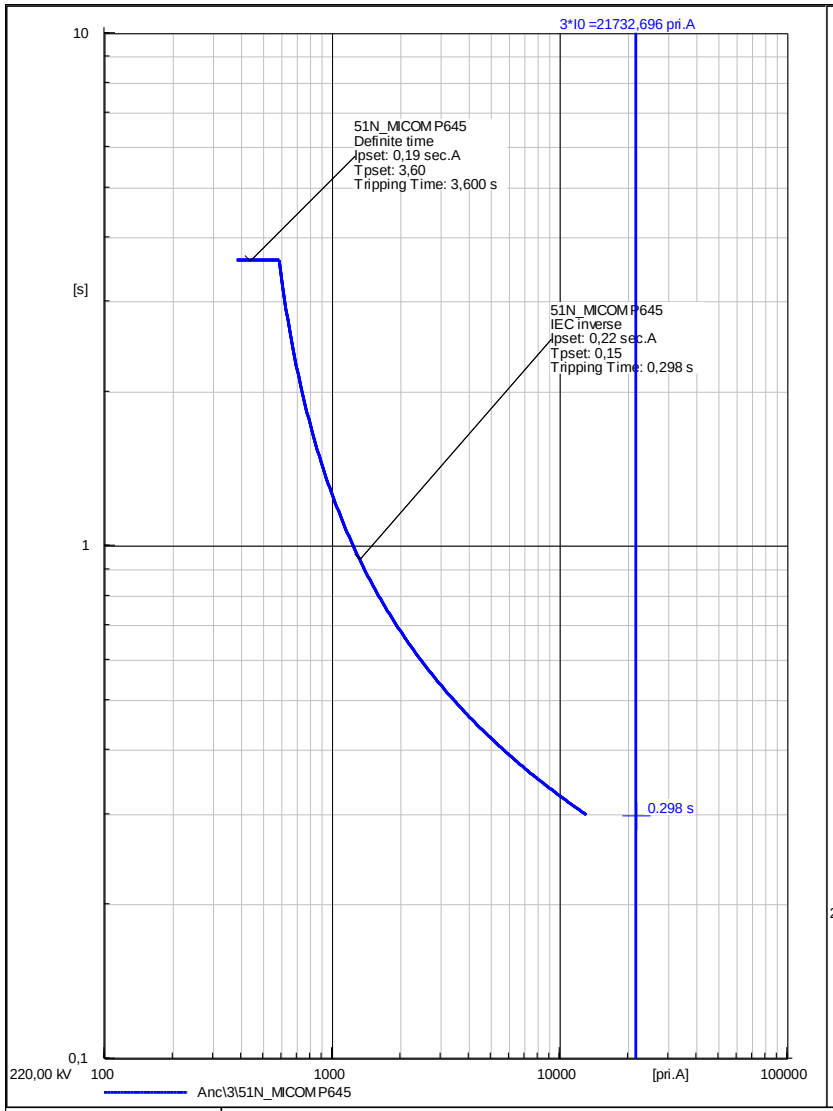

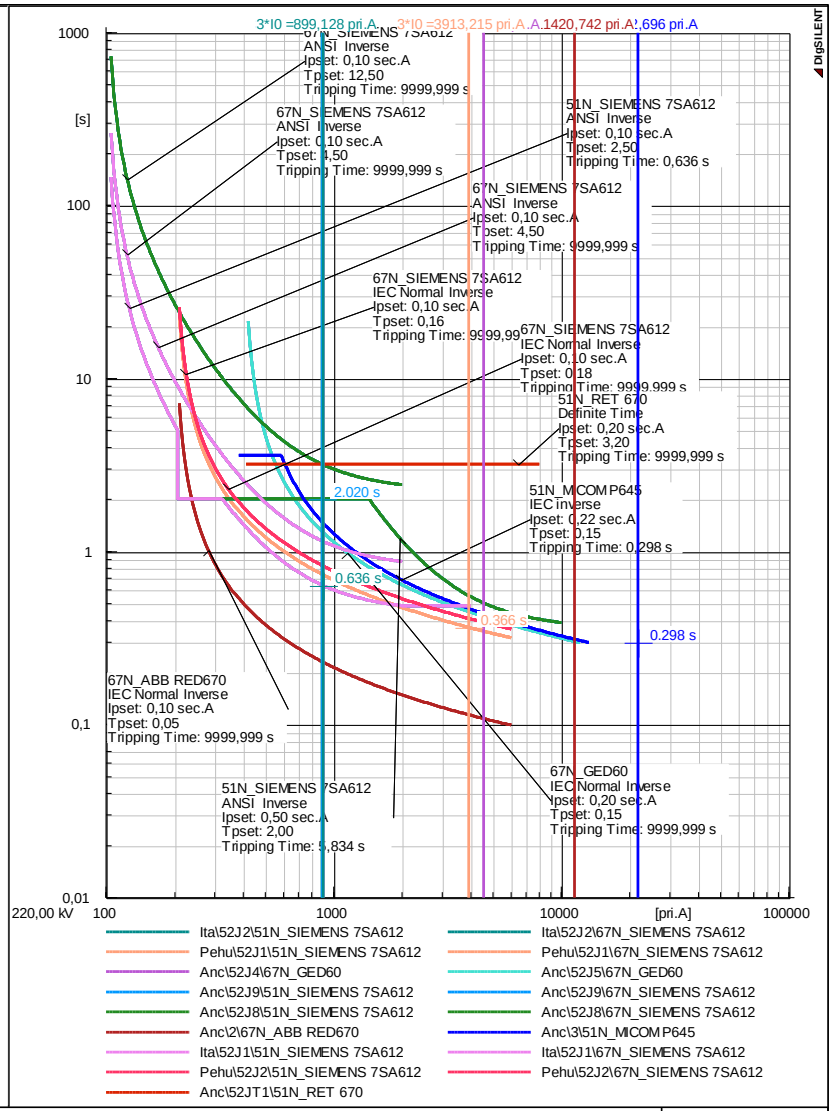

	PROYECTO REPRO 2015	51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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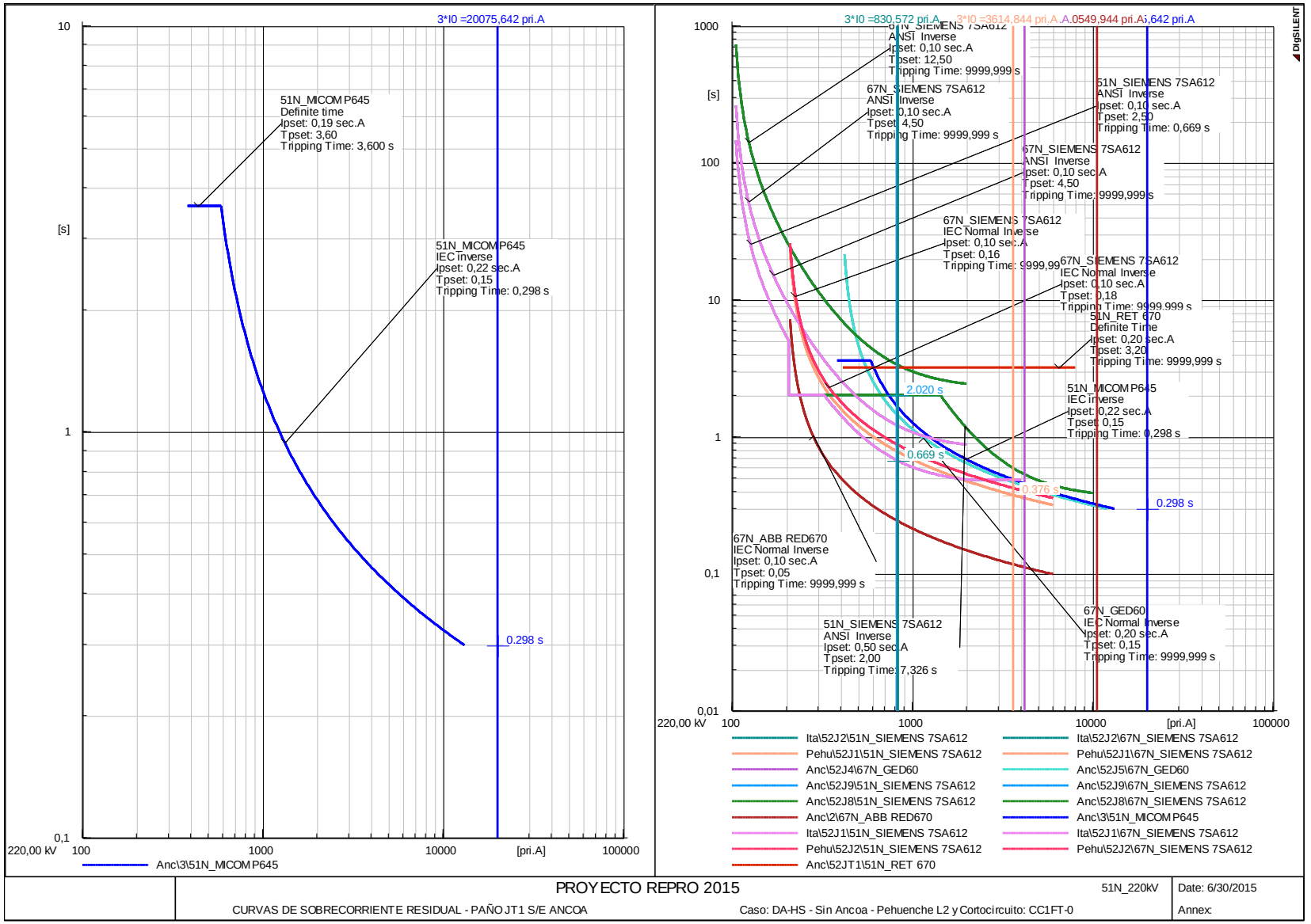

	PROYECTO REPRO 2015		51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0		Annex:

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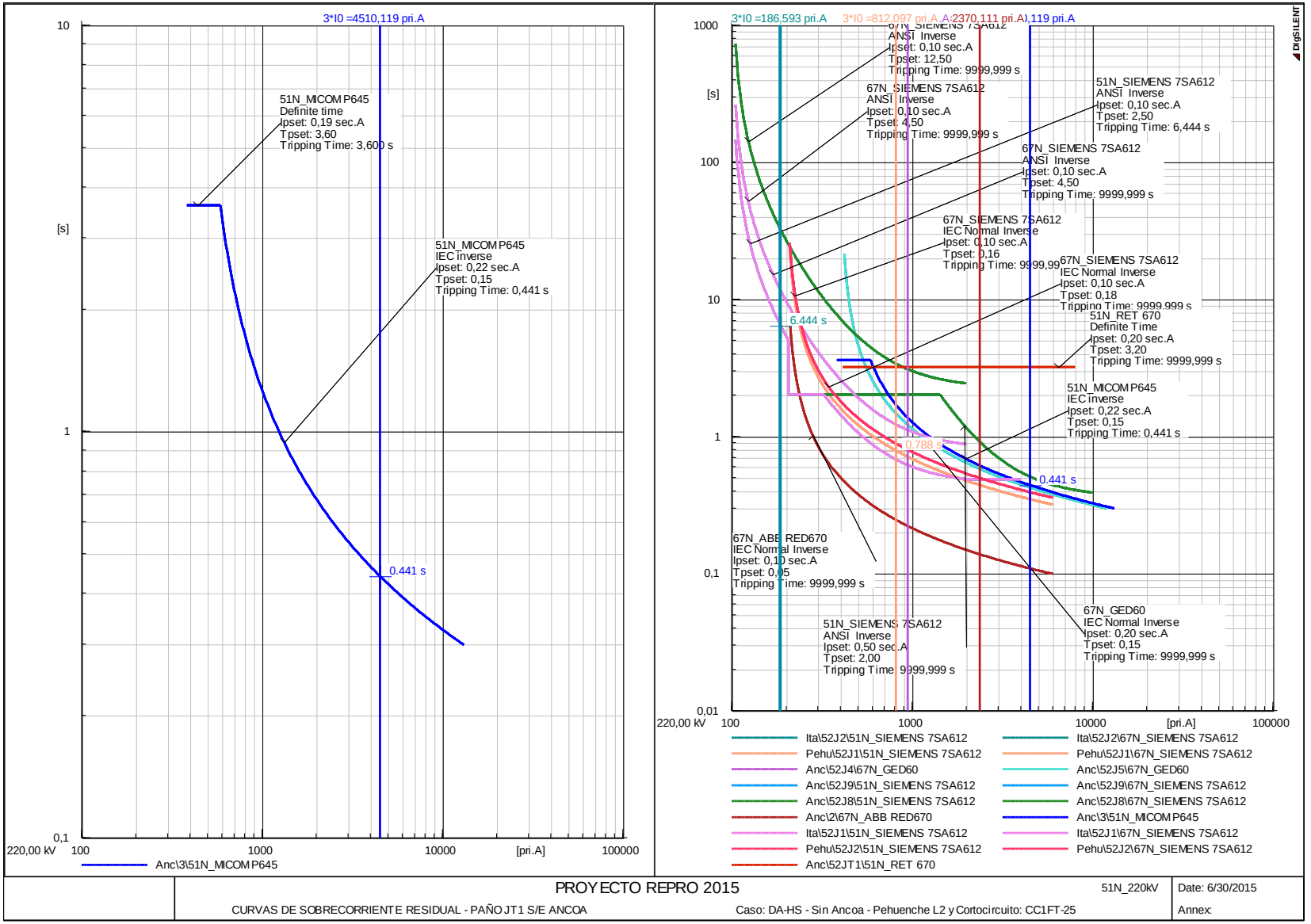

	PROYECTO REPRO 2015		51N_220kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25		Annex:

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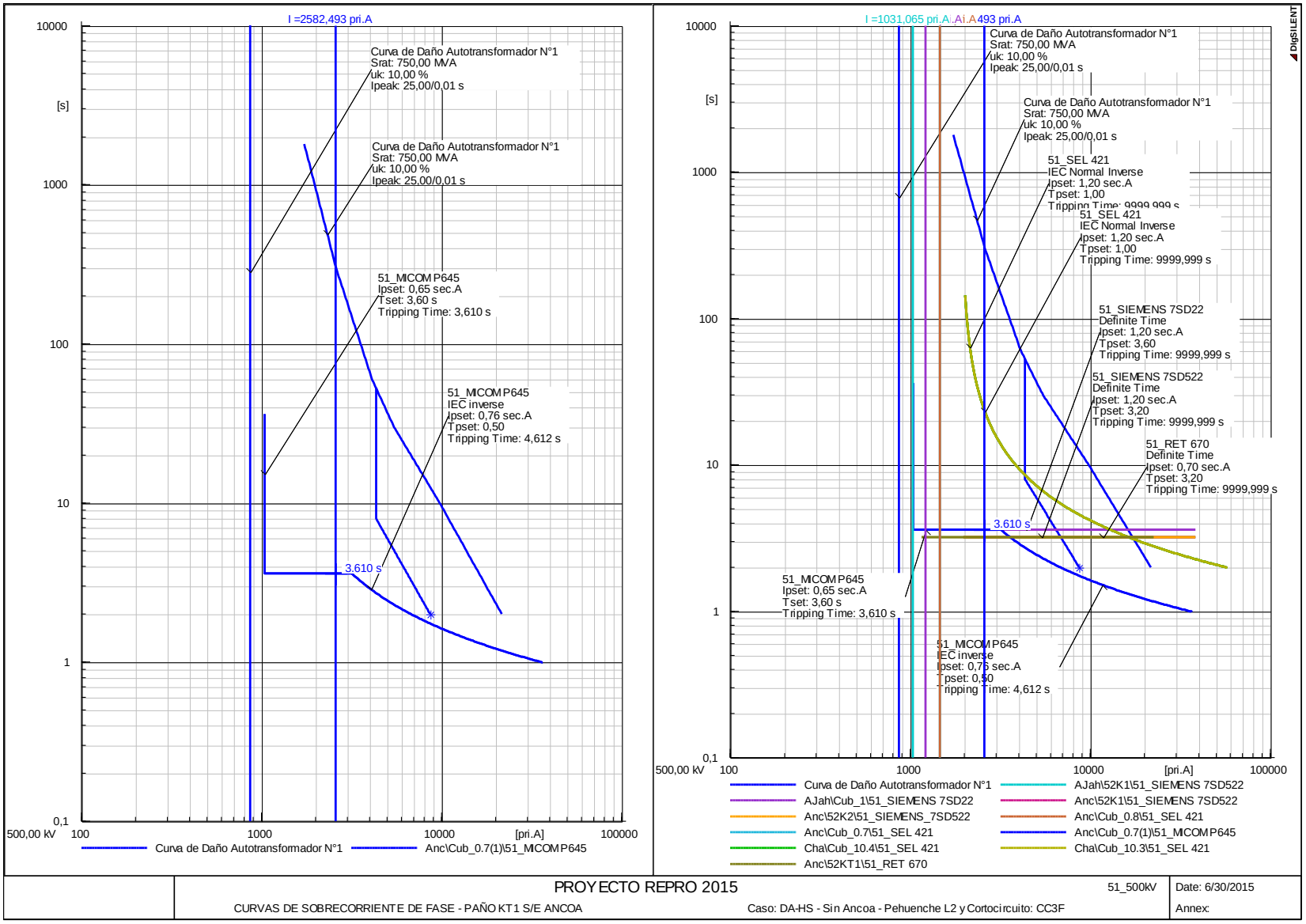
FUNCIÓN 51 LADO DE 500 KV



	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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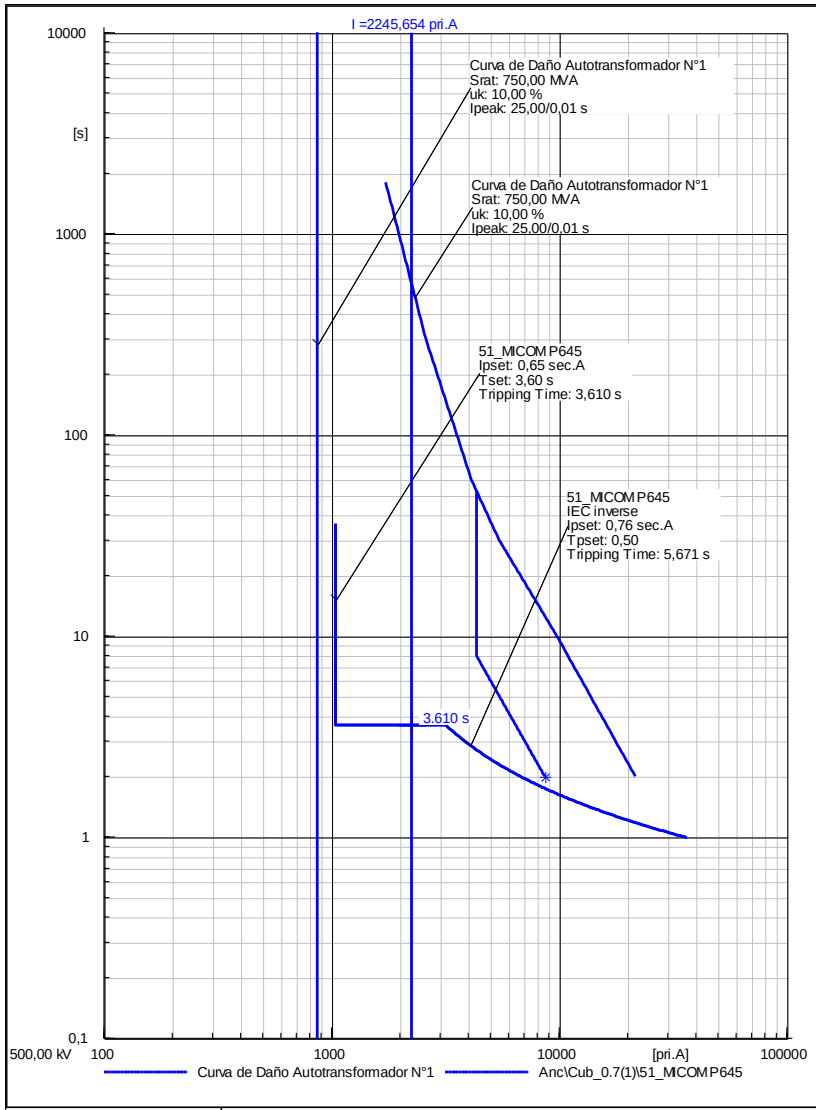

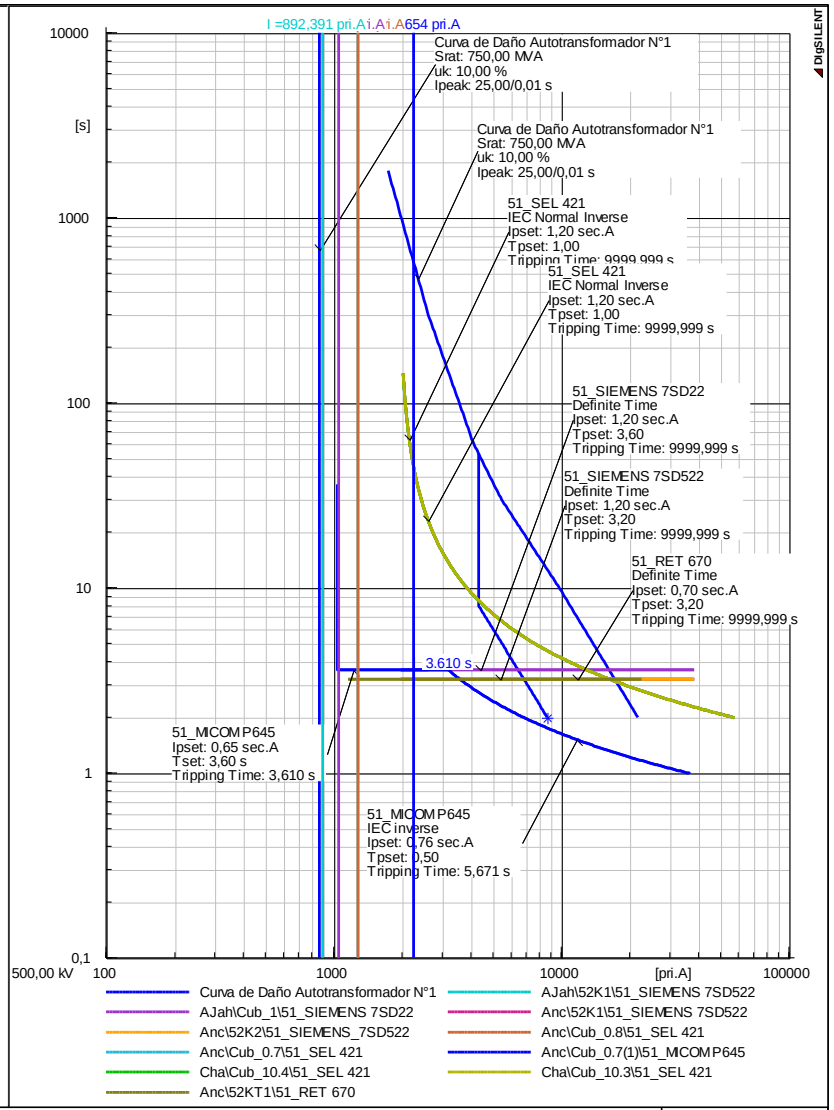

	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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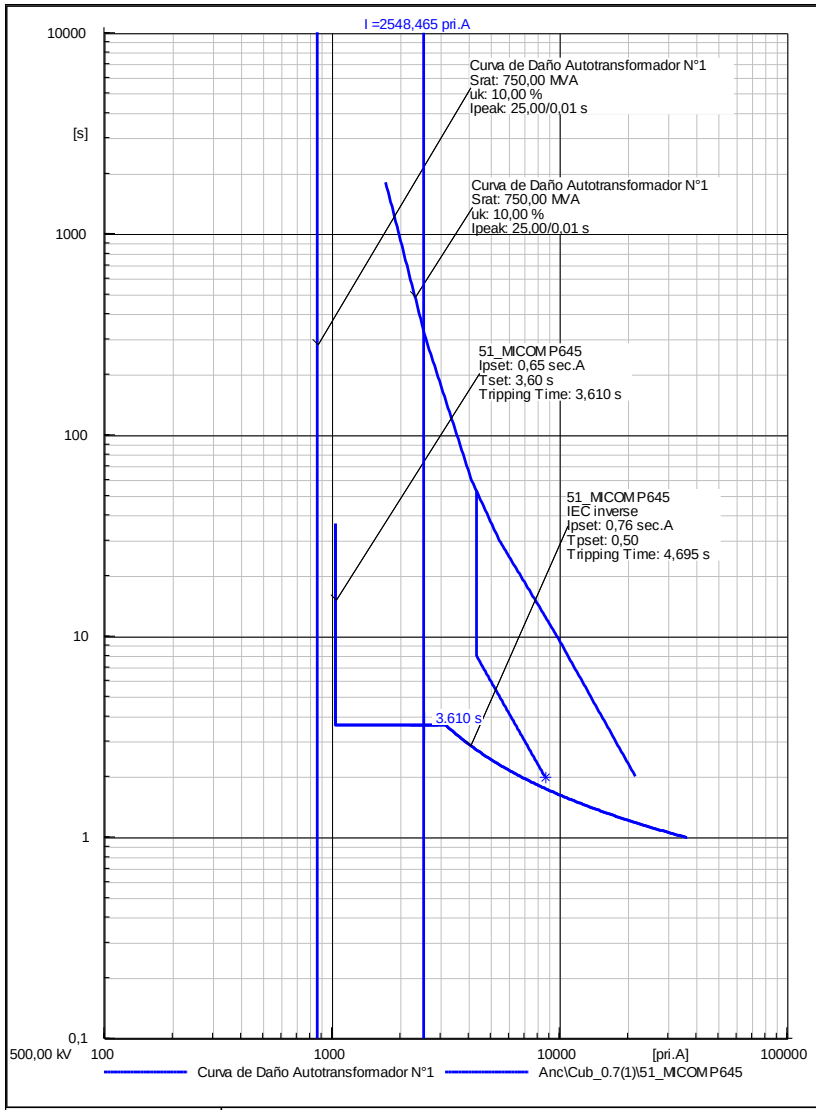

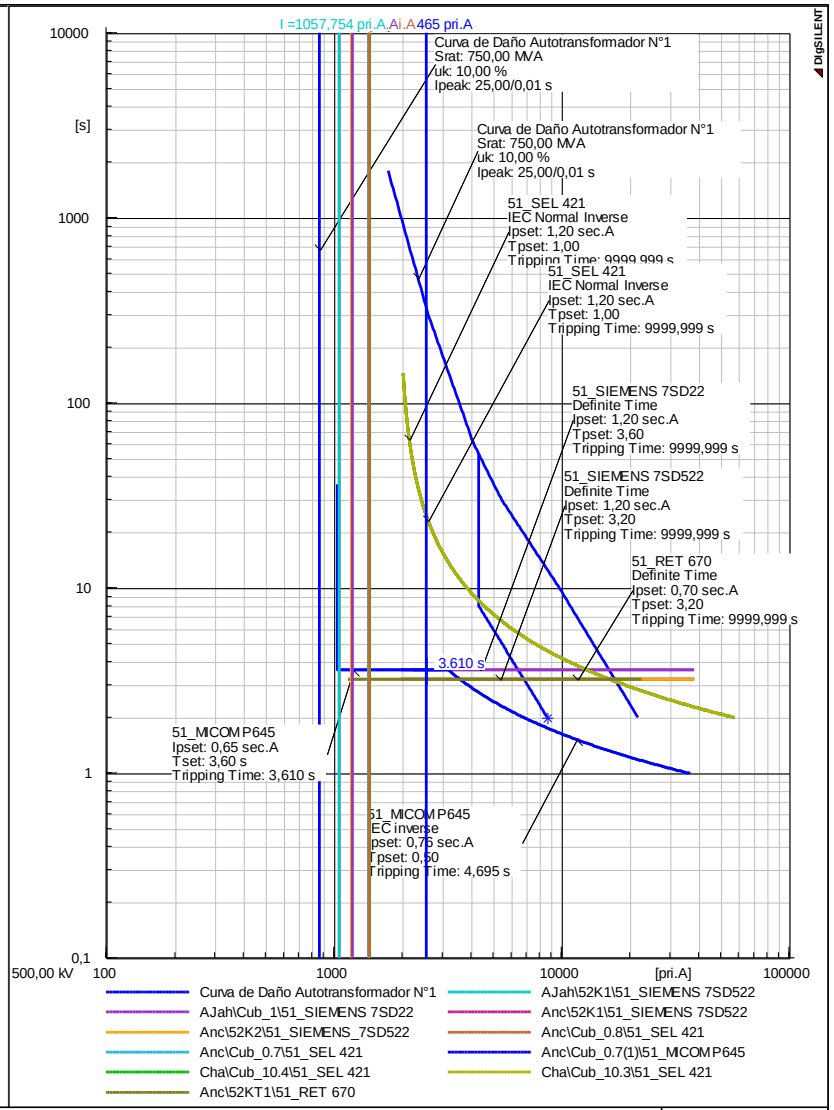

	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT	Annex:

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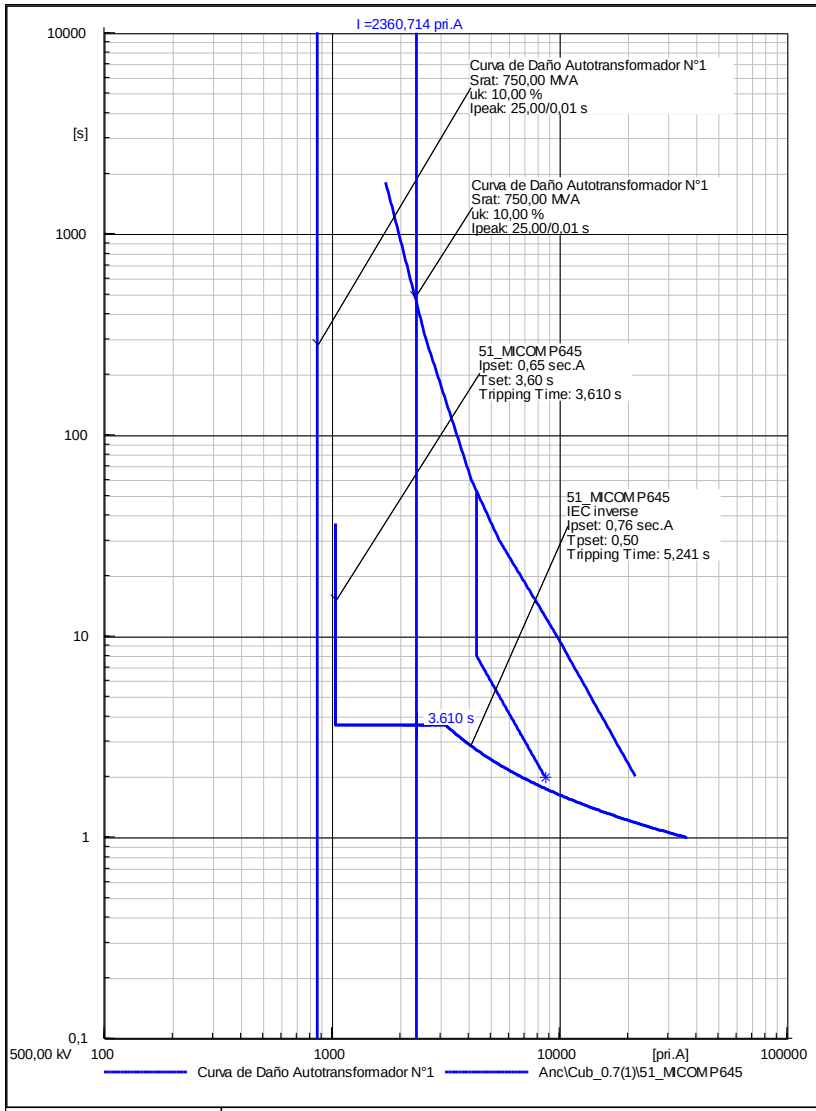
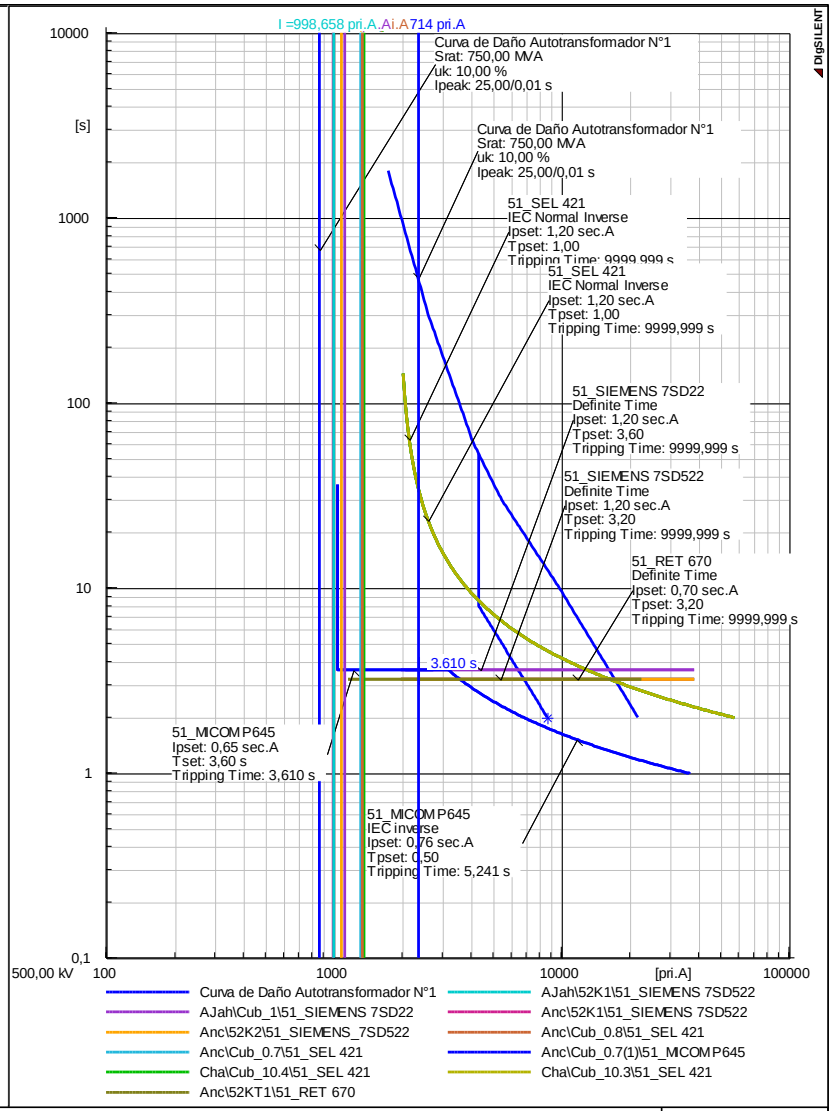
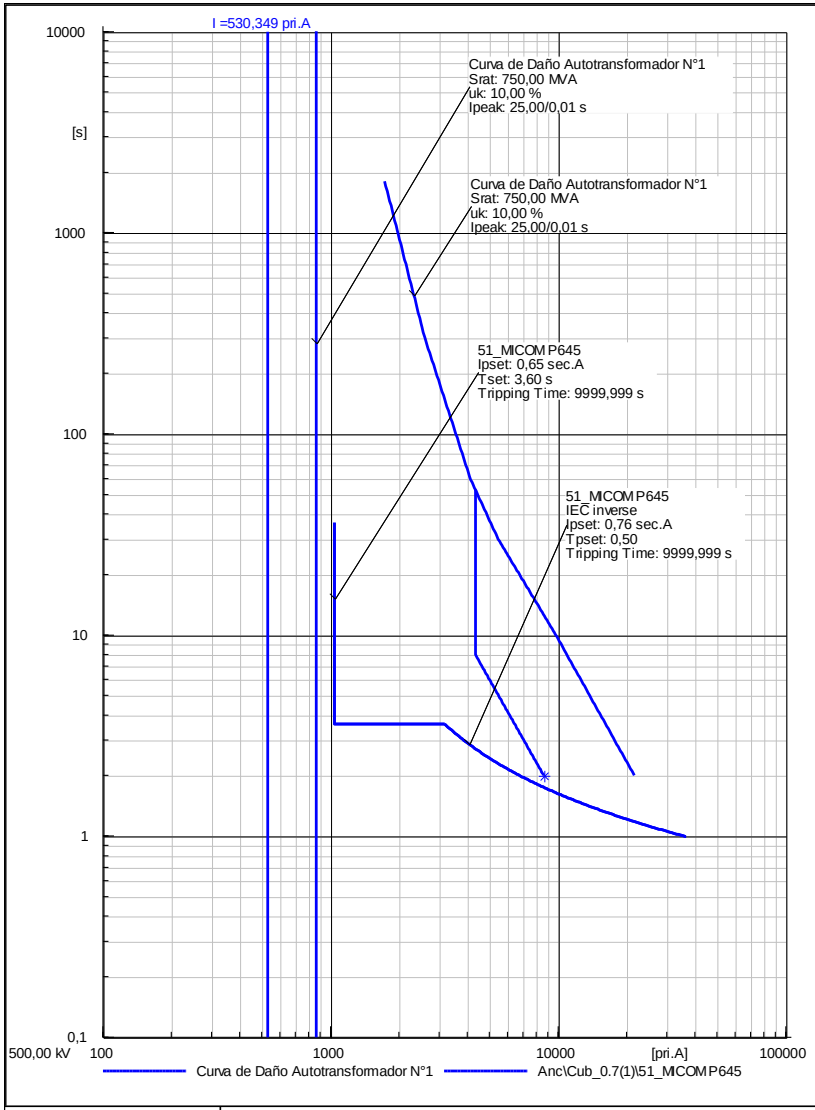
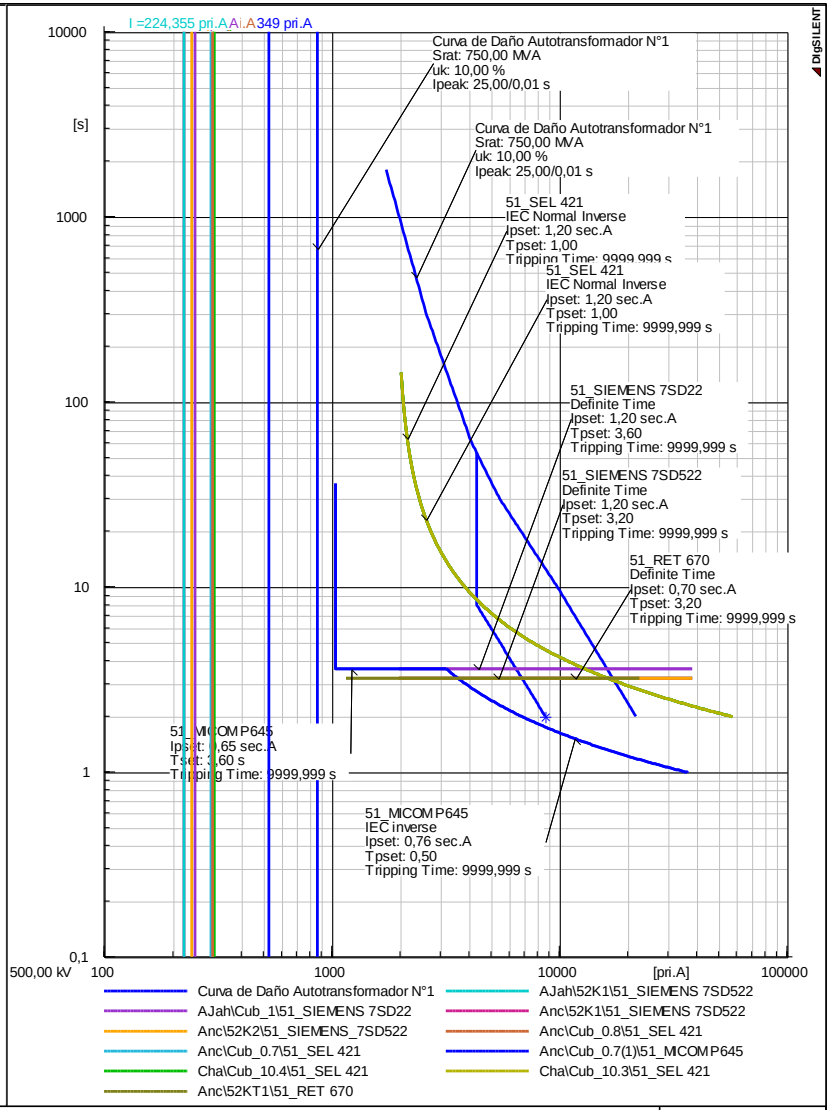




	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:





	PROYECTO REPRO 2015	51_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

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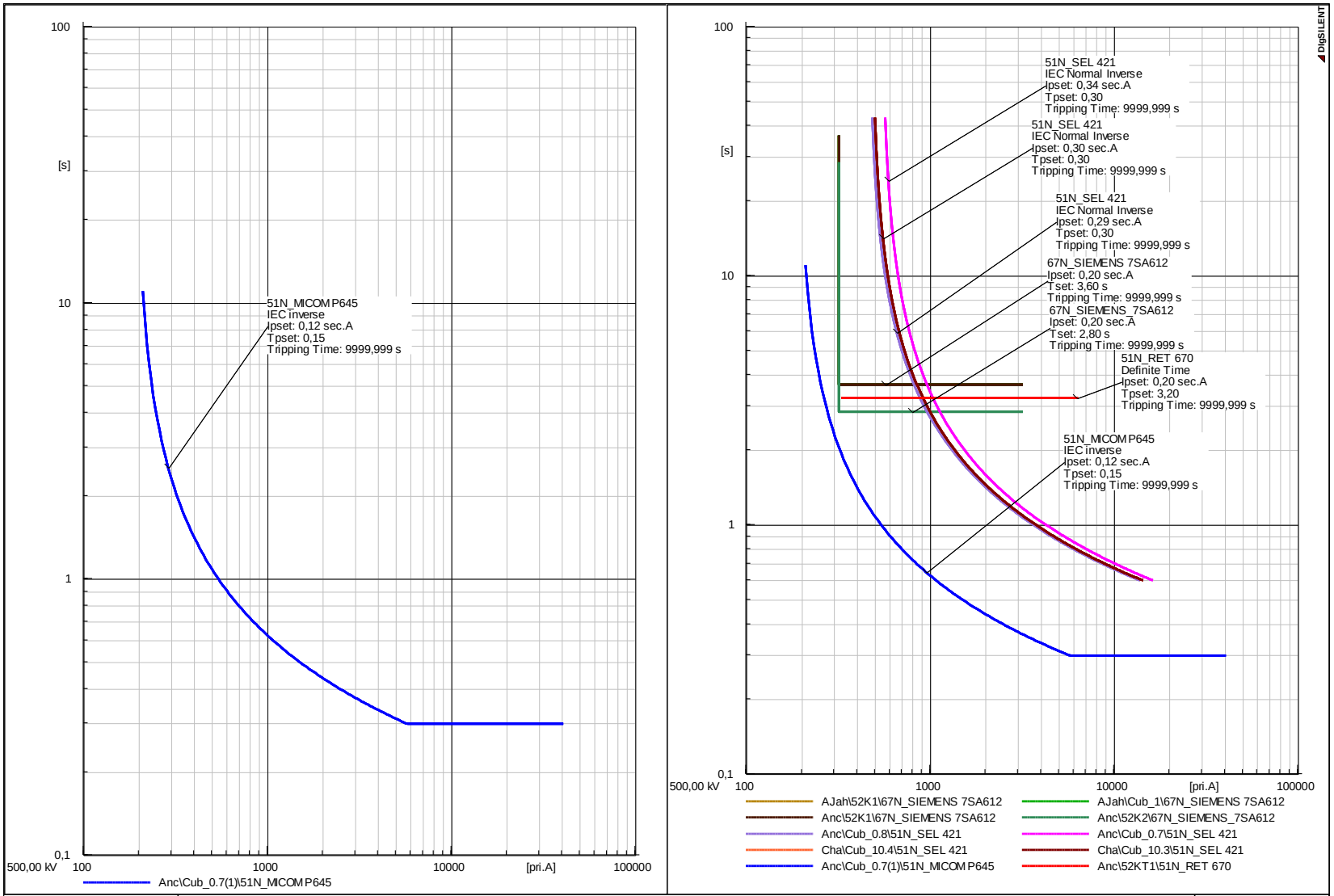
FUNCIÓN 51N LADO DE 500 KV



	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC3F	Annex:

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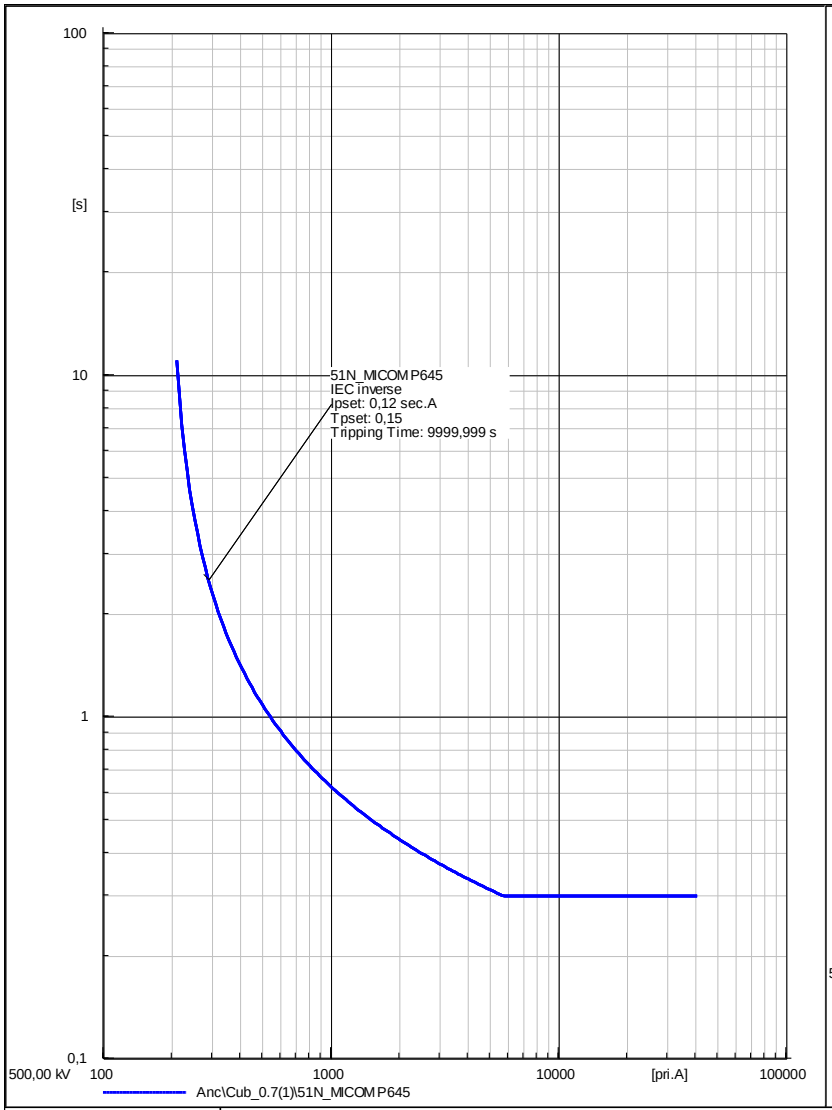

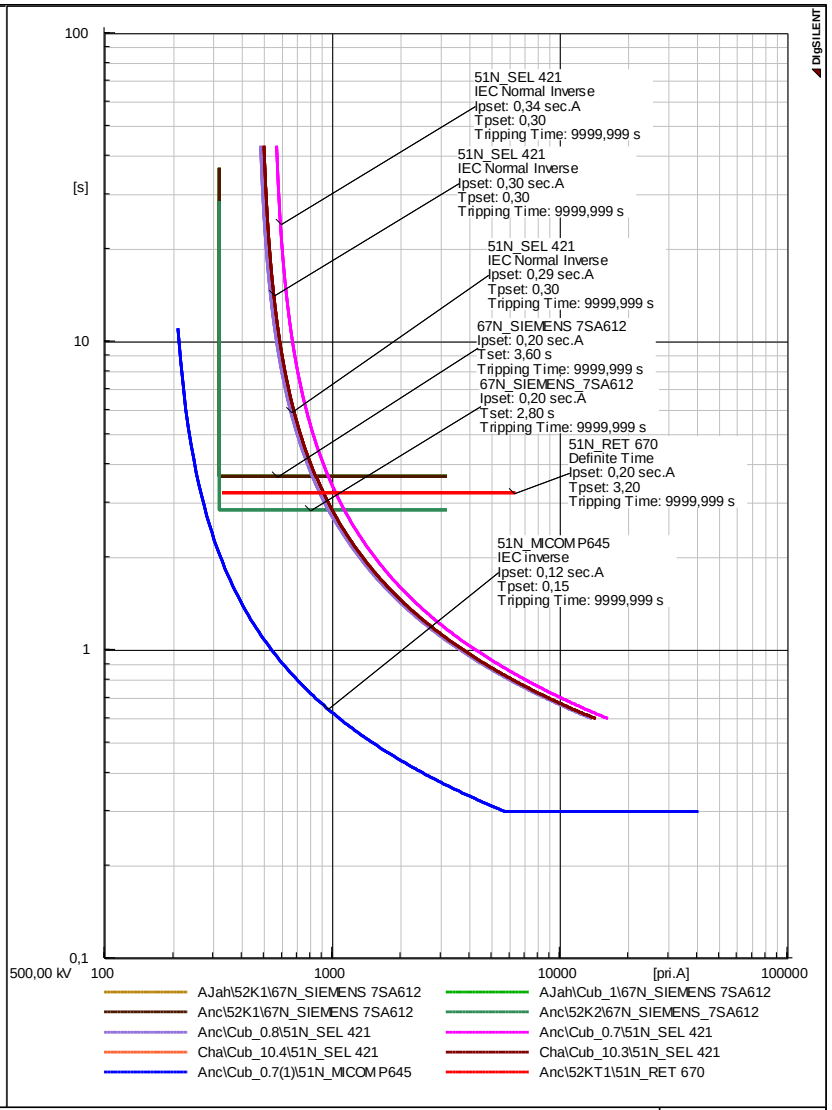

	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2F	Annex:

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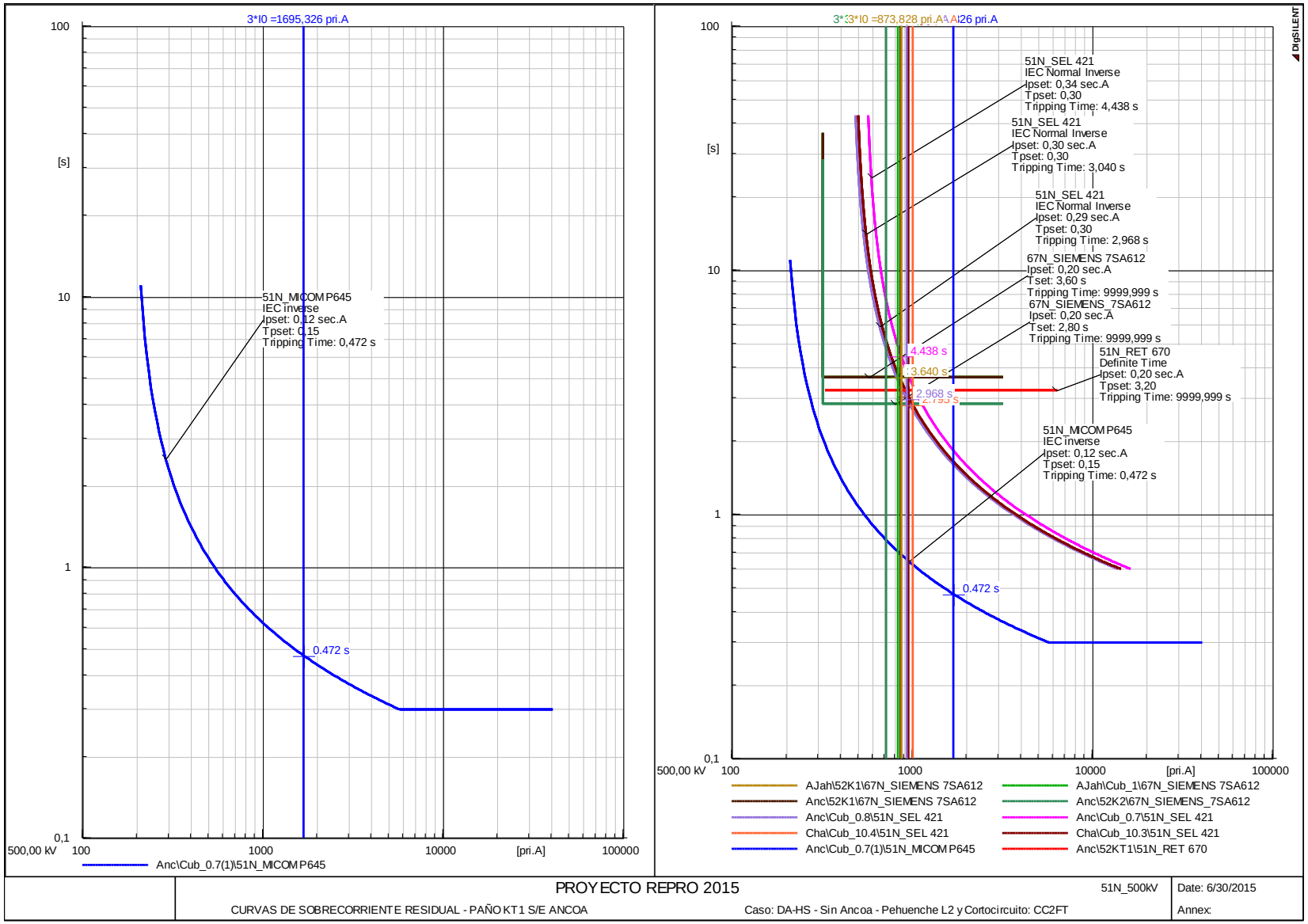
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100
[s]
10
1
0,1
51N_MICOM P645
IEC Inverse
Ipset: 0,12 sec.A
Tpset: 0,15
Tripping Time: 0,472 s
0.472 s
500,00 kV
100
1000
10000
[pri.A]
100000
Anc\Cub_0.7(1)\51N_MICOM P645
3*I0 =873,828 pri.A
51N_SEL 421
IEC Normal Inverse
Ipset: 0,34 sec.A
Tpset: 0,30
Tripping Time: 4,438 s
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IEC Normal Inverse
Ipset: 0,30 sec.A
Tpset: 0,30
Tripping Time: 3,040 s
51N_SEL 421
IEC Normal Inverse
Ipset: 0,29 sec.A
Tpset: 0,30
Tripping Time: 2,968 s
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Tset: 3,60 s
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Tset: 2,80 s
Tripping Time: 9999,999 s
51N_RET 670
Definite Time
Ipset: 0,20 sec.A
Tpset: 3,20
Tripping Time: 9999,999 s
4.438 s
3.640 s
2.968 s
2.793 s
0.472 s
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Anc\52K1\67N_SIEMENS 7SA612
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Cha\Cub_10.4\51N_SEL 421
Anc\Cub_0.7(1)\51N_MICOM P645
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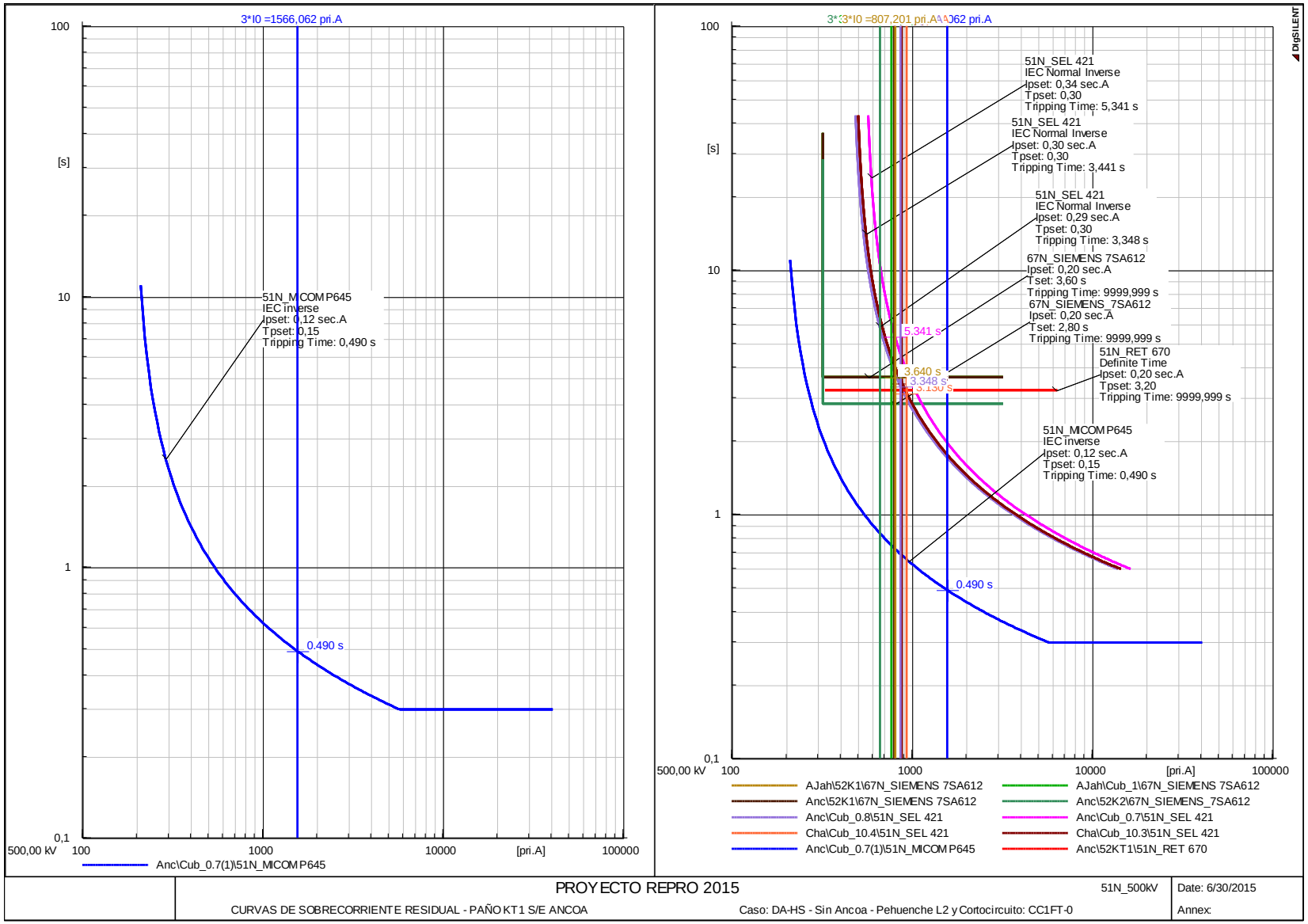
DIgSILENT
PROYECTO REPRO 2015
51N_500kV
Date: 6/30/2015
CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA
Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC2FT
Annex:



	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-0	Annex:

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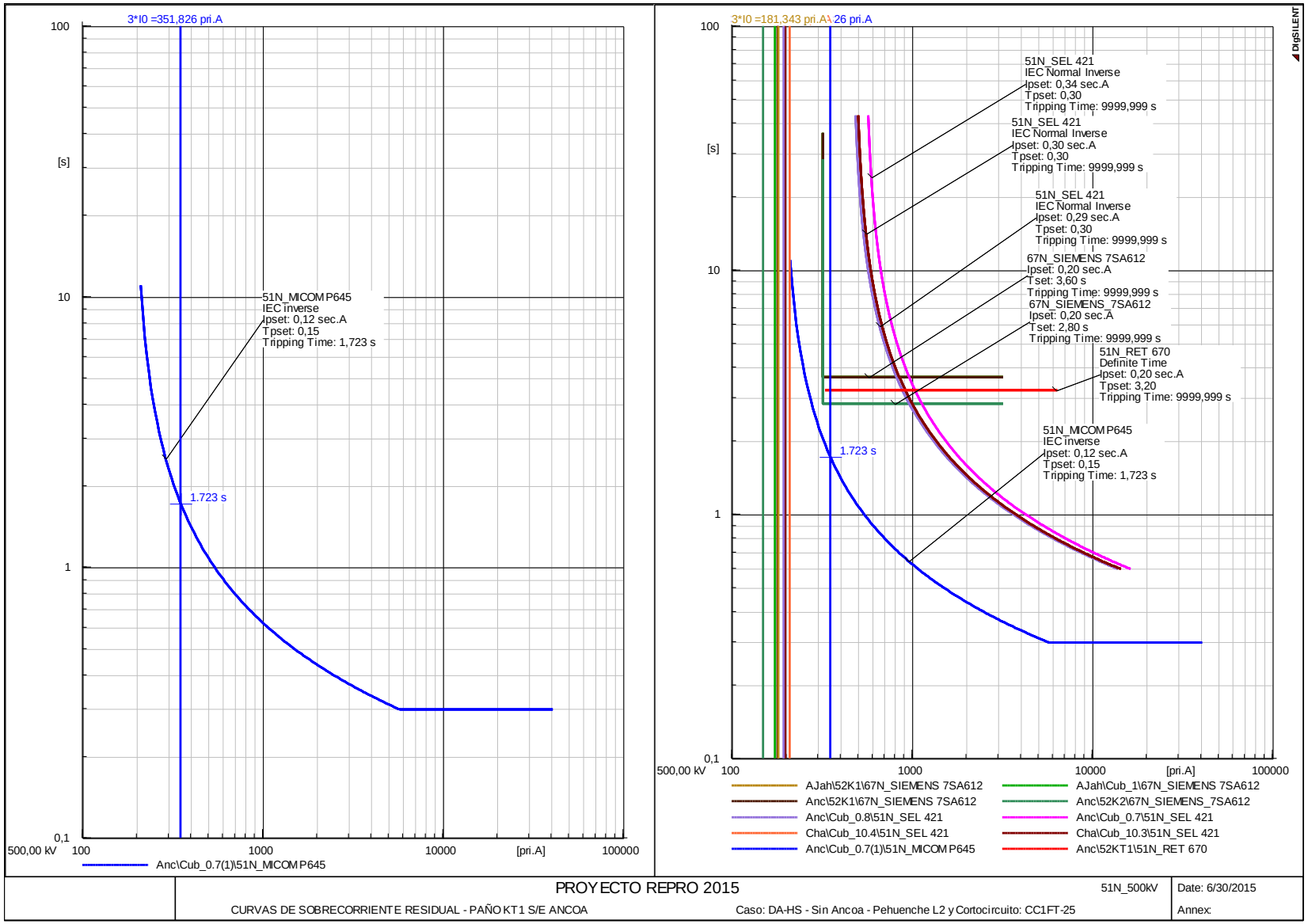

	PROYECTO REPRO 2015	51N_500kV	Date: 6/30/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Ancoa - Pehuenche L2 y Cortocircuito: CC1FT-25	Annex:

ESCENARIO CON LÍNEA ANCOA – COLBUN 220 KV FUERA DE SERVICIO

SIMULACIONES EN DEMANDA ALTA – HIDROLOGÍA HUMEDA

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FALLA EN BARRA 500 KV S/E ANCOA

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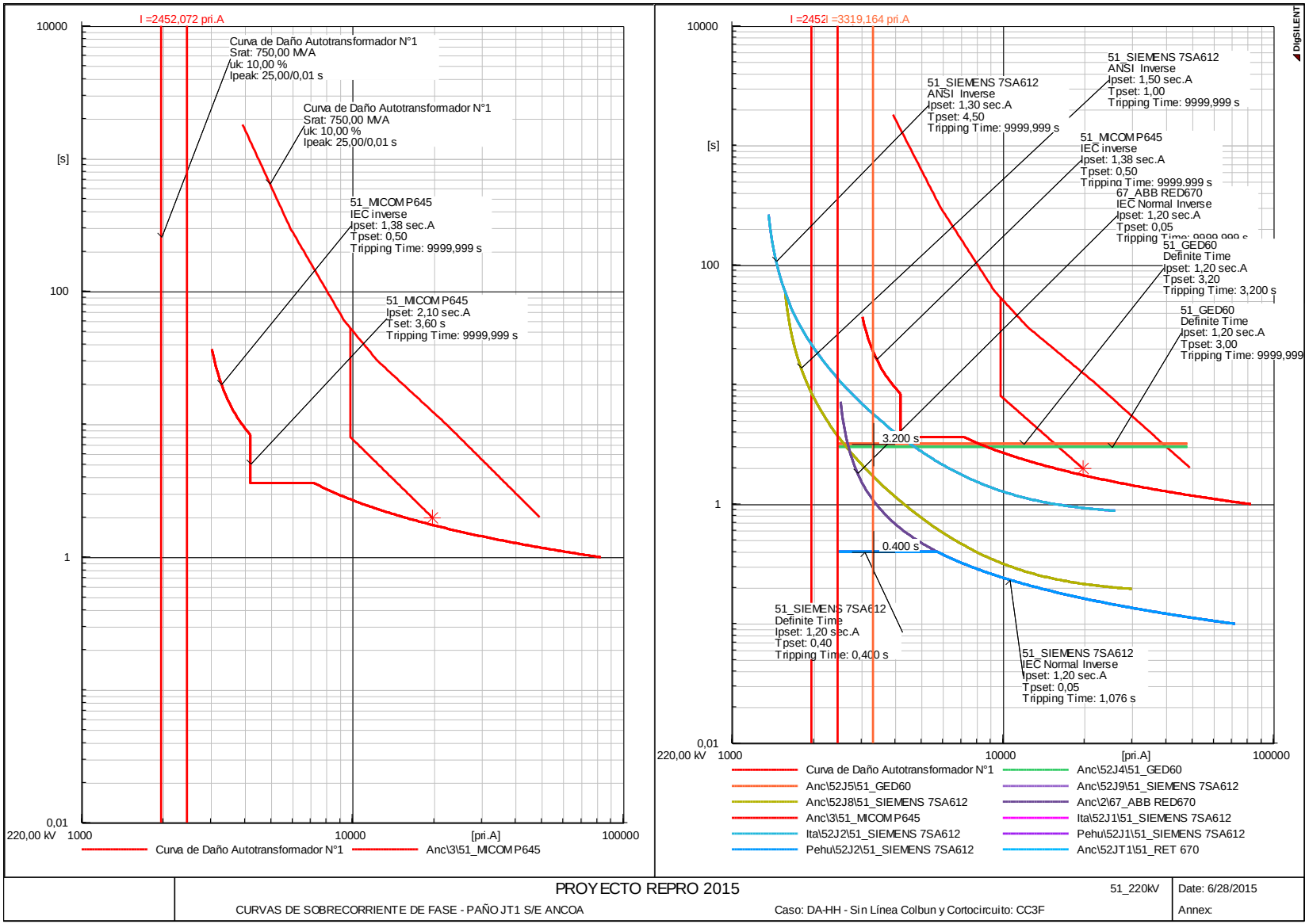
FUNCIÓN 51 LADO DE 220 KV



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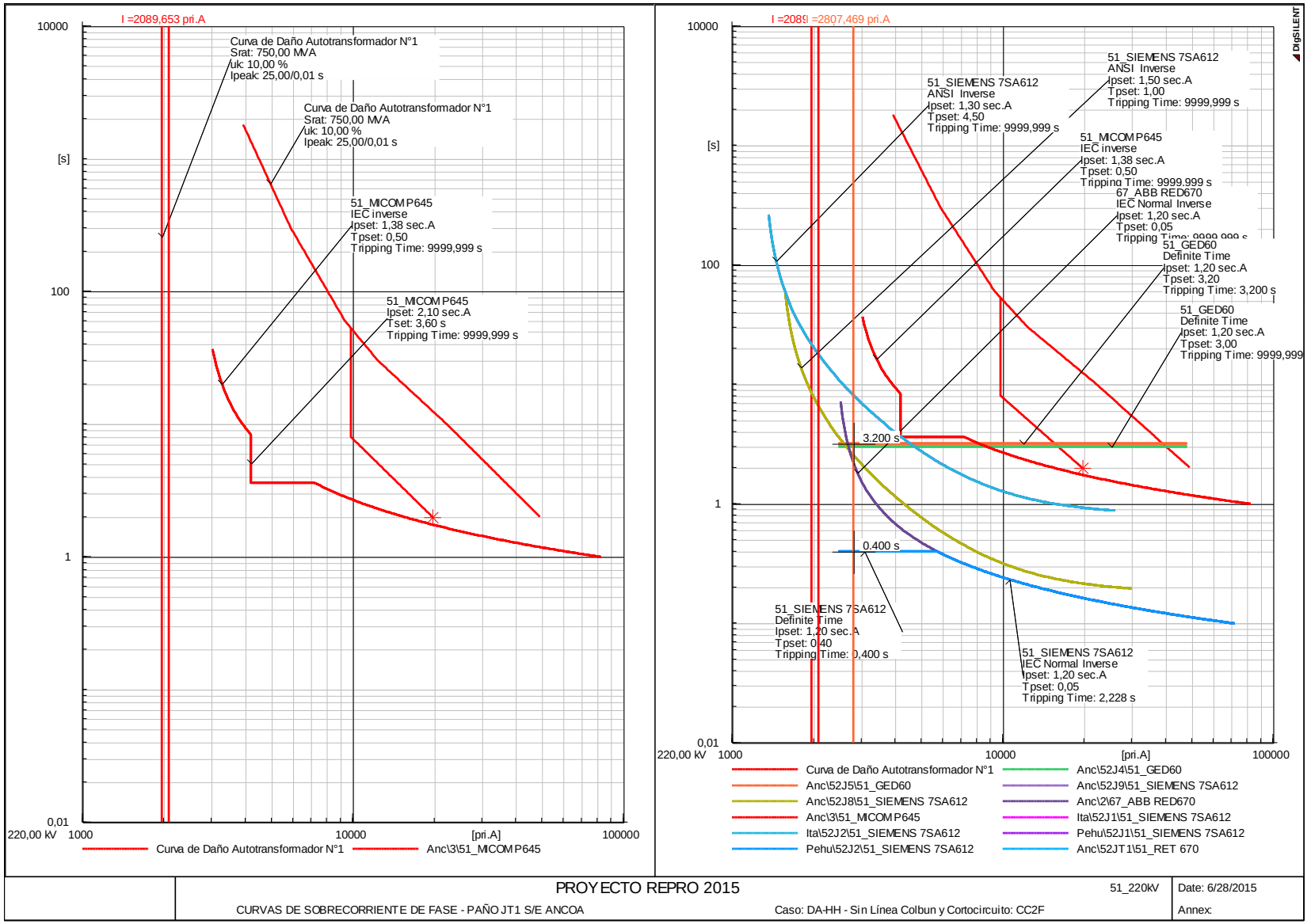

	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2F	Annex:

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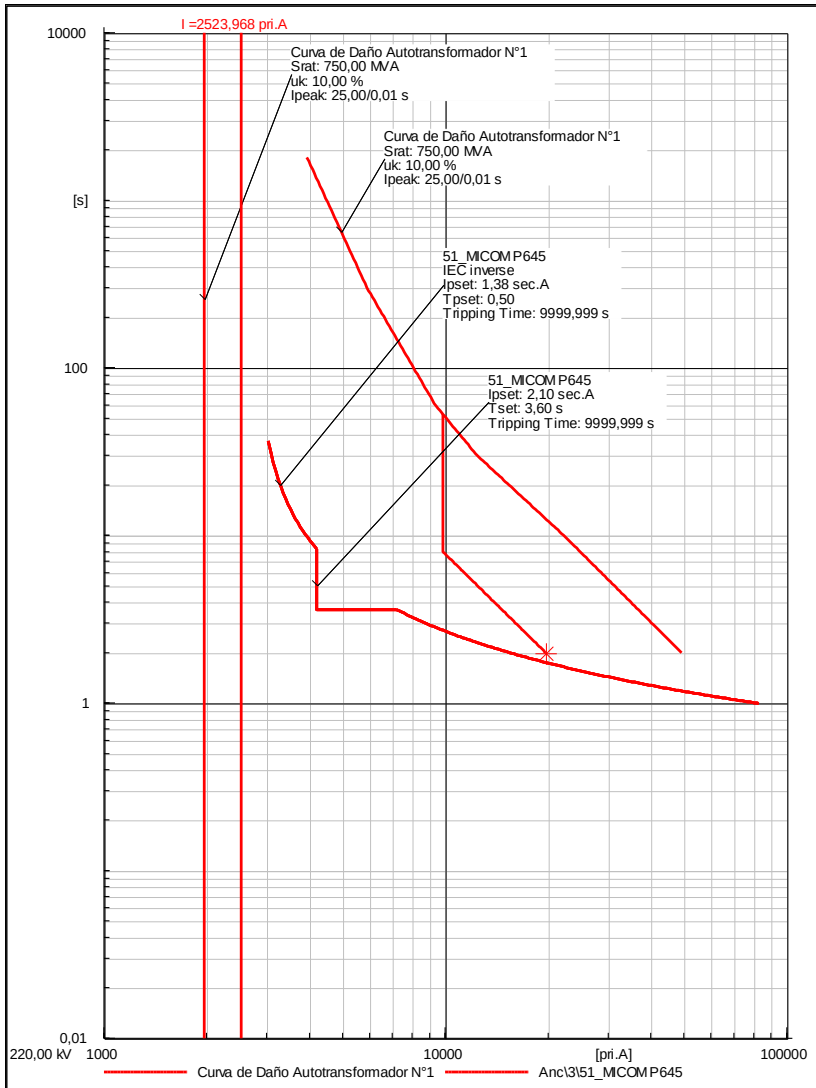

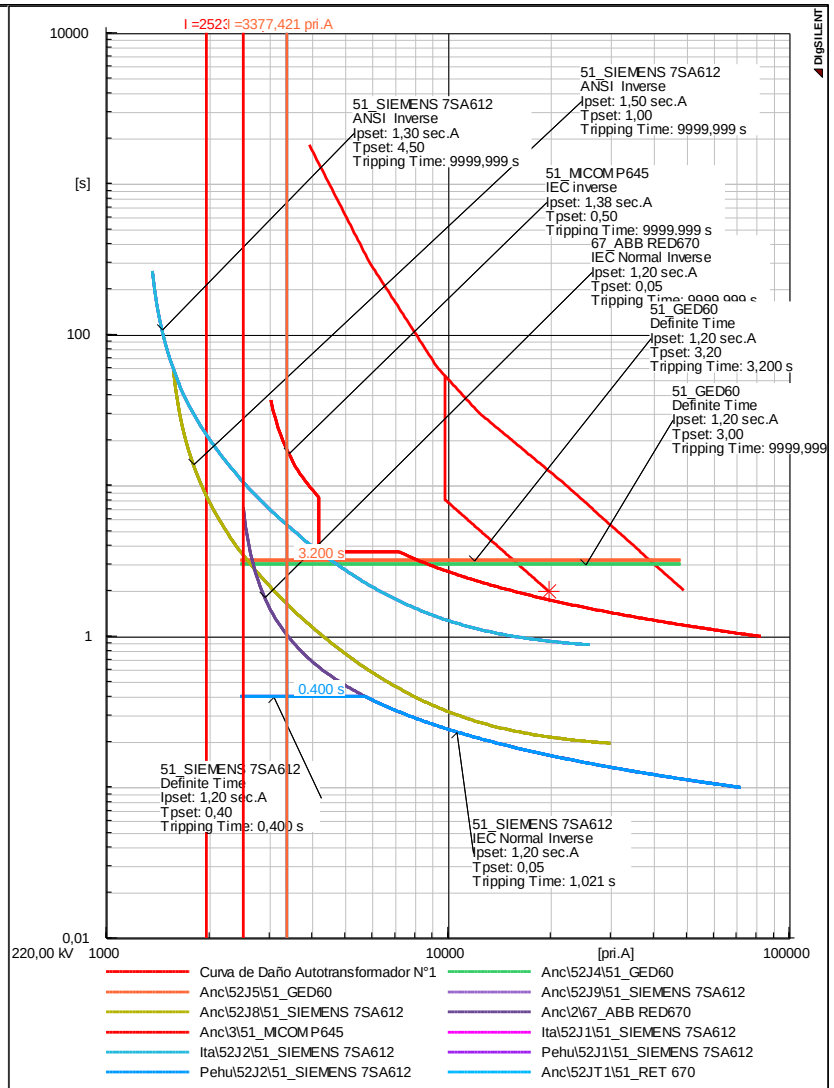

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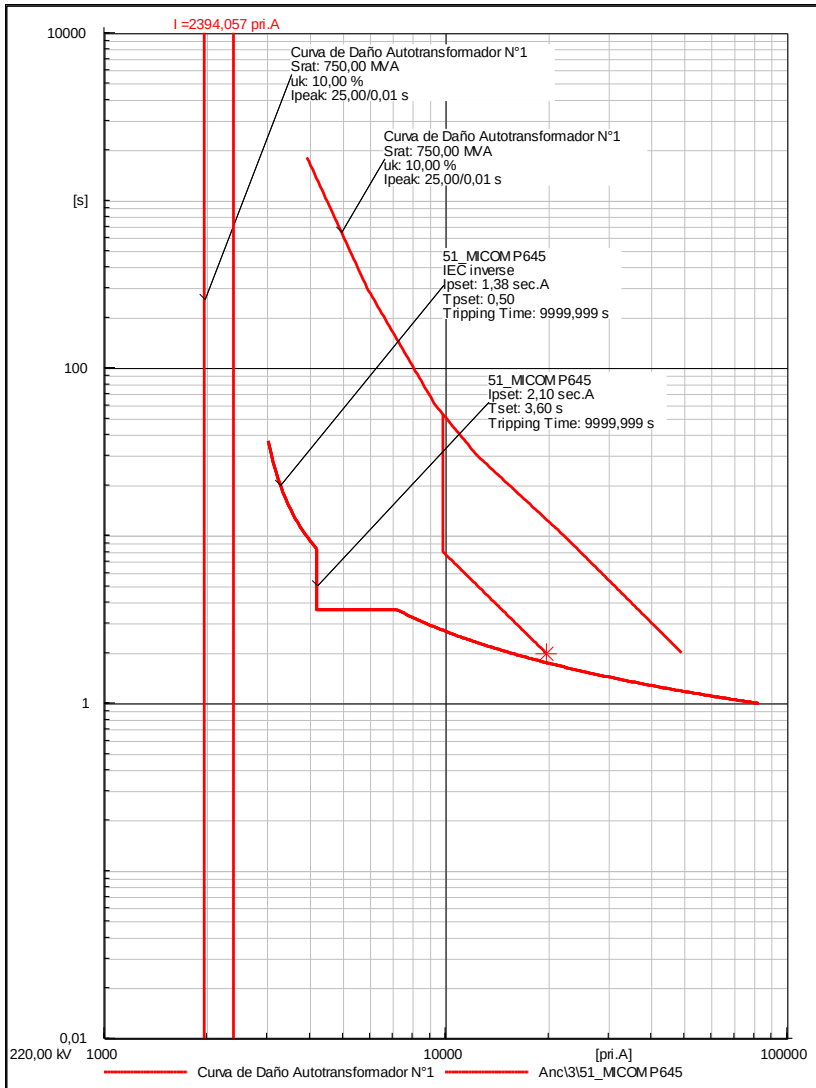
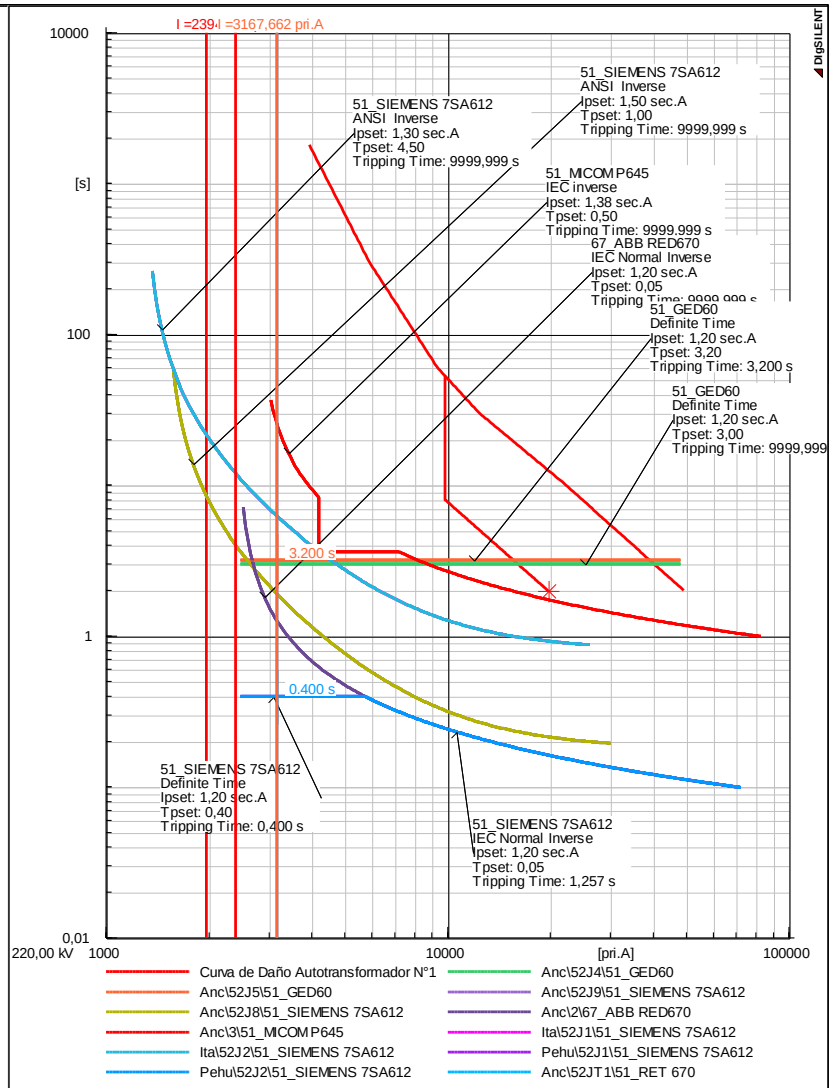
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:





	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:

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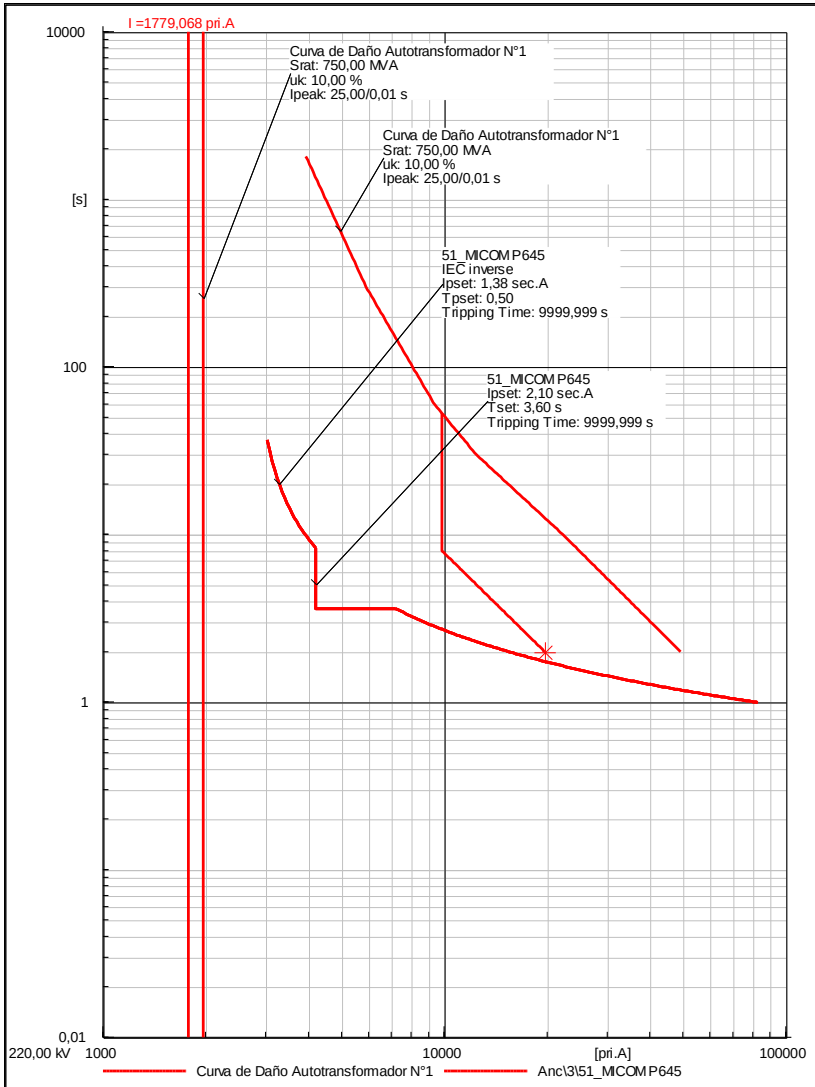
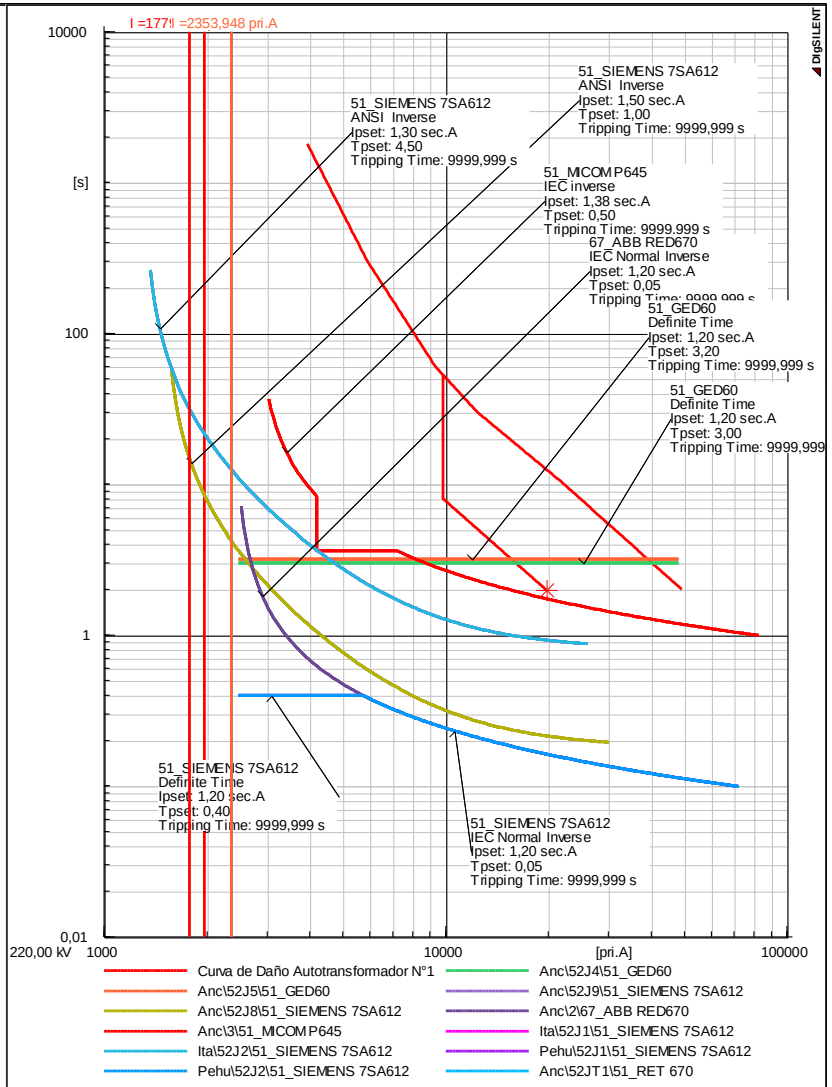
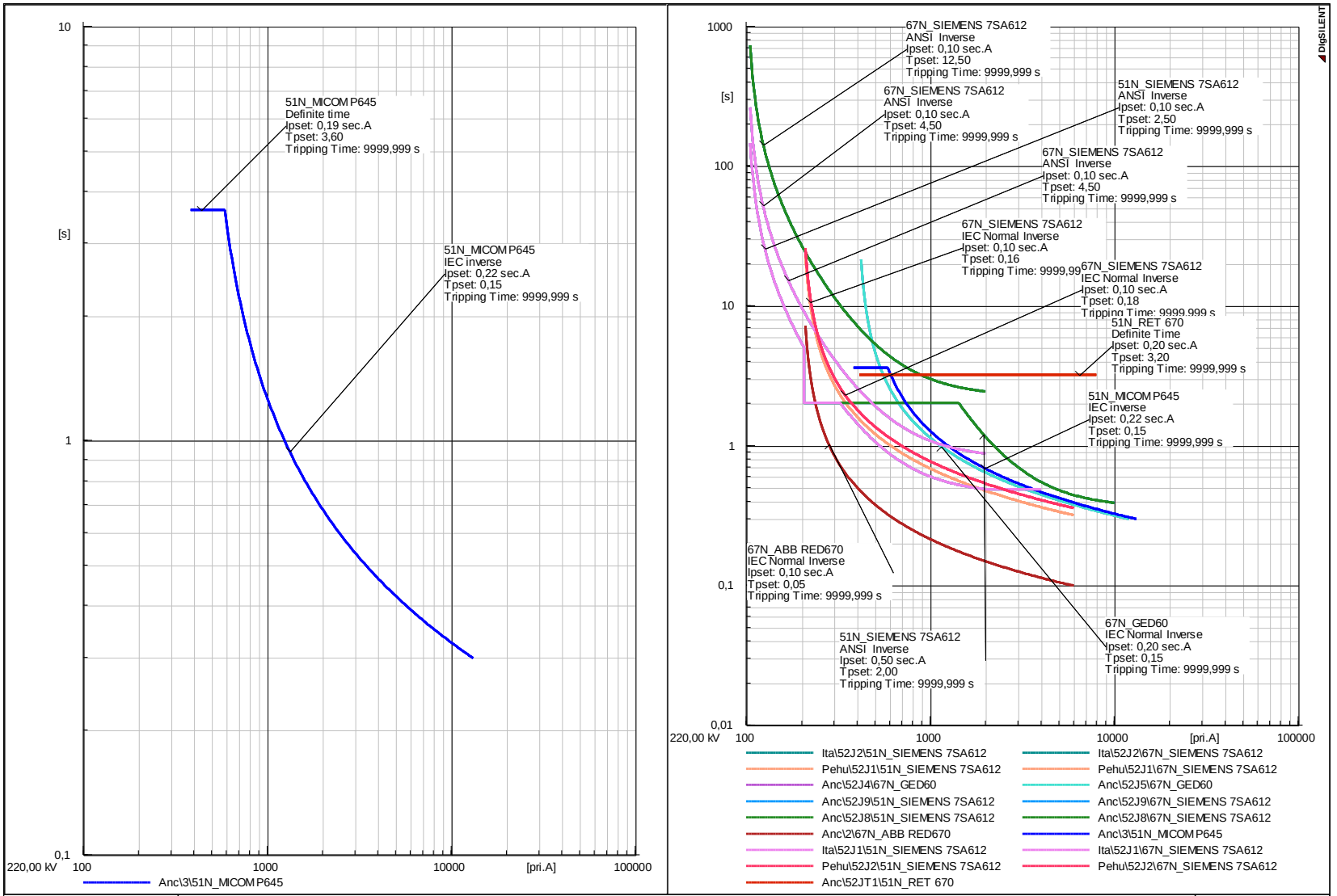




	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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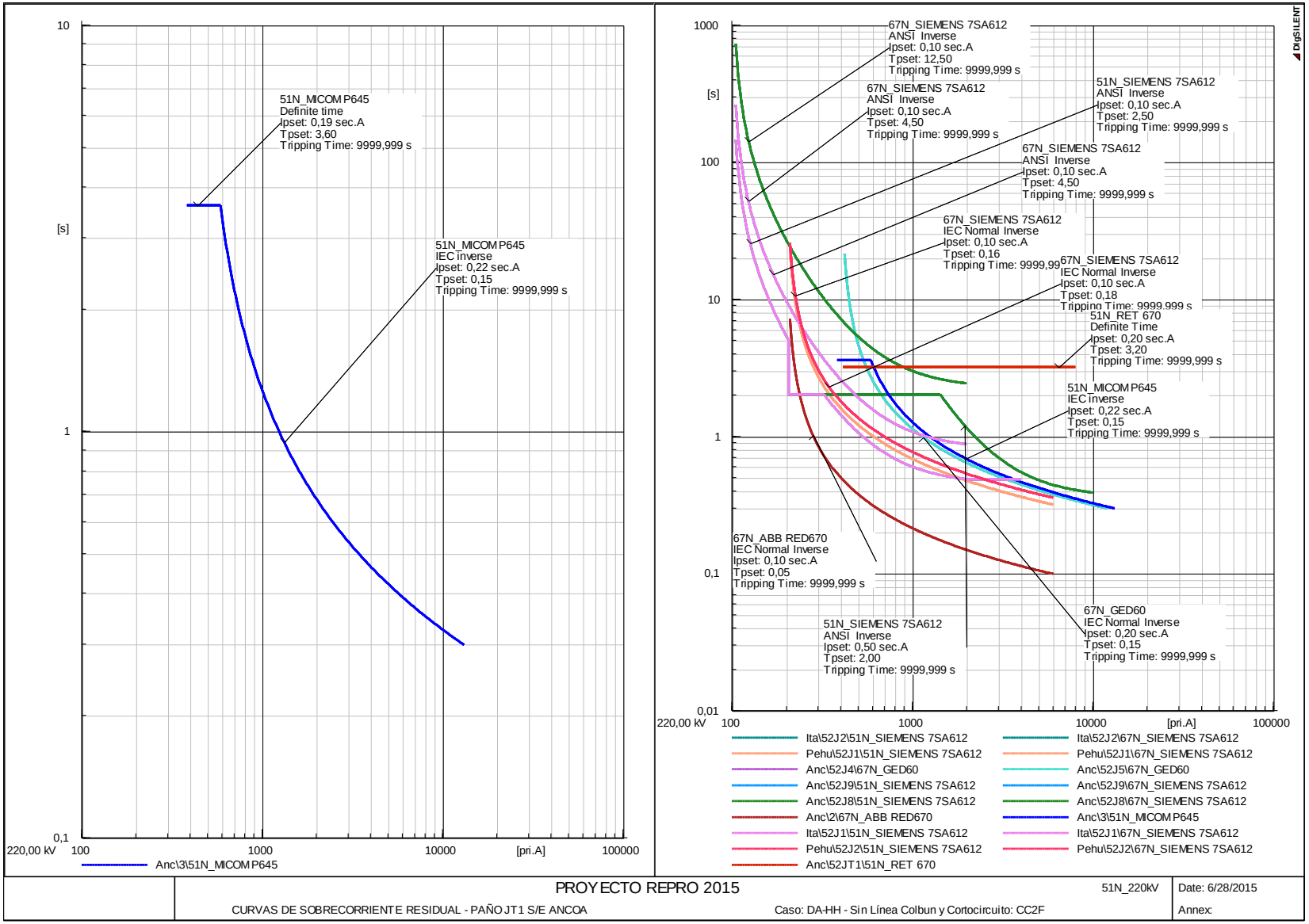

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2F	Annex:

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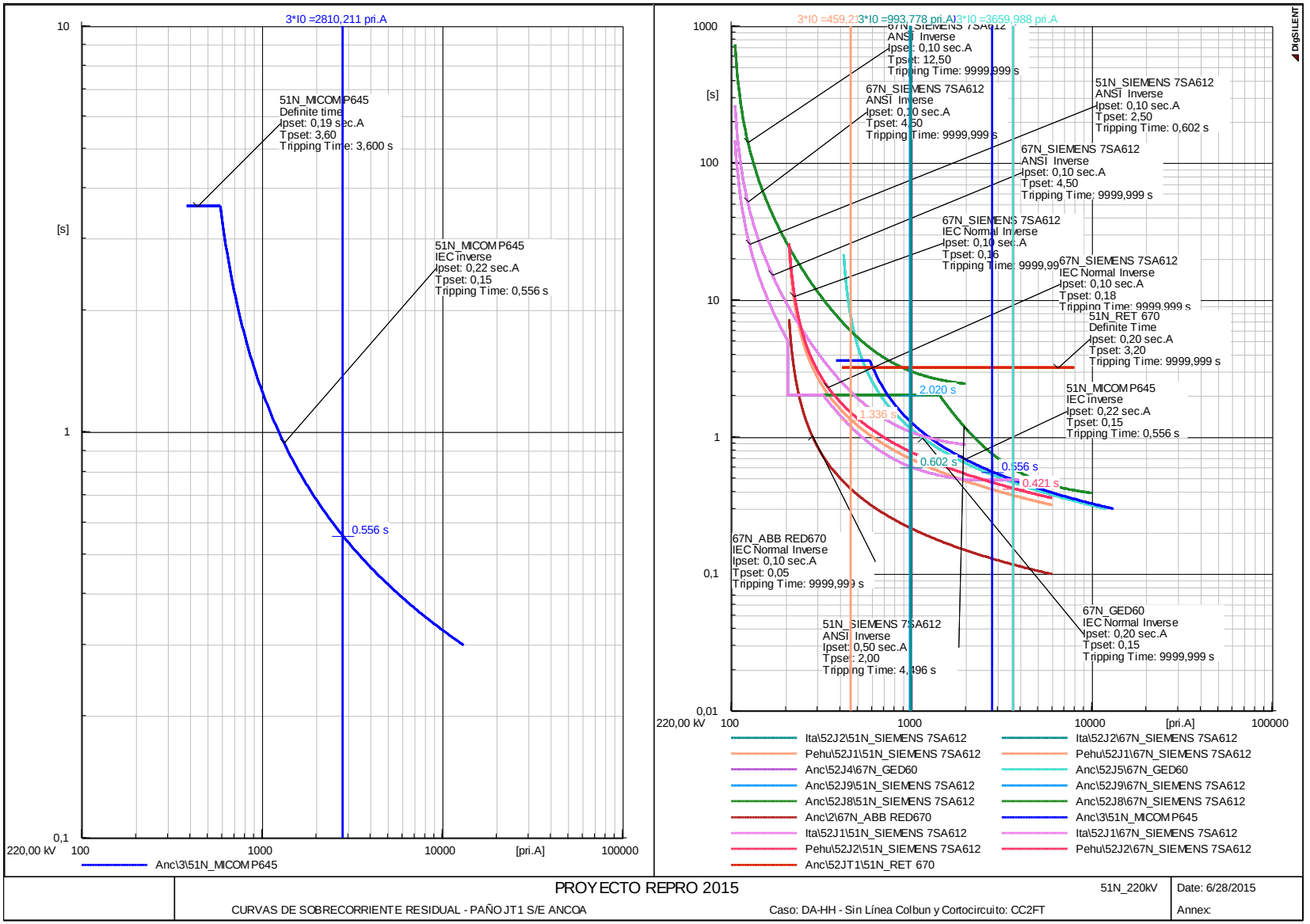

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:

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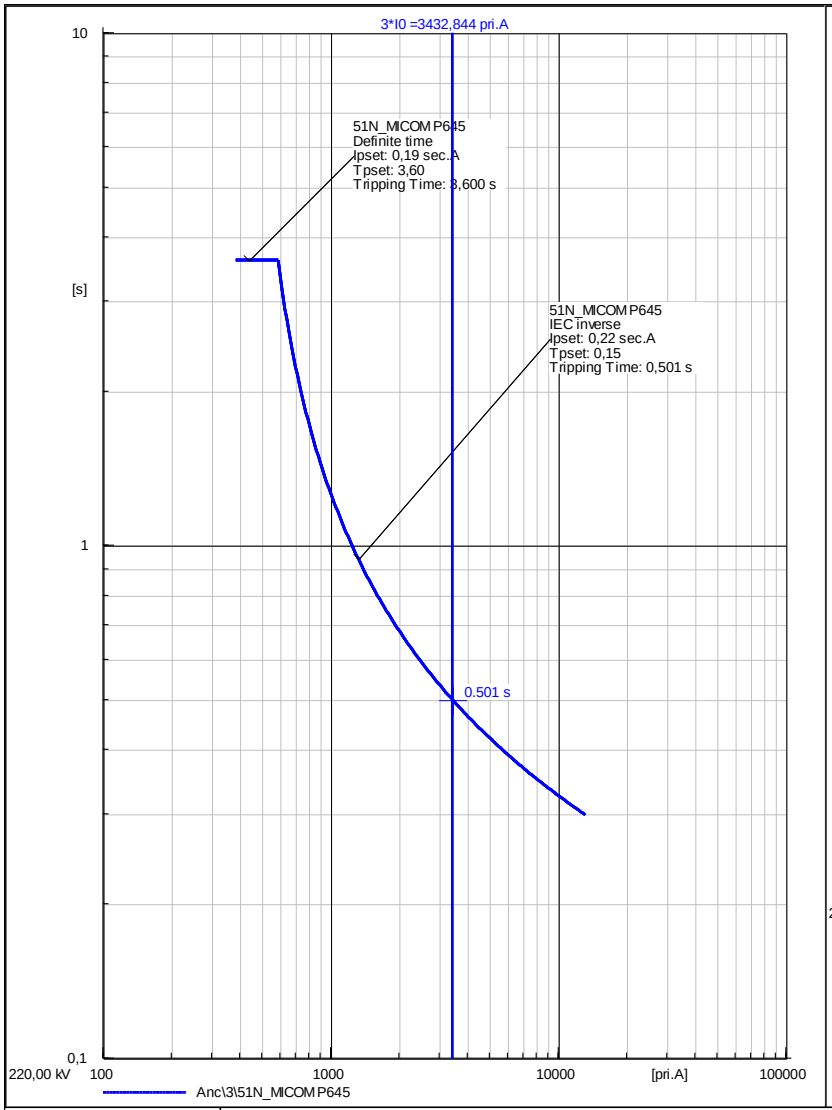

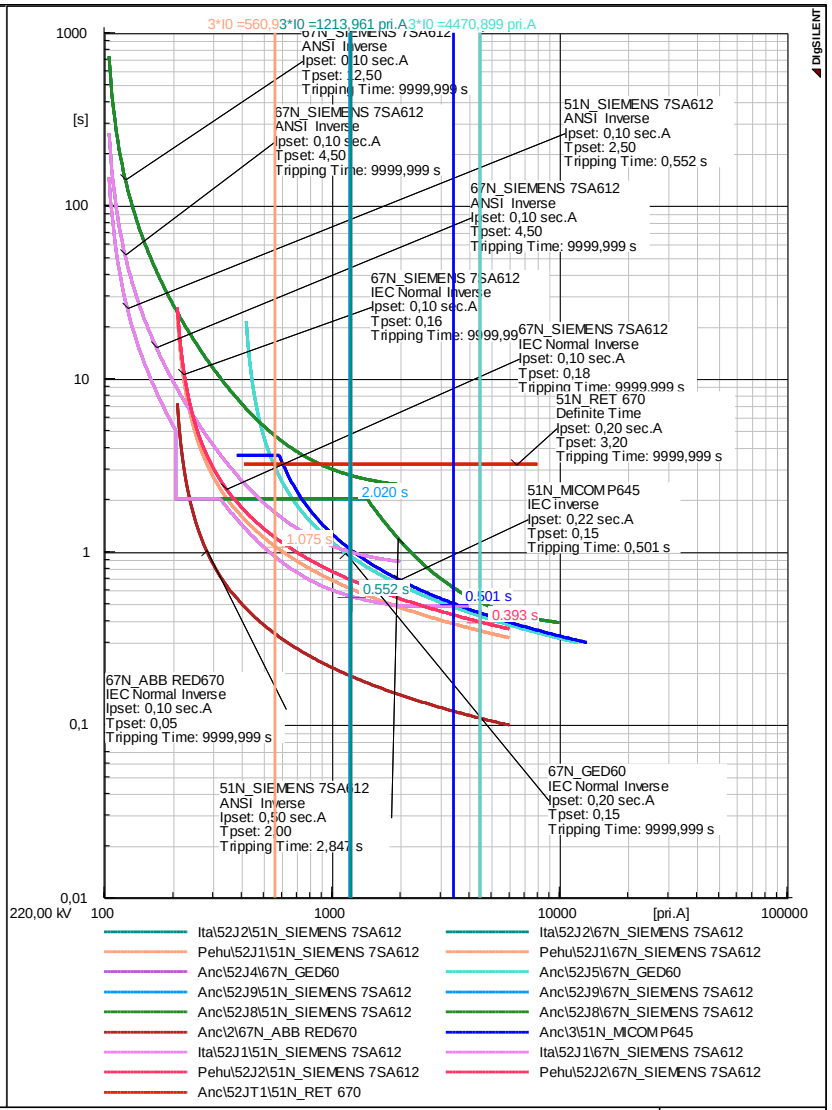

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:

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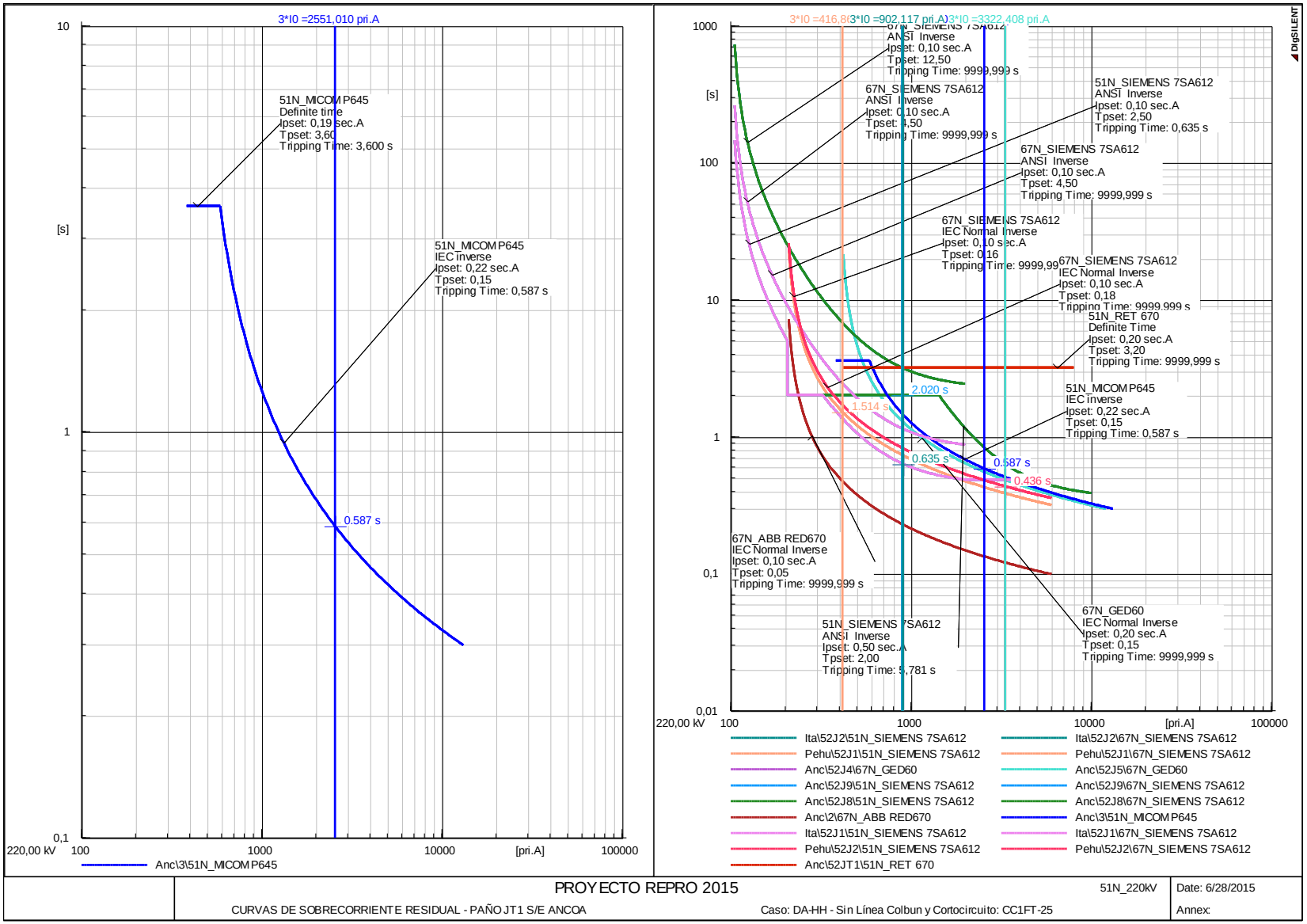

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

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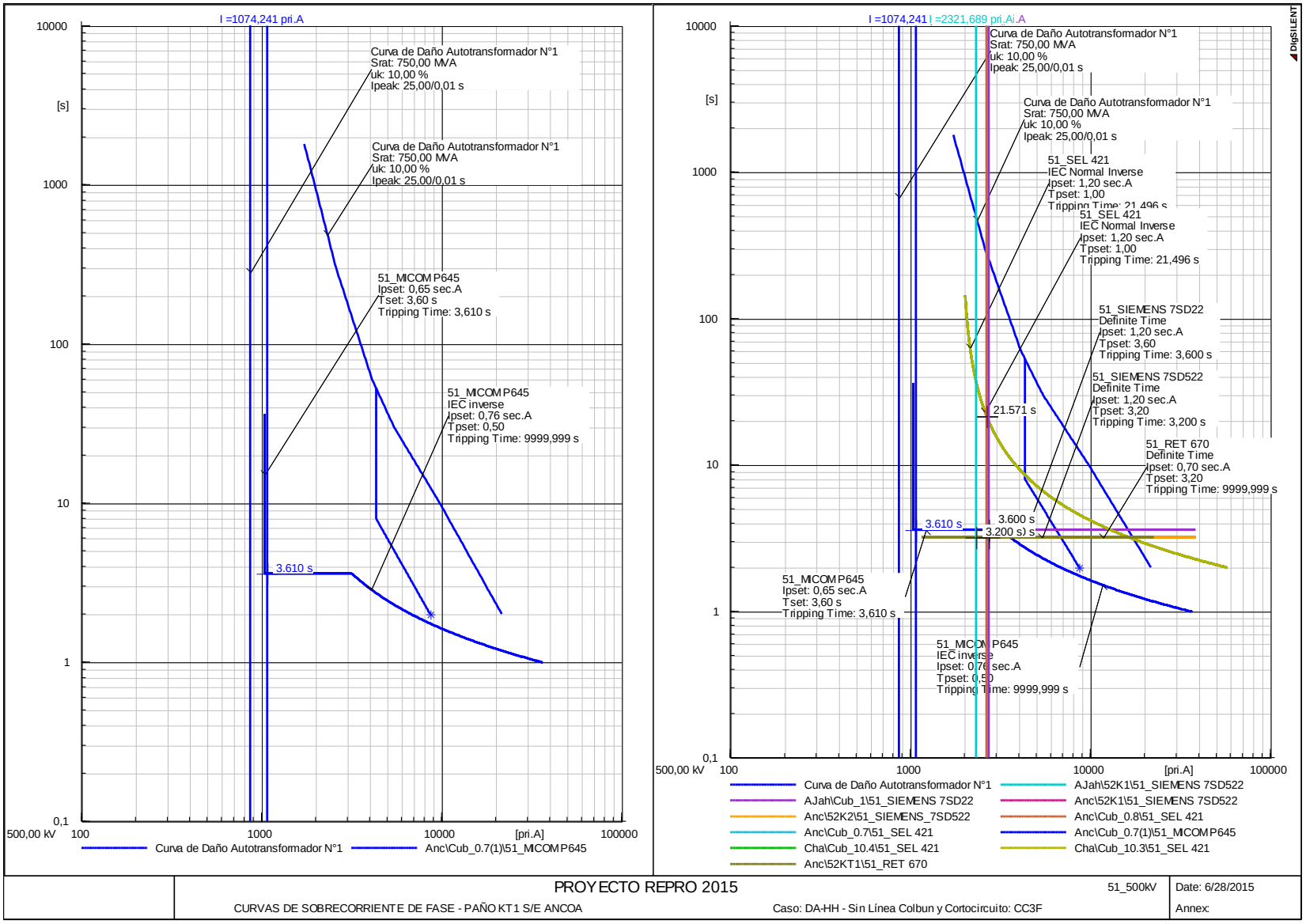
FUNCIÓN 51 LADO DE 500 KV



	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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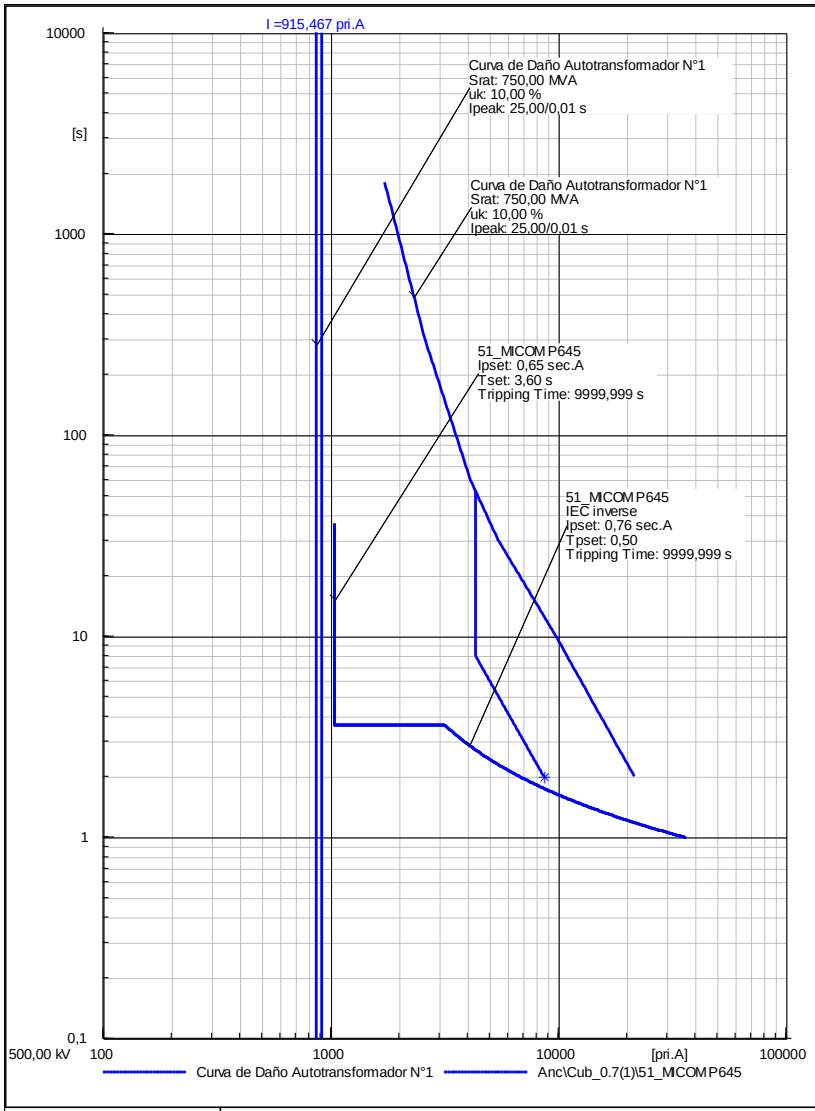

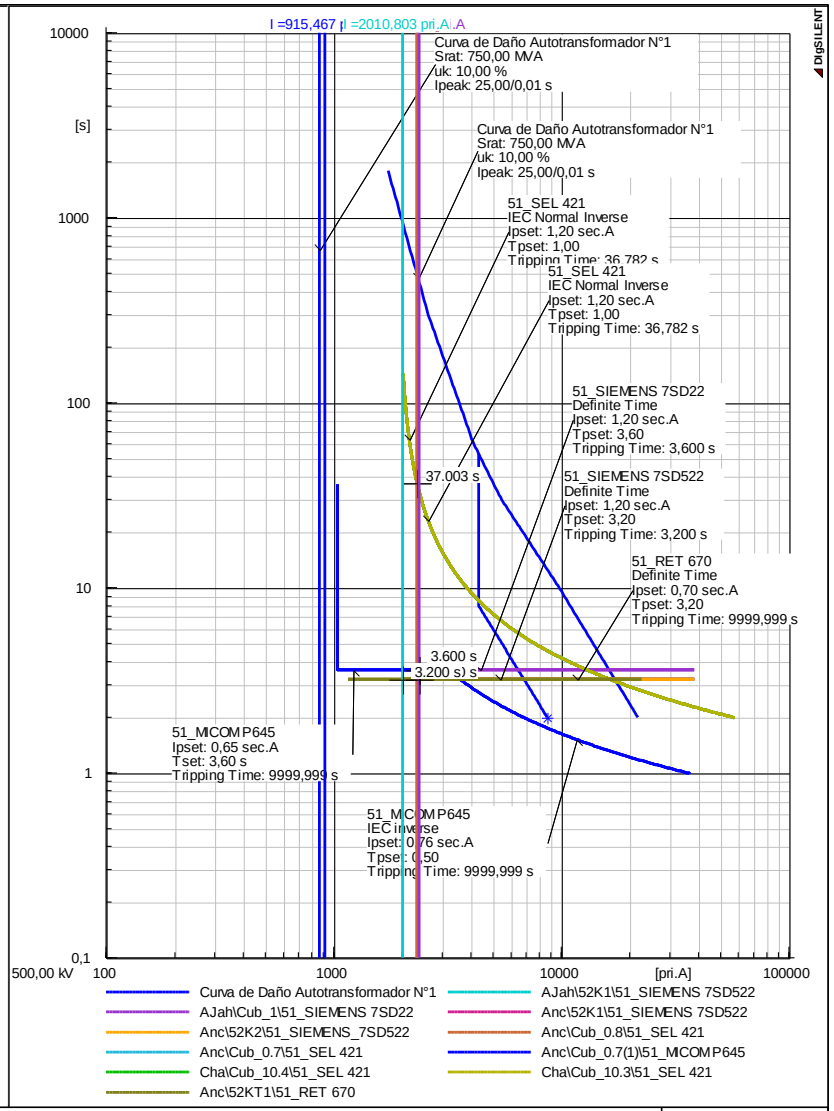

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2F	Annex:

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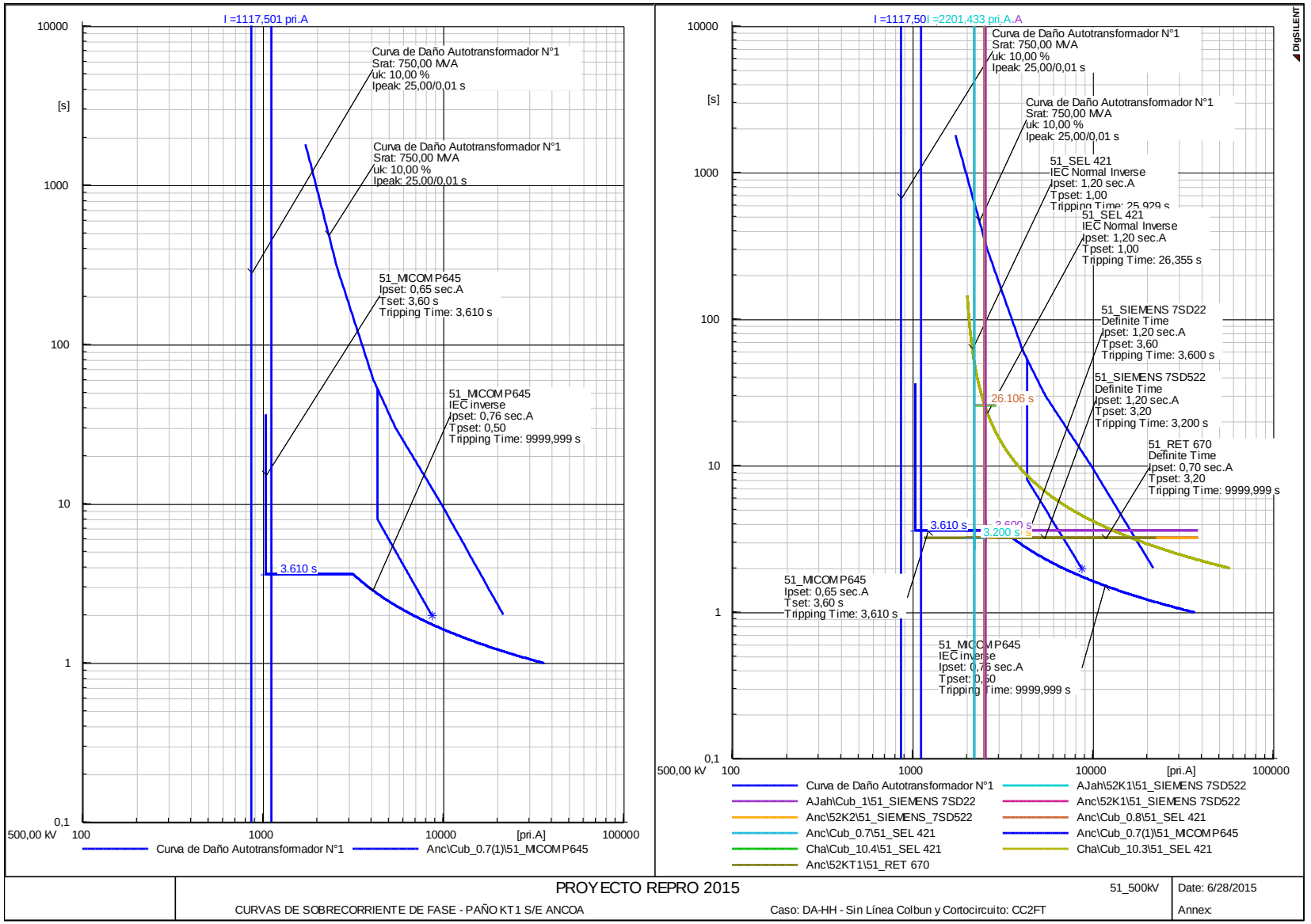

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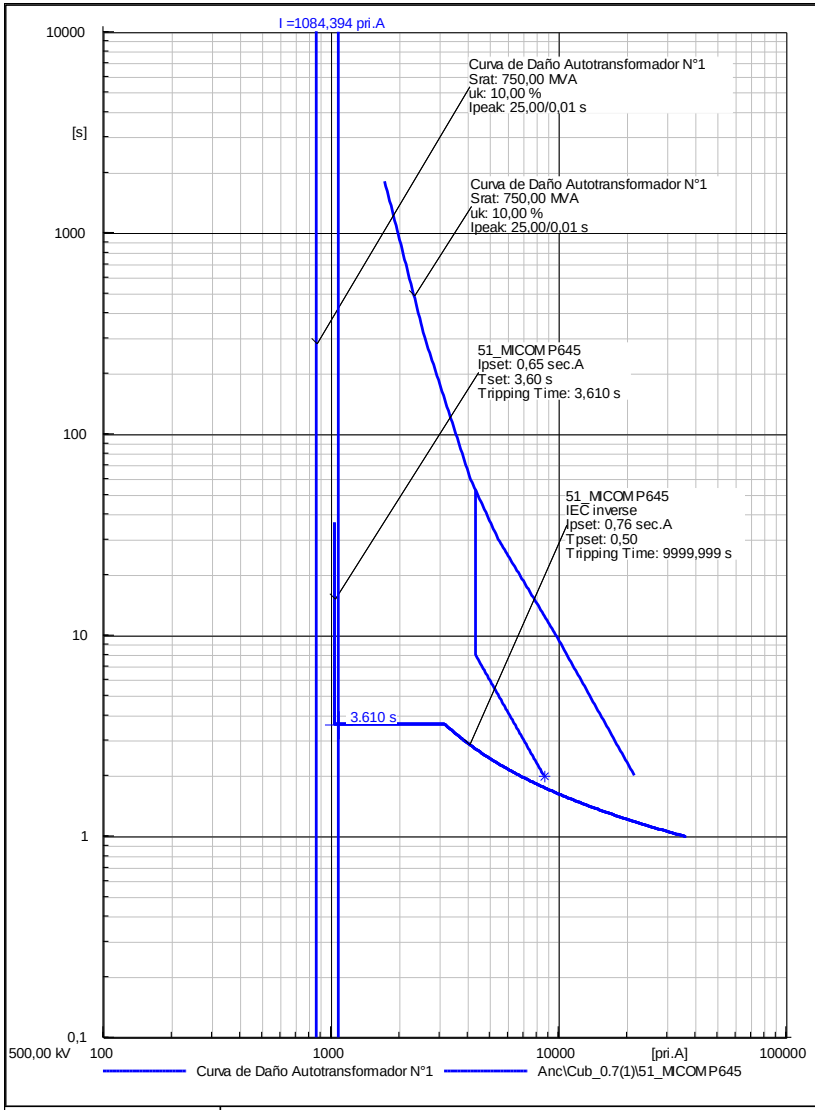

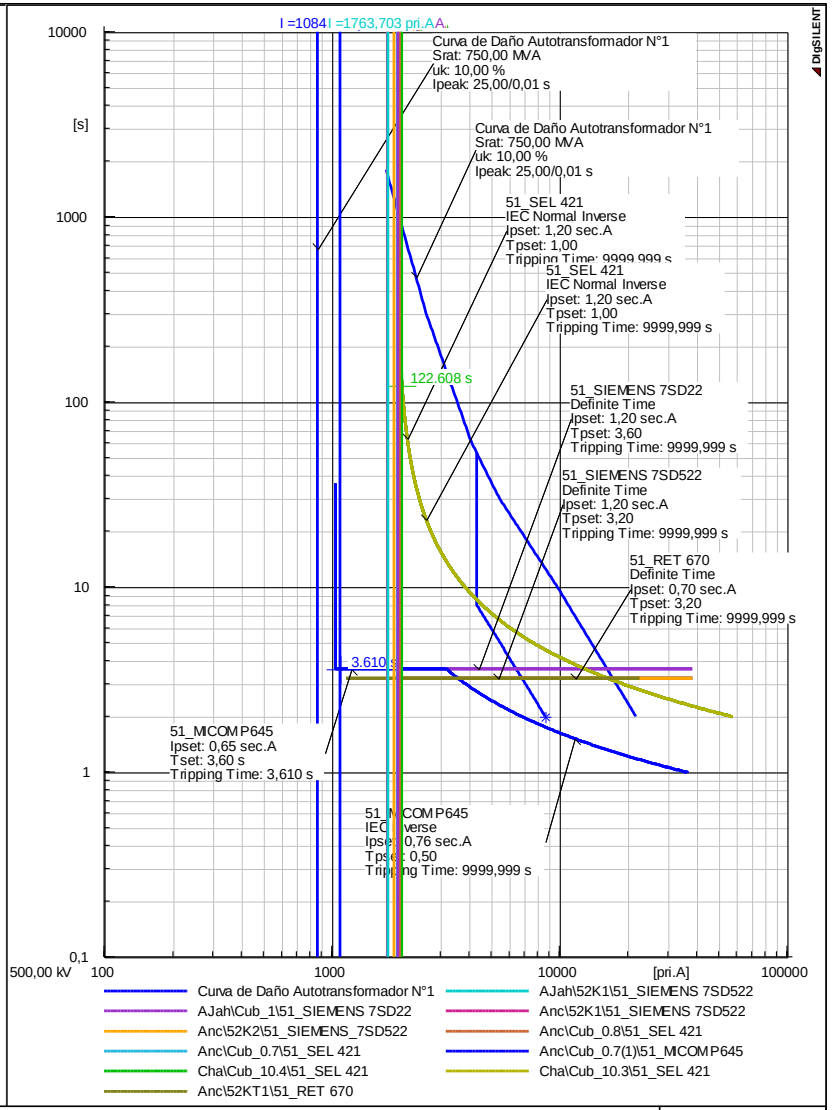

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:

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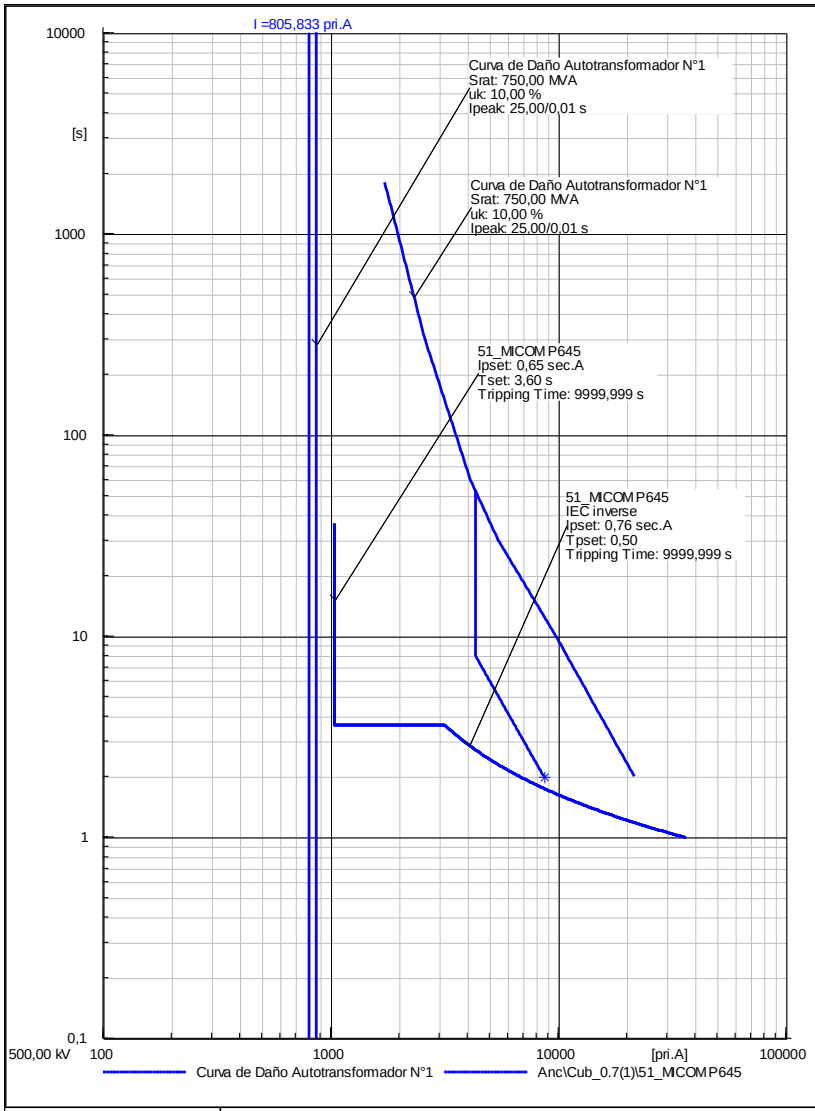

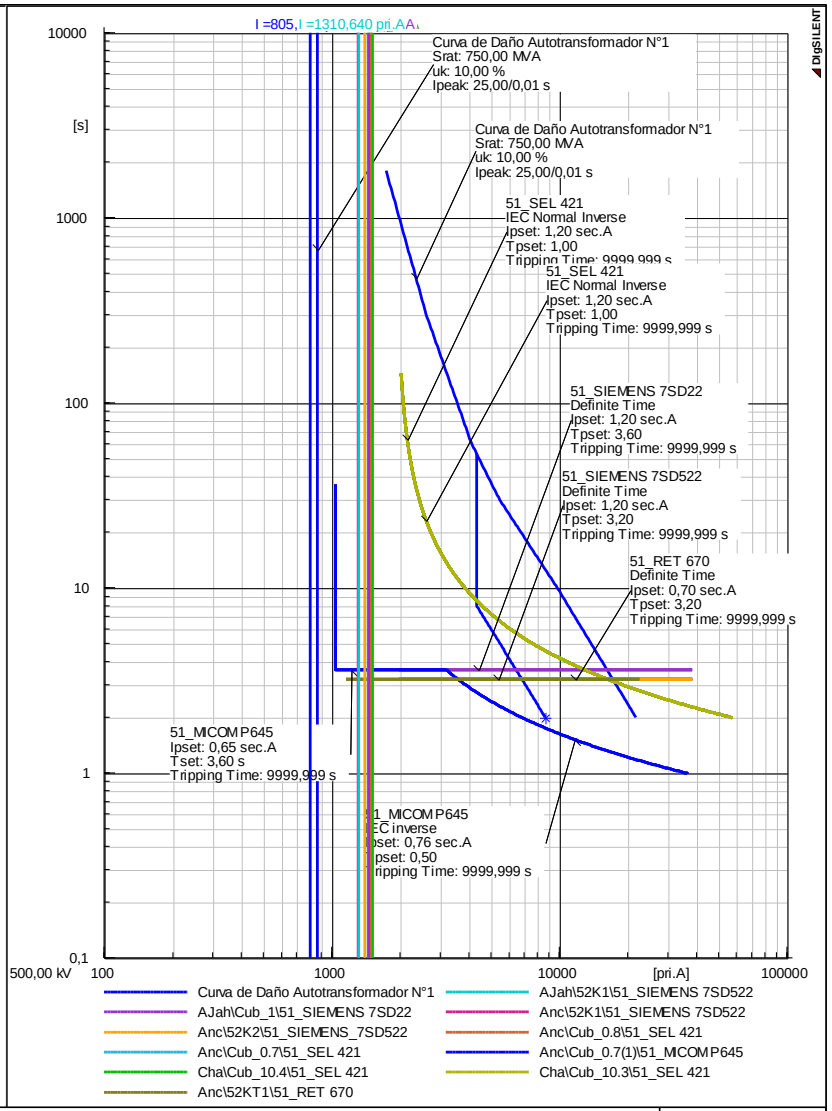

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

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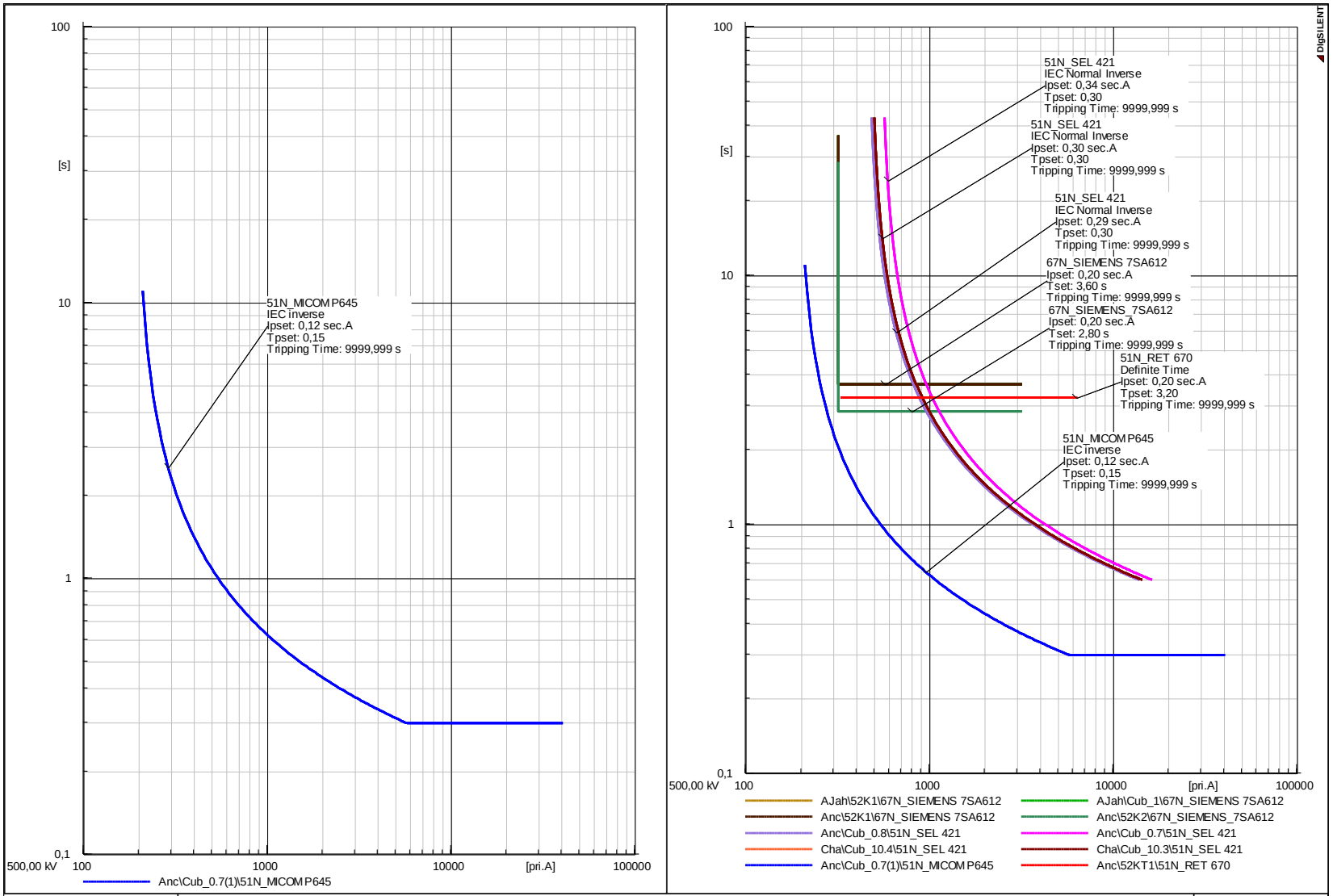
FUNCIÓN 51N LADO DE 500 KV



	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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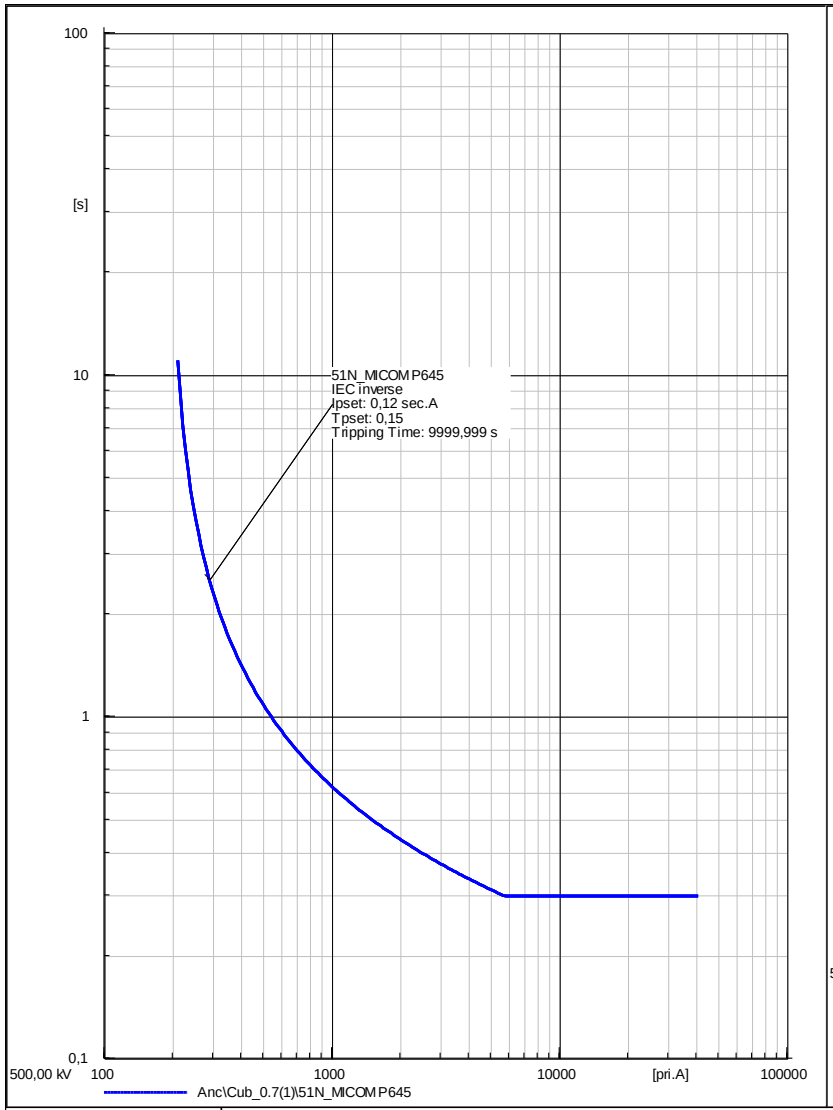
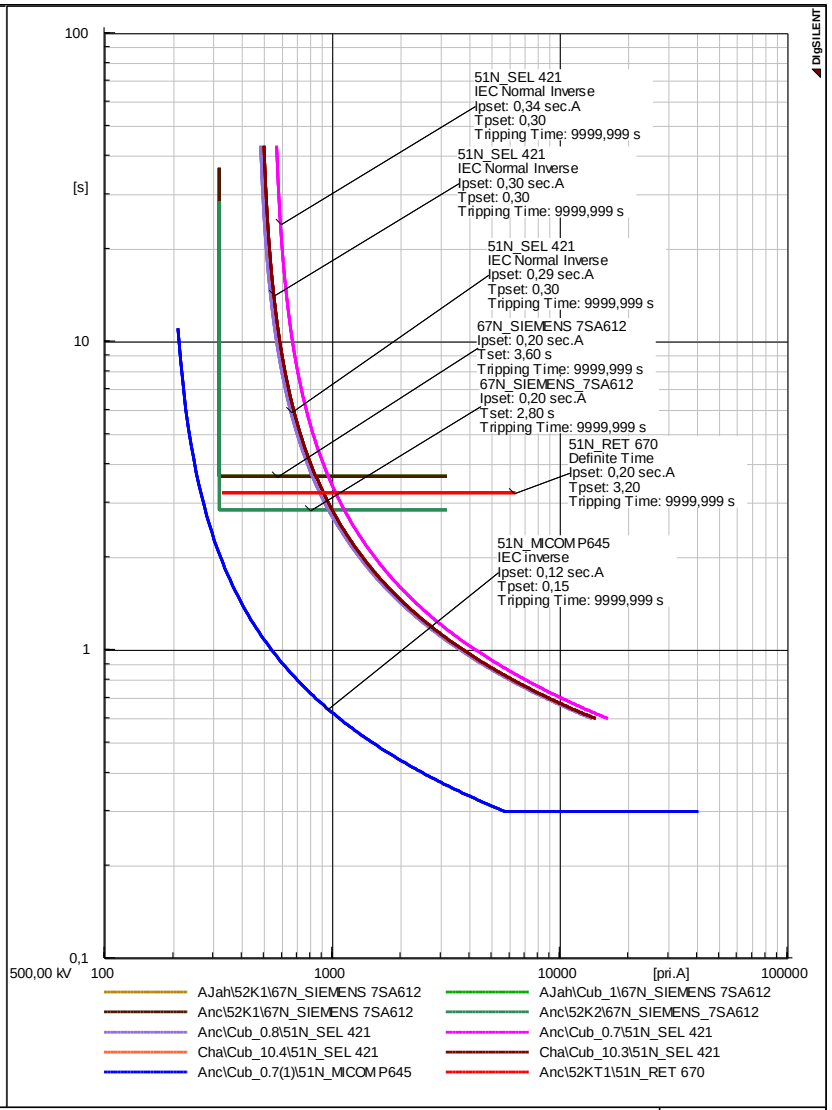
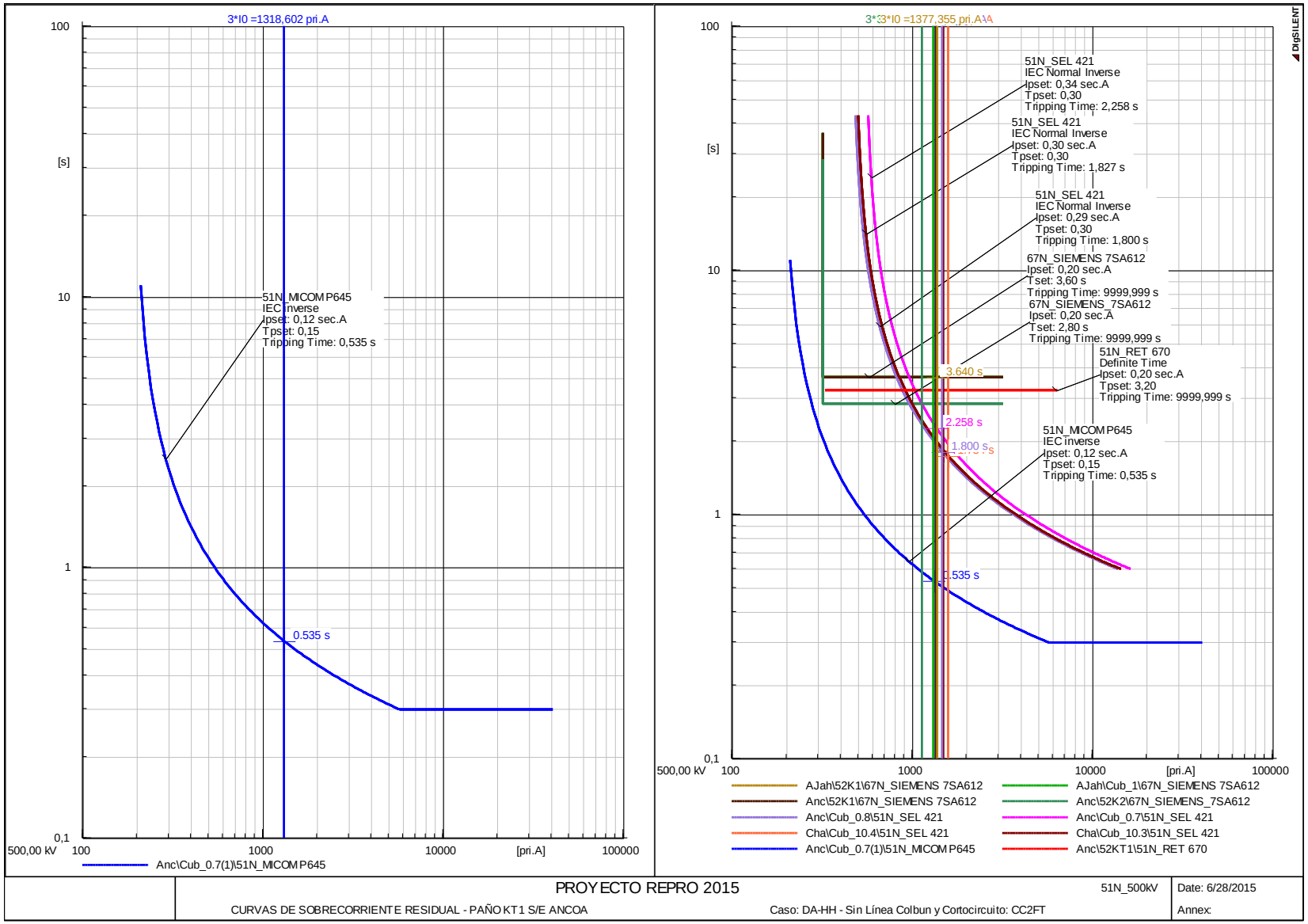




	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2F	Annex:



	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:

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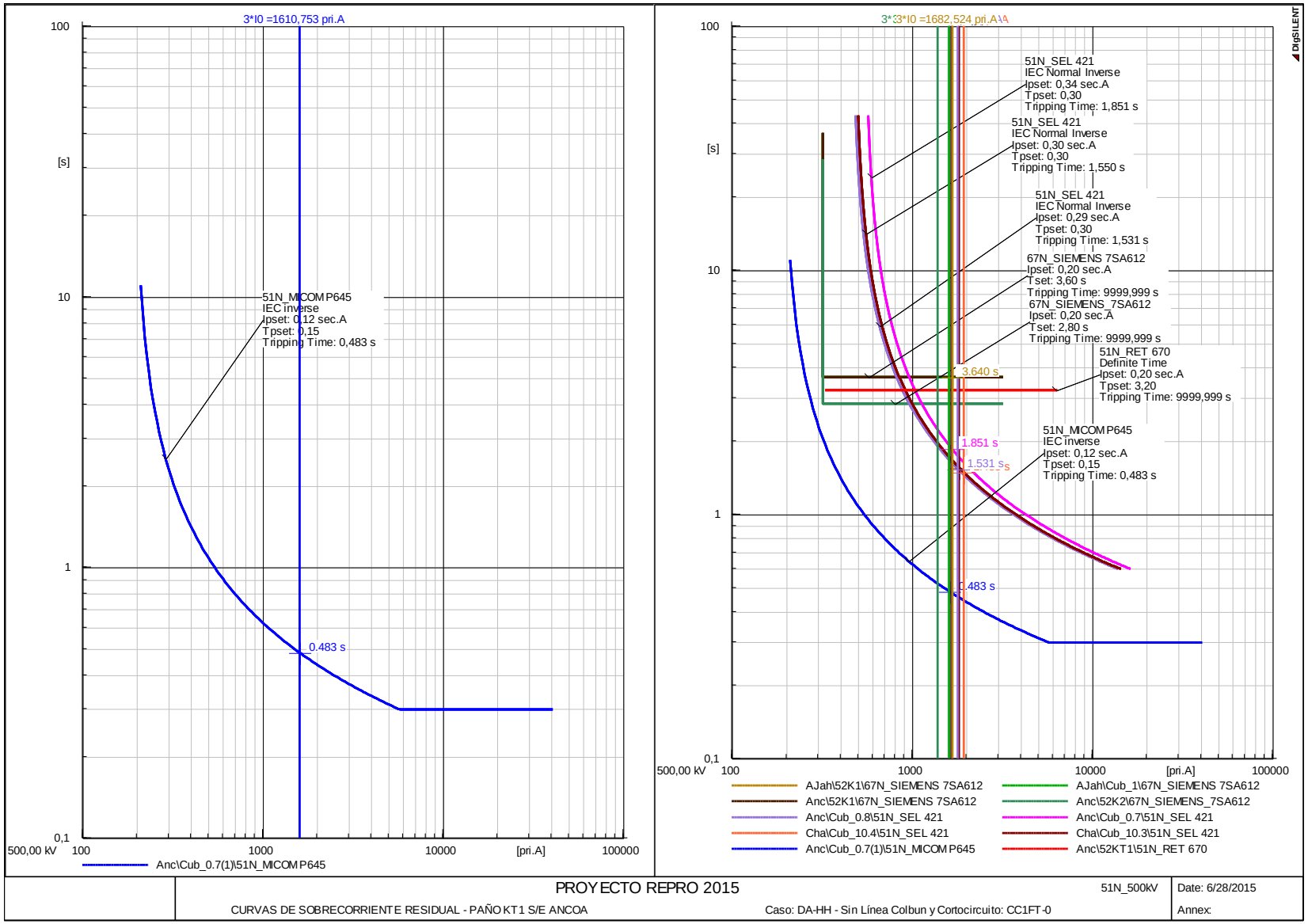

	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:

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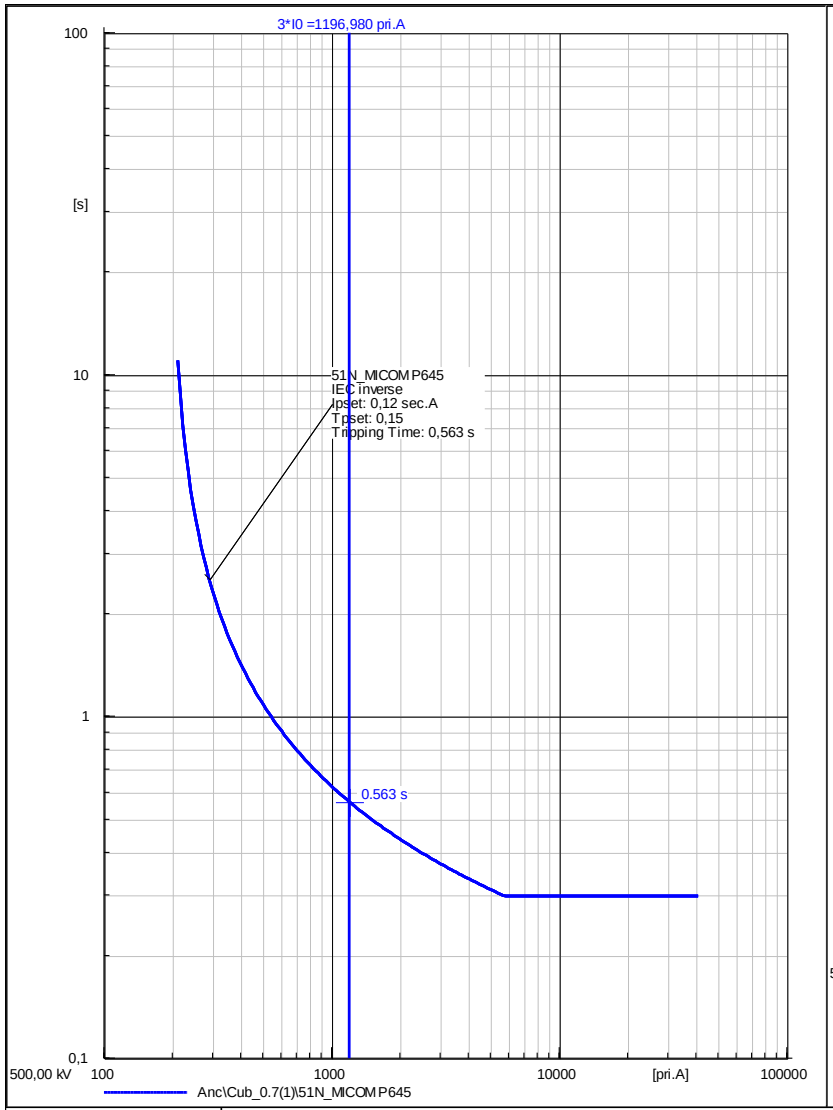

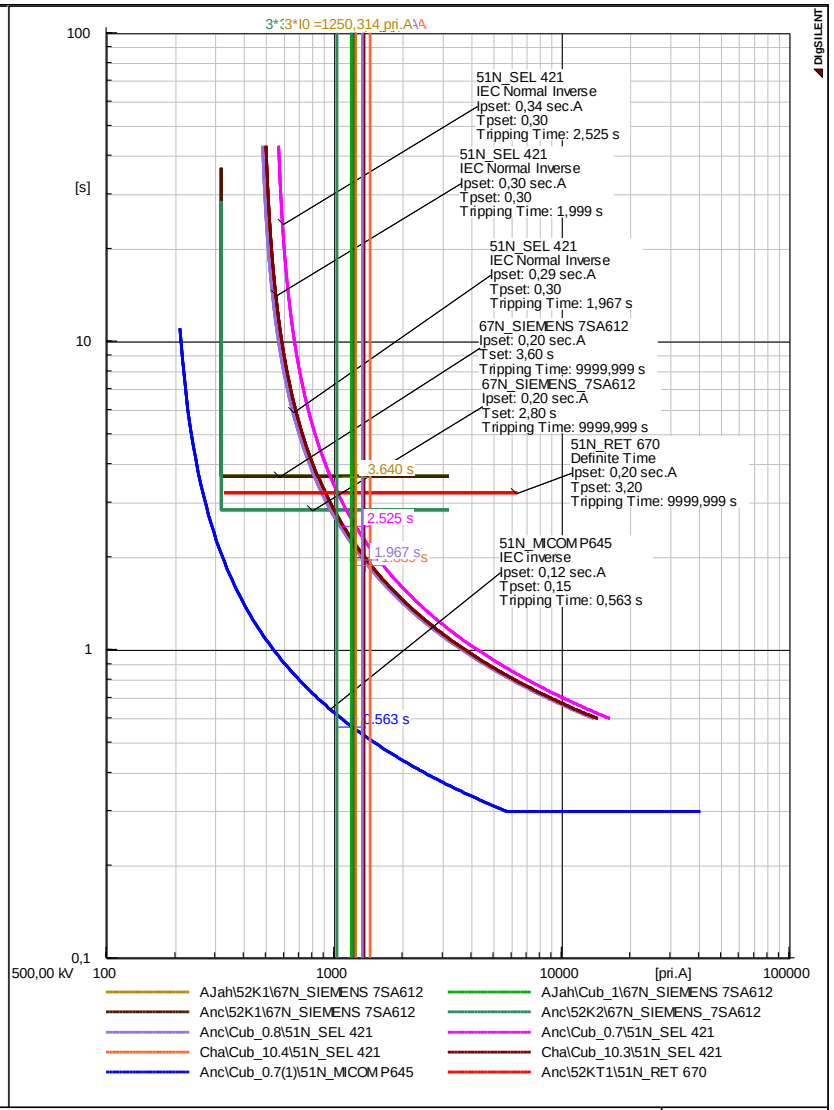

	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

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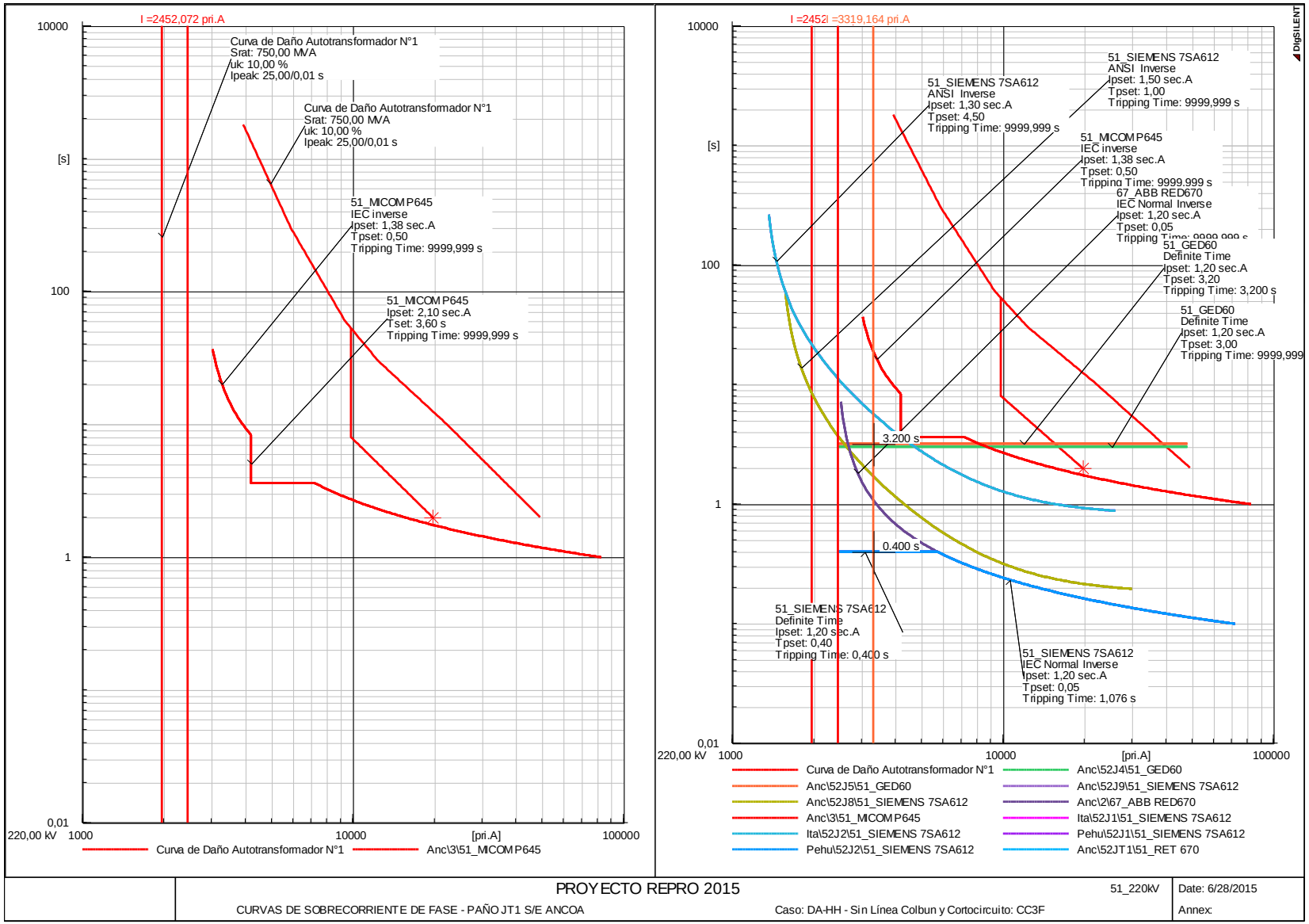
FALLA EN EL TERMINAL DE 525 KV DEL AUTOTRANSFORMADOR N°1

FUNCIÓN 51 LADO DE 220 KV



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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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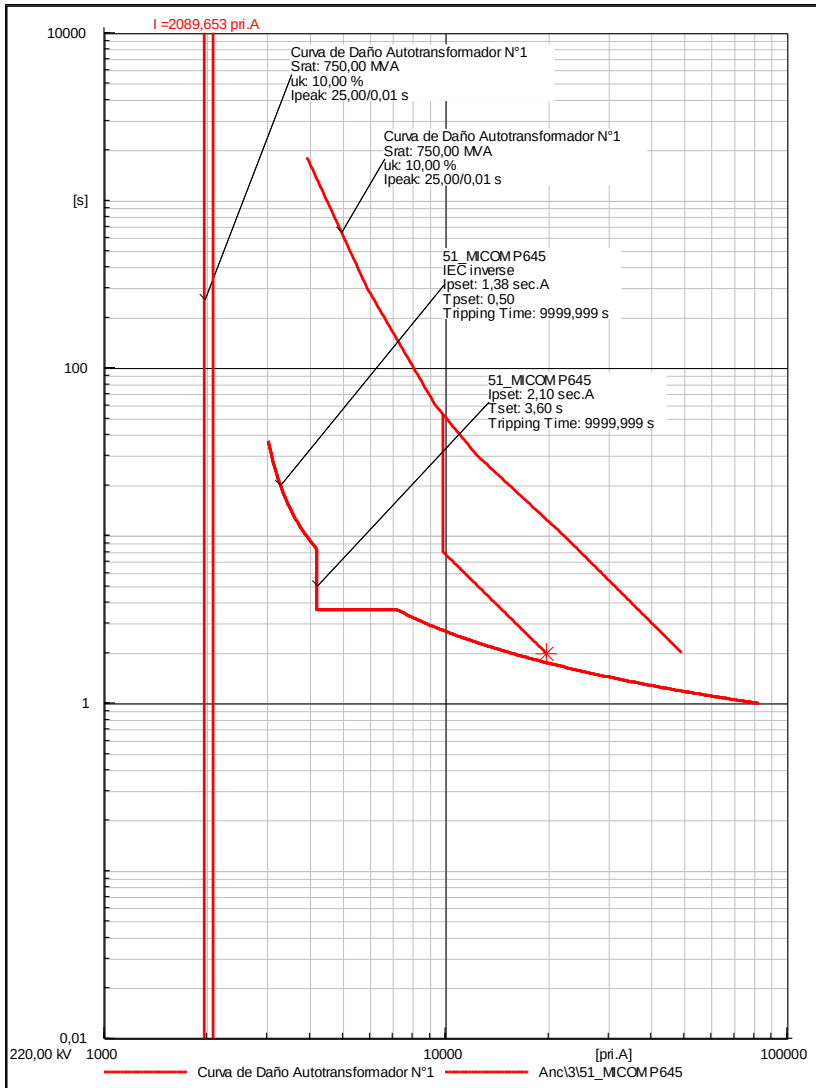
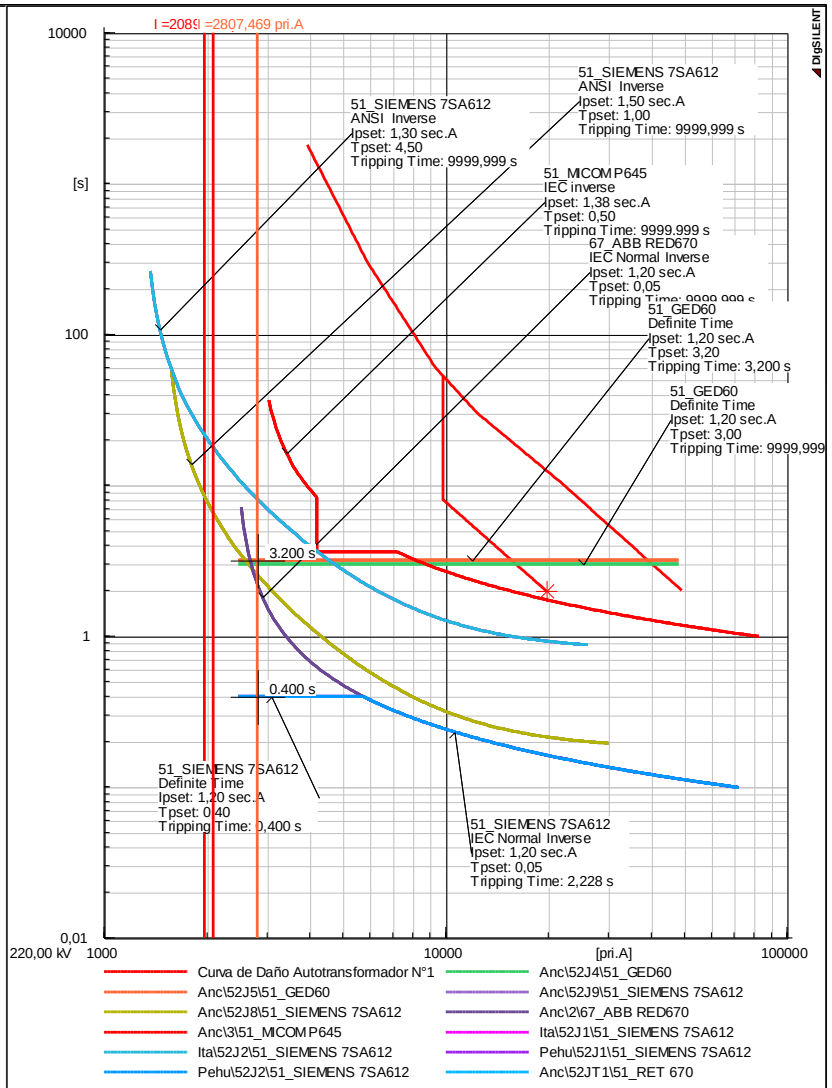
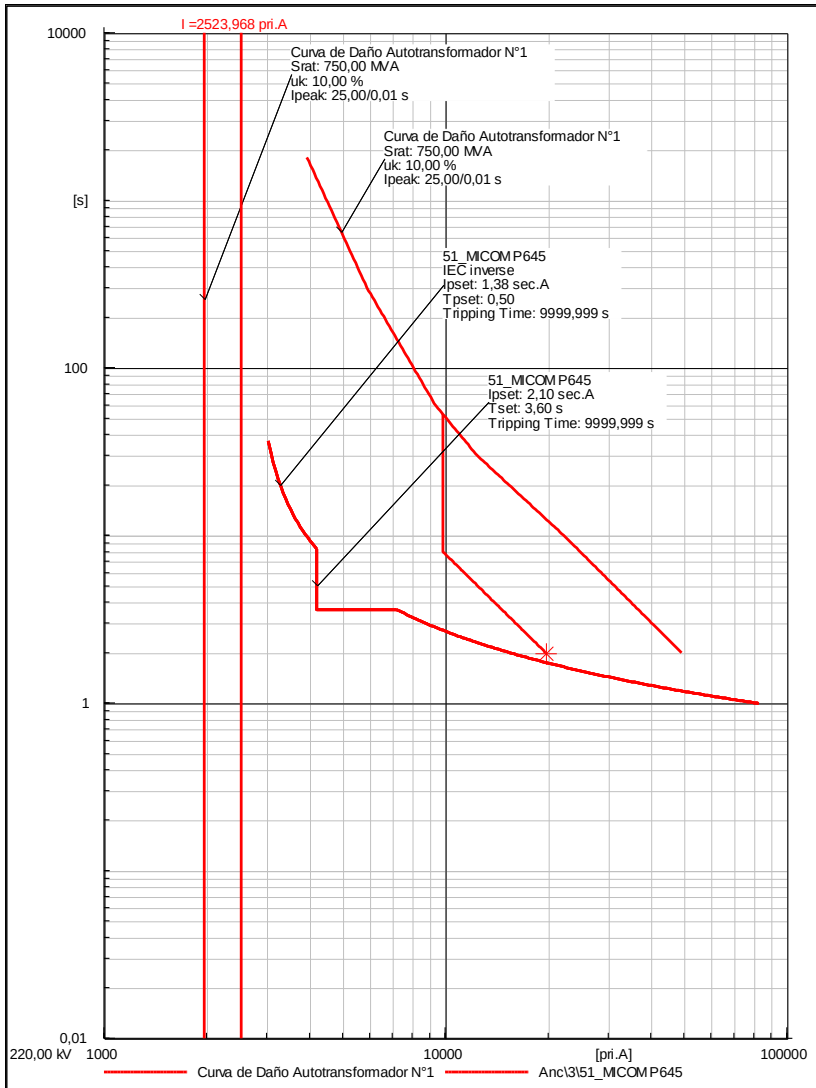
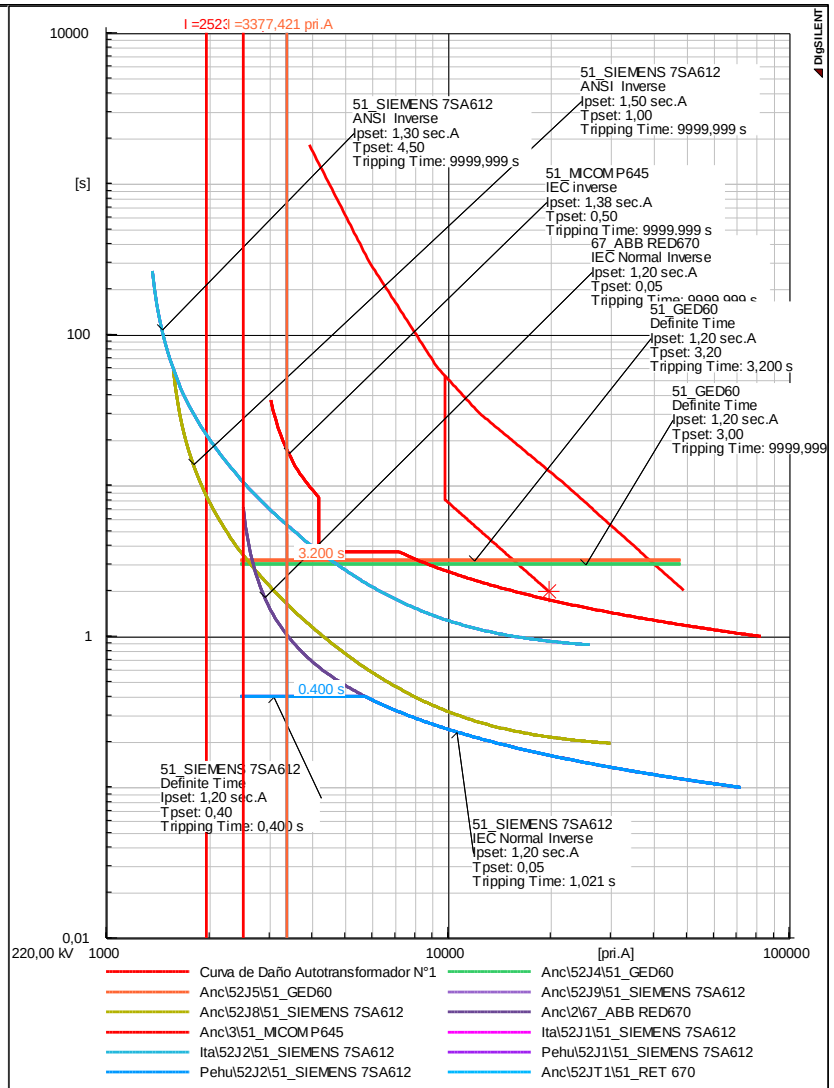


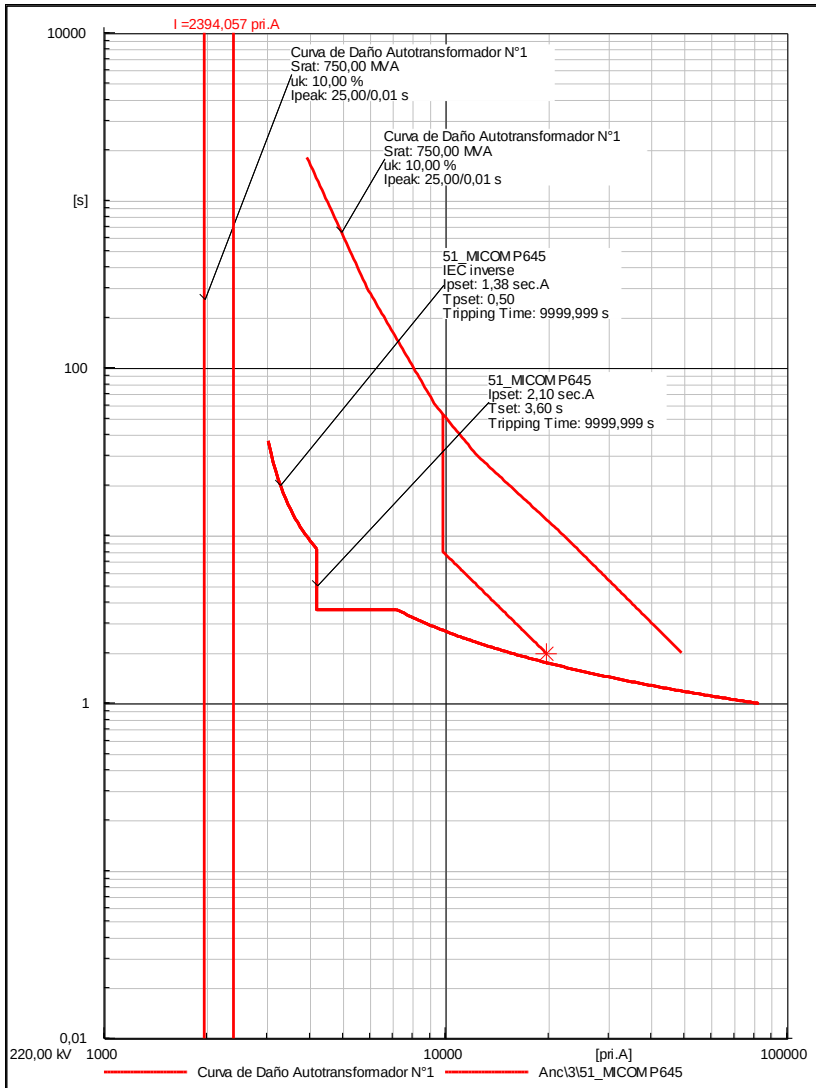


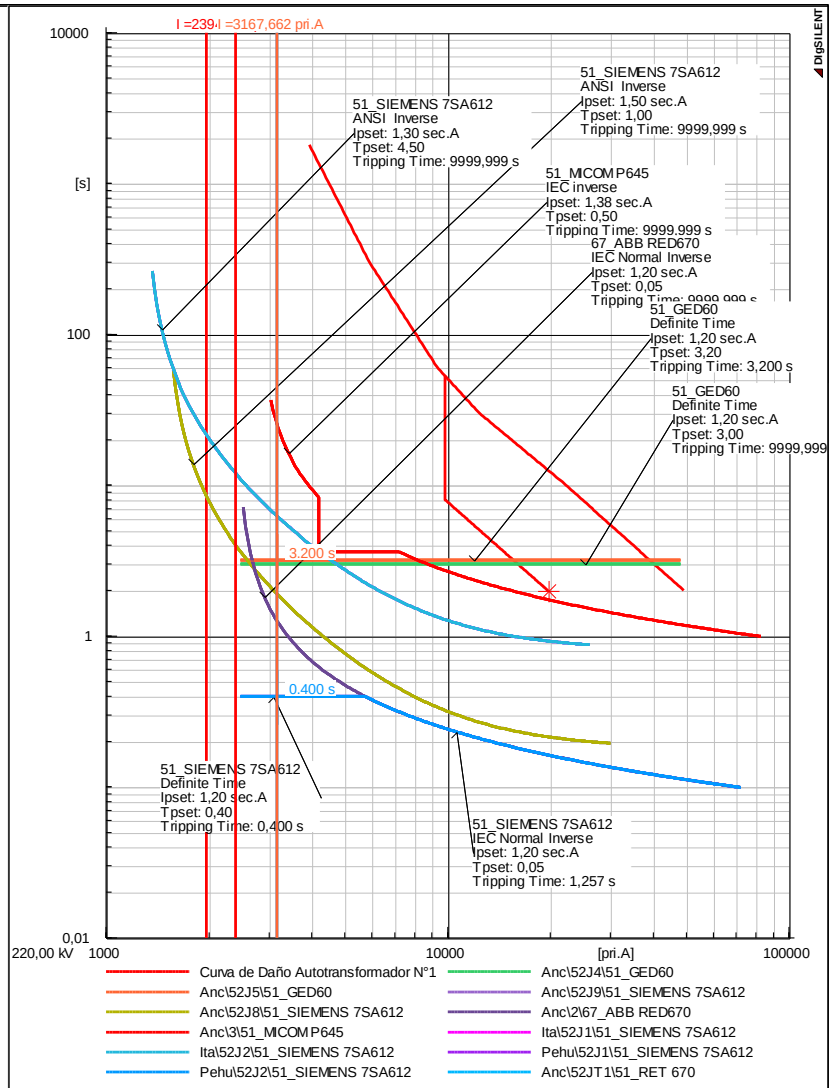
	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2F	Annex:



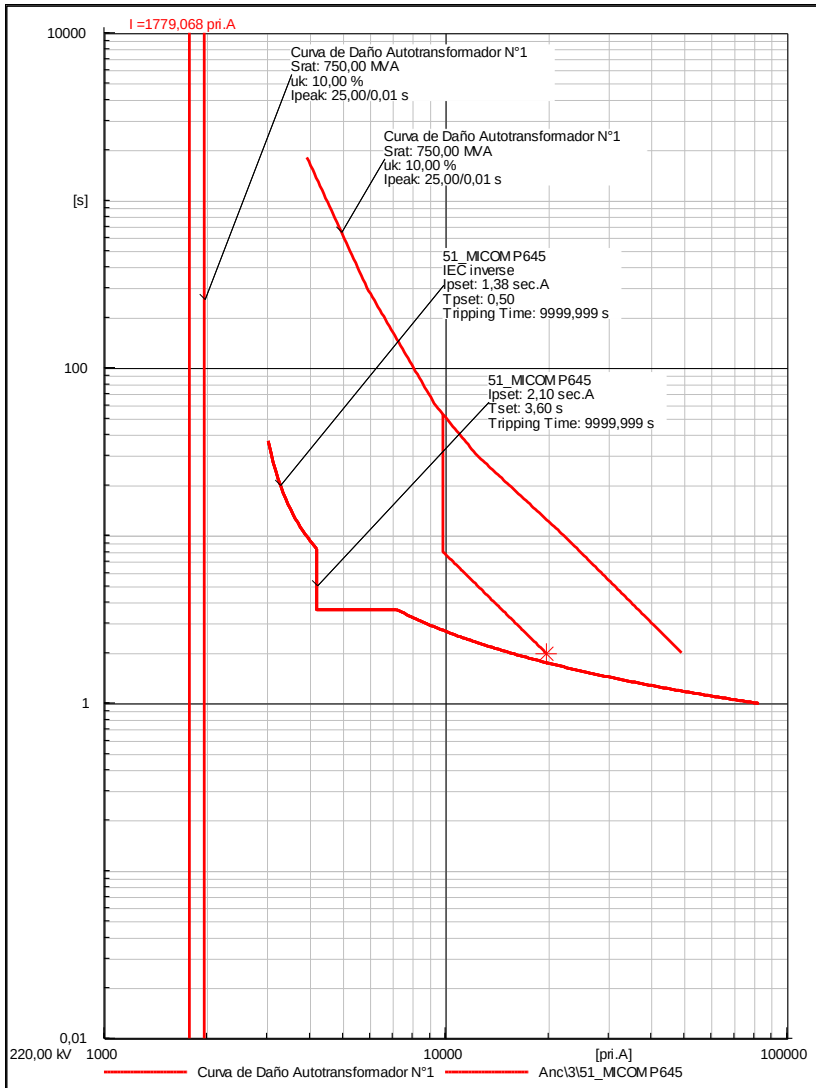


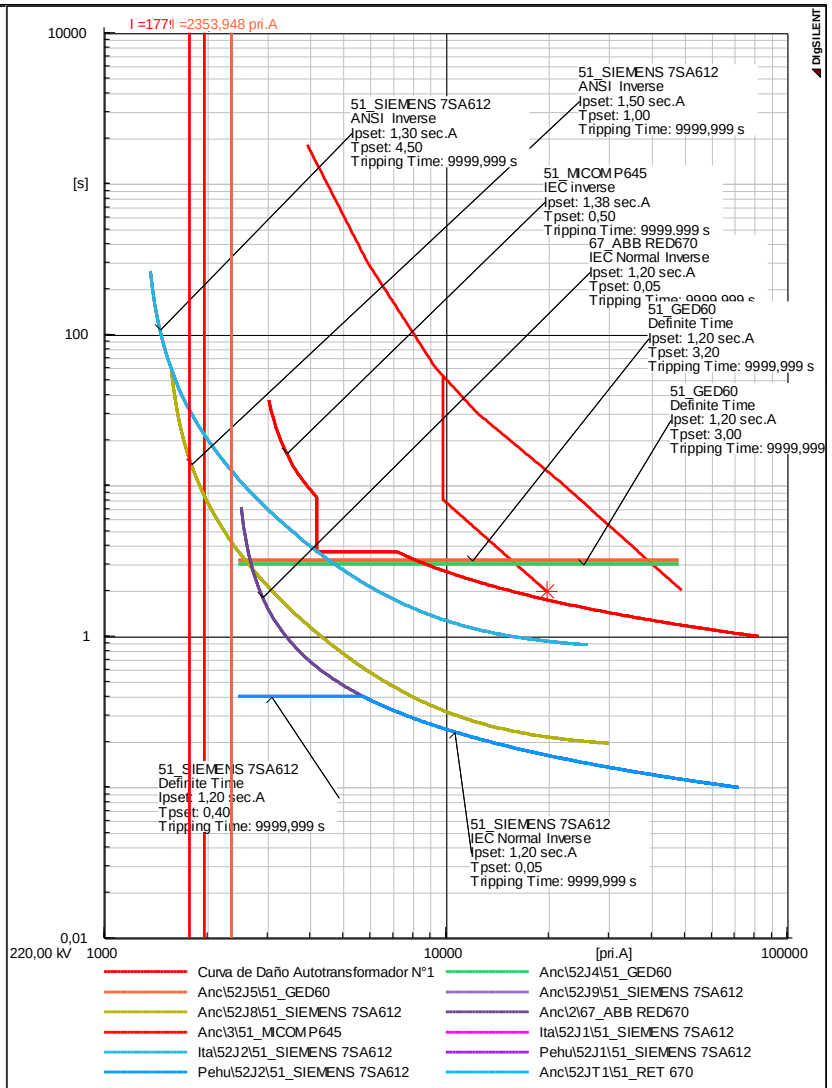
	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:





	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:





	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

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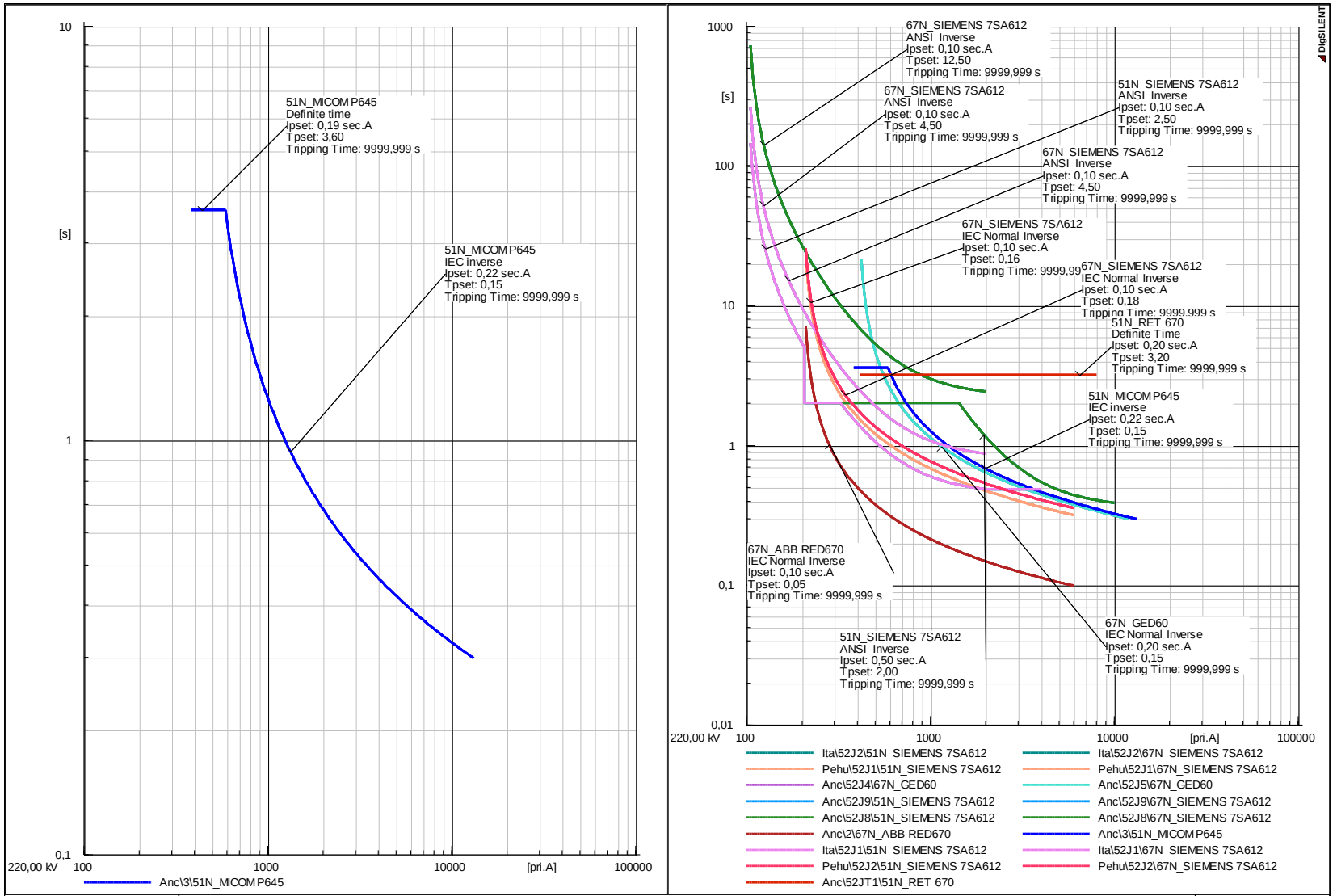
FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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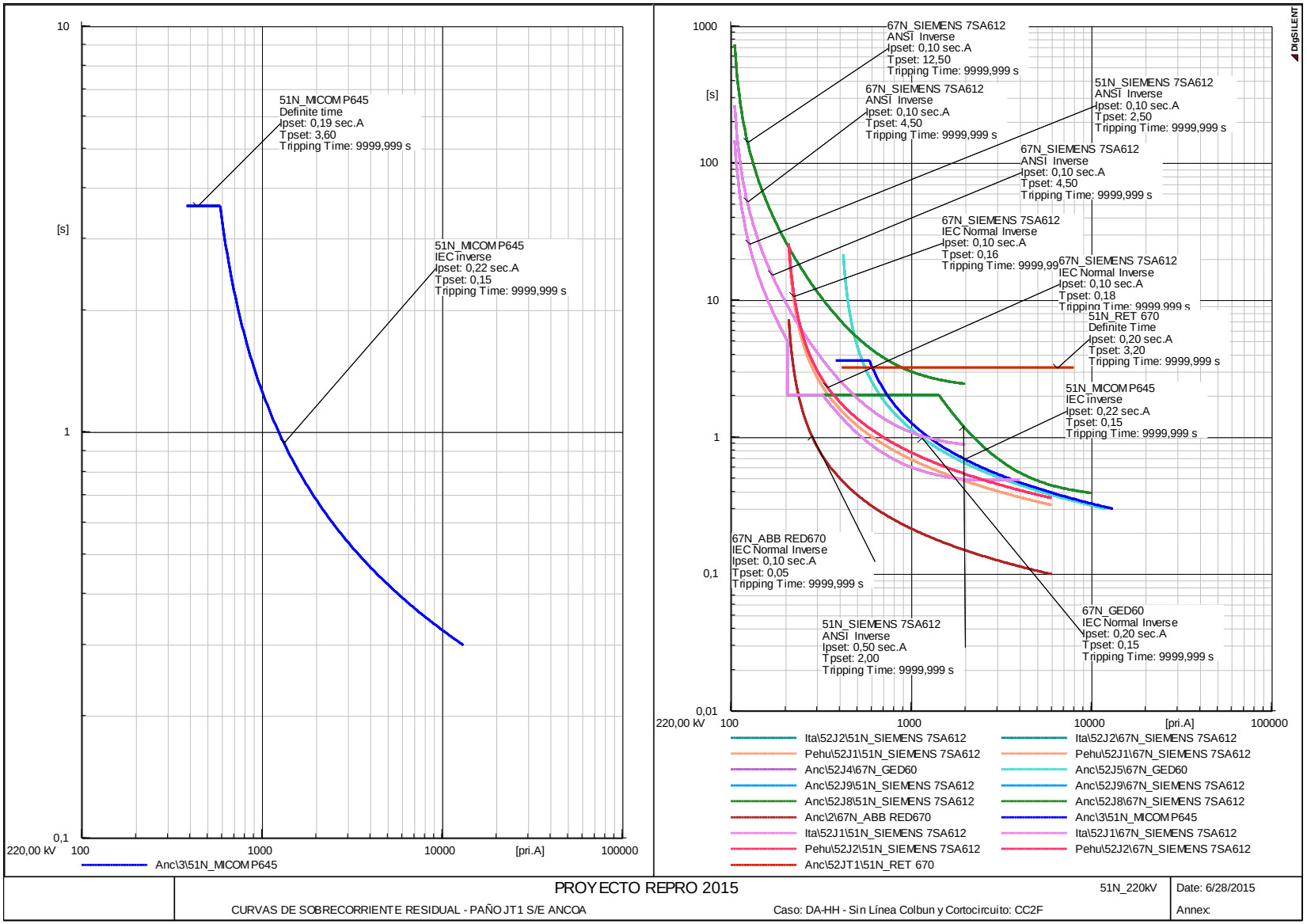

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2F	Annex:

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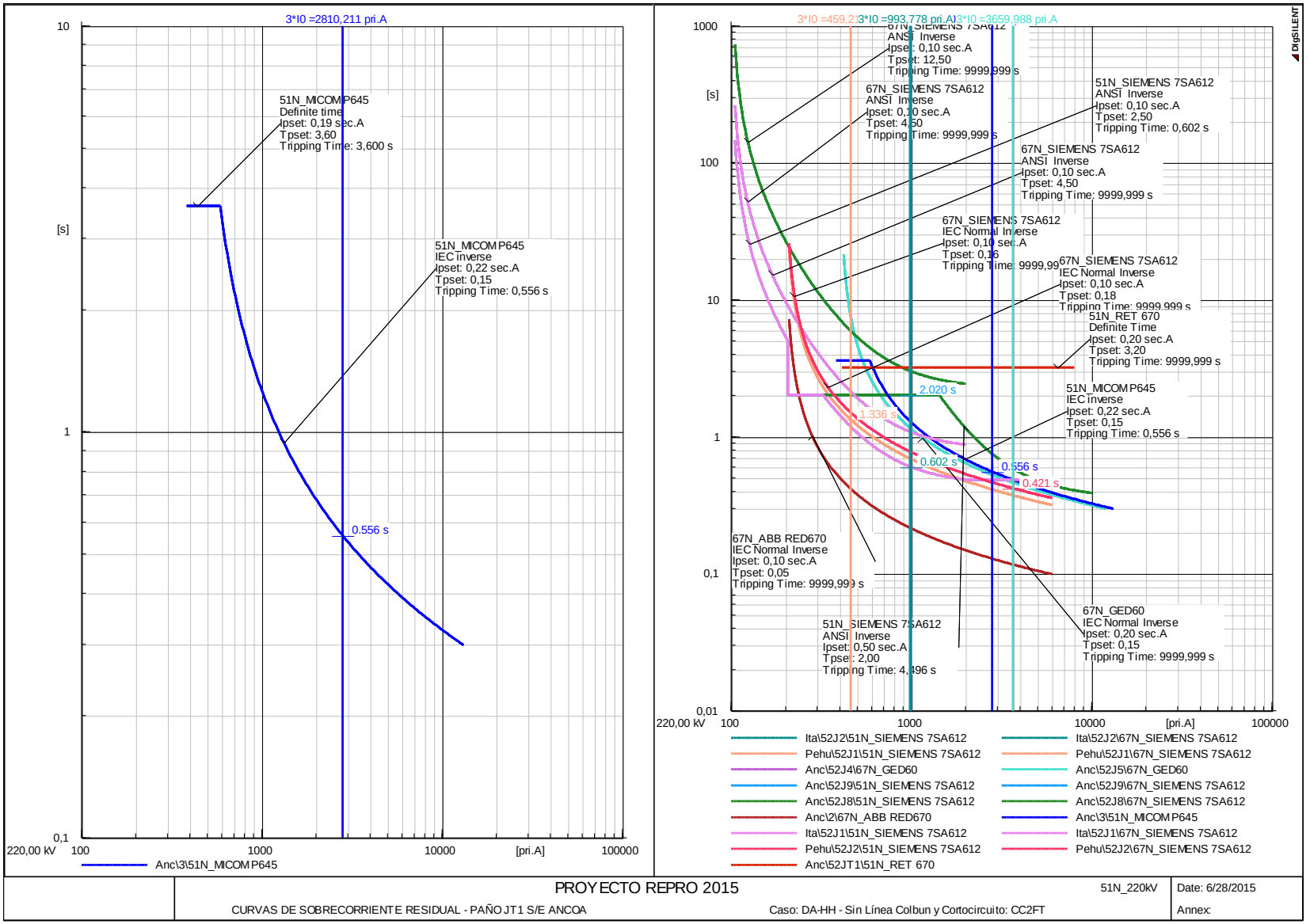

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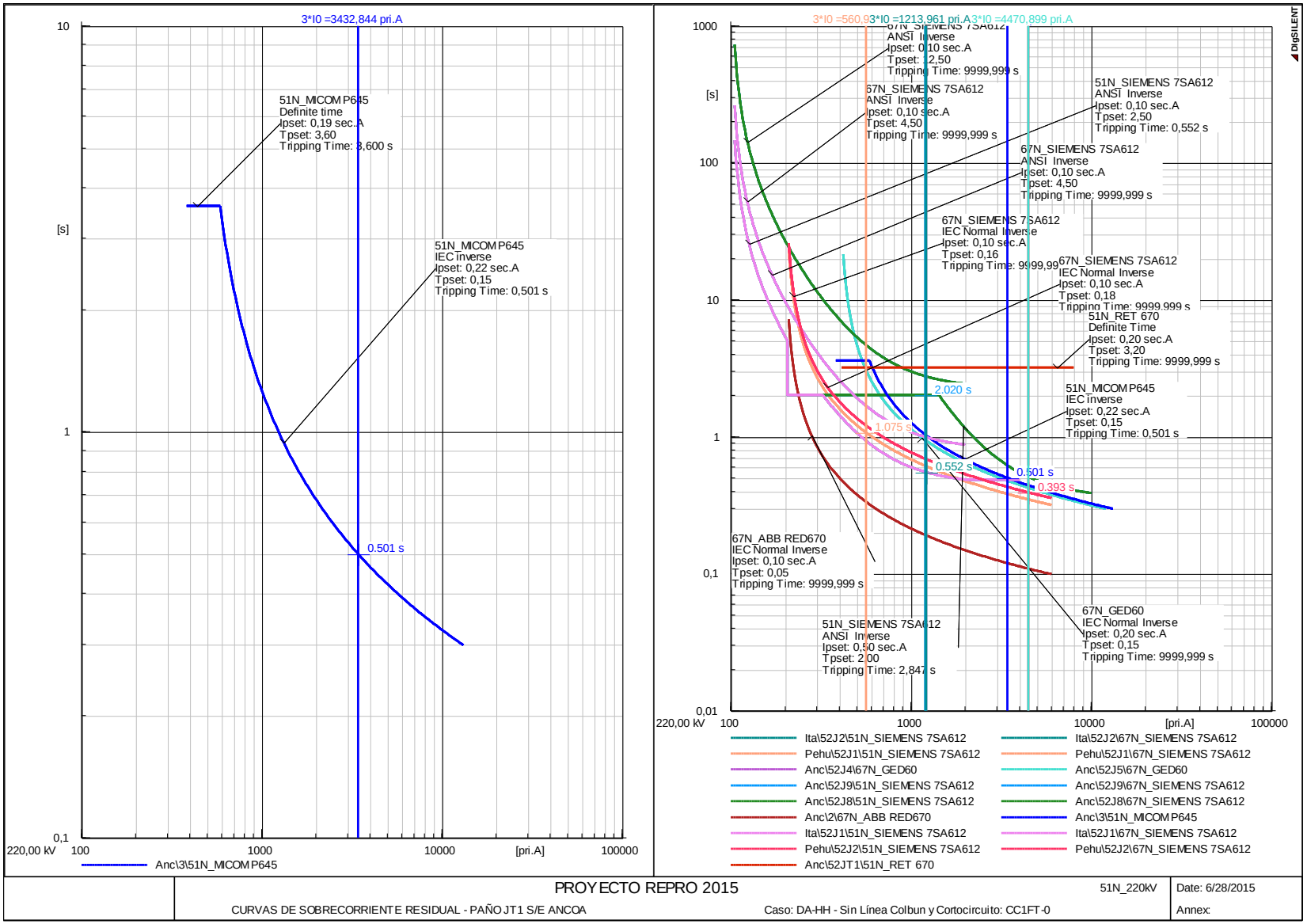

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:

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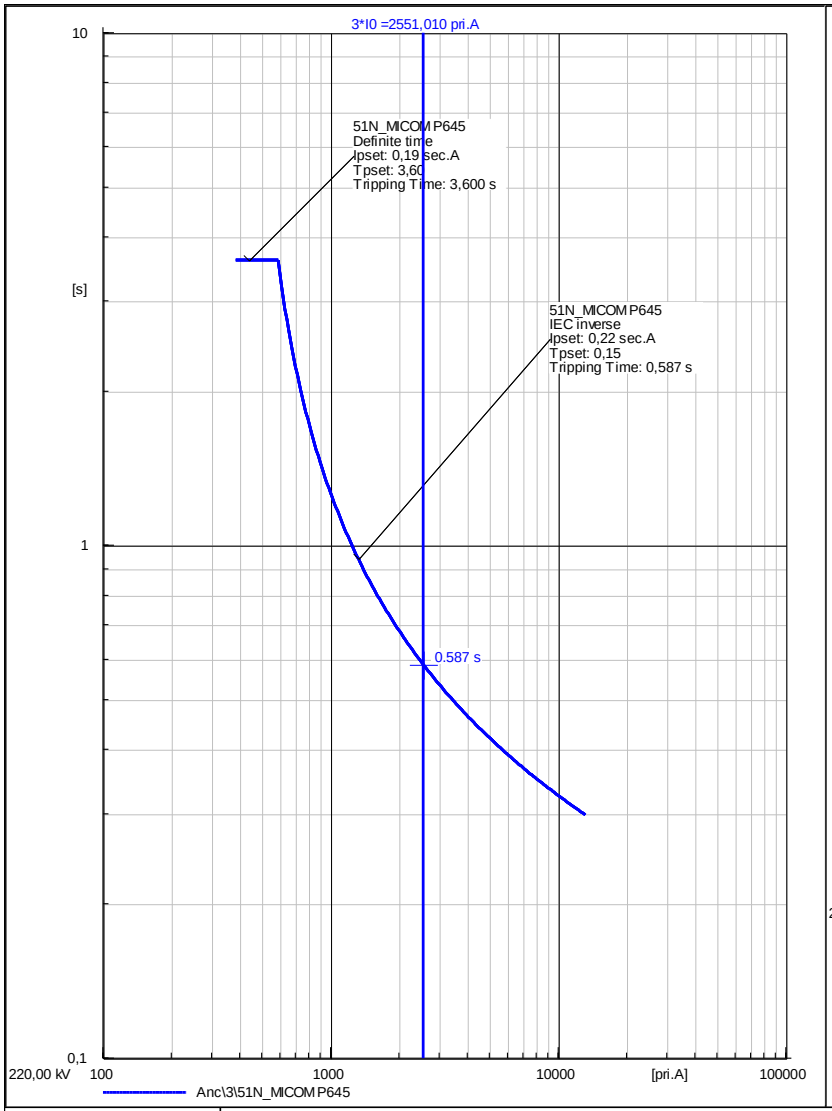

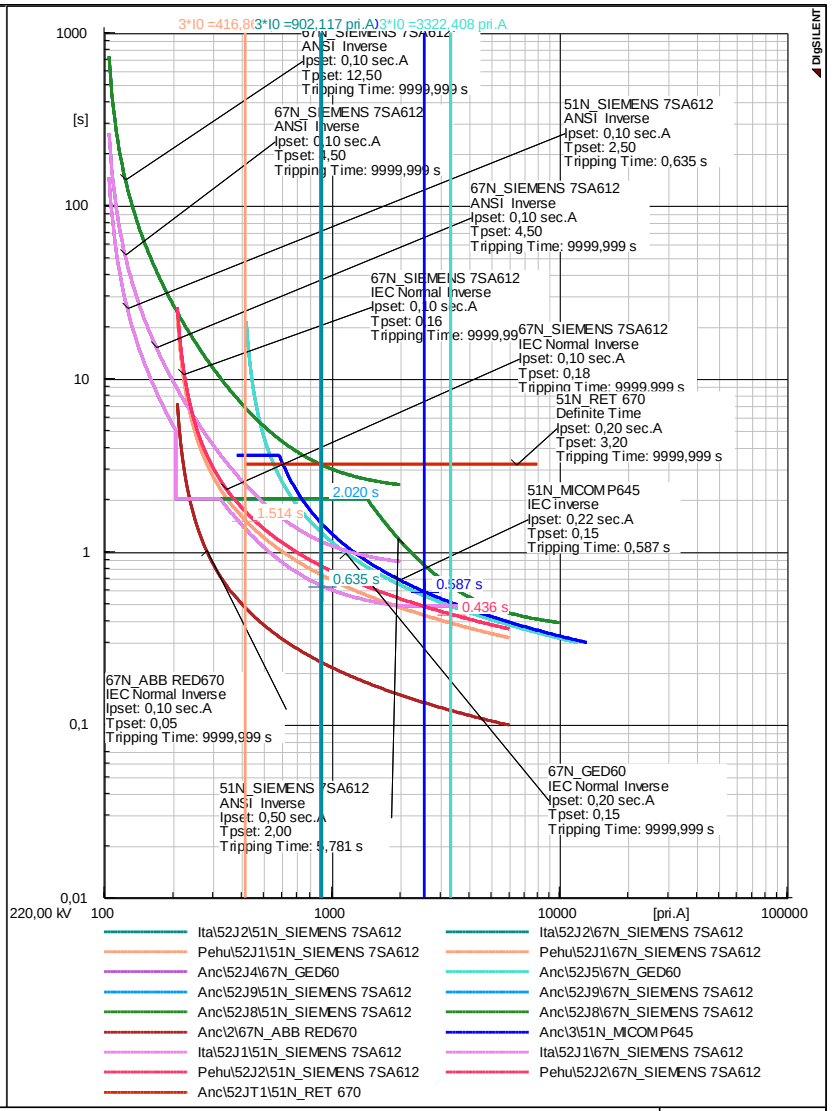

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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

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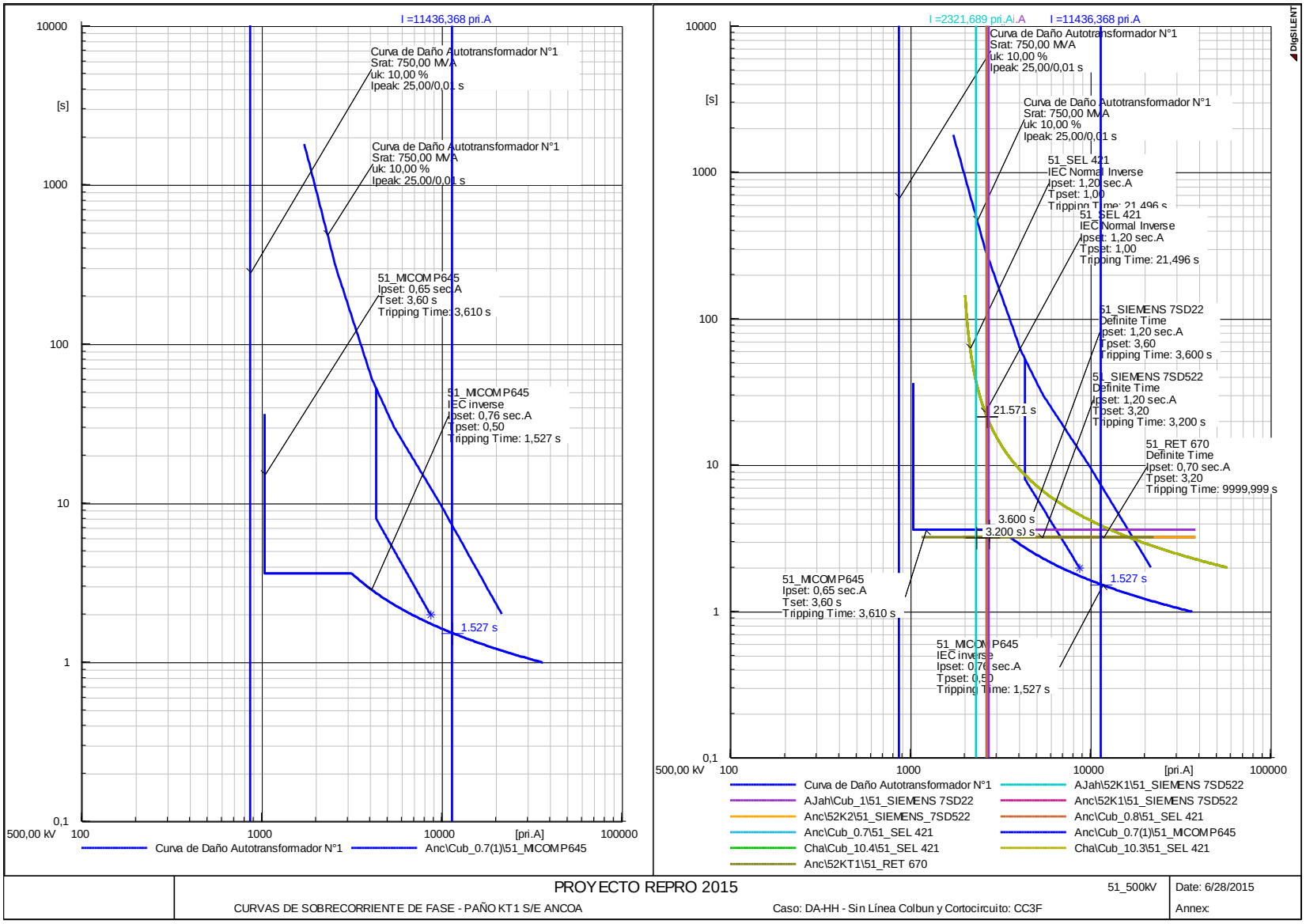
FUNCIÓN 51 LADO DE 500 KV



	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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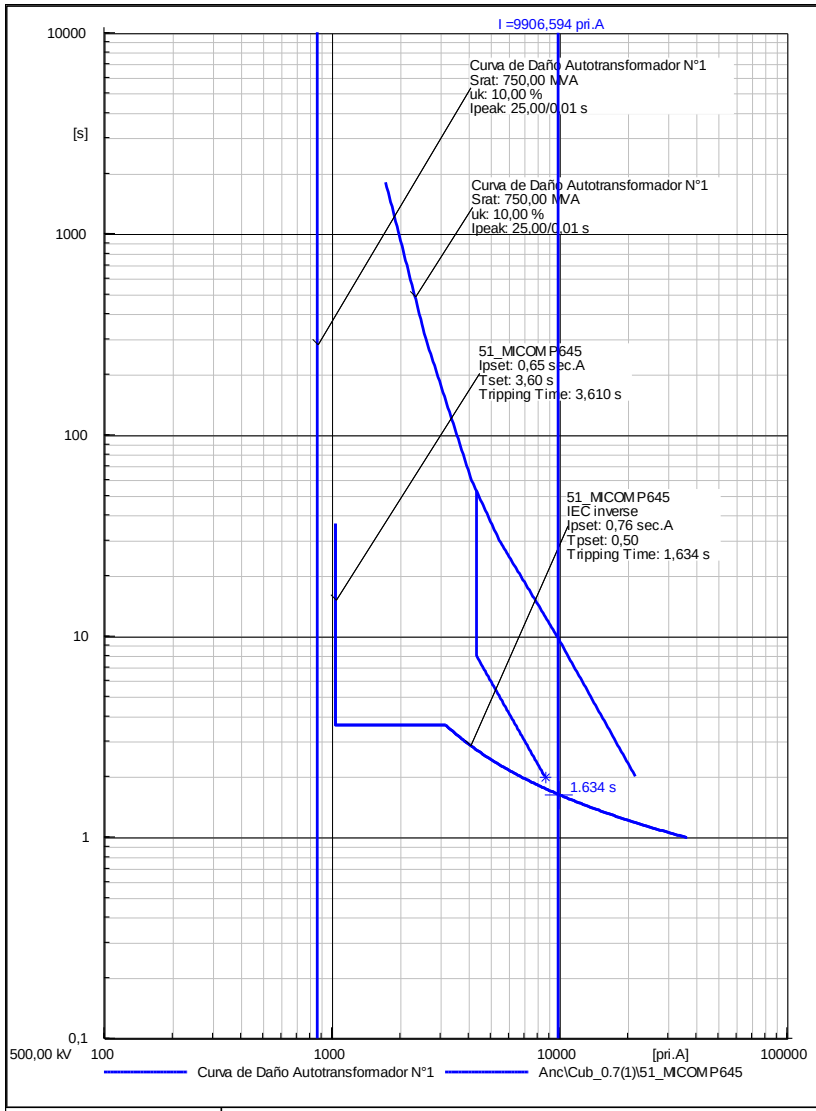

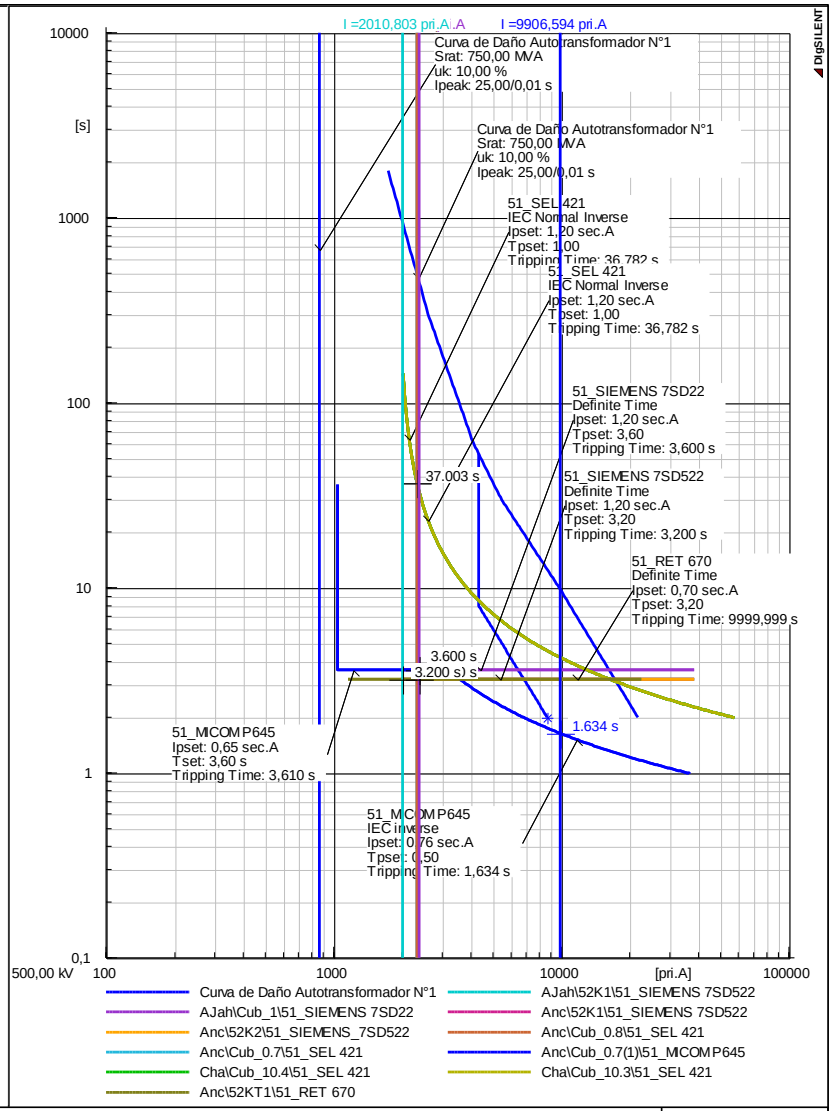

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2F	Annex:

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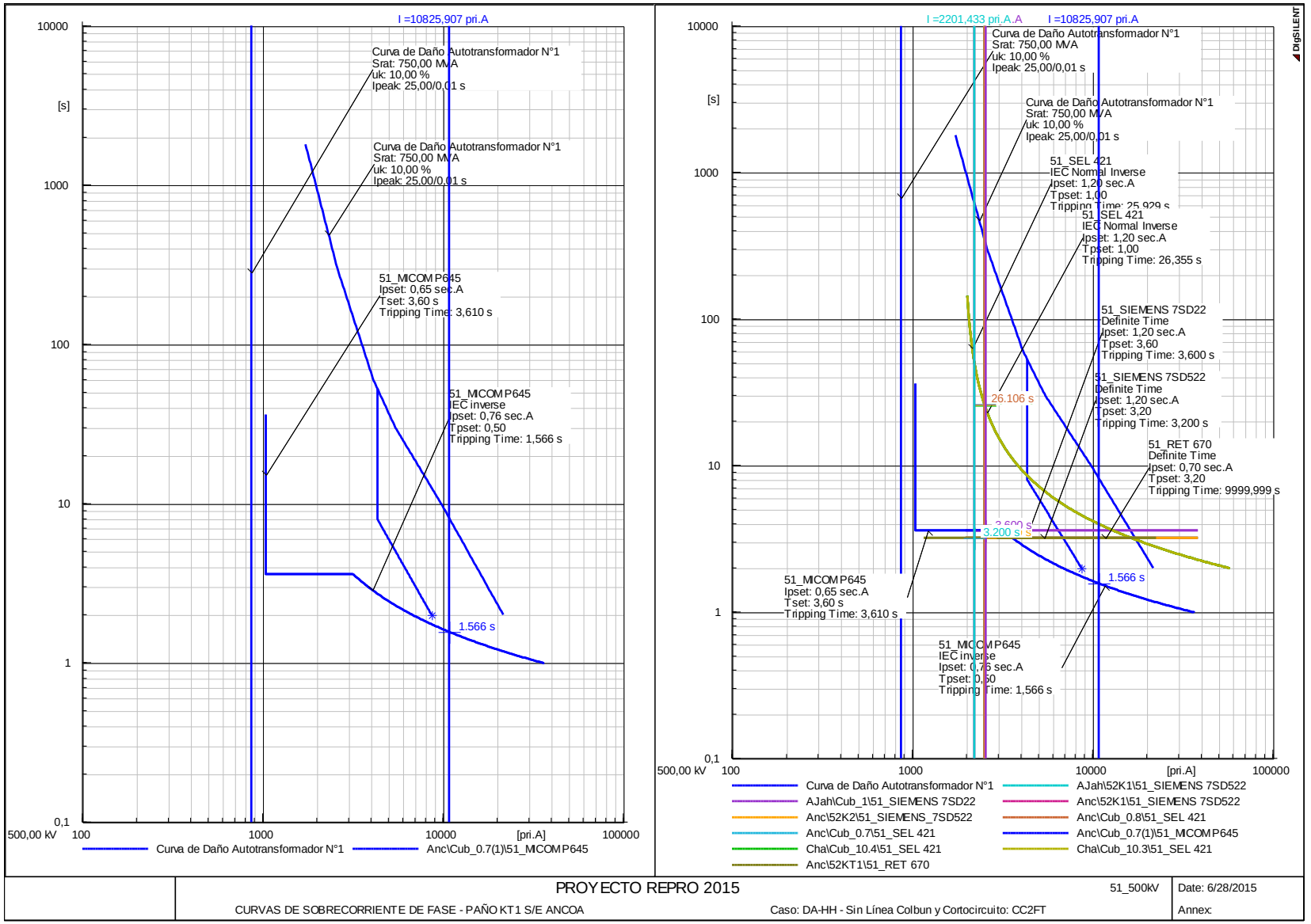

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:

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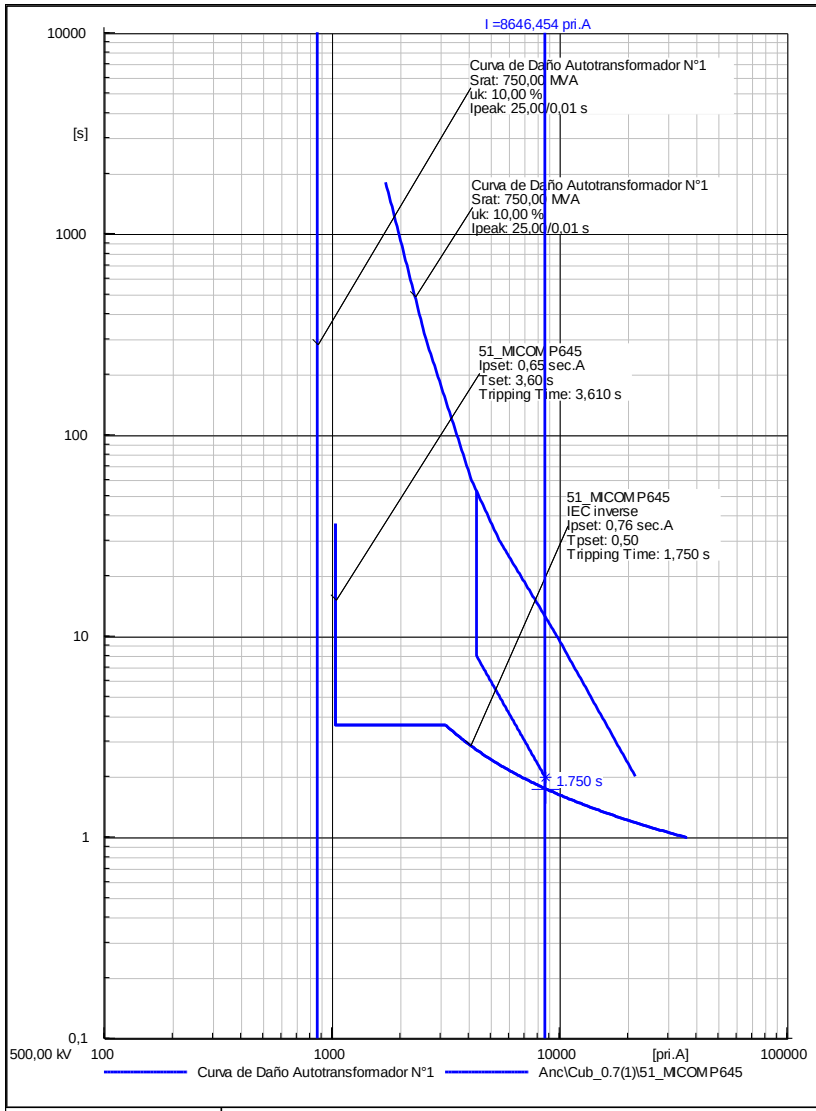

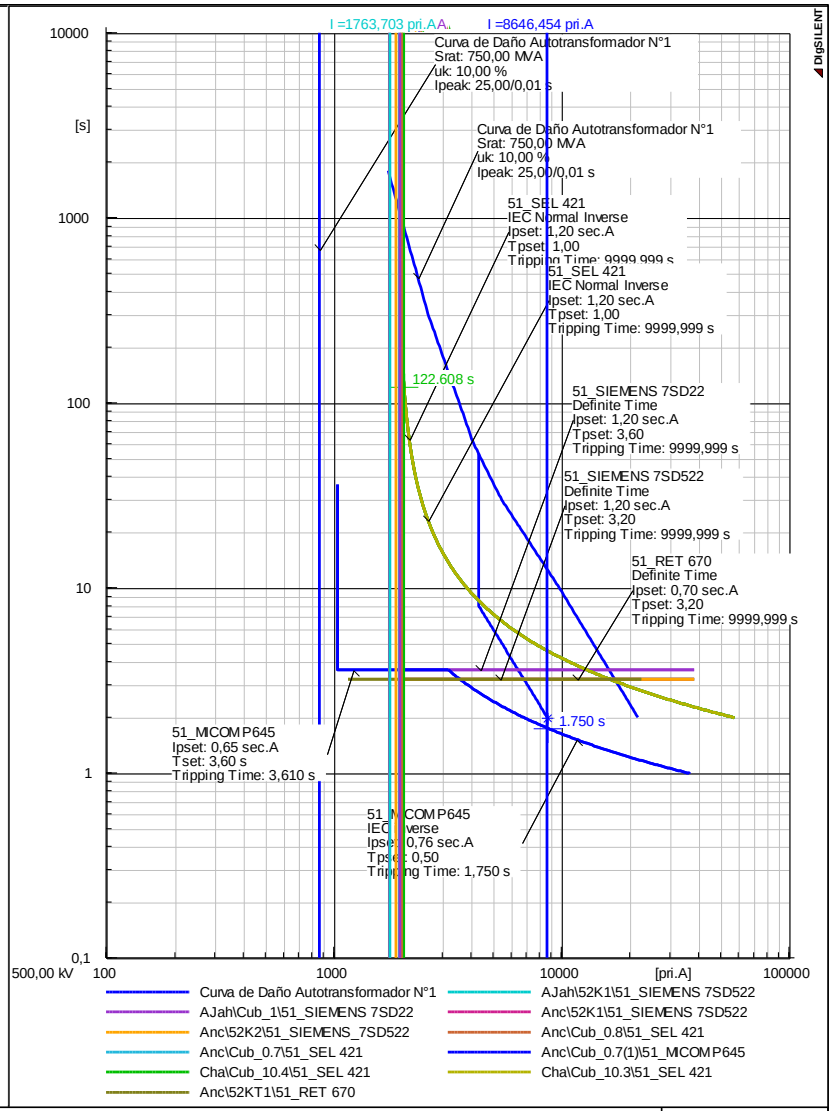

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:

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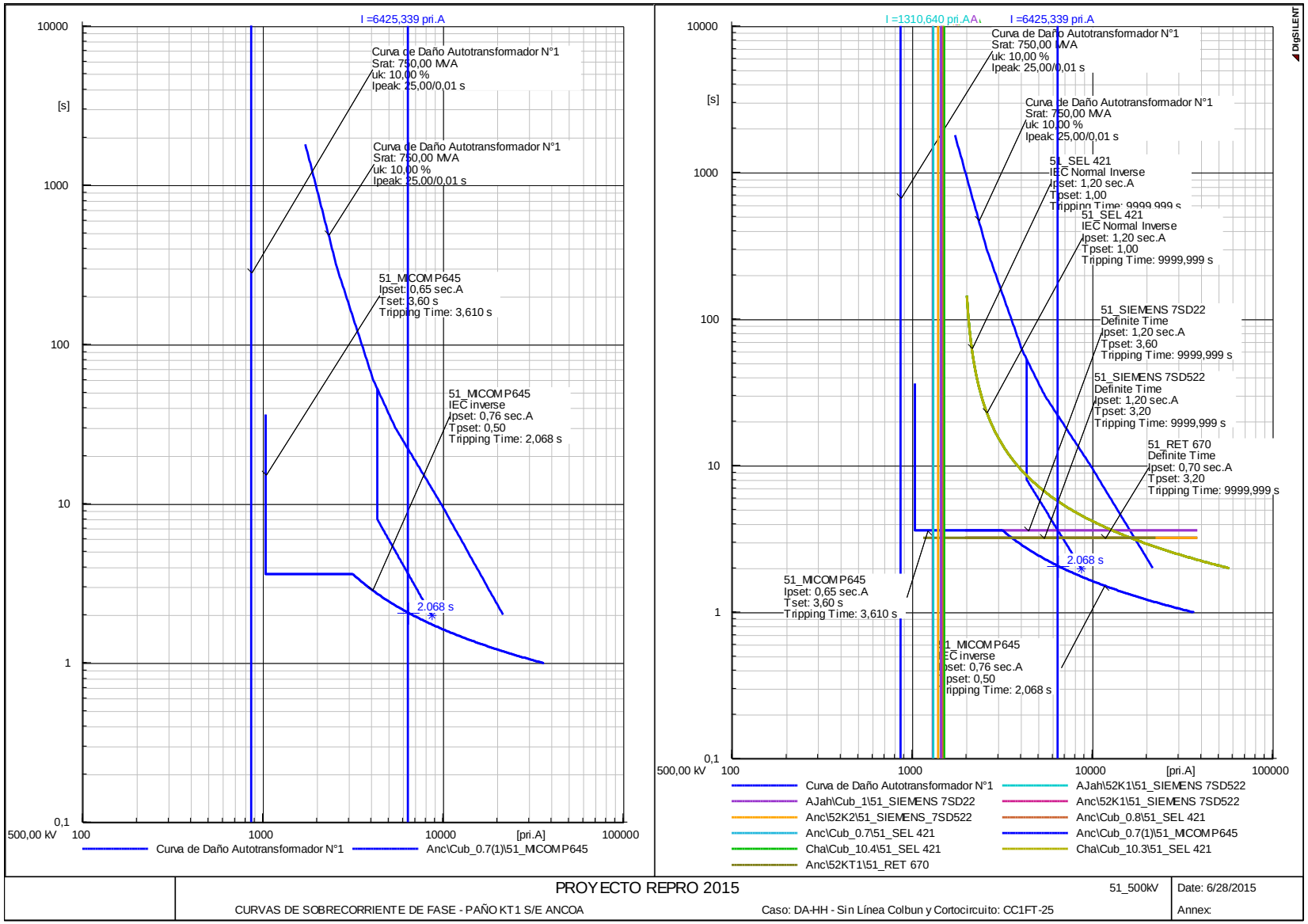

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

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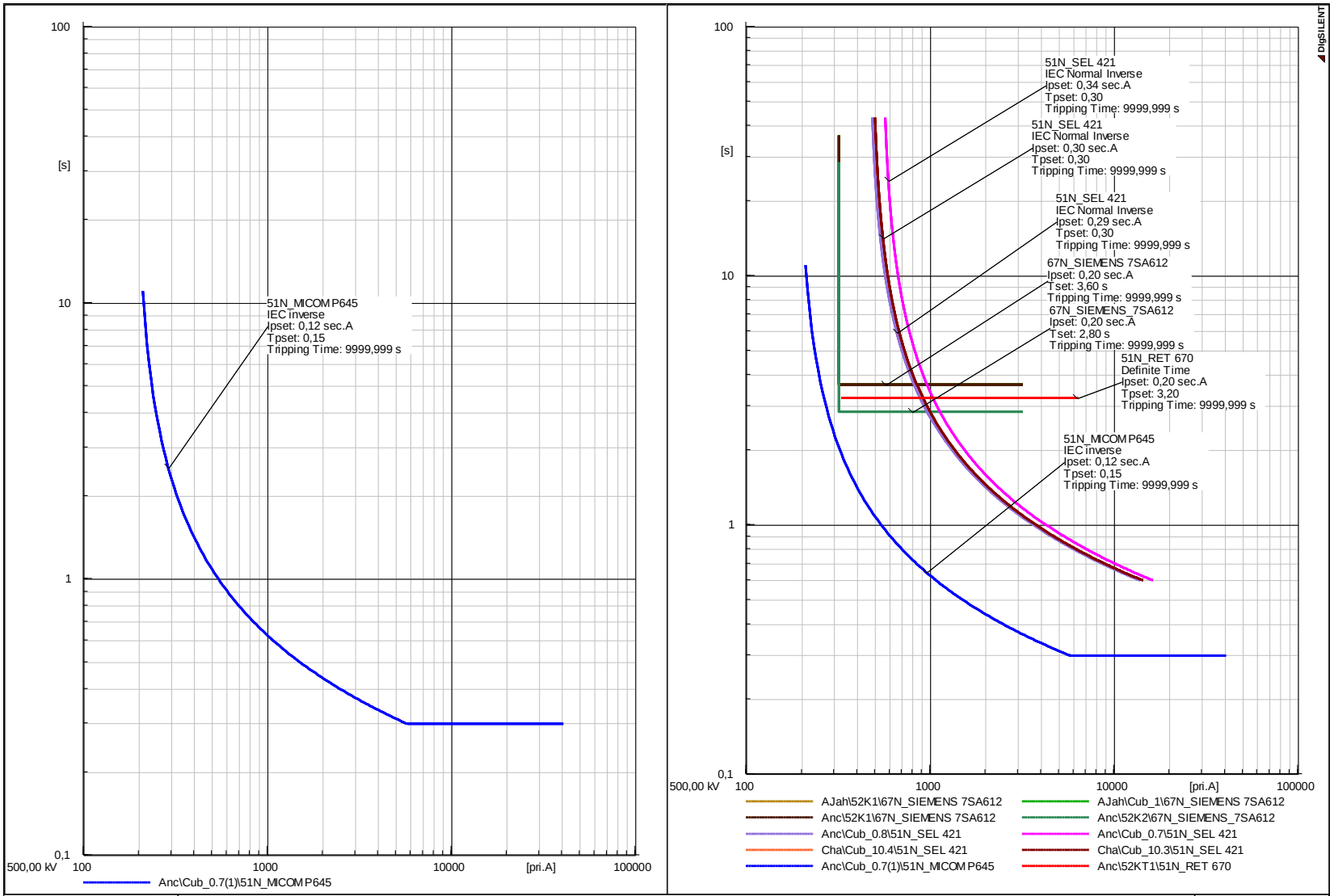
FUNCIÓN 51N LADO DE 500 KV



	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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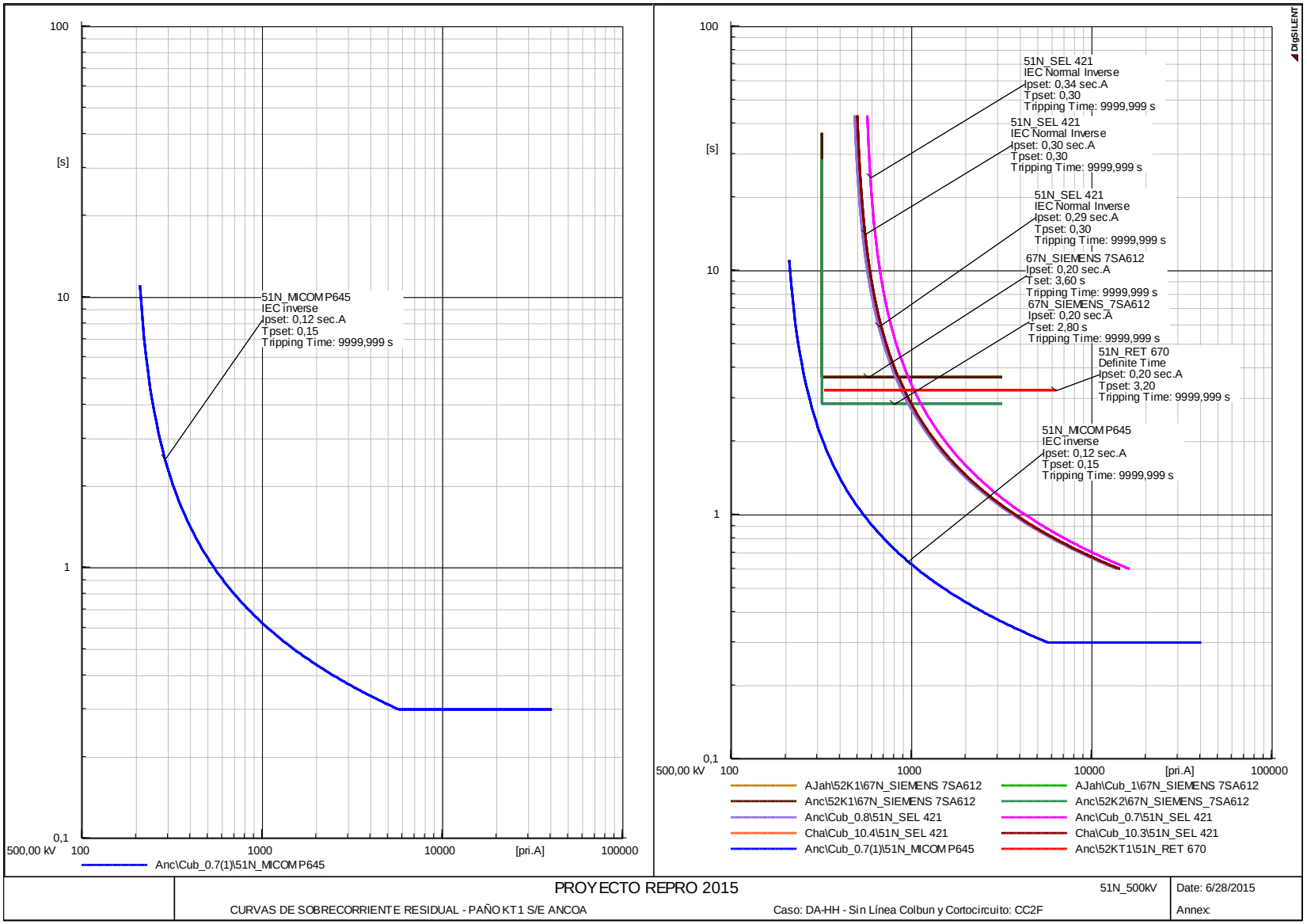

PROYECTO REPRO 2015 | 51N_500kV | Date: 6/28/2015

CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA | Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2F | Annex:

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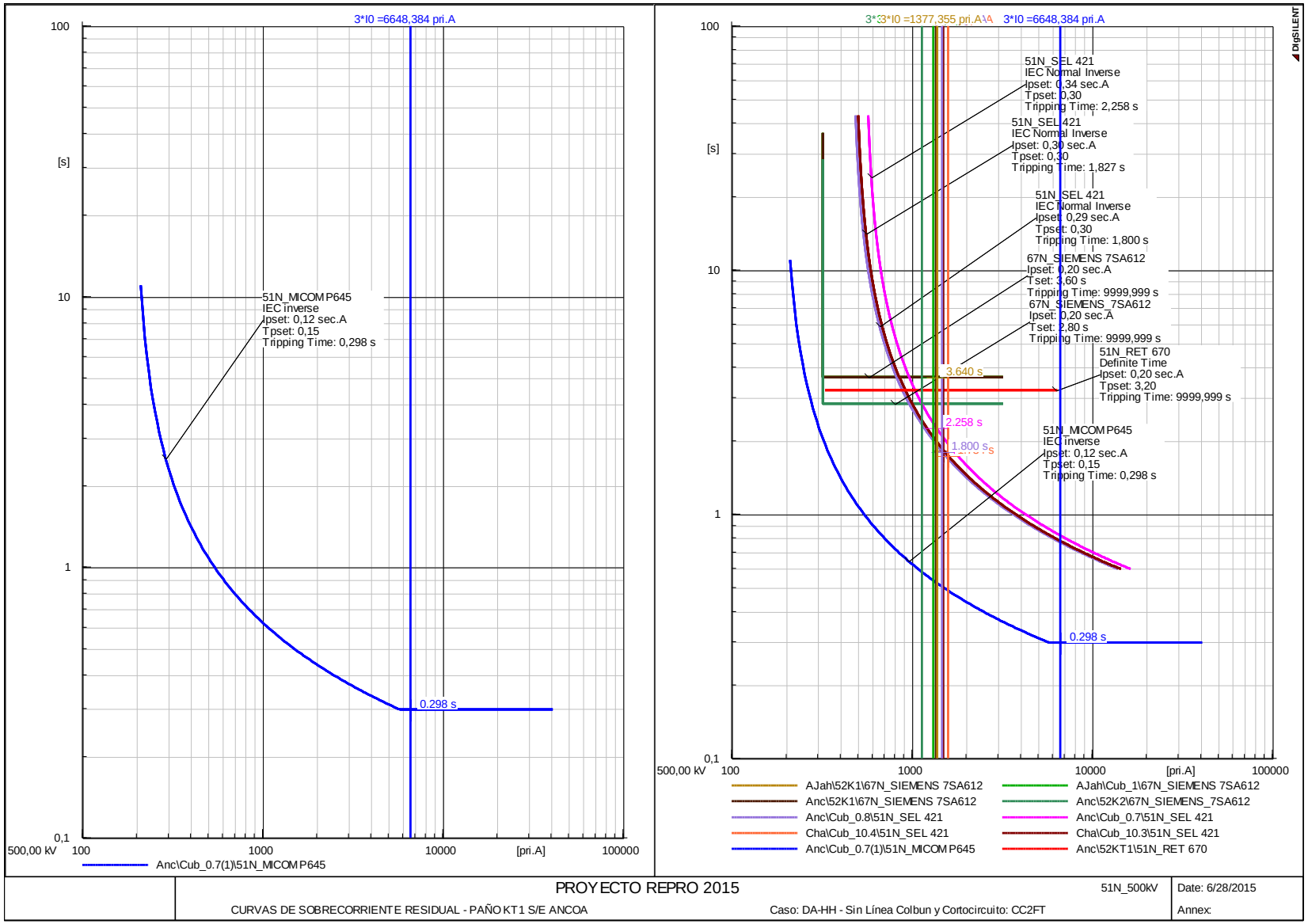

	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:

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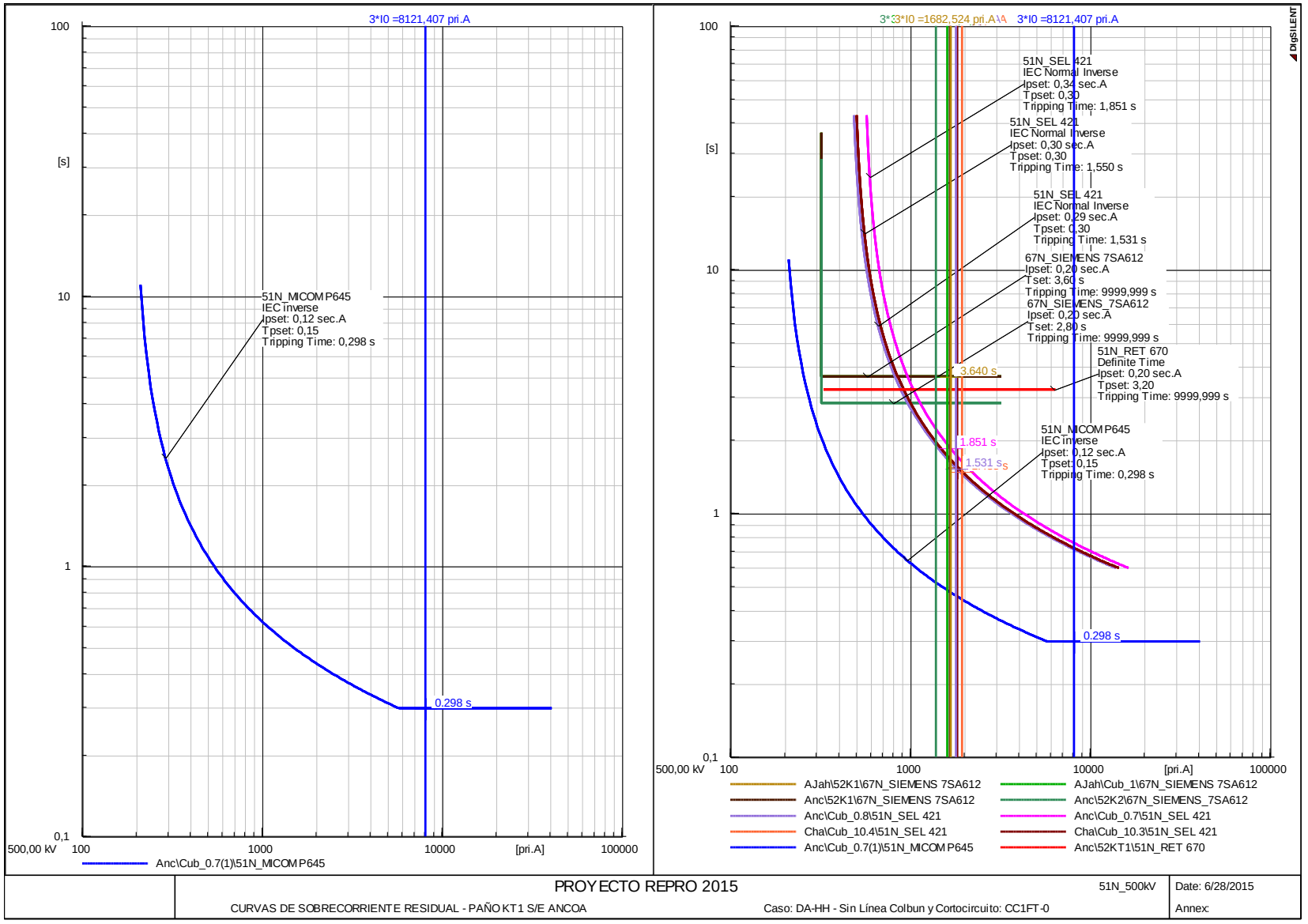

	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:

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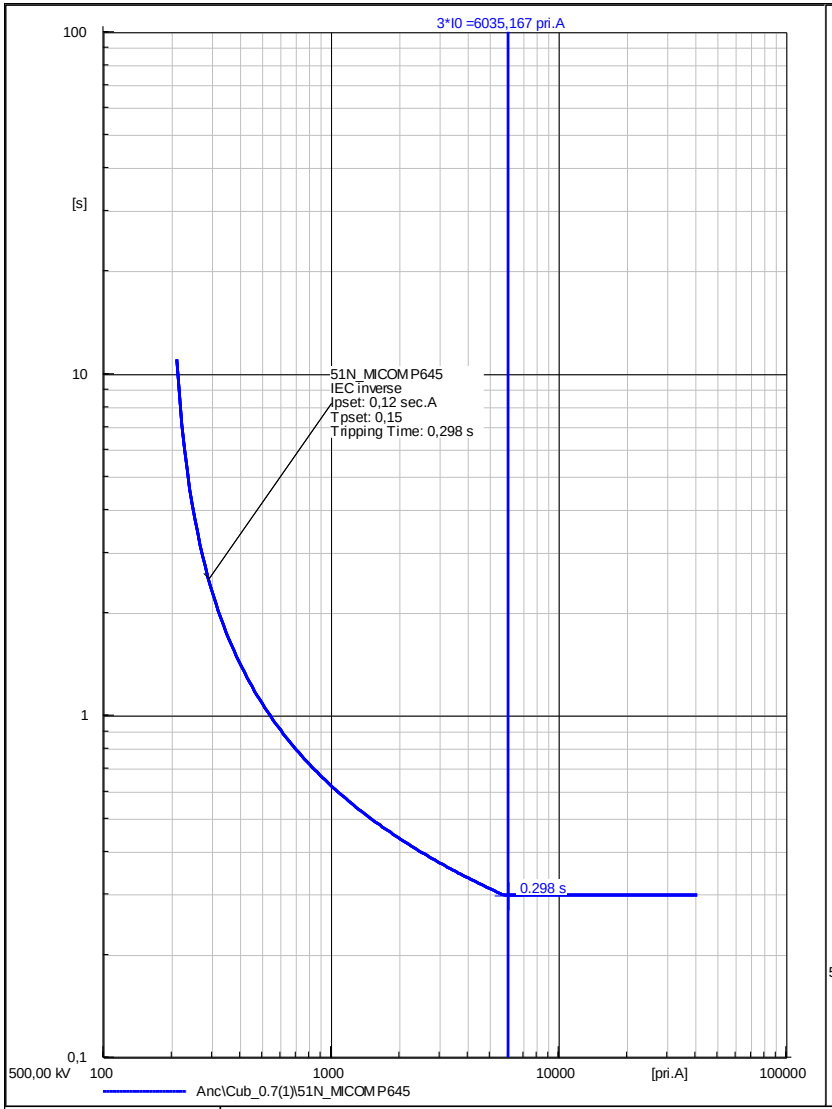

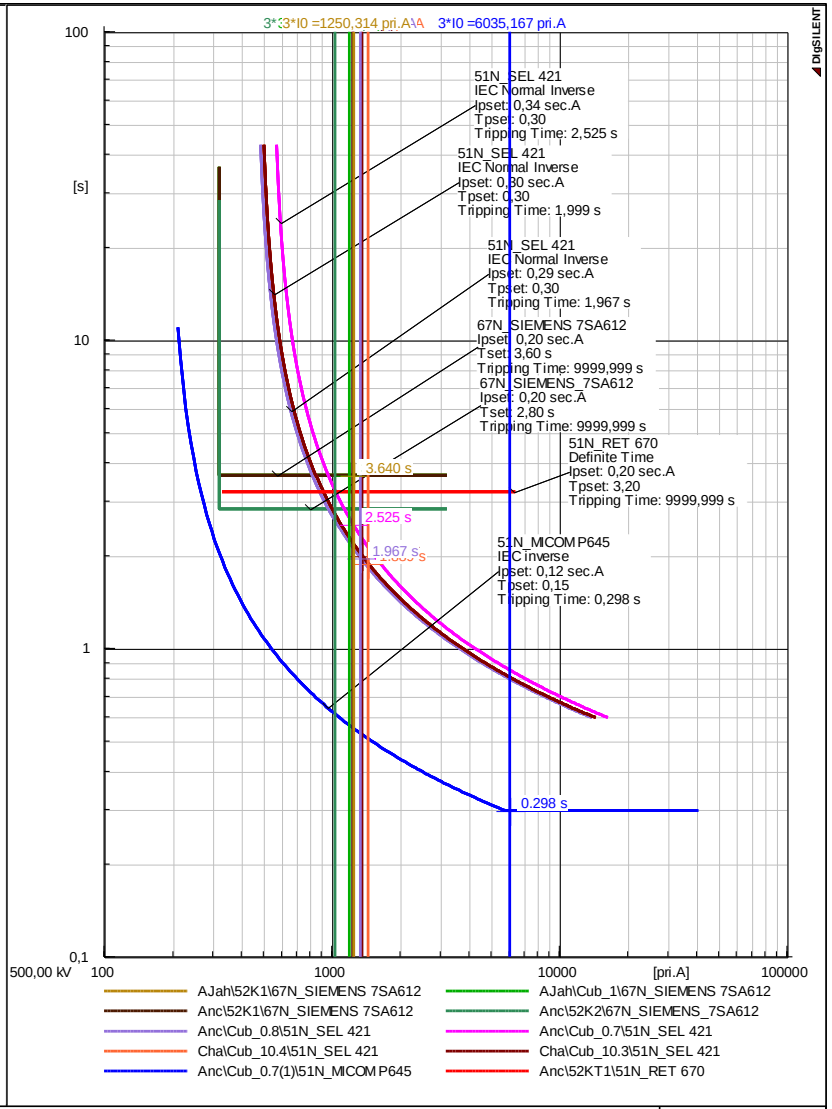

	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

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FALLA EN BARRA 220 KV S/E ANCOA

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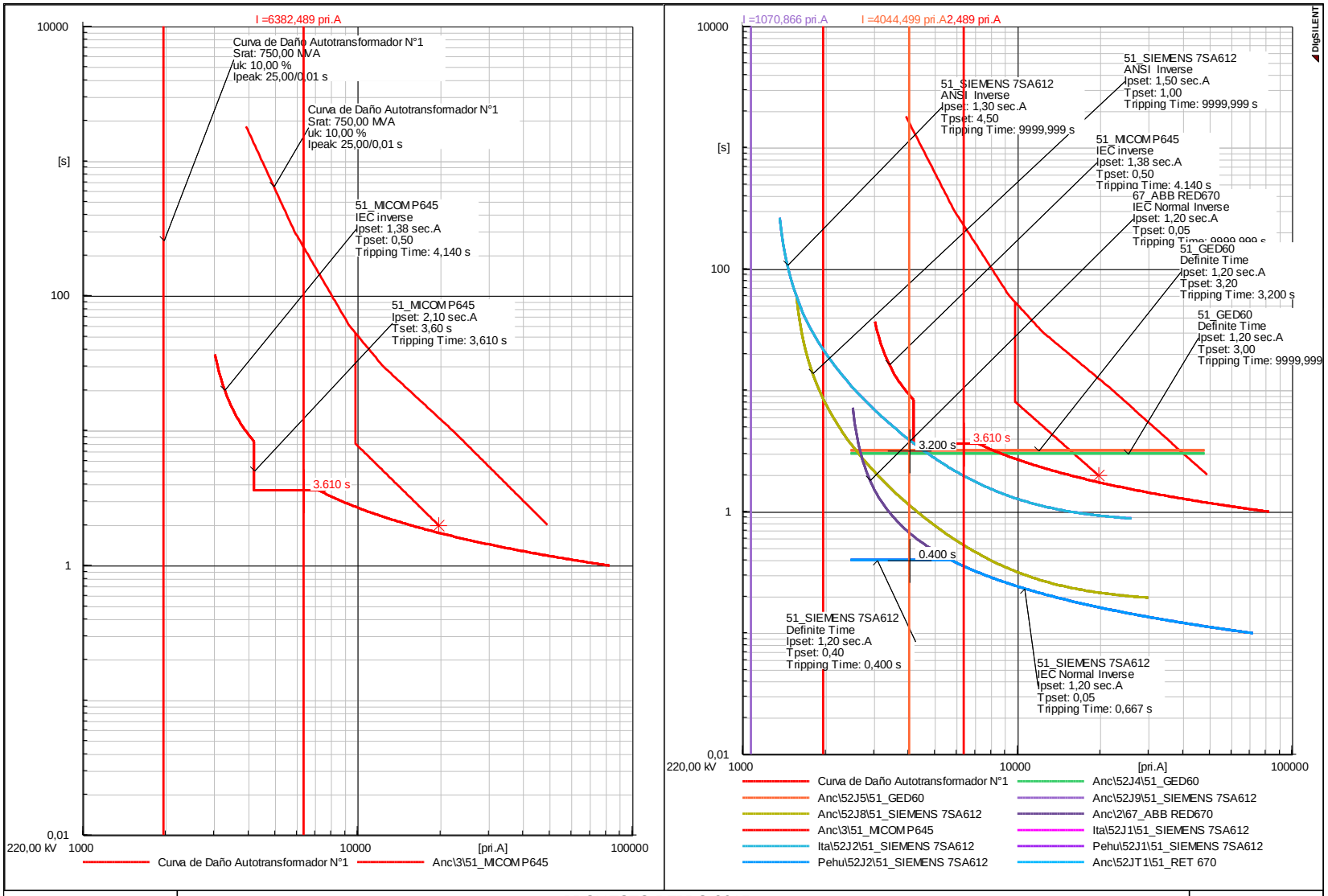
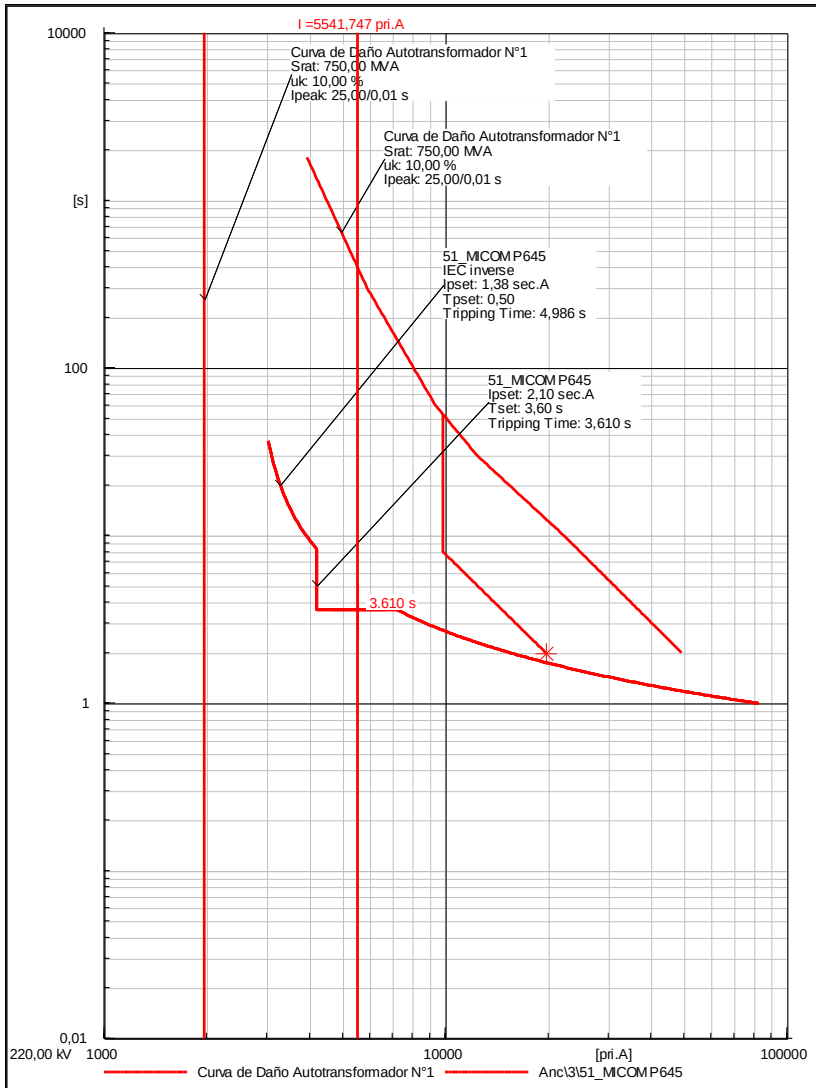
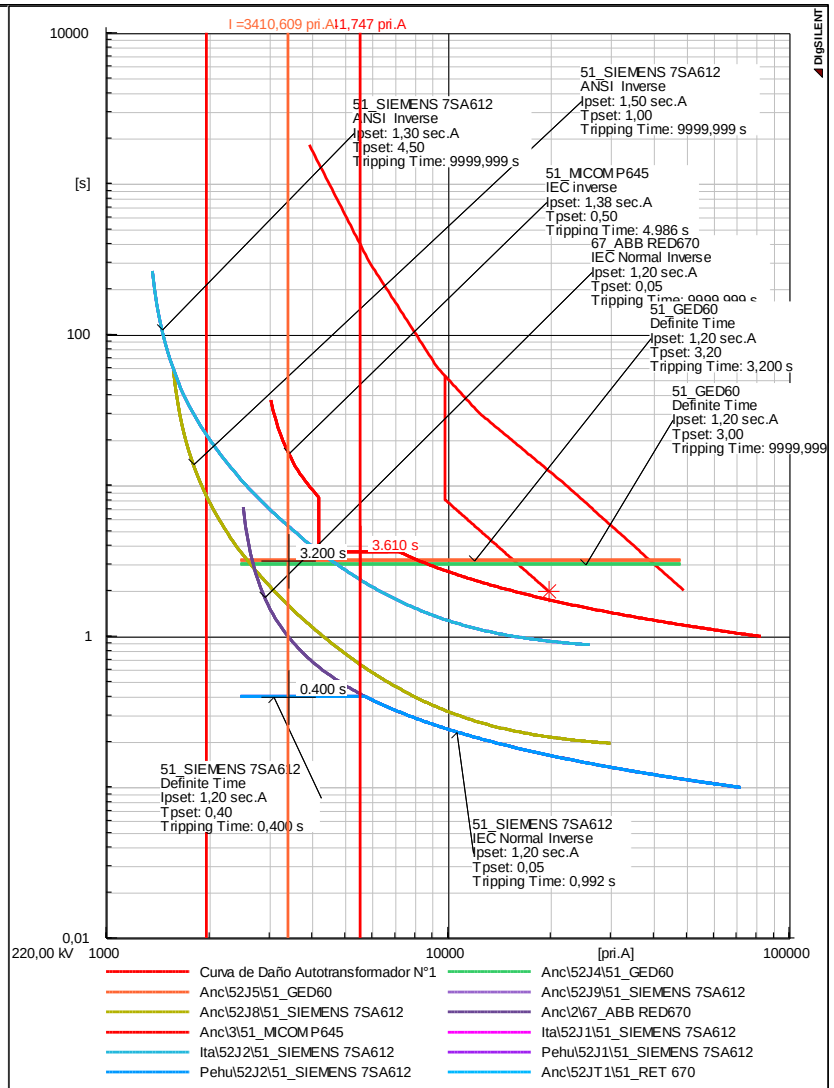
FUNCIÓN 51 LADO DE 220 KV

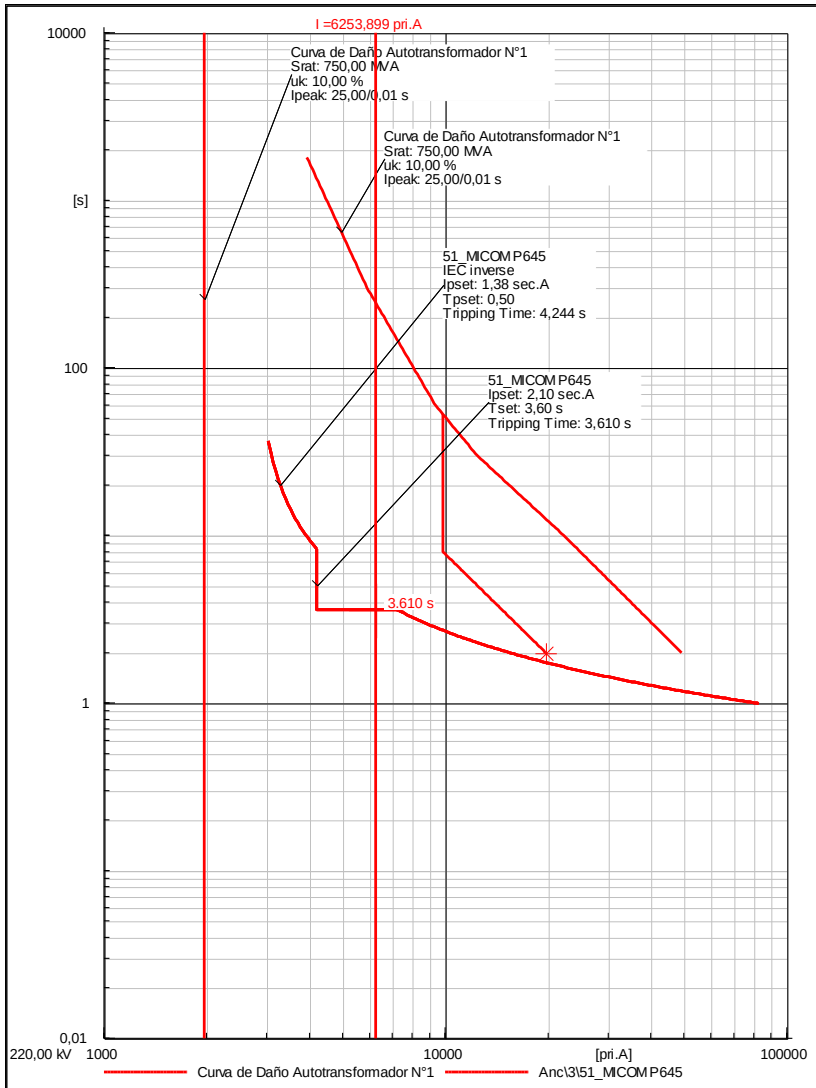


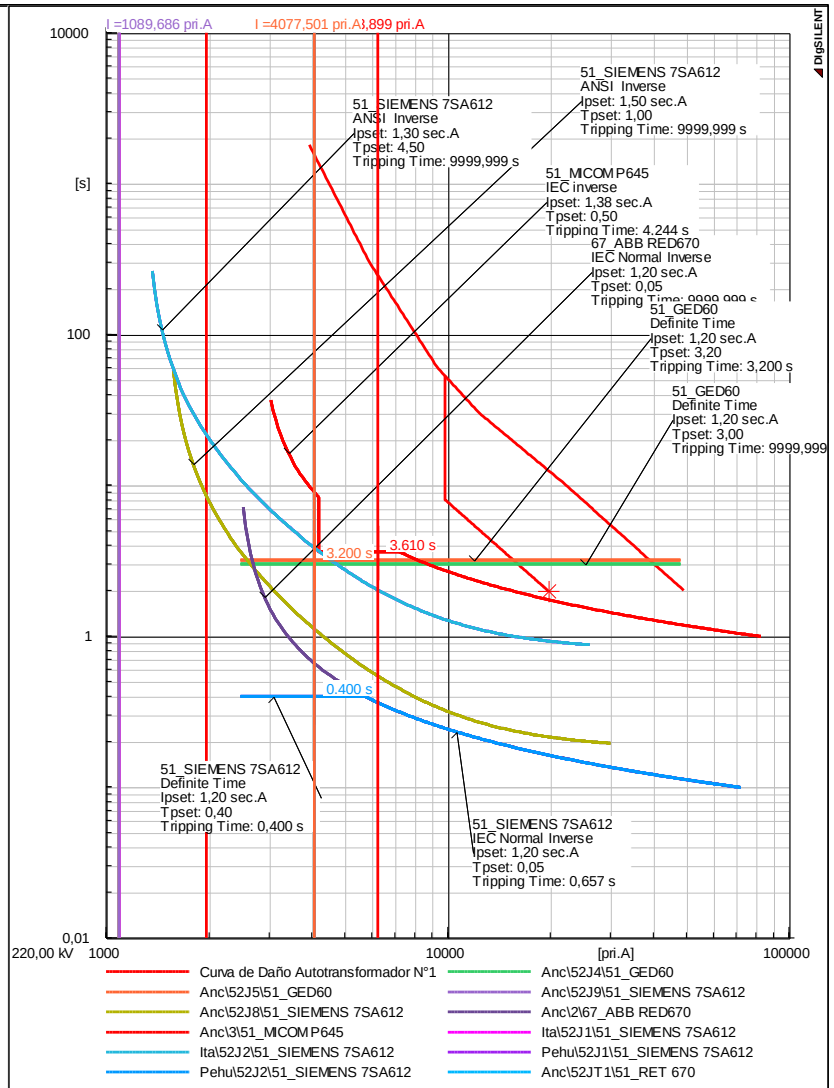
	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC3F	Annex:



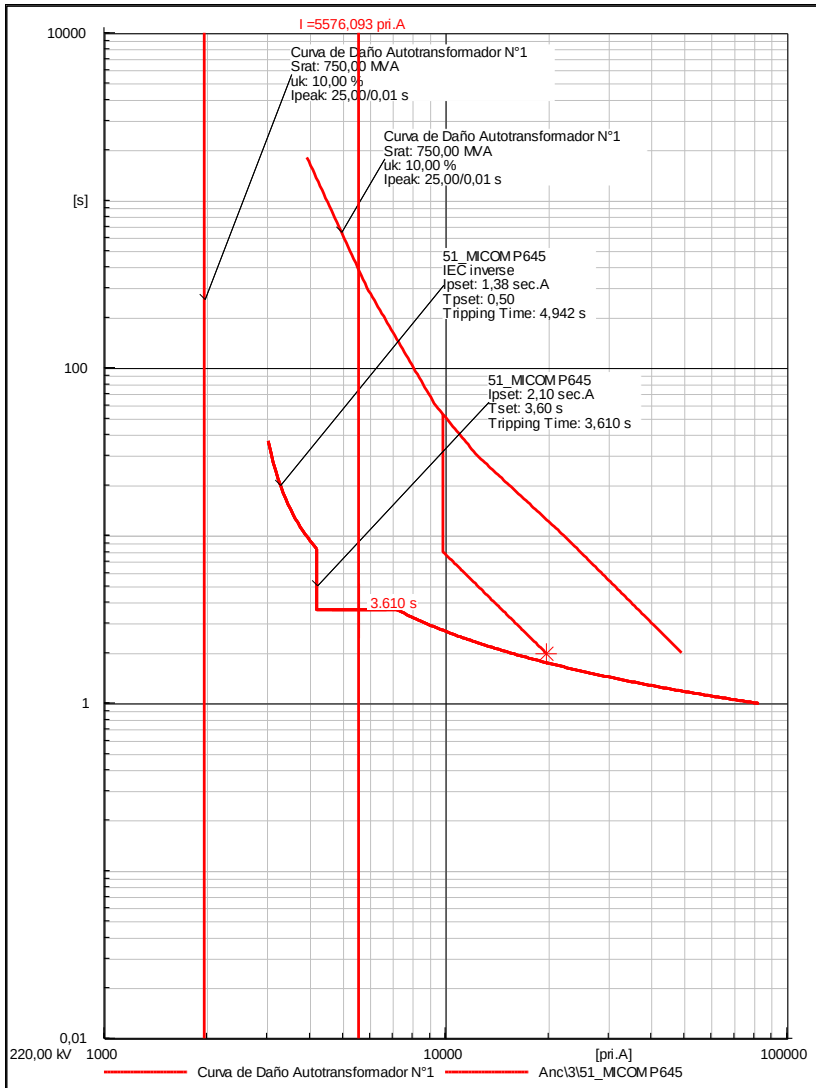


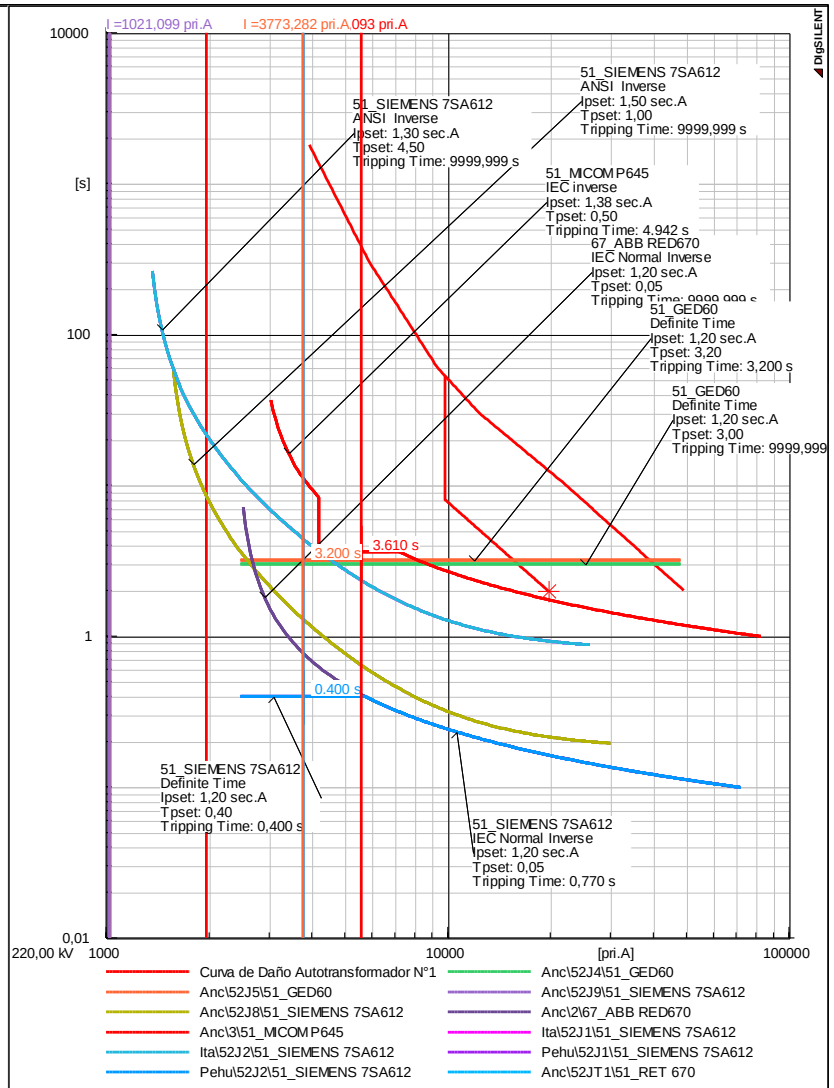
	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2F	Annex:



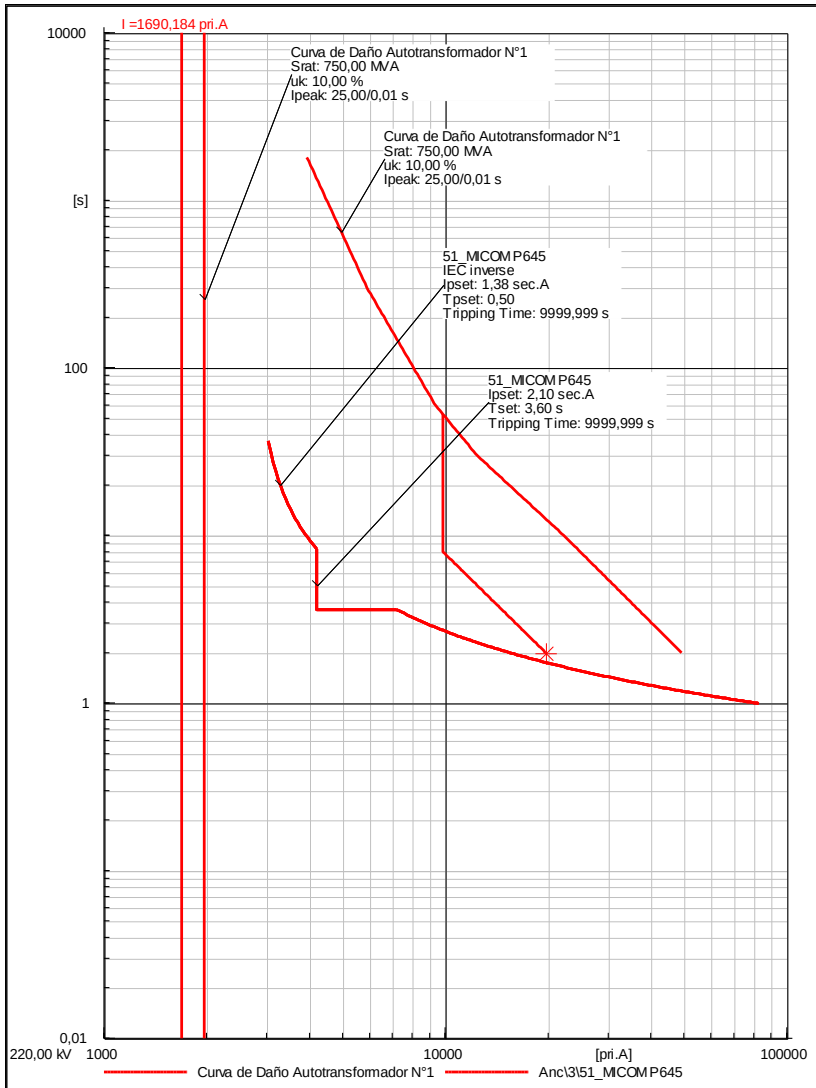


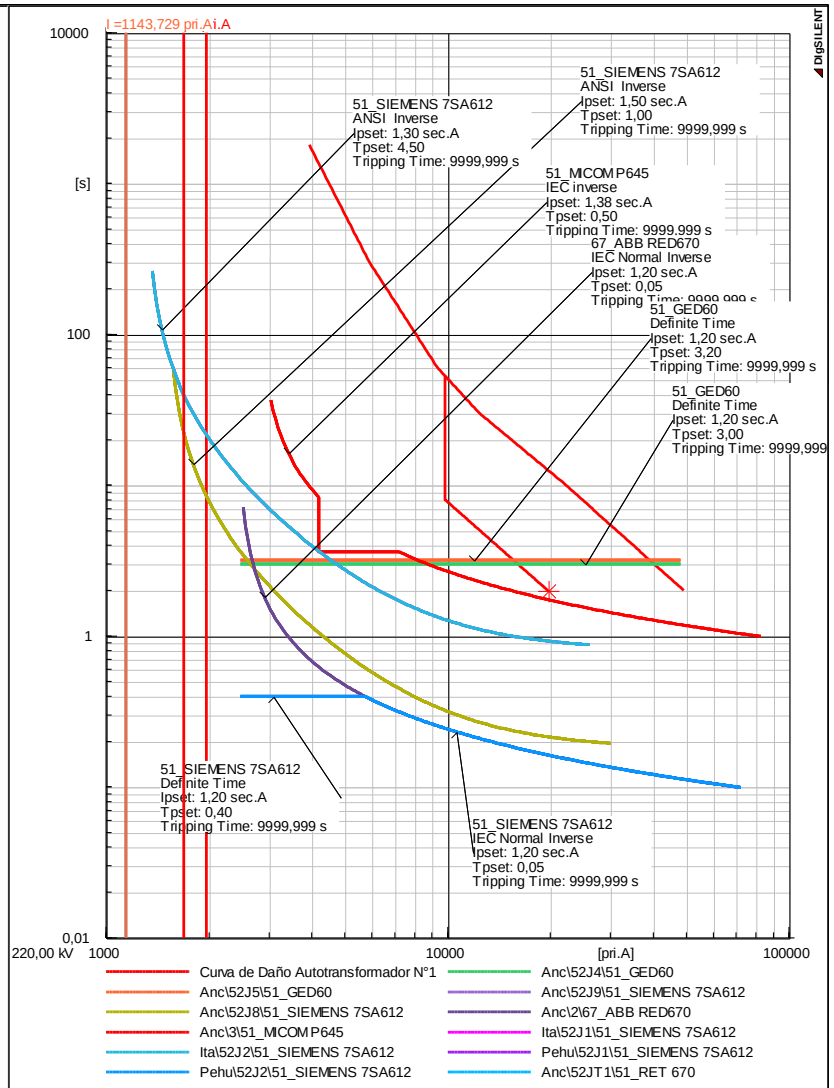
	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:





	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:





	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

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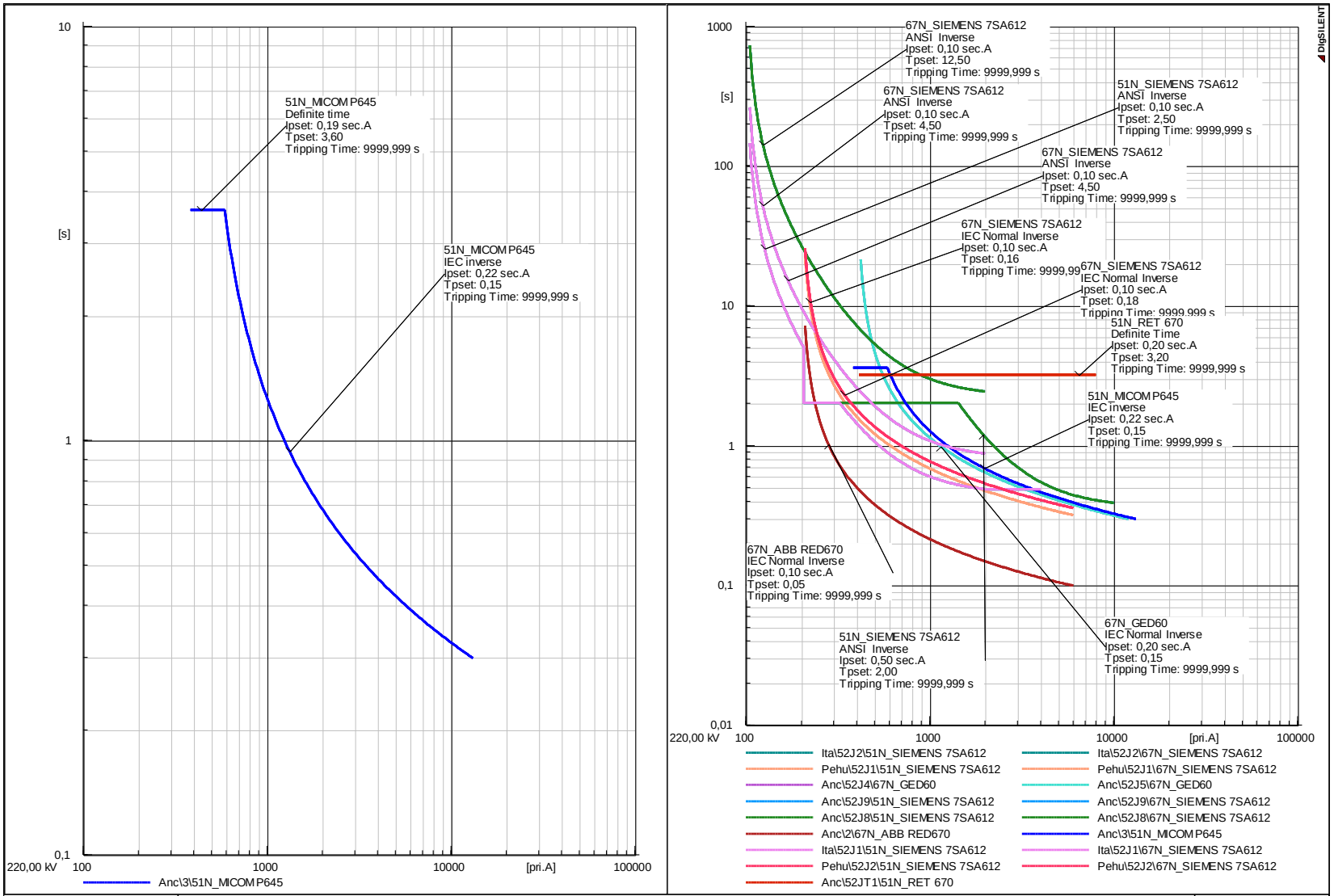
FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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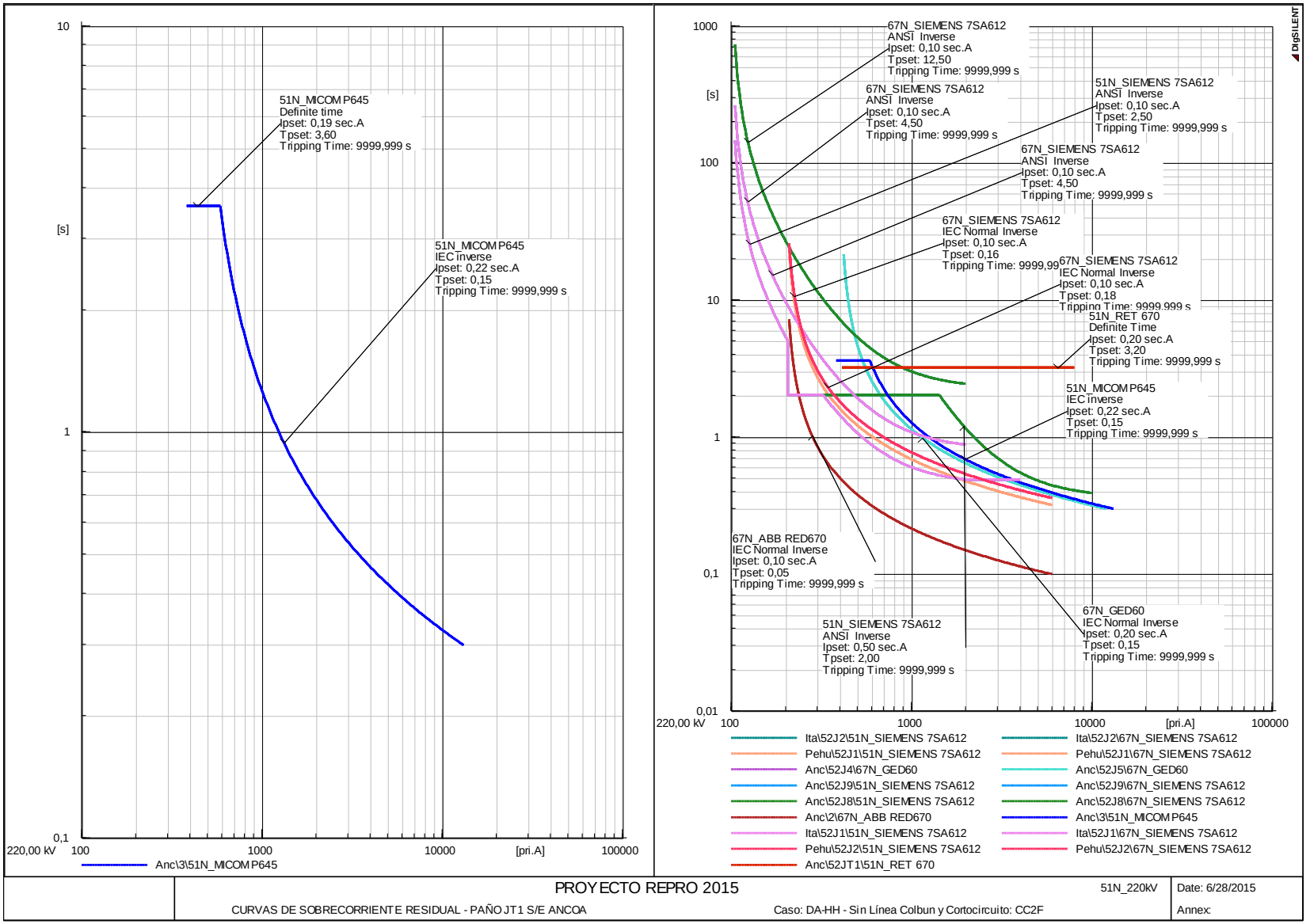

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2F	Annex:

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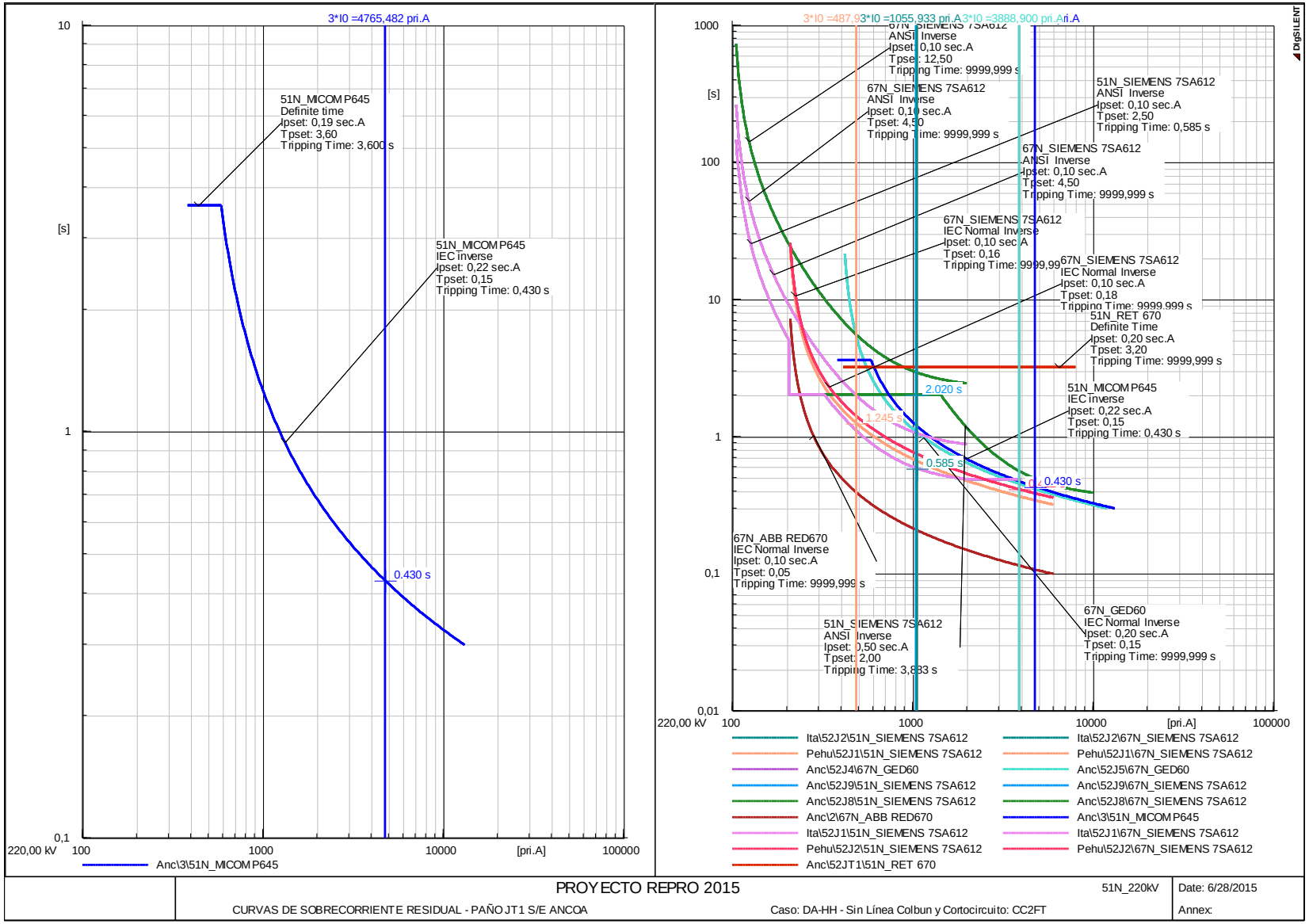

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:

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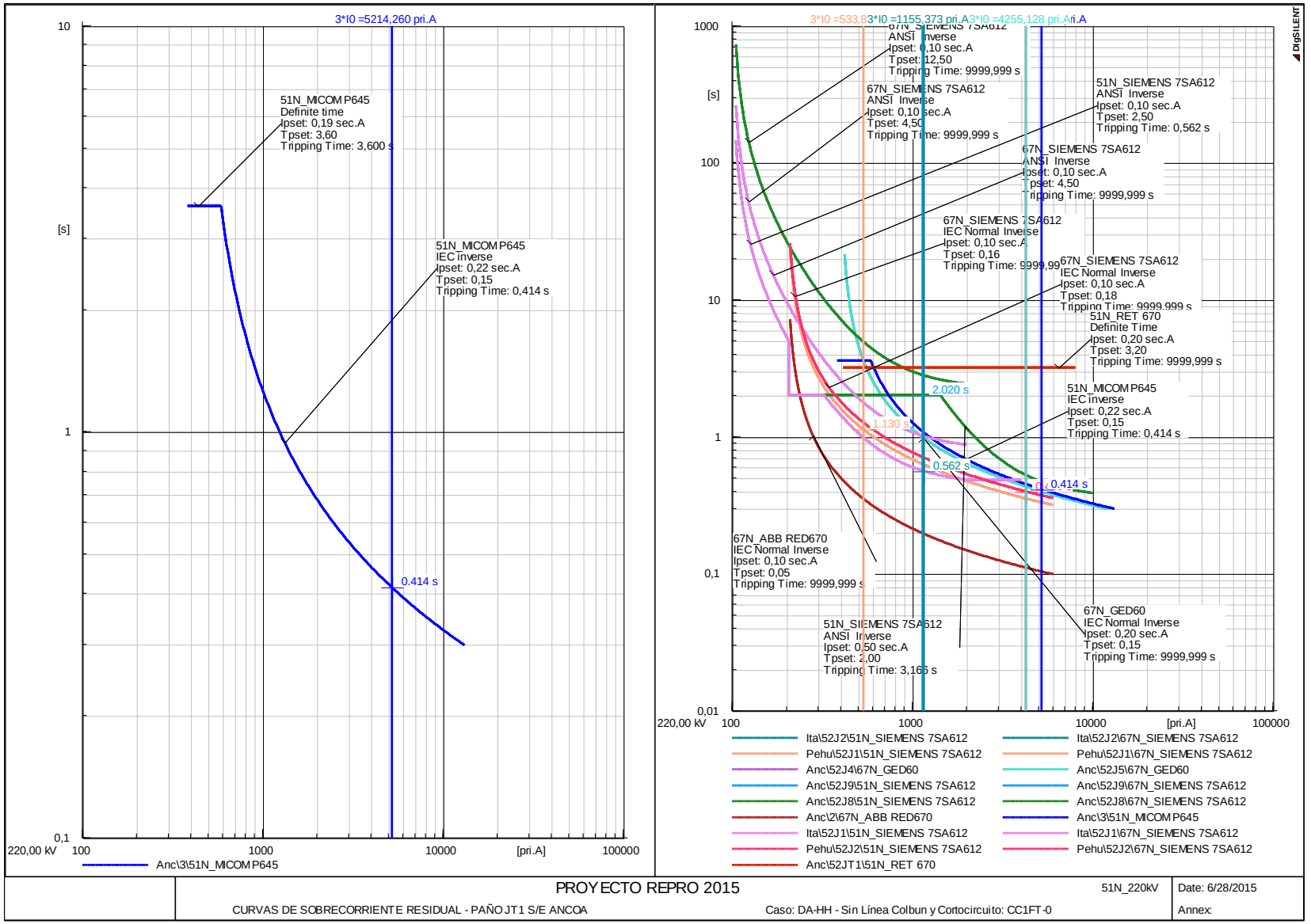

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:

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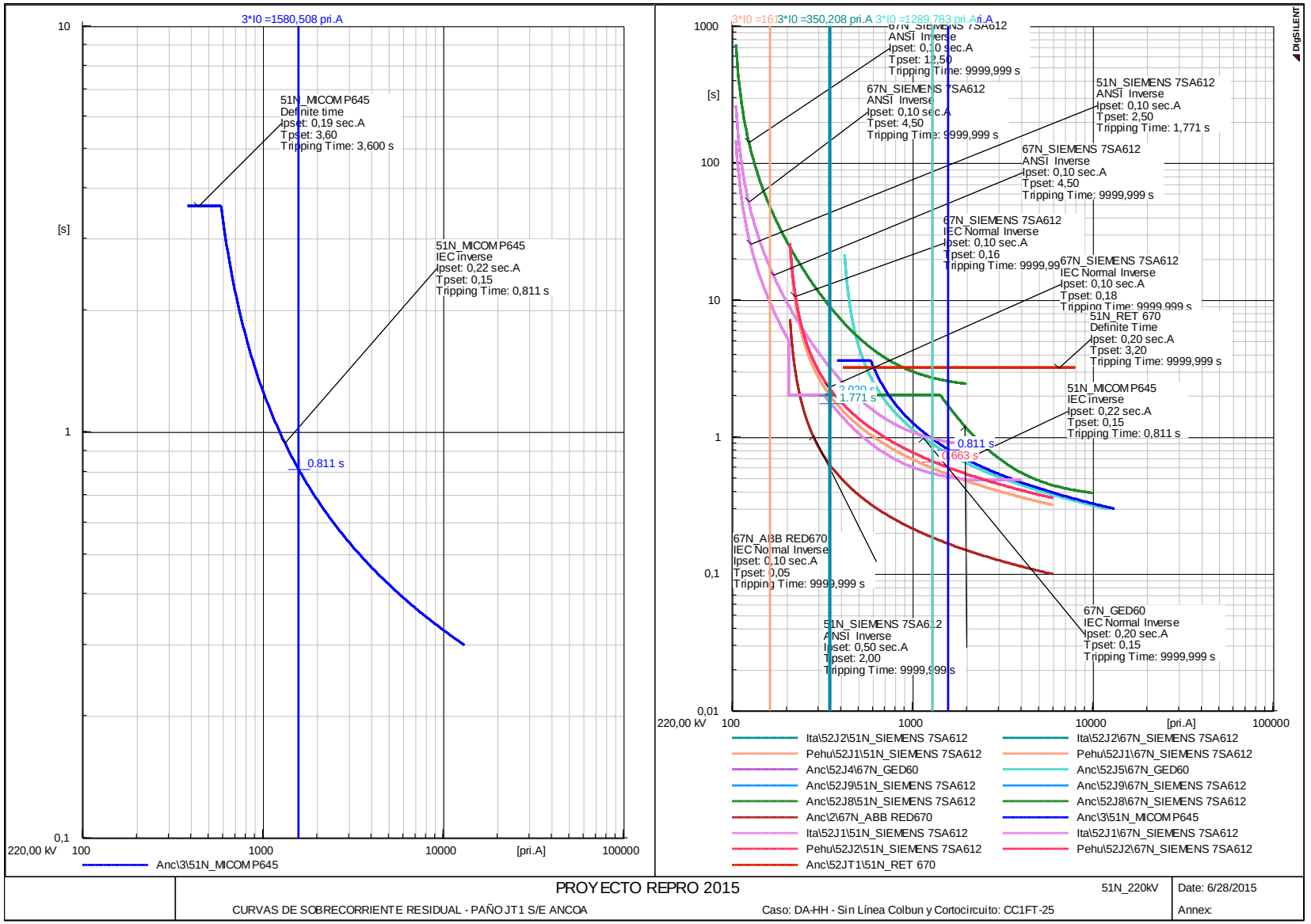

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

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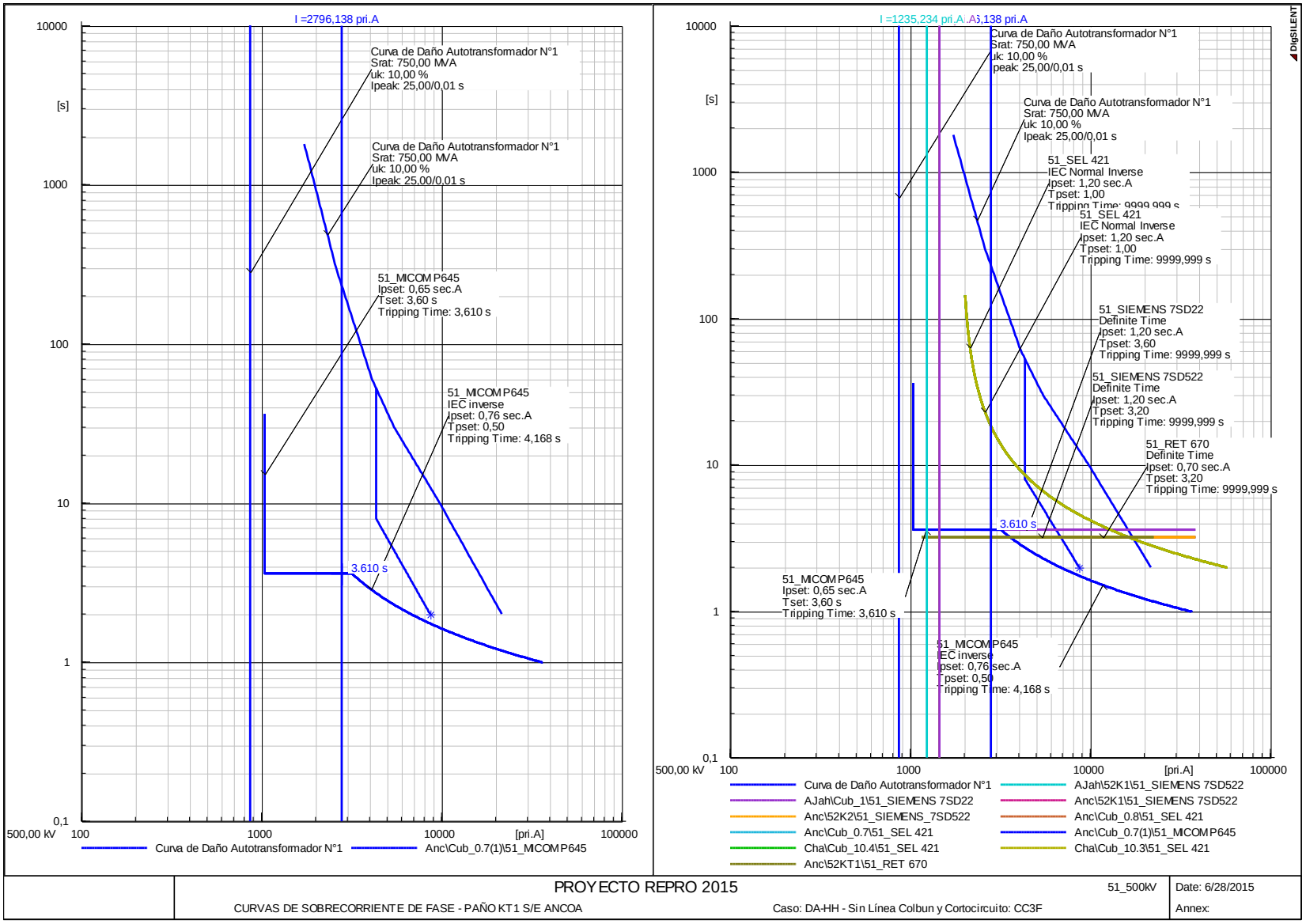
FUNCIÓN 51 LADO DE 500 KV



	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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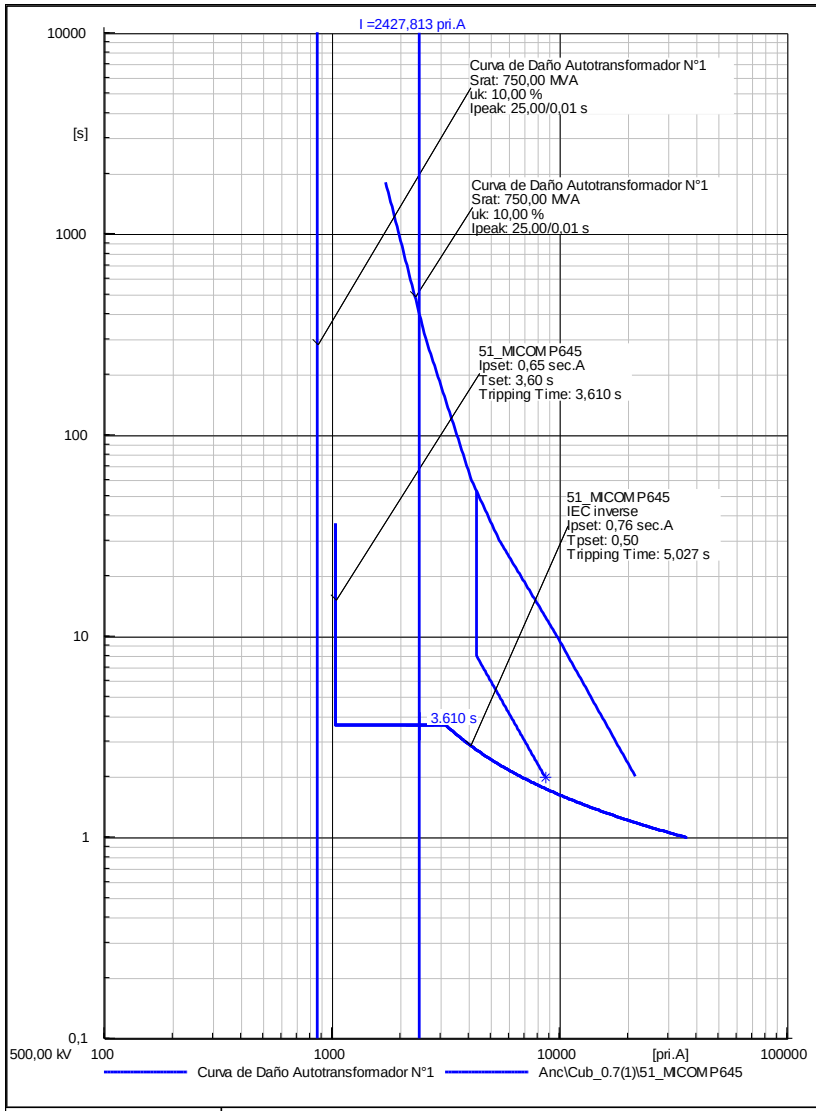

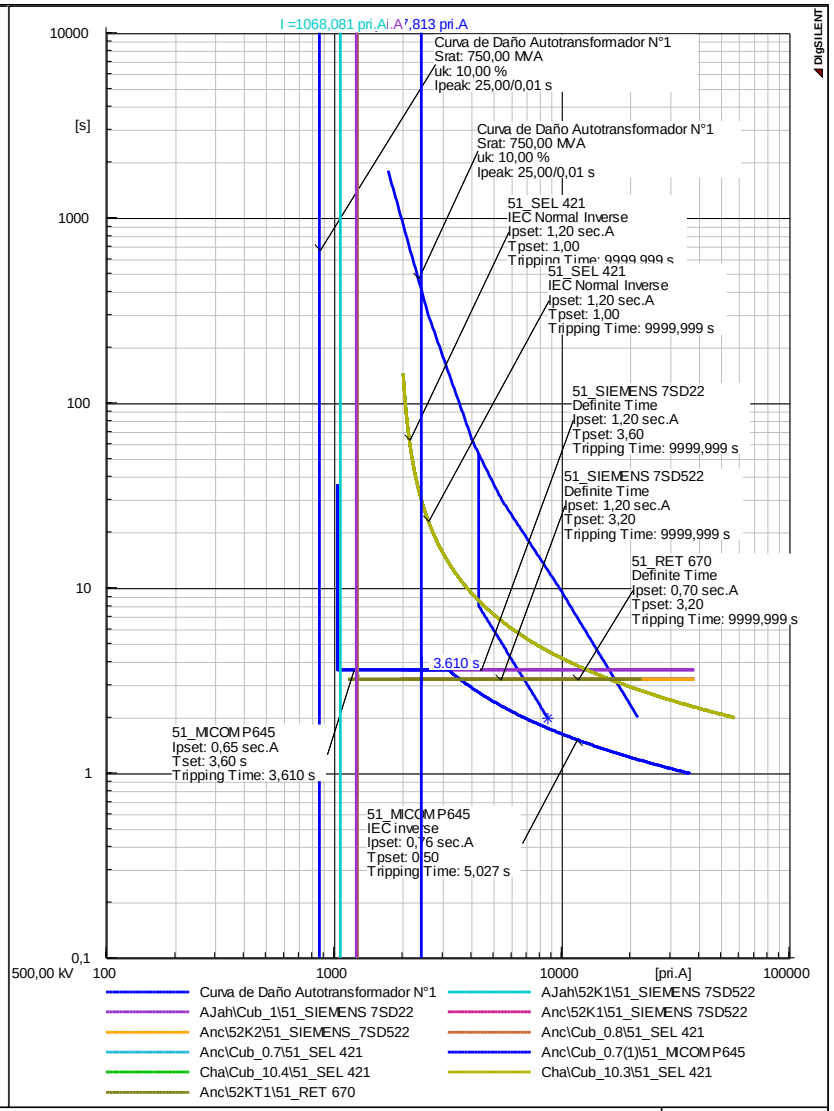

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2F	Annex:

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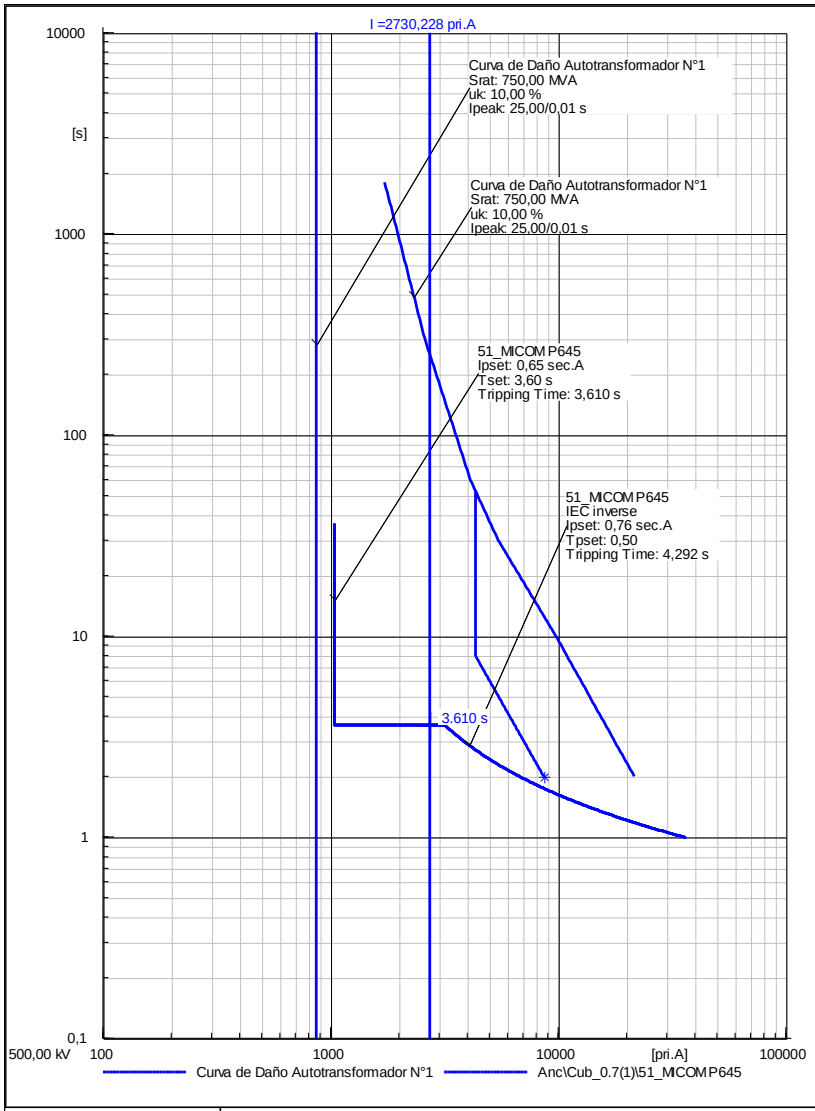

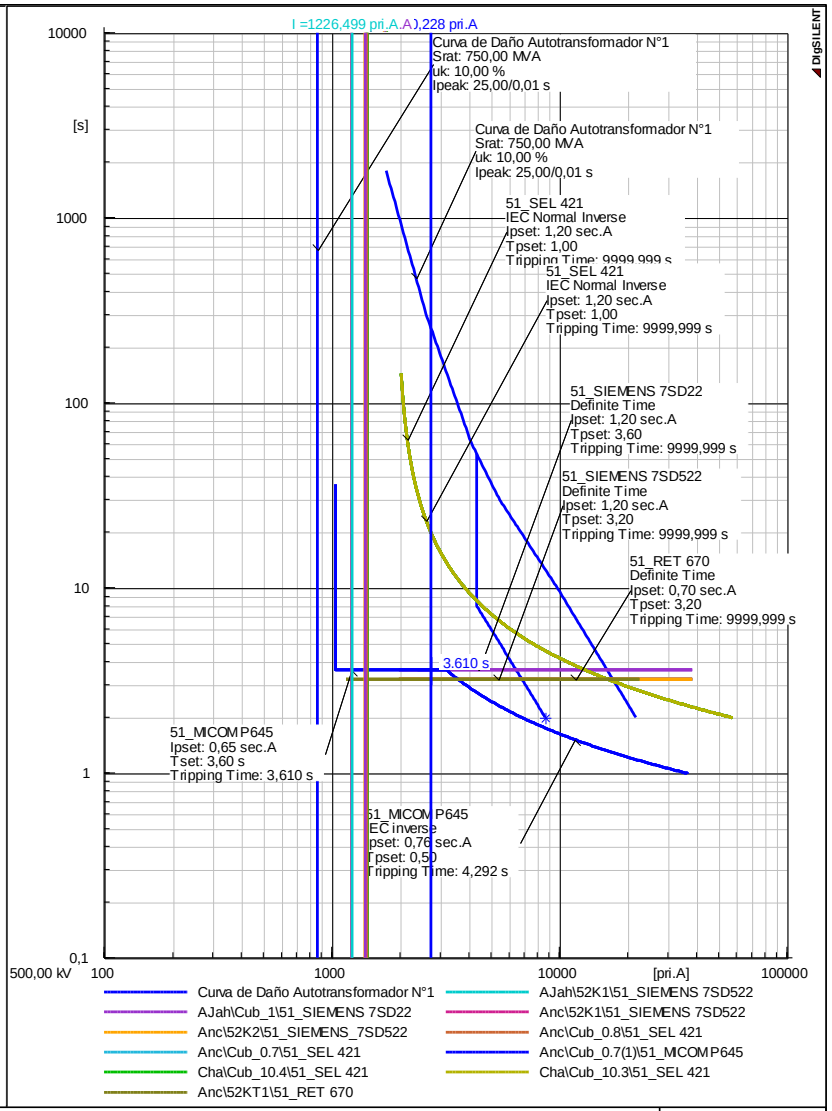

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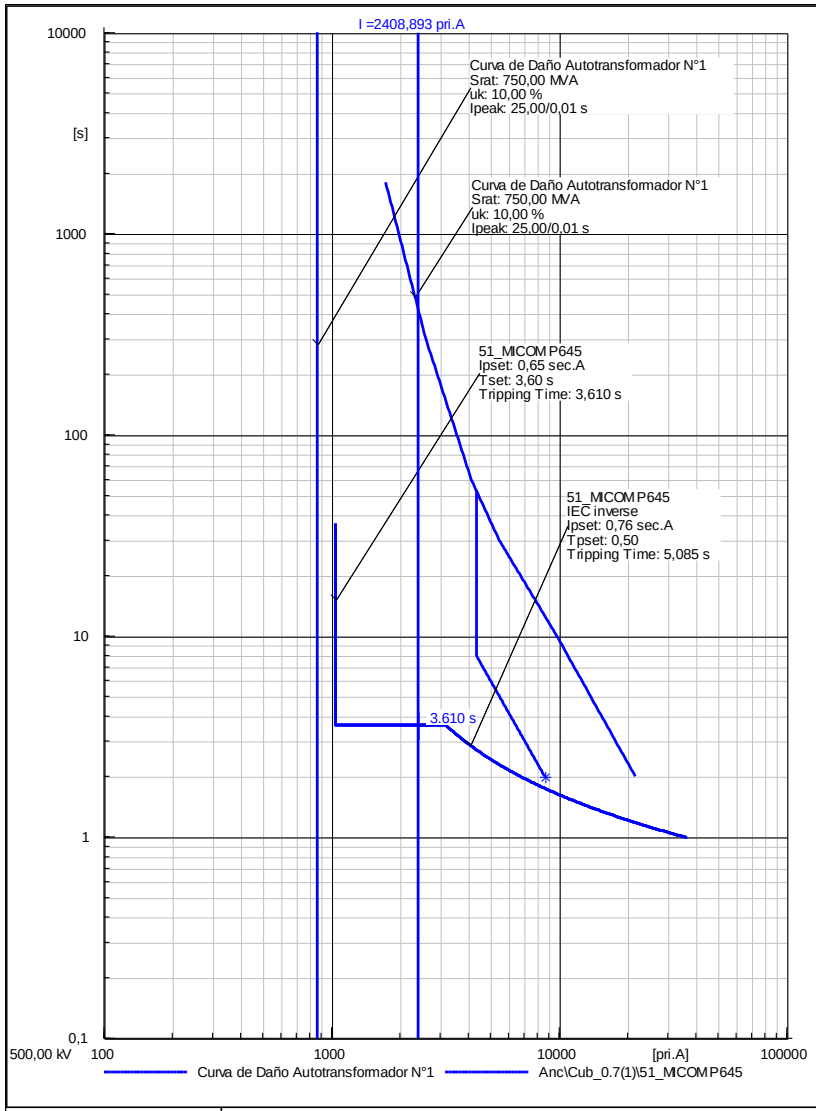
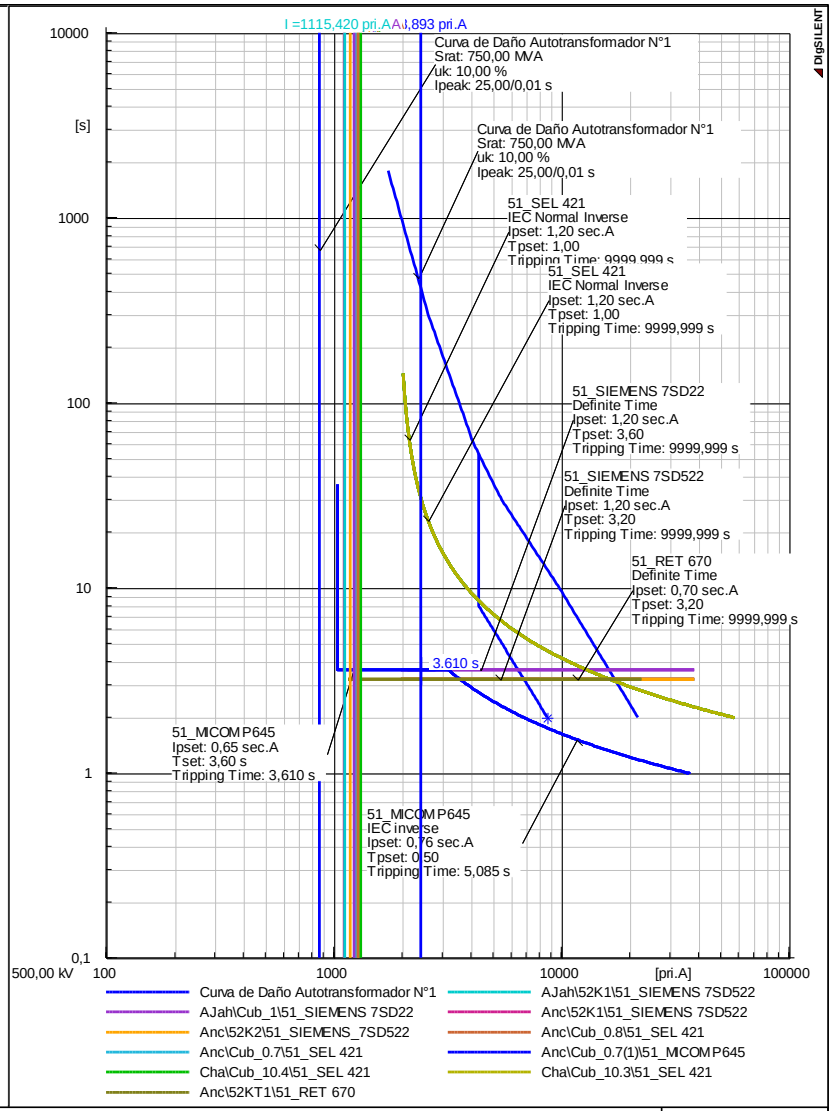
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:





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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:

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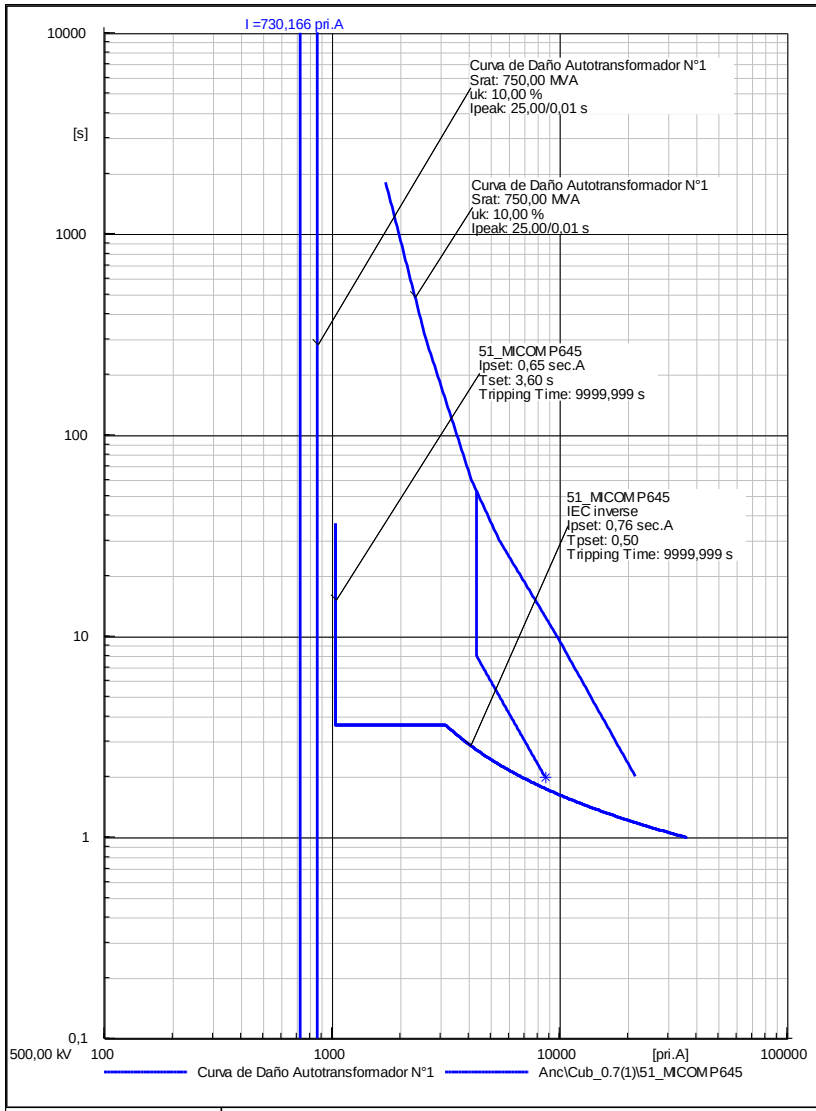

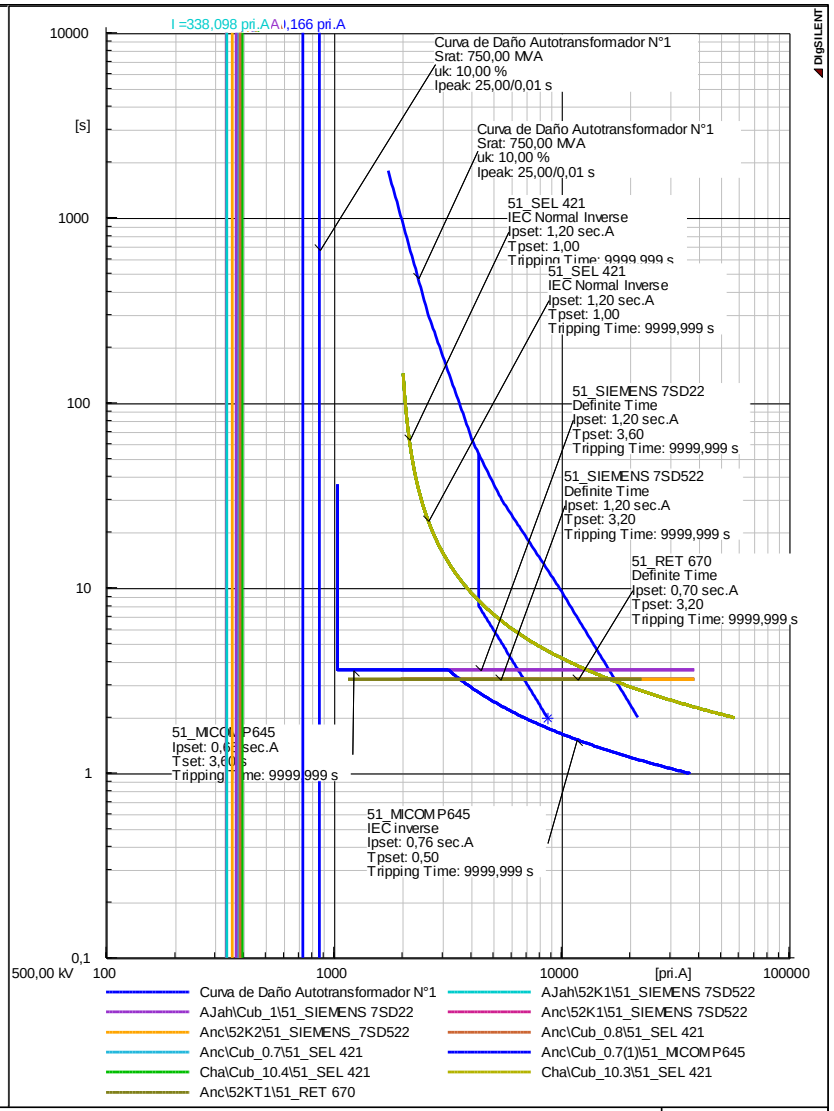

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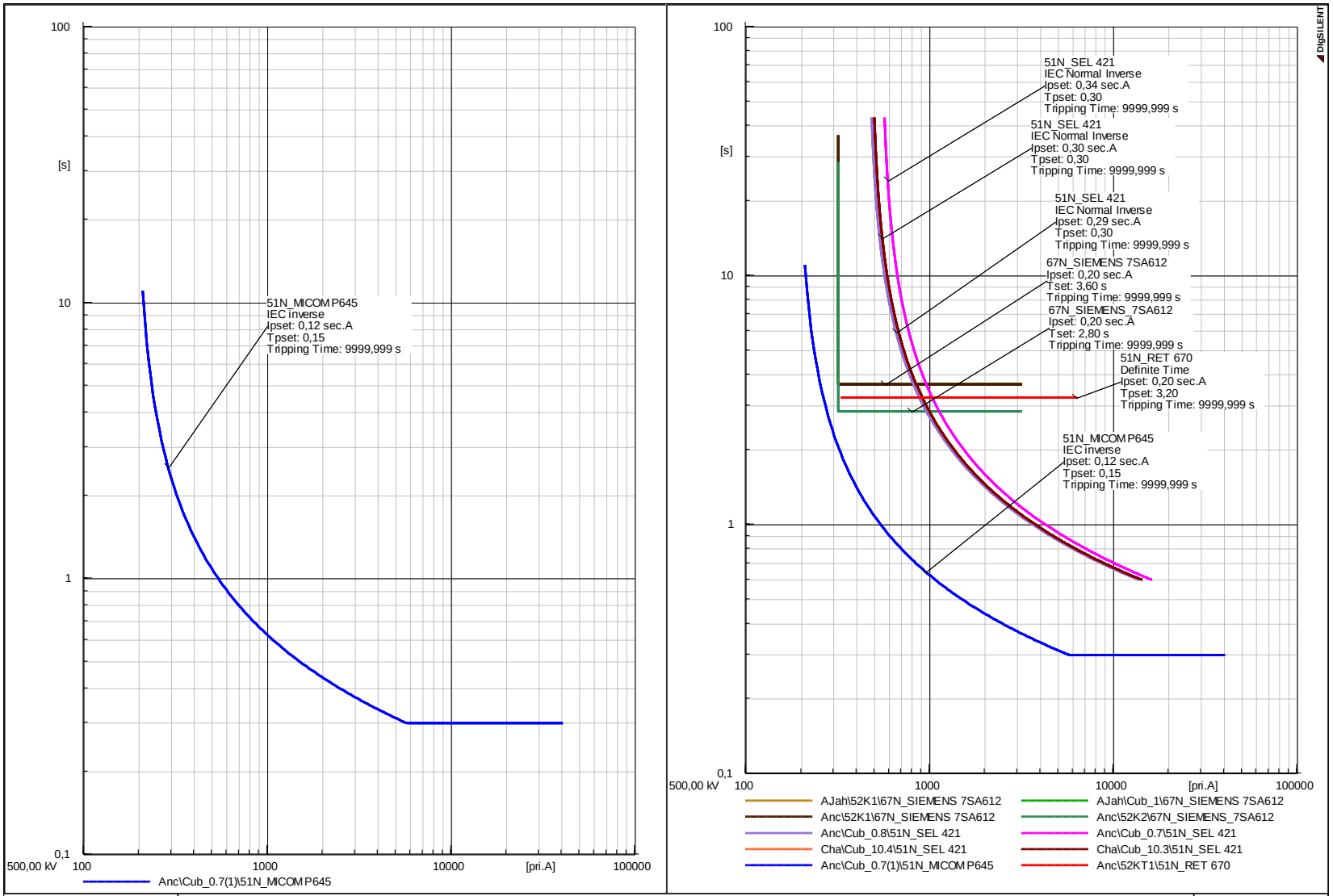
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

FUNCIÓN 51N LADO DE 500 KV



	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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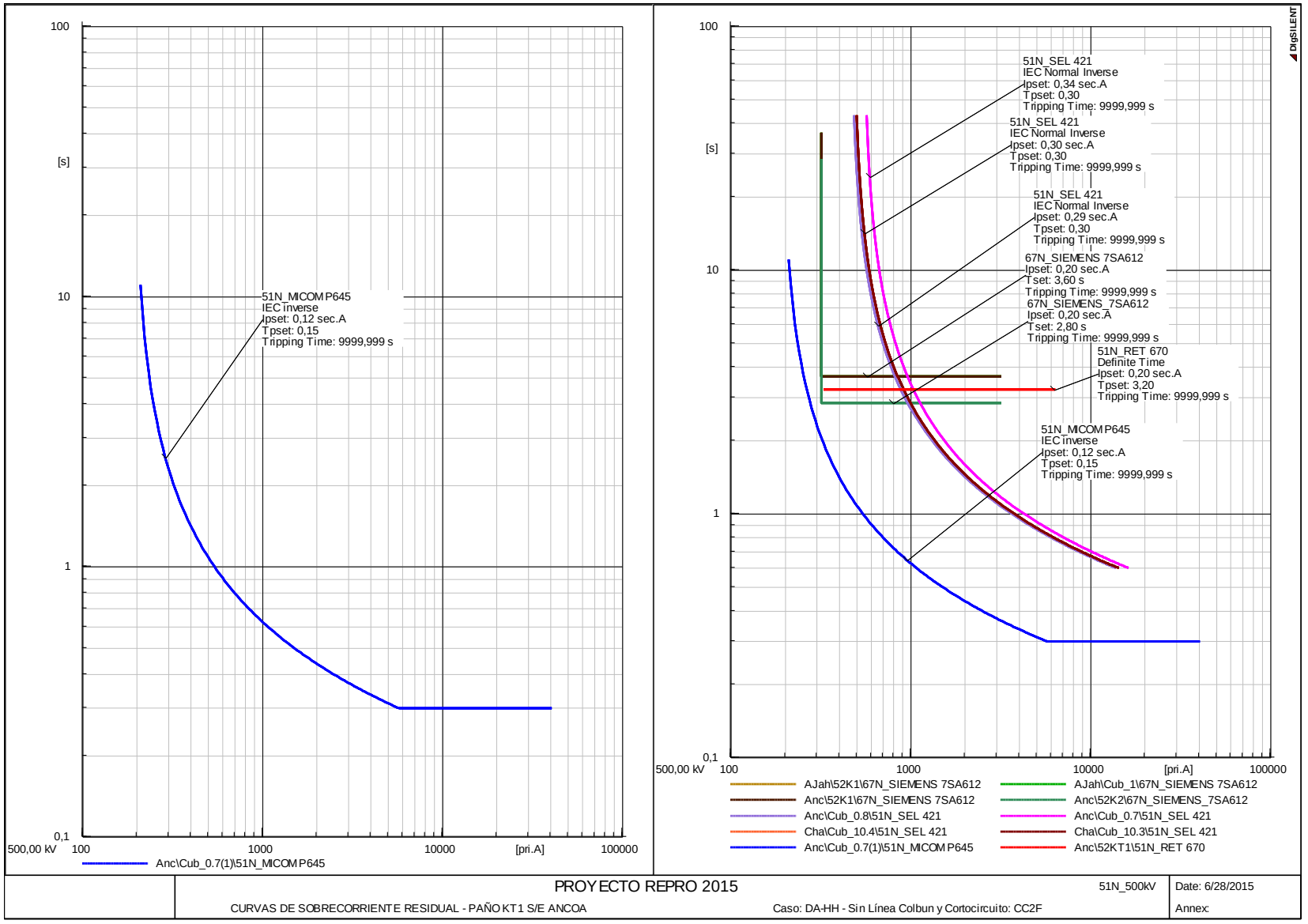
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1
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500,00 kV
100
1000
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100000
51N_MICOM P645
IEC Inverse
Ipset: 0,12 sec.A
Tpset: 0,15
Tripping Time: 9999,999 s
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51N_SEL 421
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Tripping Time: 9999,999 s
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Tpset: 3,20
Tripping Time: 9999,999 s
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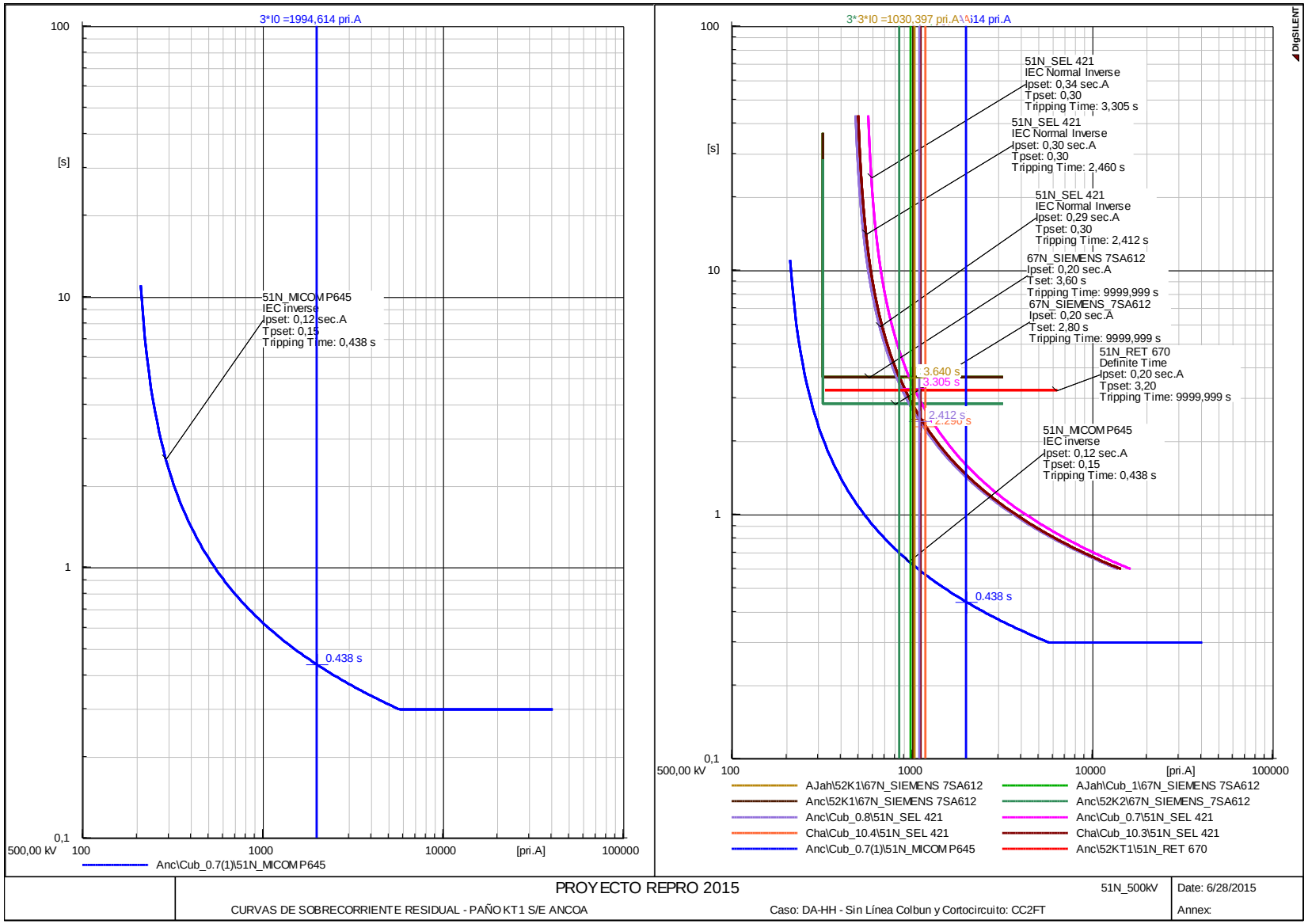
PROYECTO REPRO 2015
CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA
51N_500kV
Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2F
Date: 6/28/2015
Annex:



	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:

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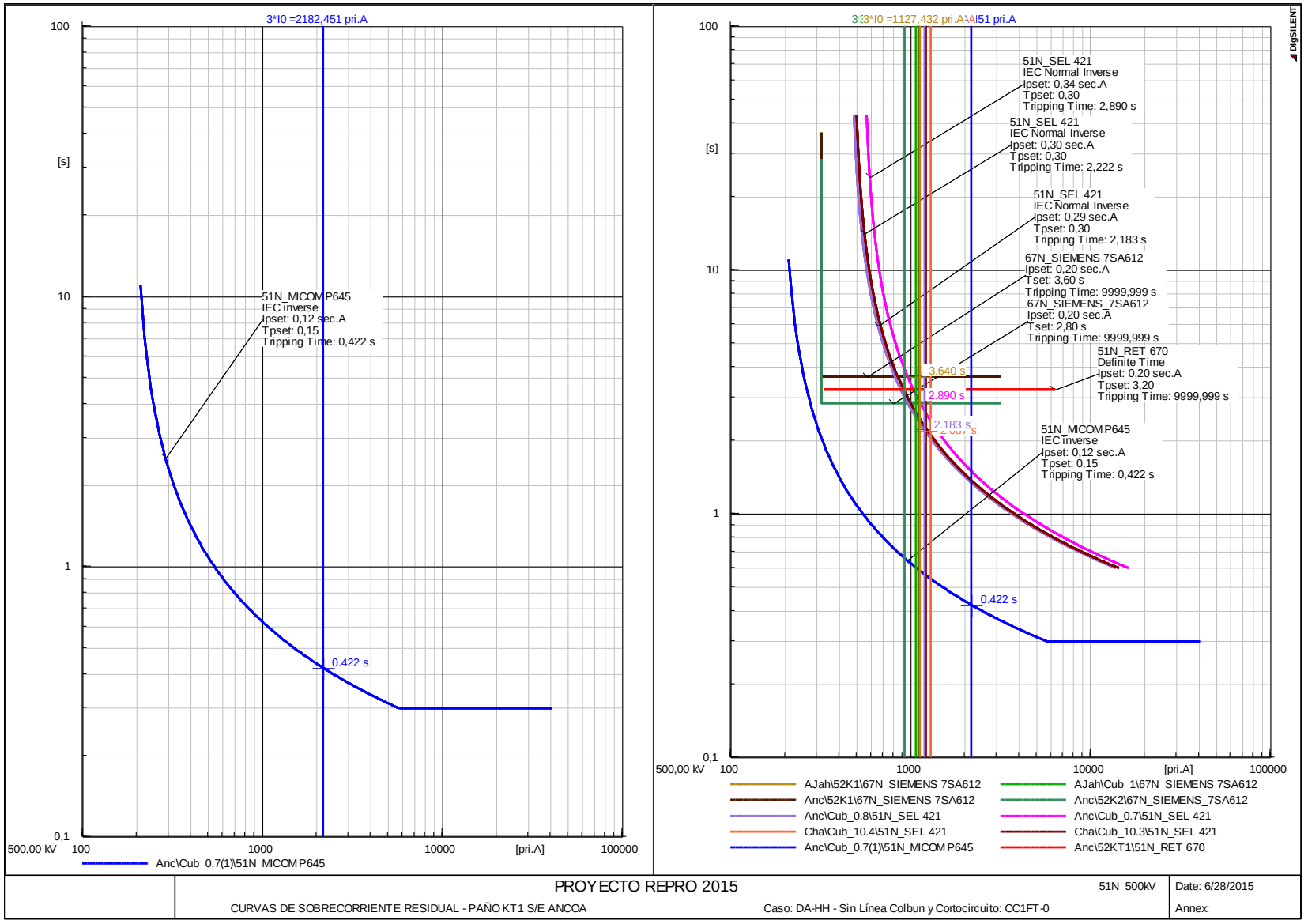

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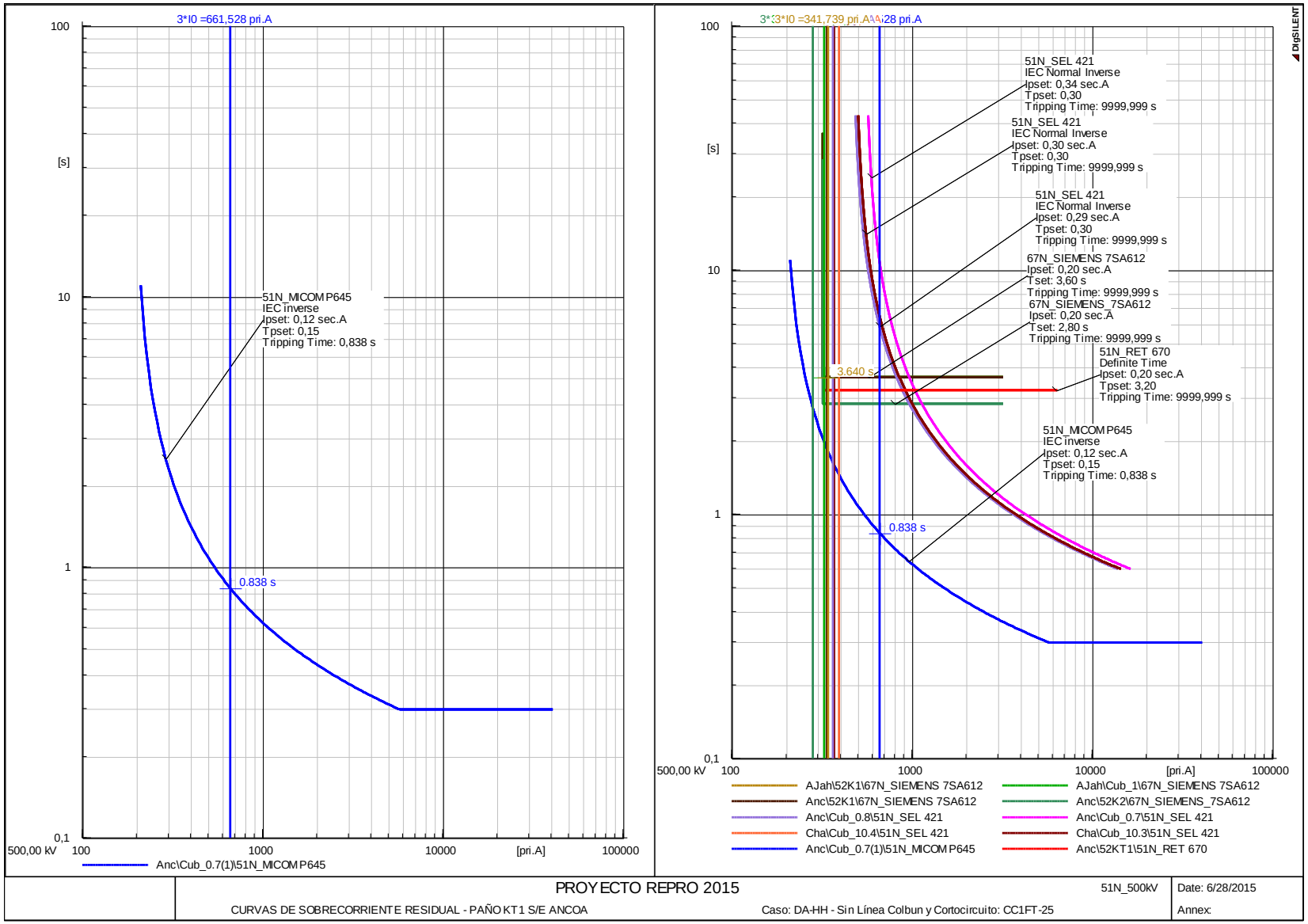

PROYECTO REPRO 2015 | 51N_500kV | Date: 6/28/2015

CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA | Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-25 | Annex:

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FALLA EN EL TERMINAL DE 230 KV DEL AUTOTRANSFORMADOR N°1

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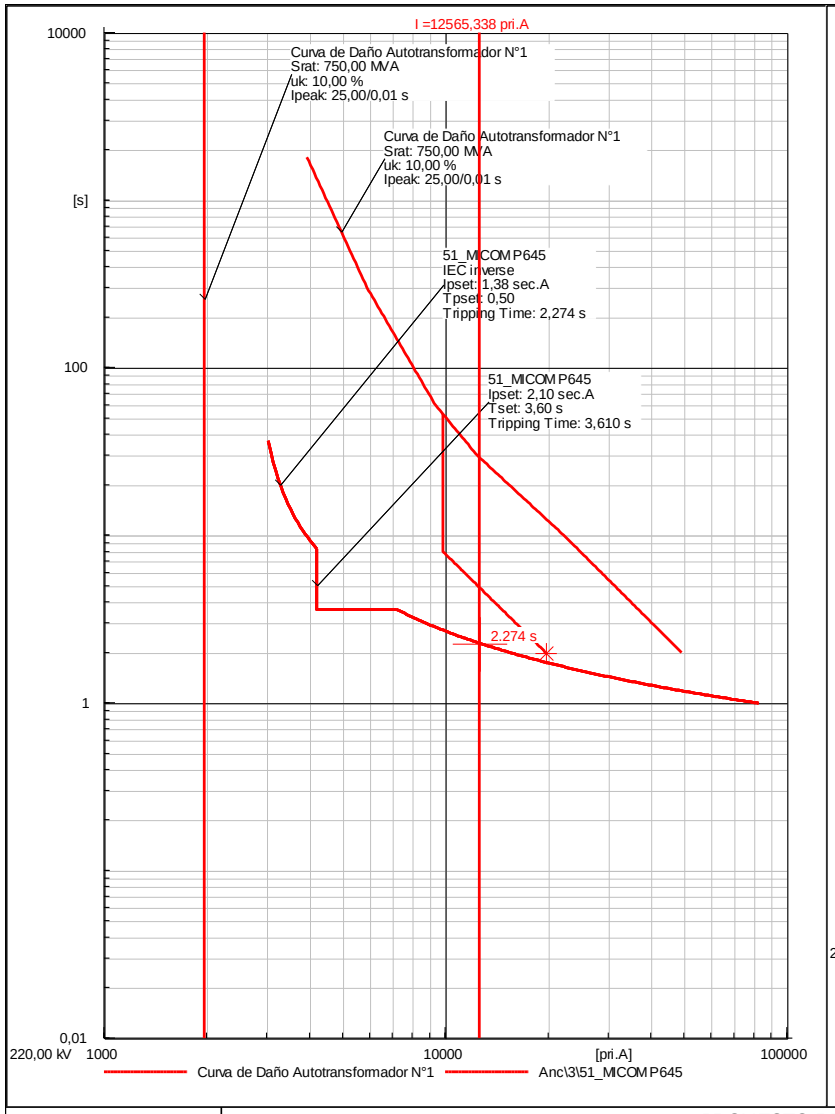
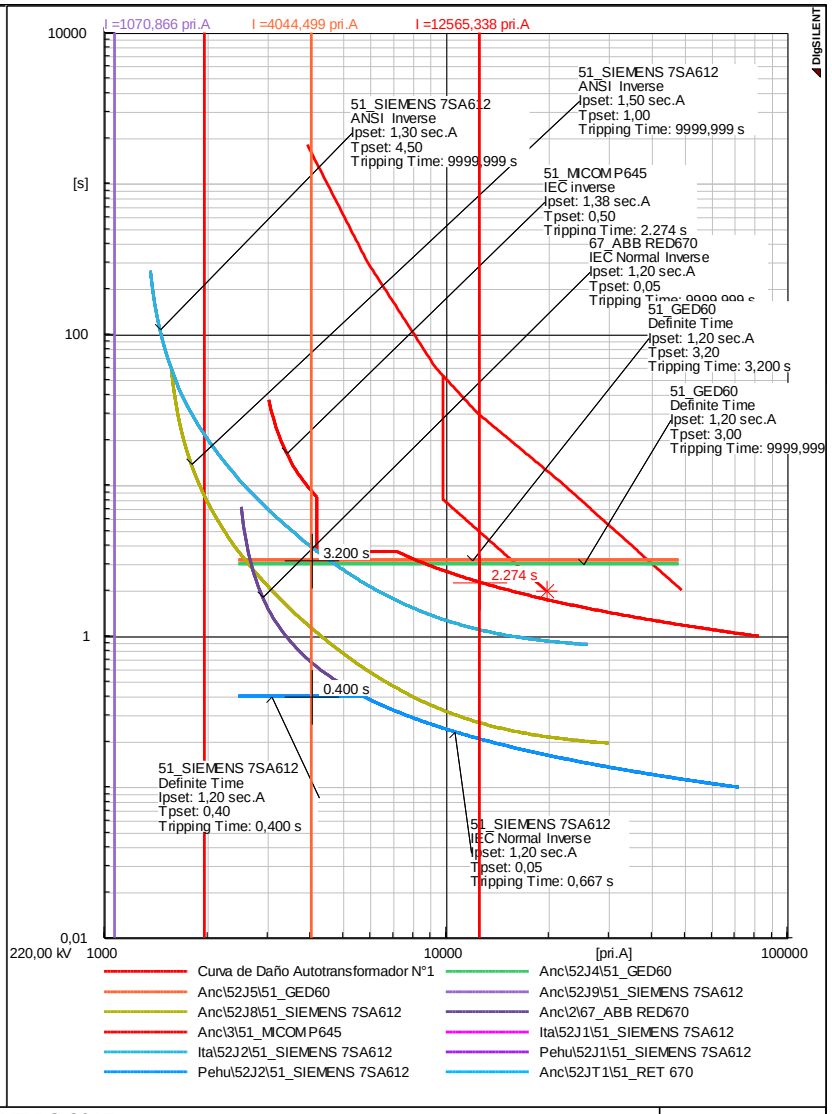
FUNCIÓN 51 LADO DE 220 KV





	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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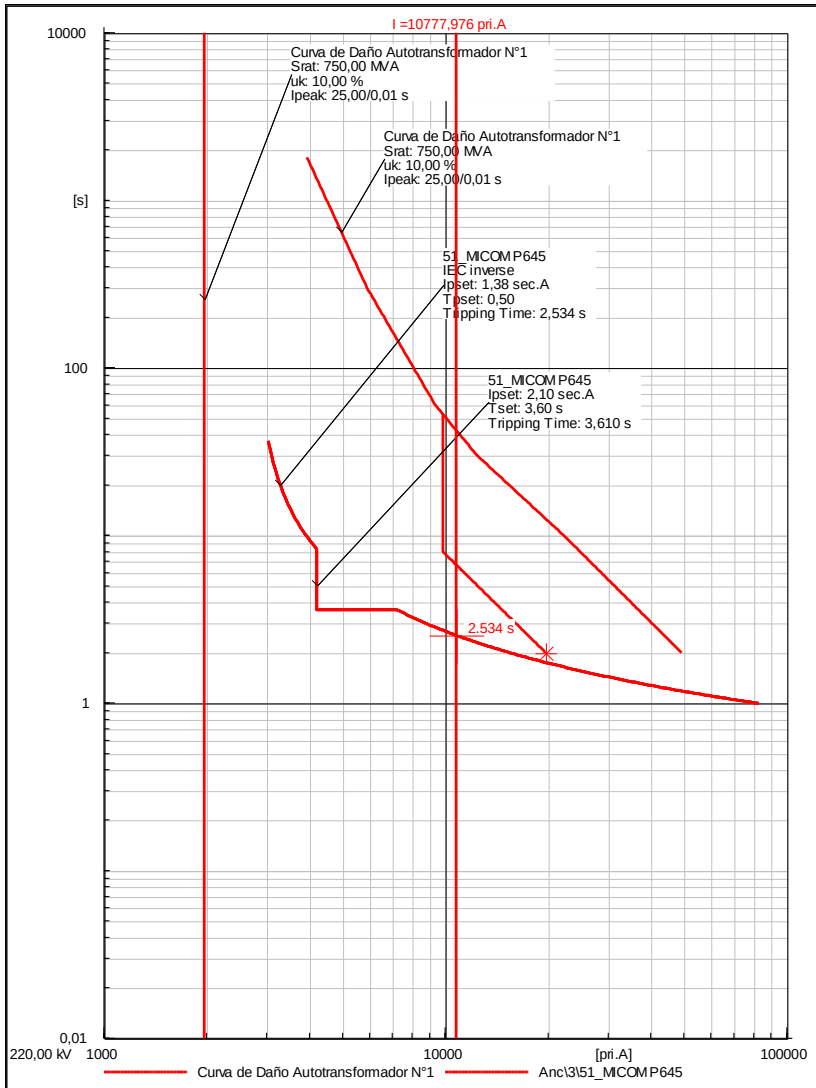
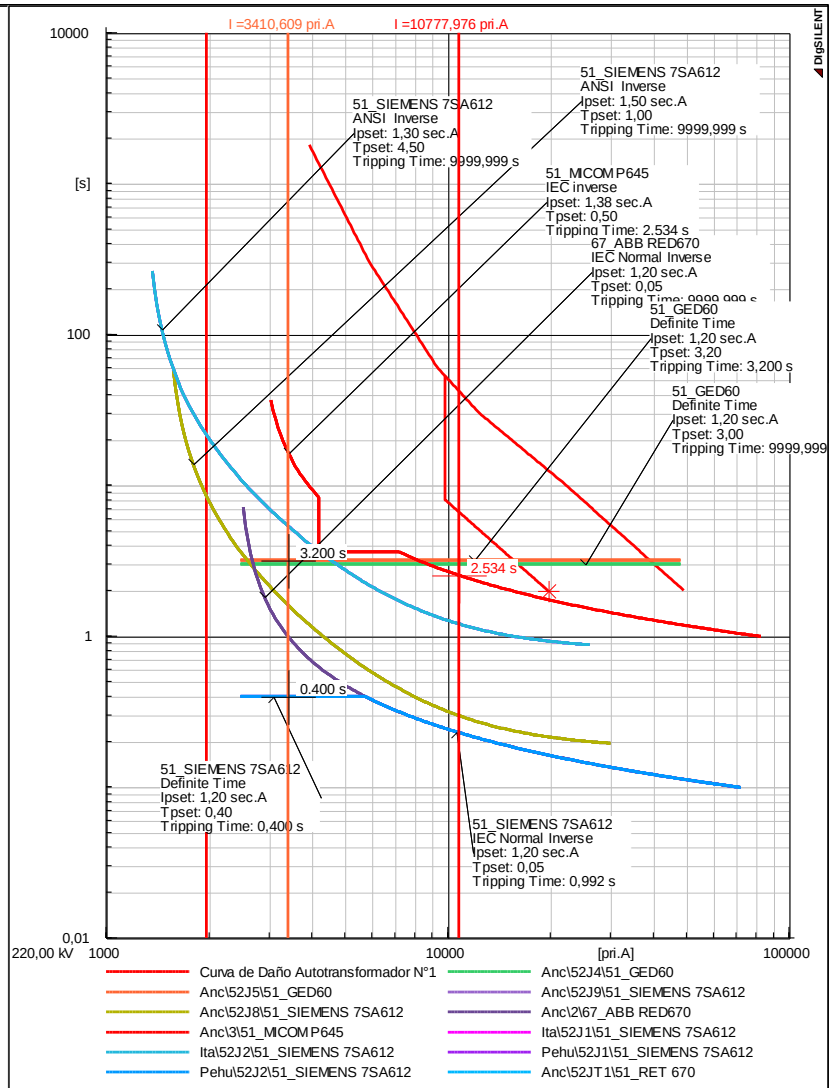
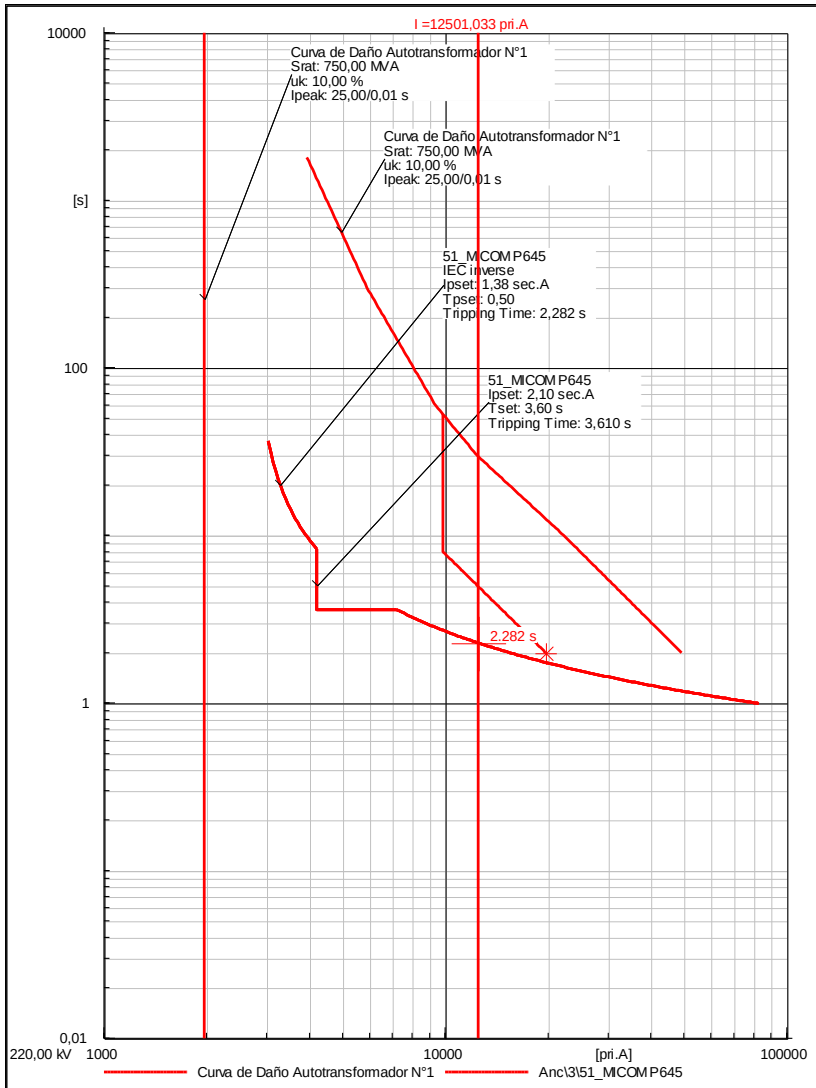
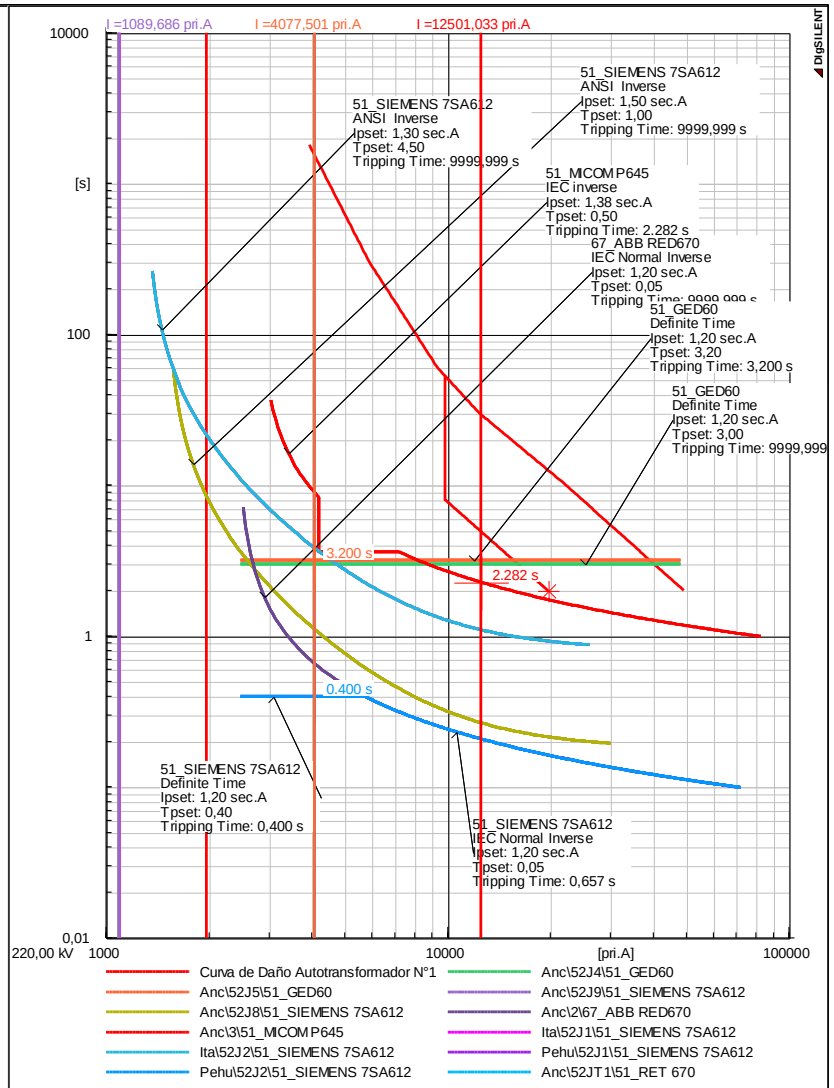


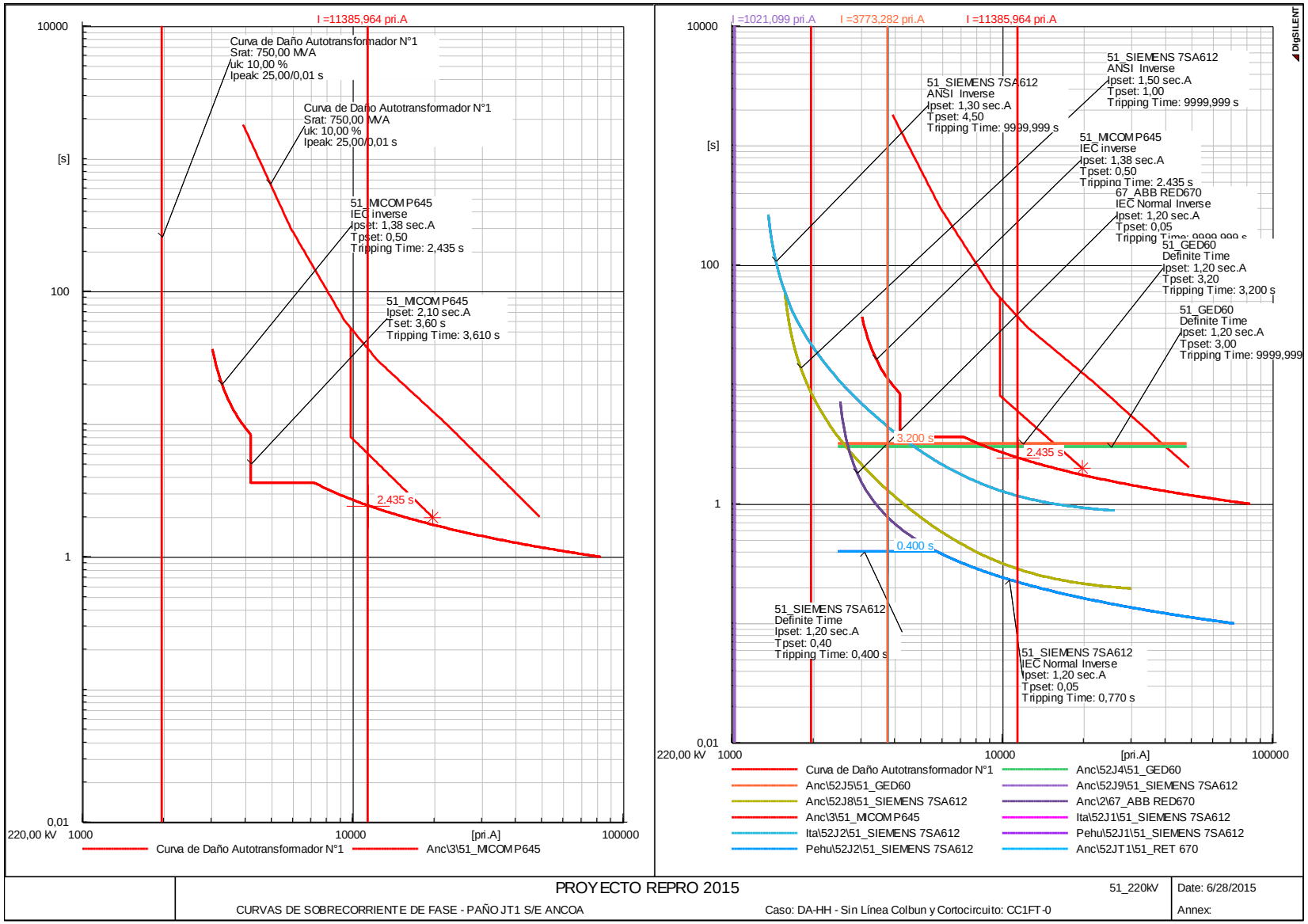


	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2F	Annex:





	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:



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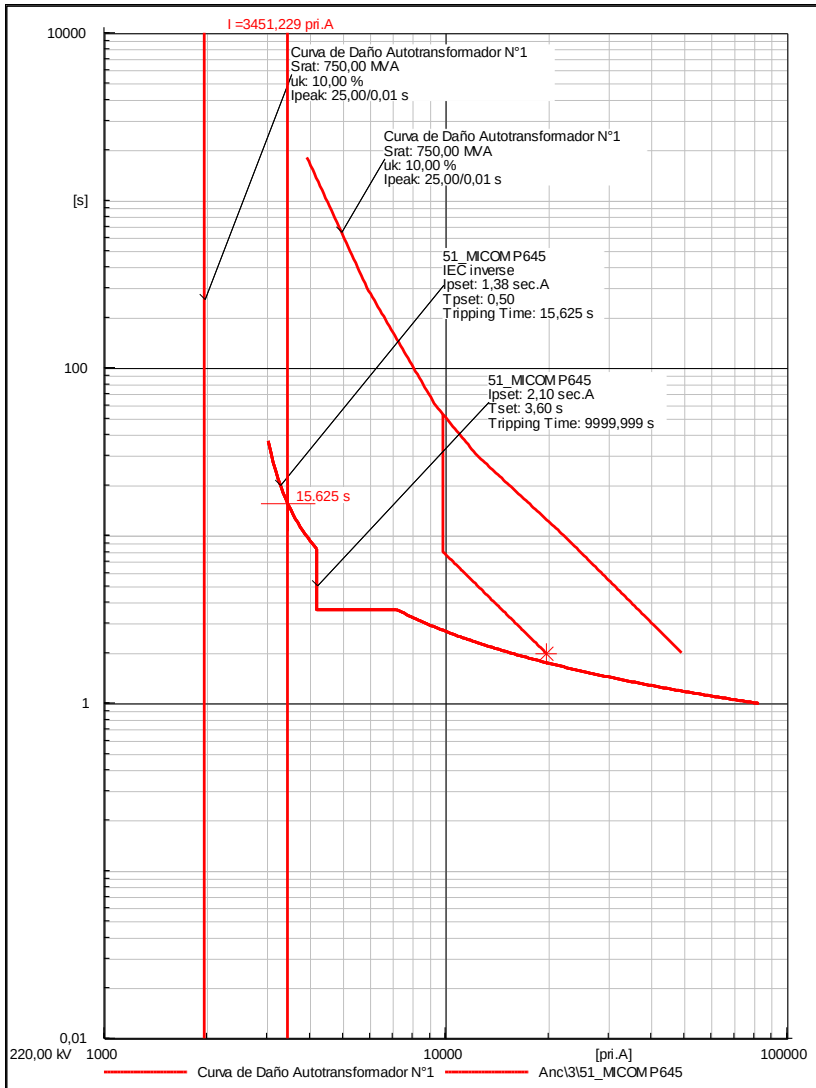
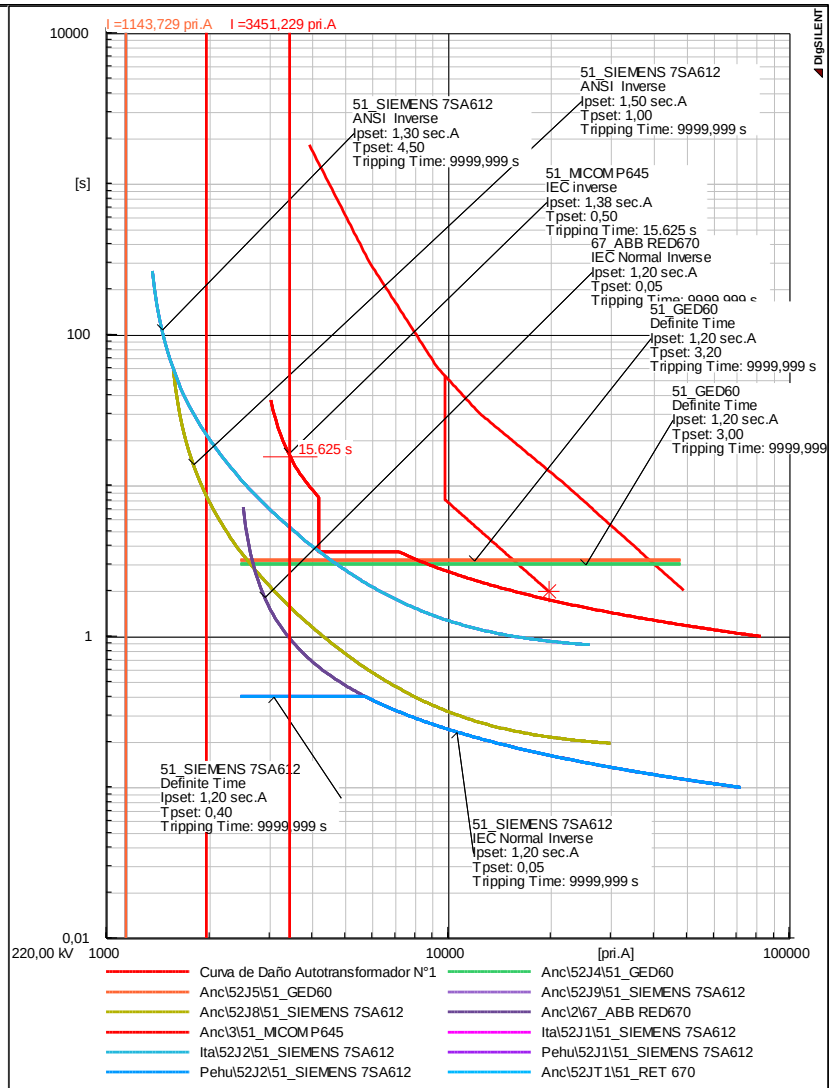
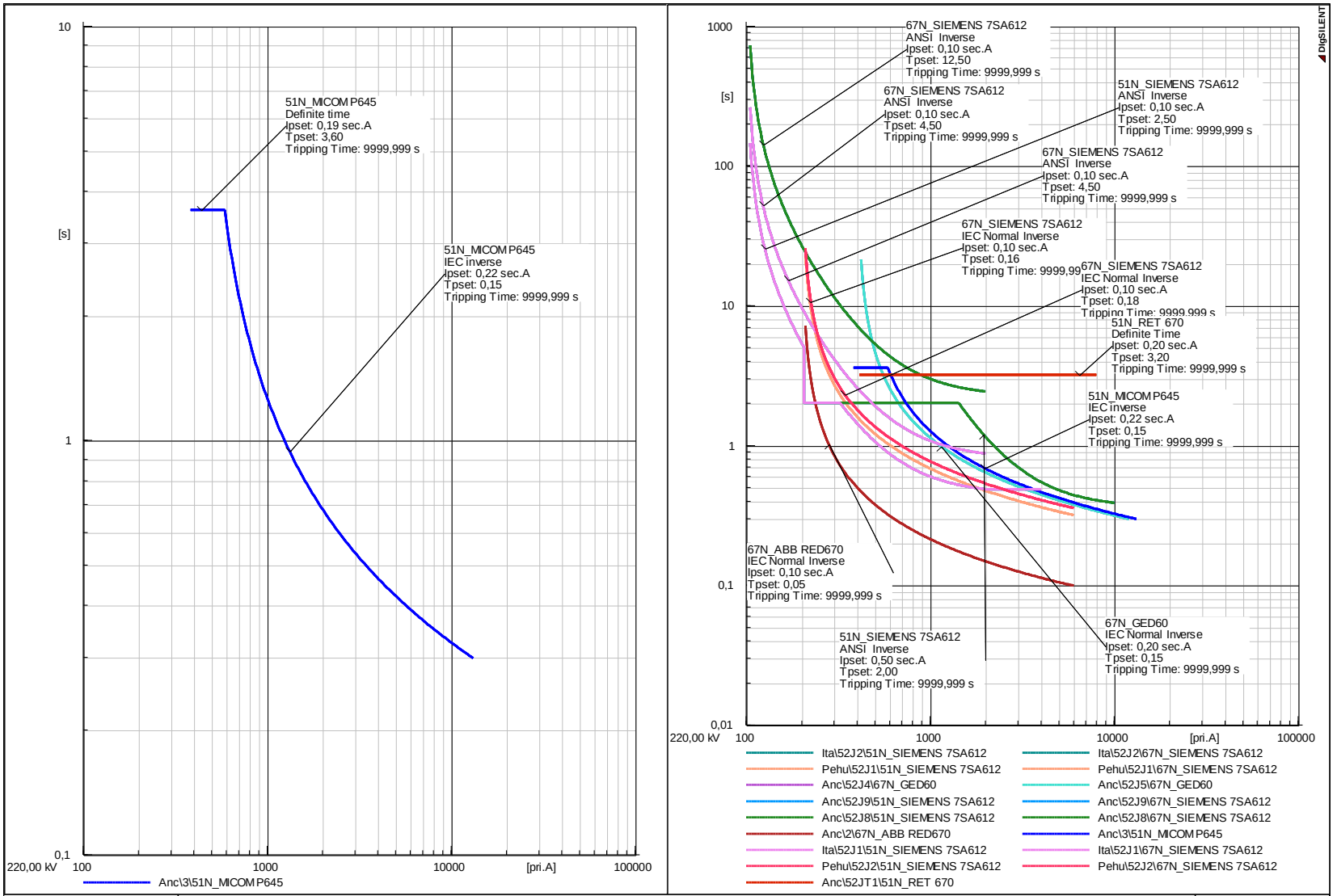




	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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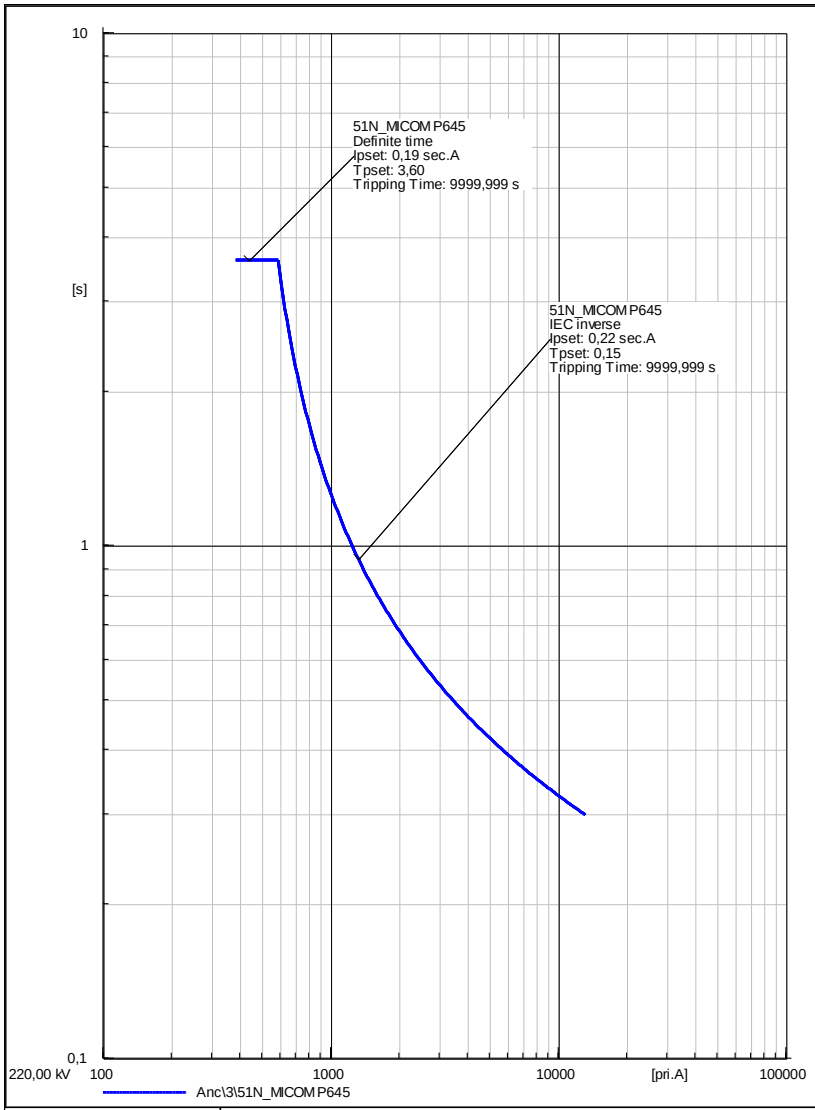
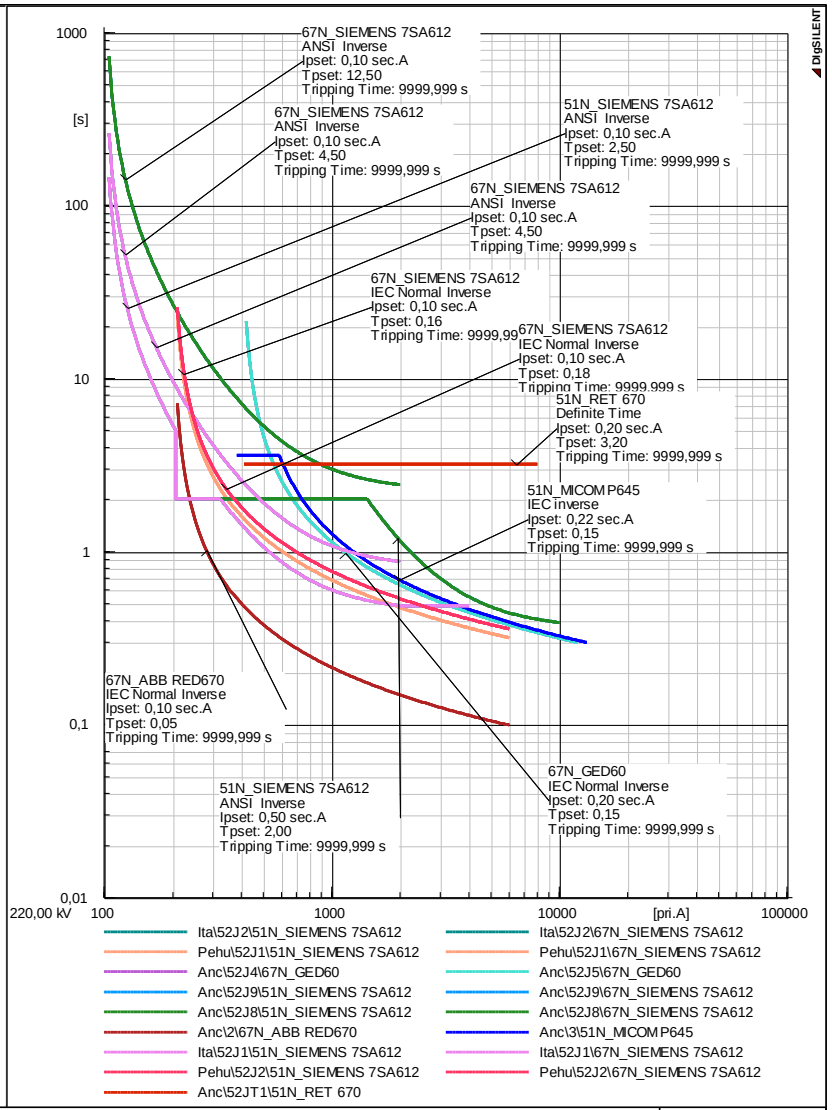
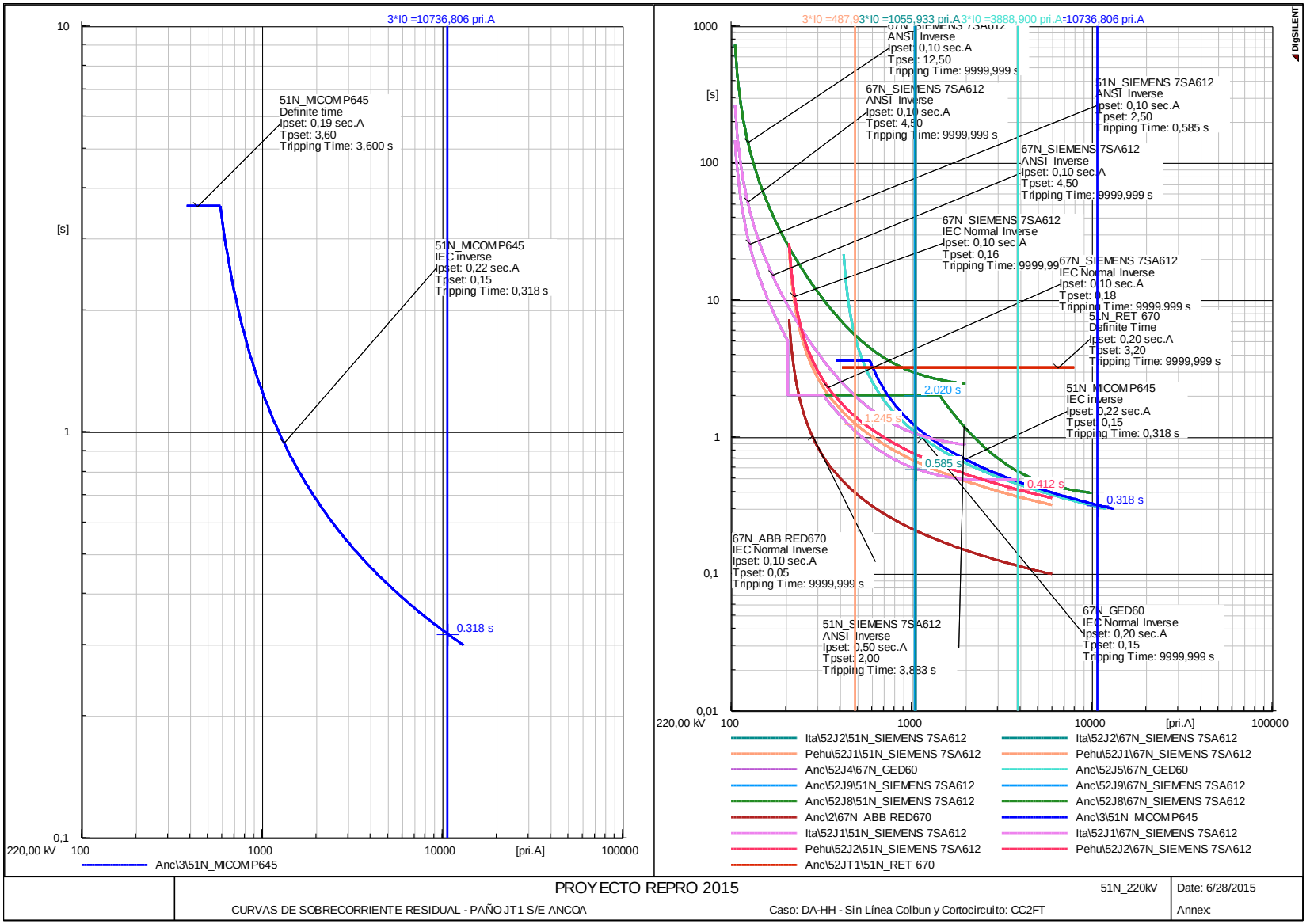




	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2F	Annex:



	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:

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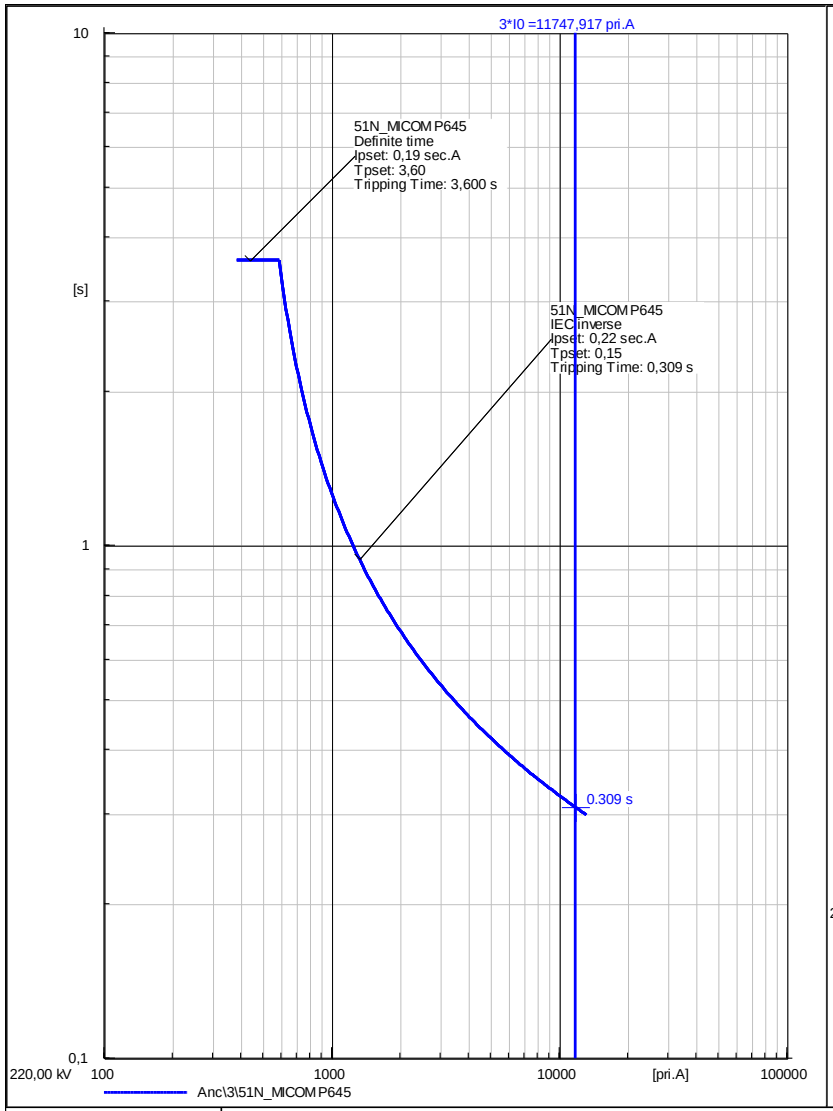

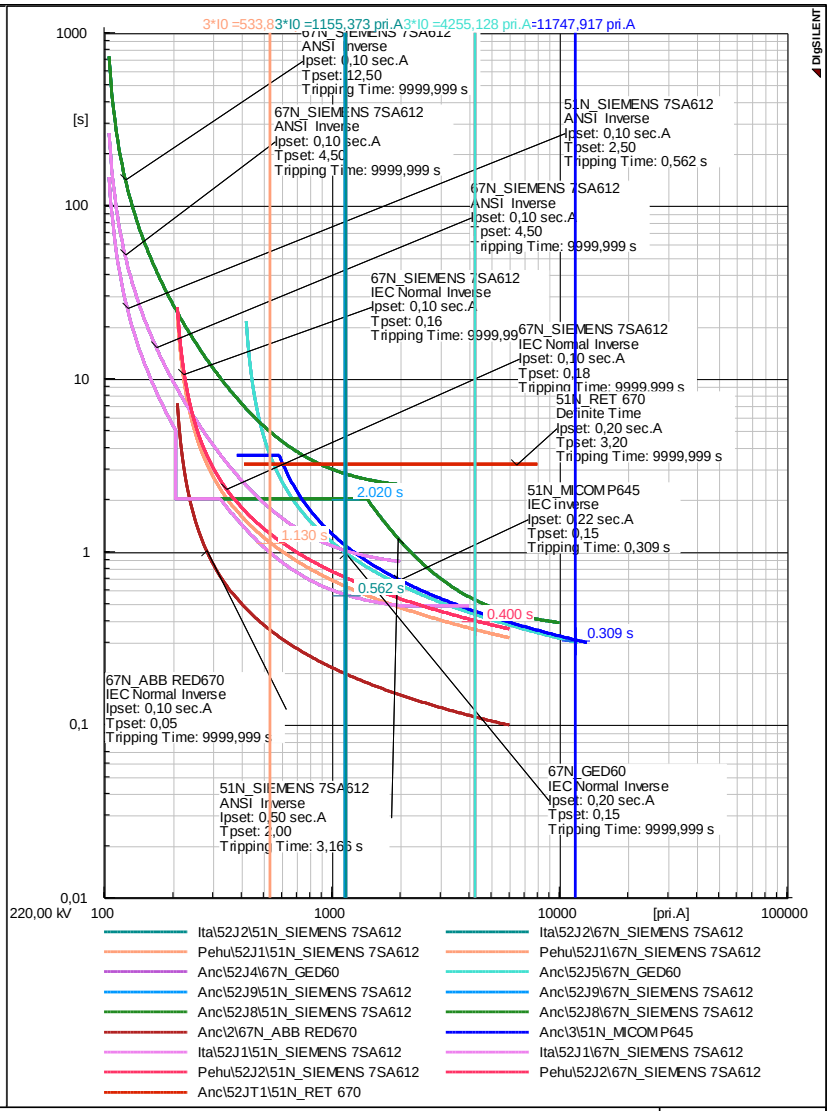

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:

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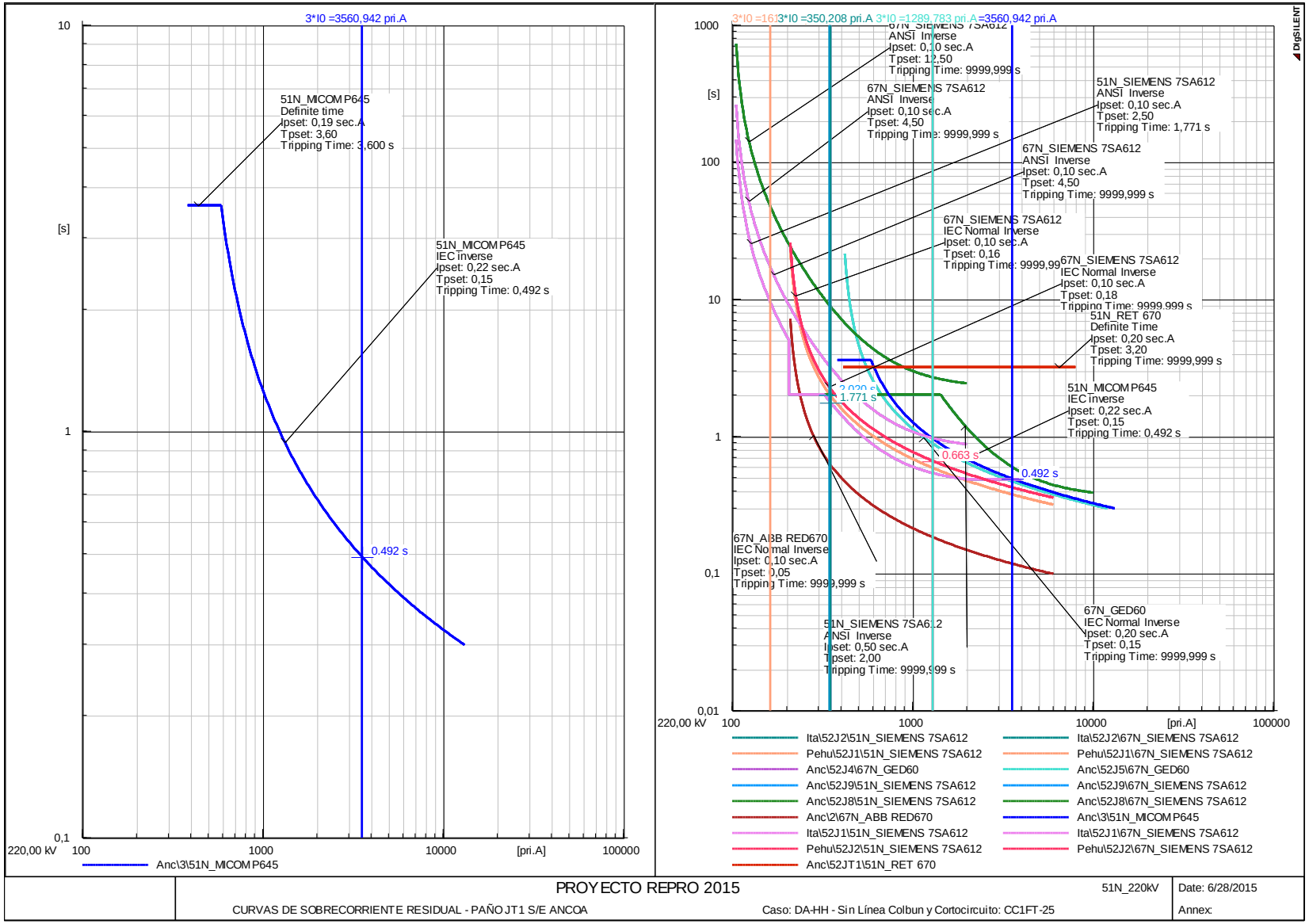

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

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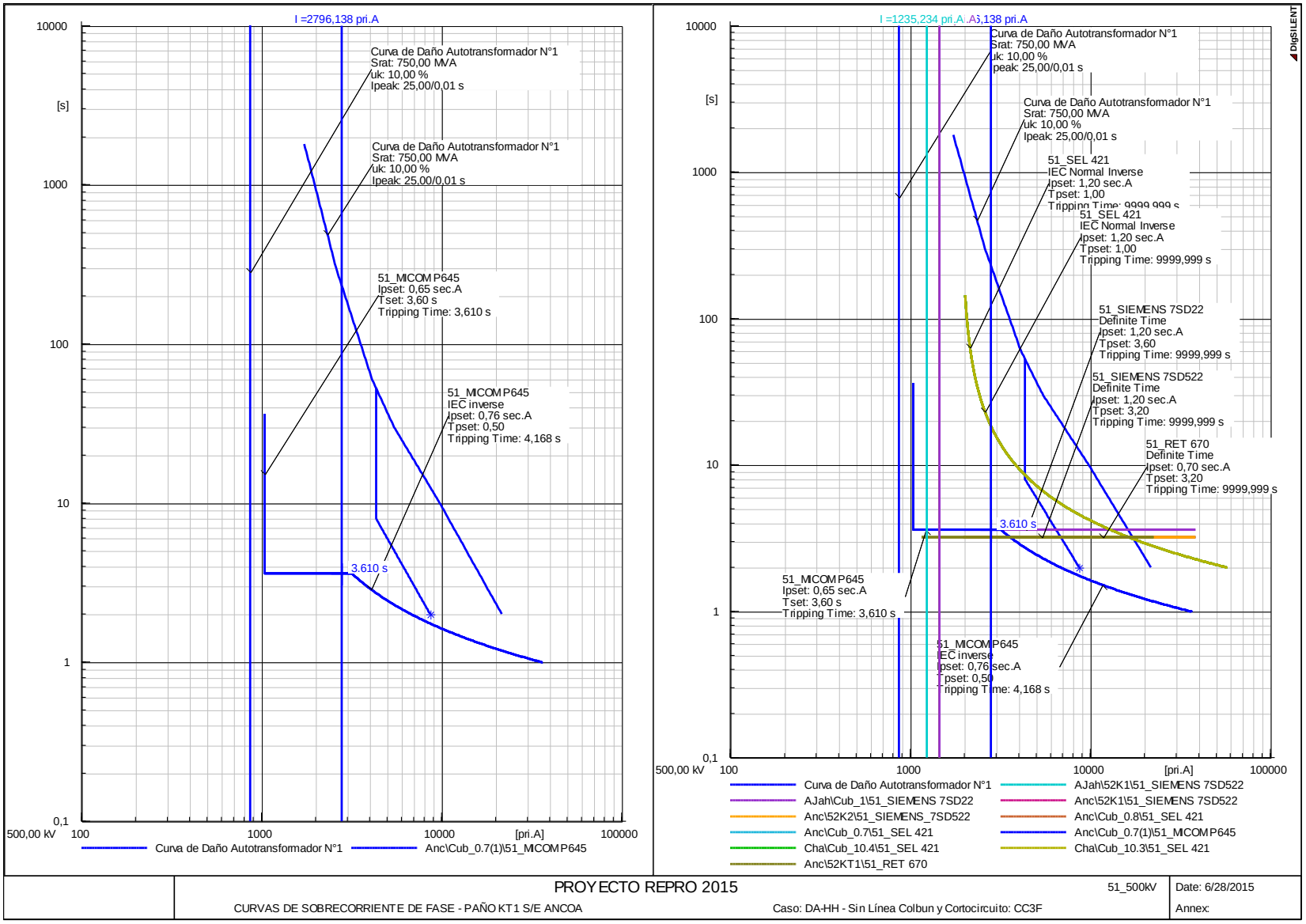
FUNCIÓN 51 LADO DE 500 KV



	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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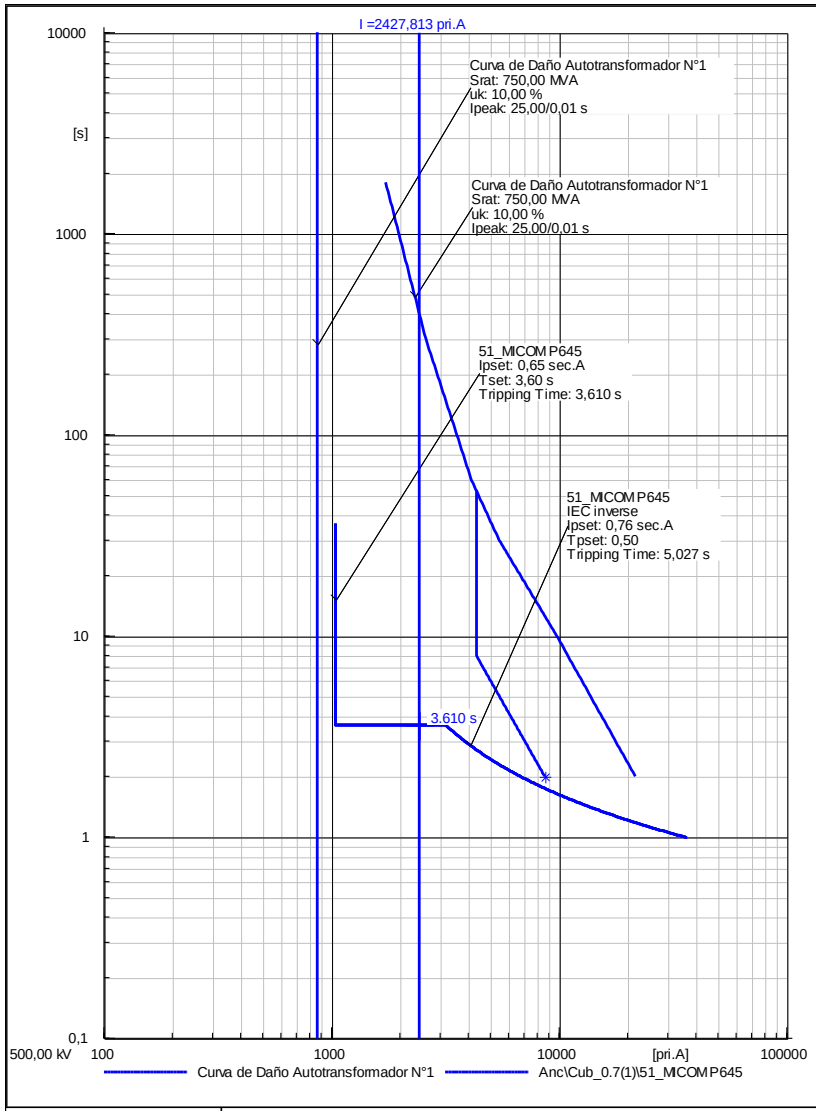

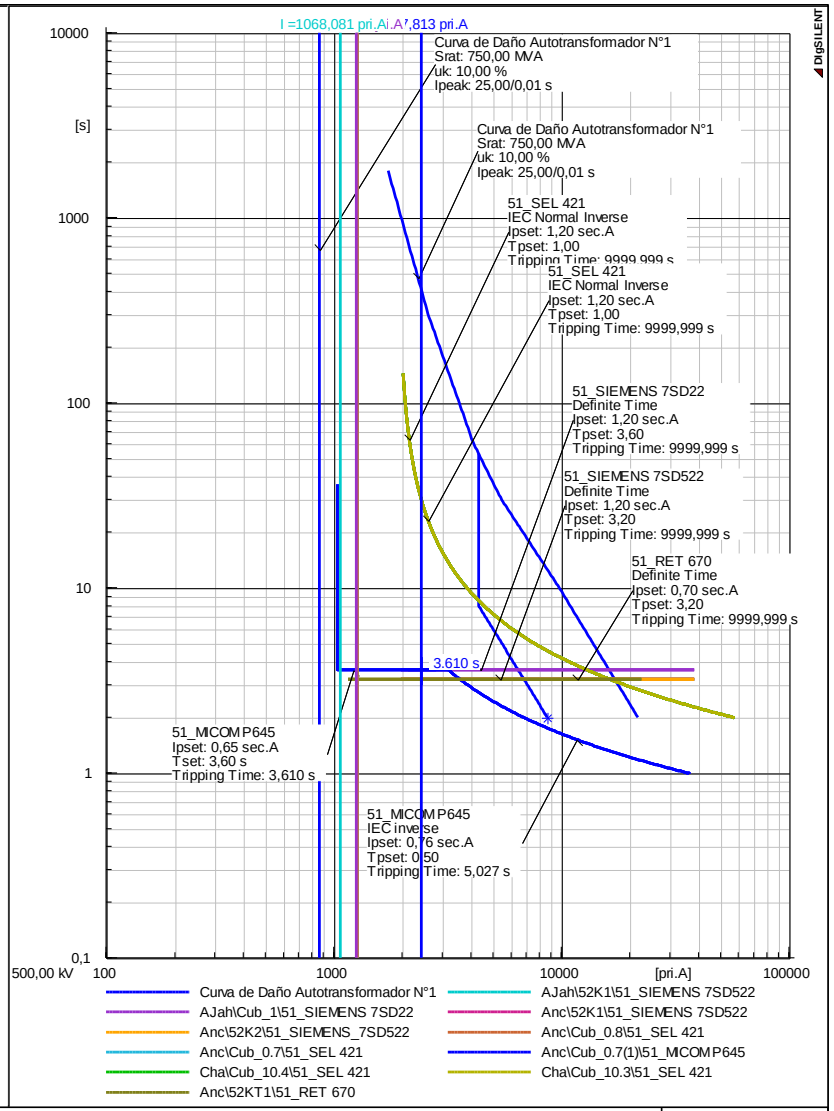

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2F	Annex:

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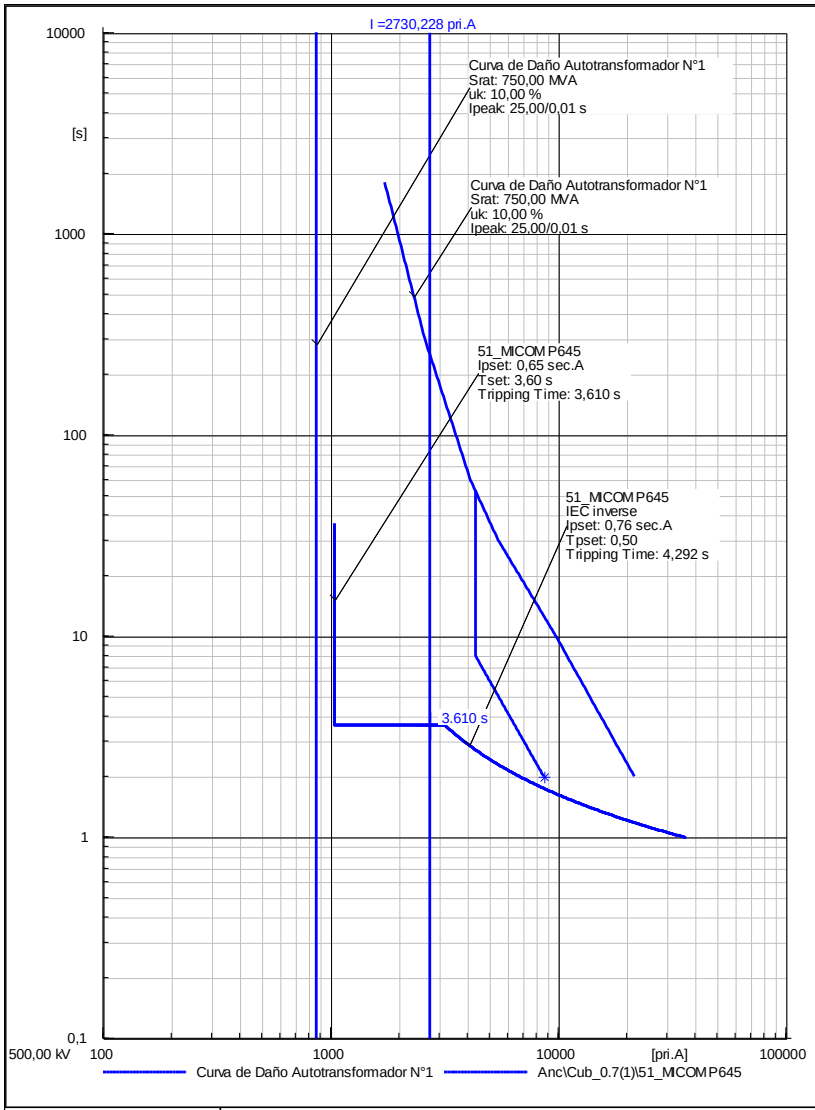

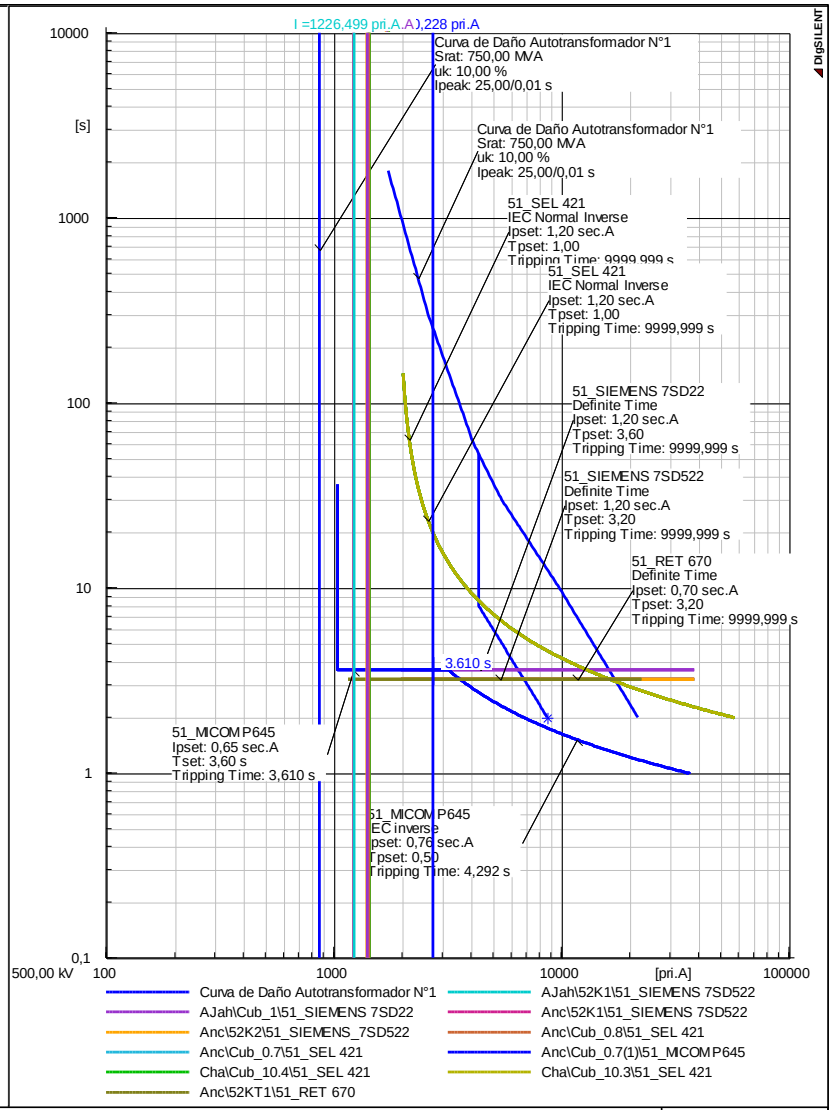

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:

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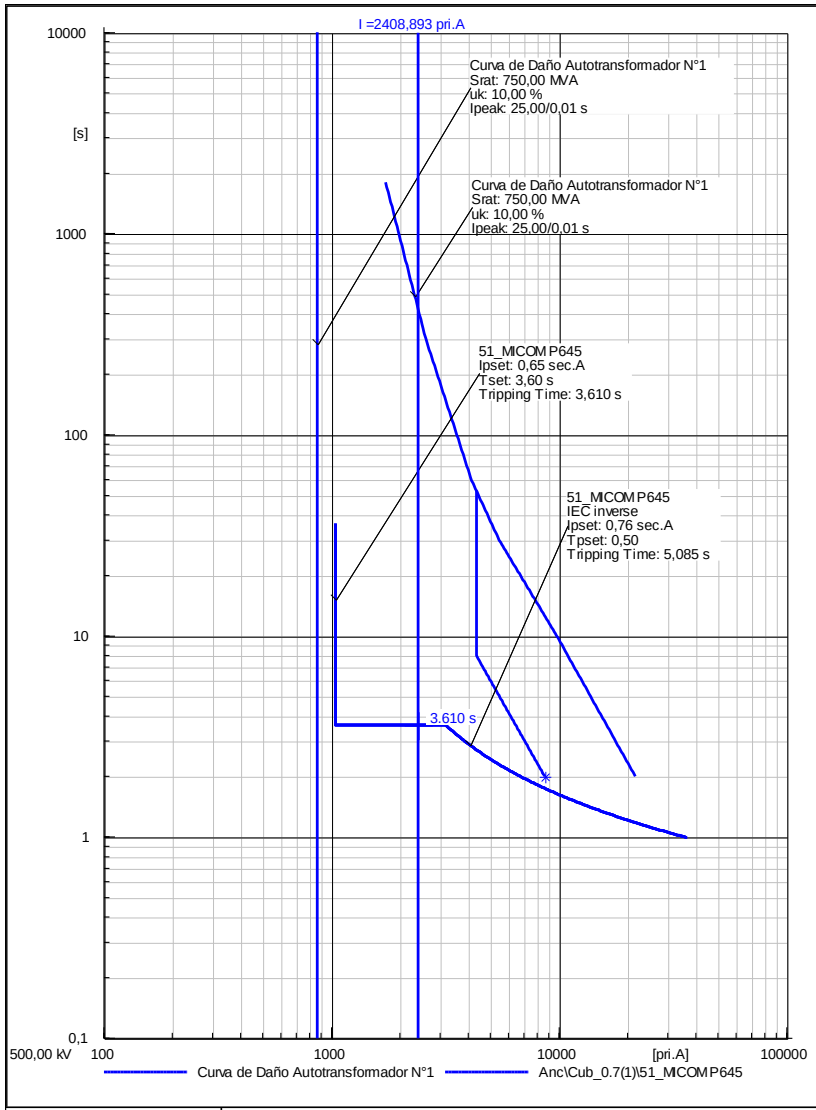

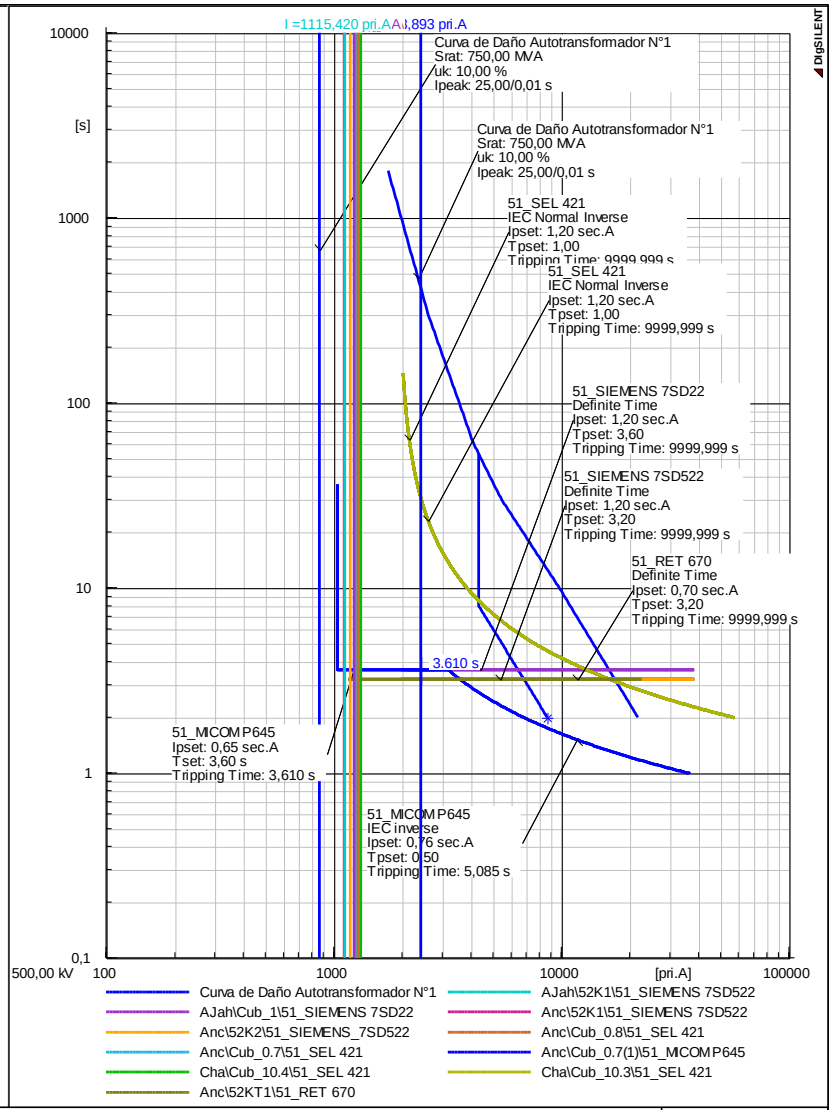

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:

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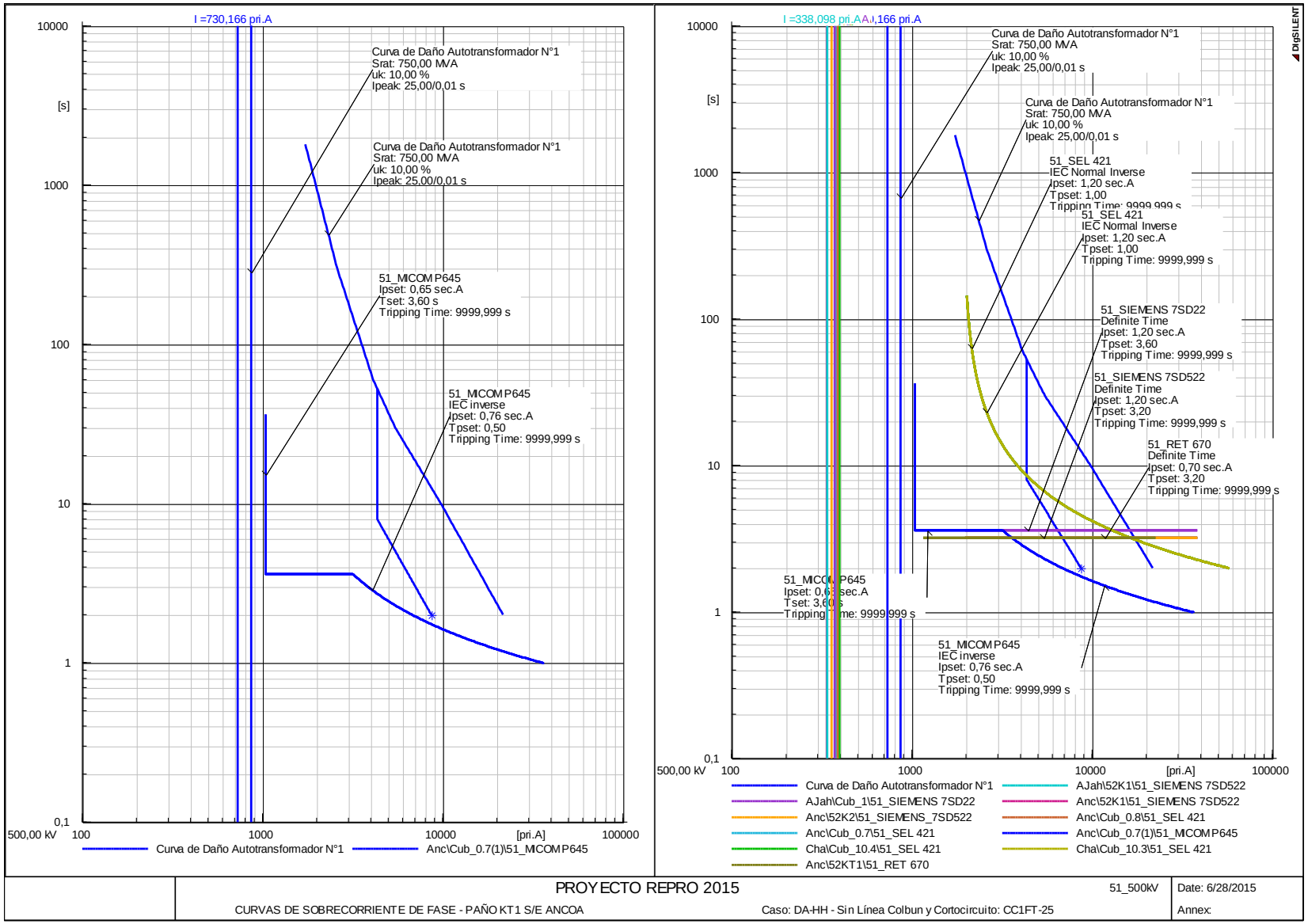
I =730,166 pri.A
Curva de Daño Autotransformador N°1
Srat: 750,00 MVA
uk: 10,00 %
Ipeak: 25,00/0,01 s
Curva de Daño Autotransformador N°1
Srat: 750,00 MVA
uk: 10,00 %
Ipeak: 25,00/0,01 s
51_MICOM P645
Ipset: 0,65 sec.A
Tset: 3,60 s
Tripping Time: 9999,999 s
51_MICOM P645
IEC inverse
Ipset: 0,76 sec.A
Tpset: 0,50
Tripping Time: 9999,999 s
10000
[s]
1000
100
10
1
0,1
500,00 kV
100
1000
10000
[pri.A]
100000
Curva de Daño Autotransformador N°1
Anc\Cub_0.7(1)\51_MICOM P645
I =338,098 pri.A
I =730,166 pri.A
Curva de Daño Autotransformador N°1
Srat: 750,00 MVA
uk: 10,00 %
Ipeak: 25,00/0,01 s
Curva de Daño Autotransformador N°1
Srat: 750,00 MVA
uk: 10,00 %
Ipeak: 25,00/0,01 s
51_SEL 421
IEC Normal Inverse
Ipset: 1,20 sec.A
Tpset: 1,00
51_SEL 421
IEC Normal Inverse
Ipset: 1,20 sec.A
Tpset: 1,00
Tripping Time: 9999,999 s
51_SIEMENS 7SD22
Definite Time
Ipset: 1,20 sec.A
Tpset: 3,60
Tripping Time: 9999,999 s
51_SIEMENS 7SD522
Definite Time
Ipset: 1,20 sec.A
Tpset: 3,20
Tripping Time: 9999,999 s
51_RET 670
Definite Time
Ipset: 0,70 sec.A
Tpset: 3,20
Tripping Time: 9999,999 s
51_MICOM P645
IEC inverse
Ipset: 0,76 sec.A
Tpset: 0,50
Tripping Time: 9999,999 s
DIgSILENT
Curva de Daño Autotransformador N°1
AJah\52K1\51_SIEMENS 7SD522
AJah\Cub_1\51_SIEMENS 7SD22
Anc\52K1\51_SIEMENS 7SD522
Anc\52K2\51_SIEMENS_7SD522
Anc\Cub_0.8\51_SEL 421
Anc\Cub_0.7\51_SEL 421
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Cha\Cub_10.4\51_SEL 421
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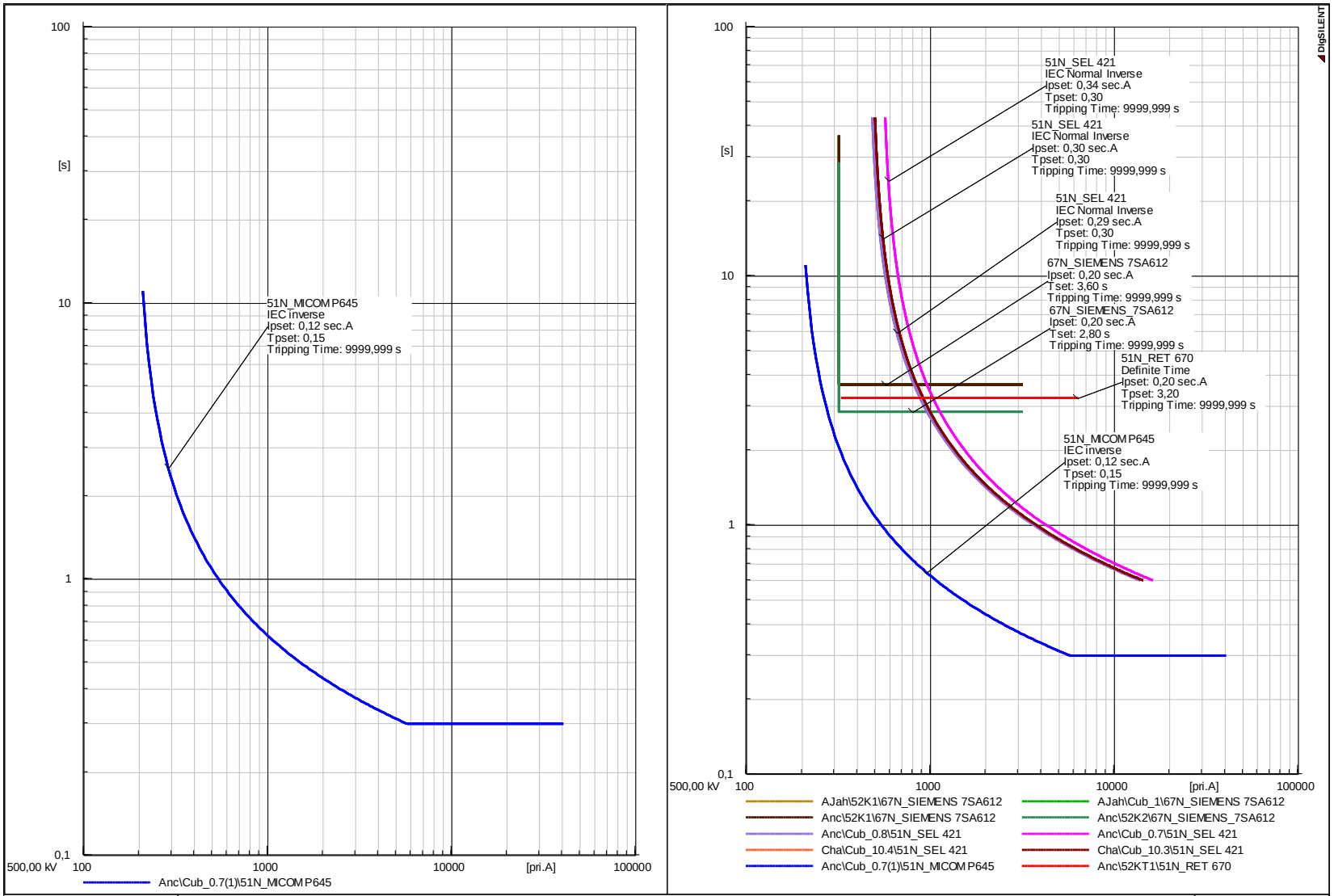
PROYECTO REPRO 2015
51_500kV
Date: 6/28/2015
CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA
Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-25
Annex:

FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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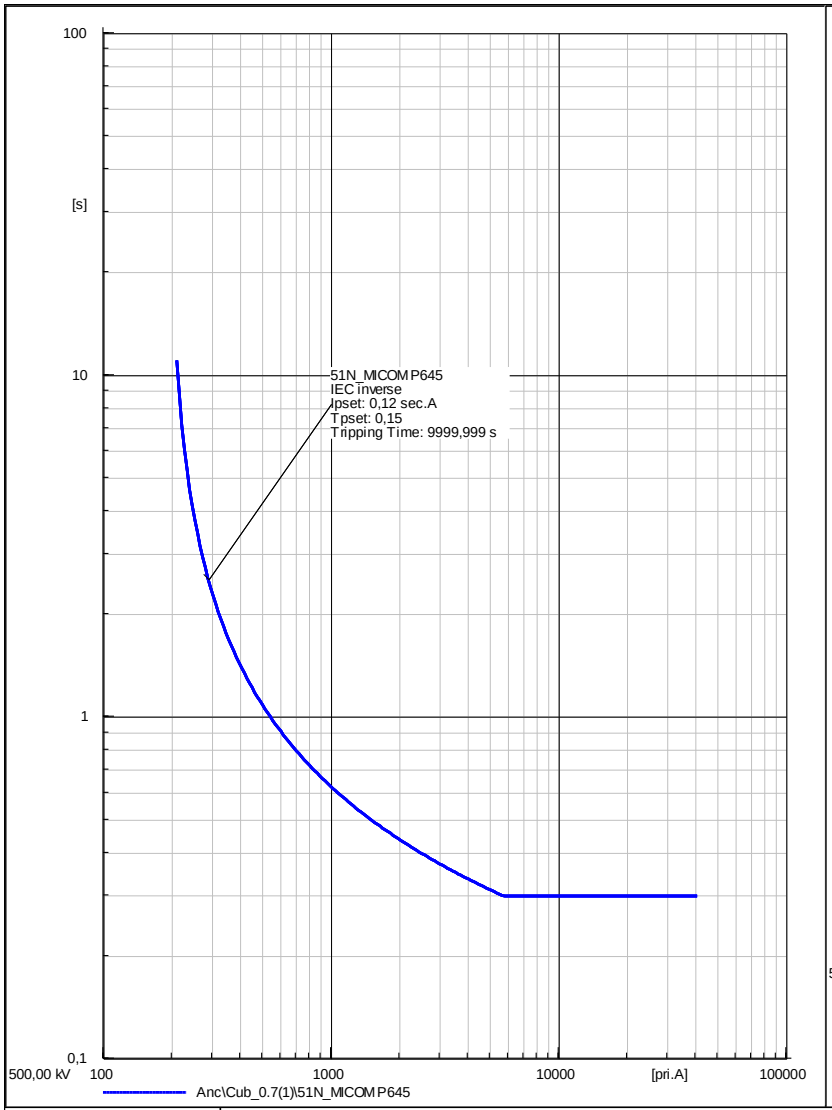
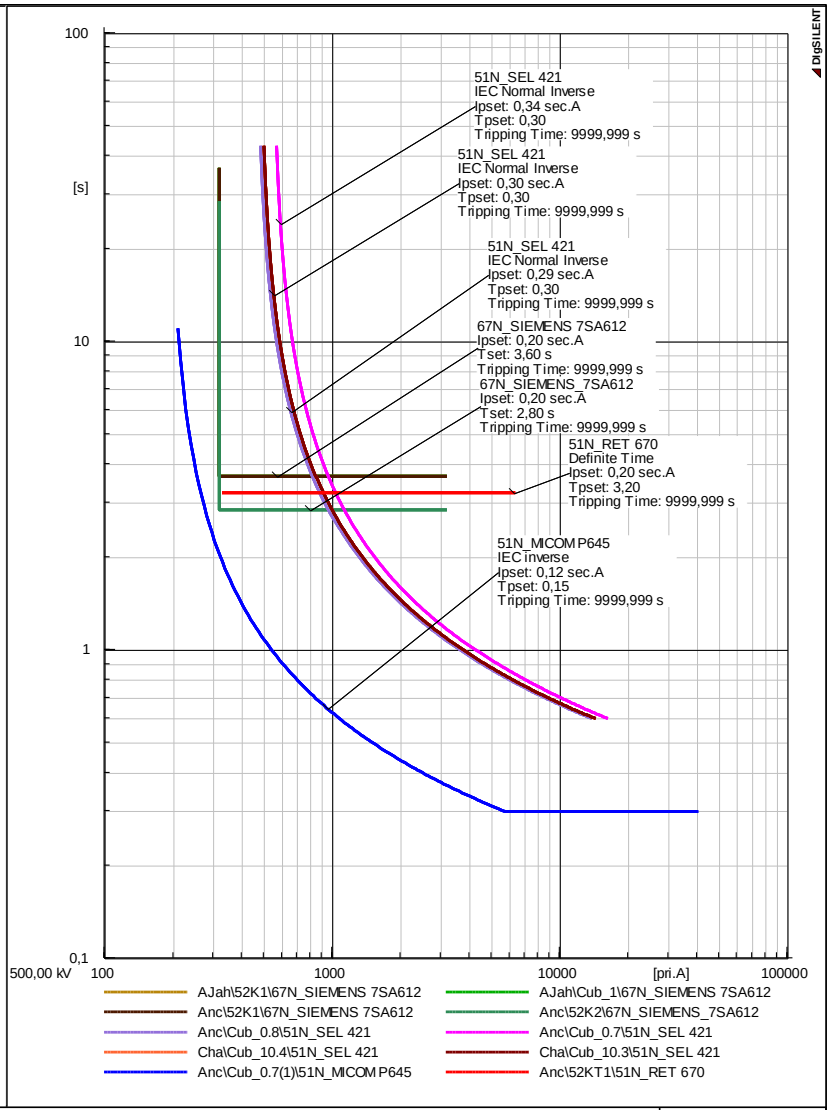
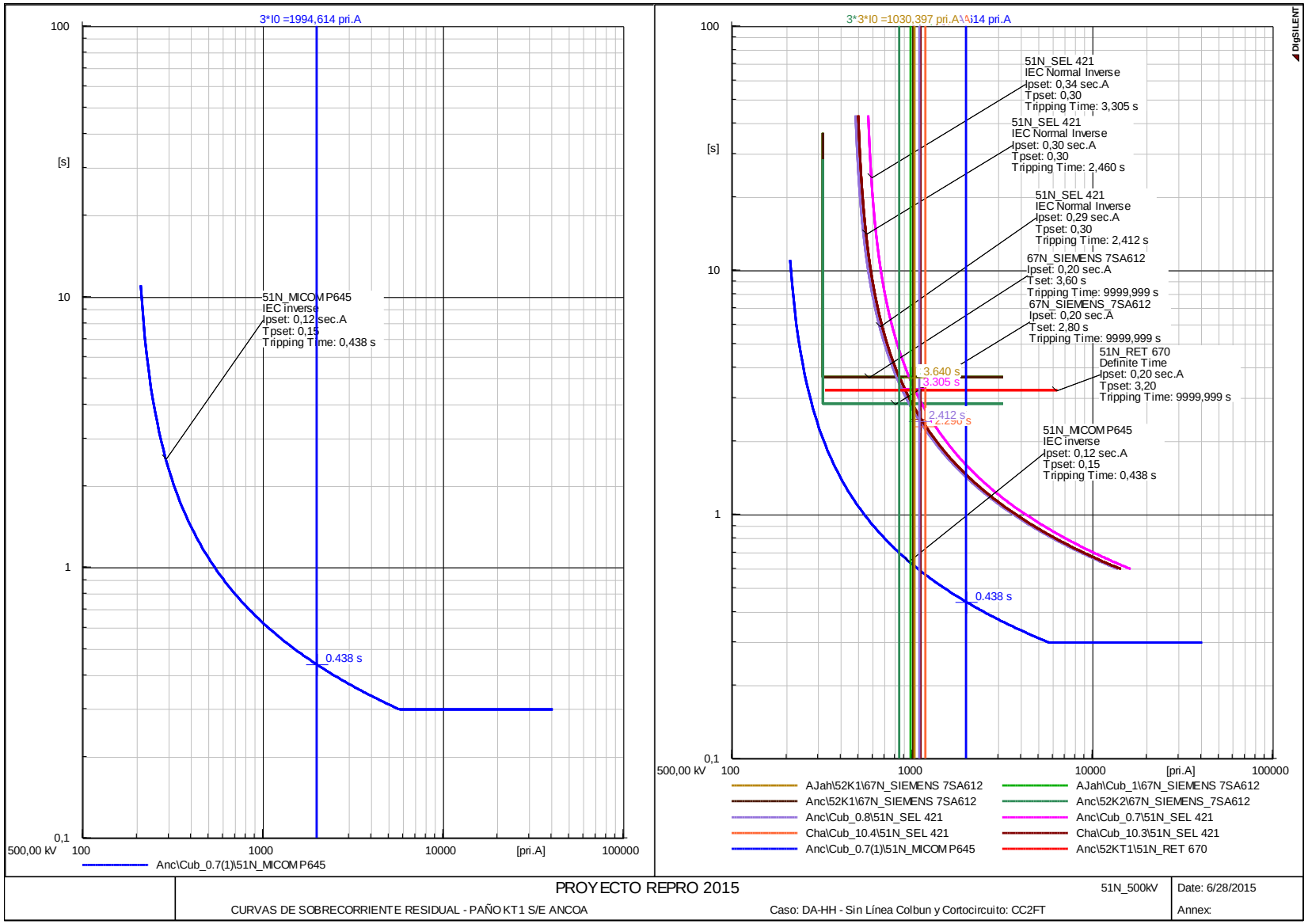




	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2F	Annex:



	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:

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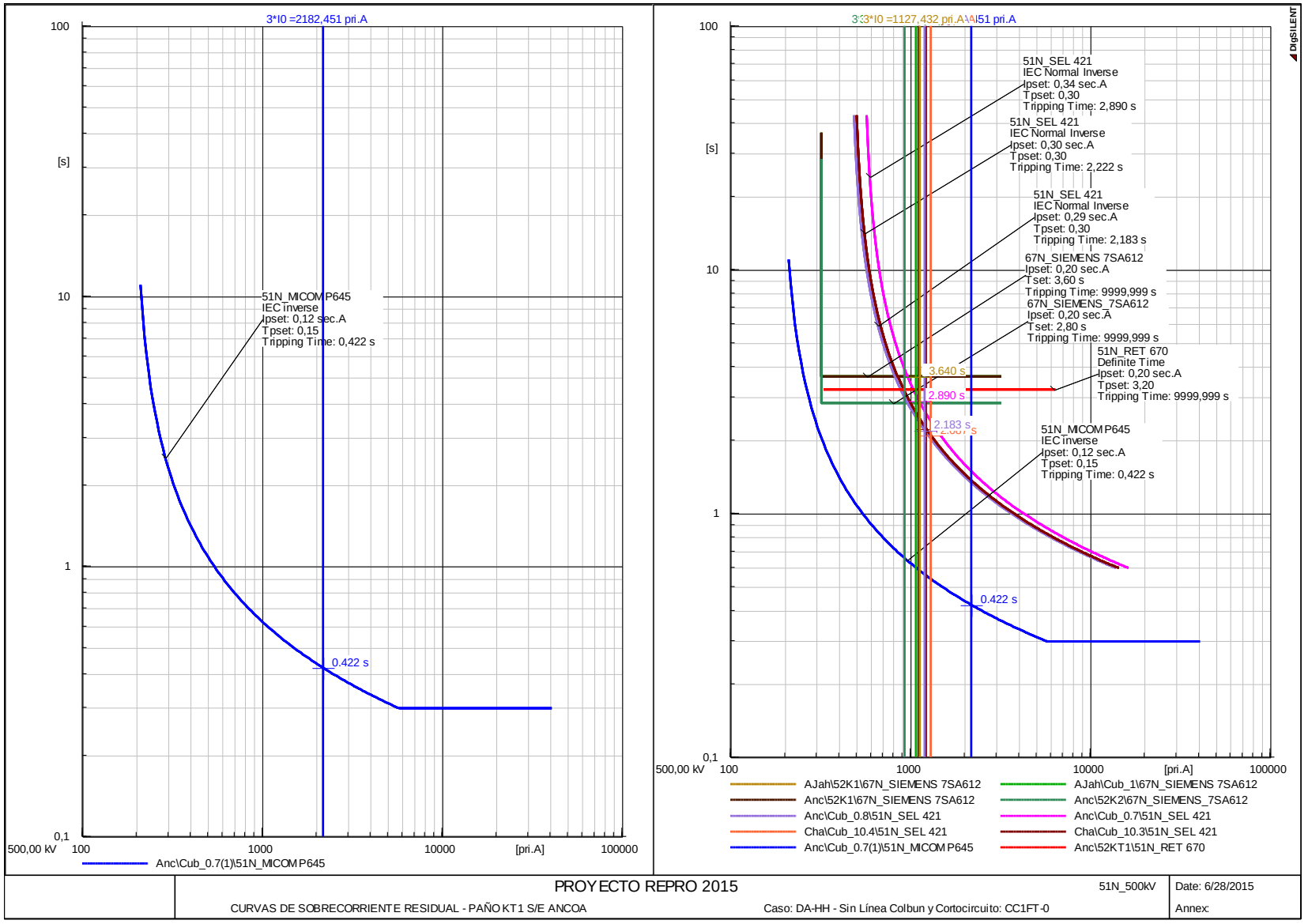

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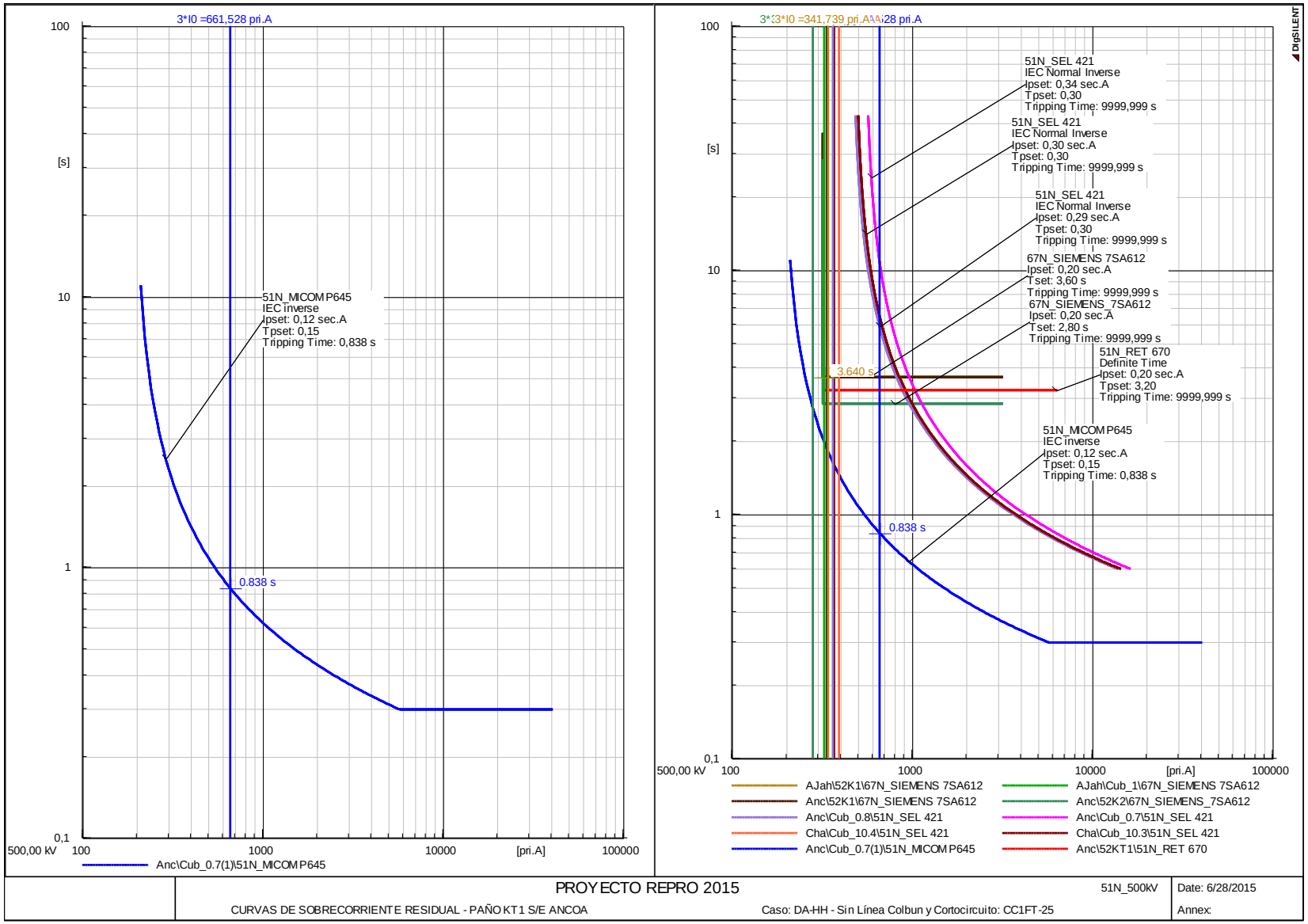

	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HH - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

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SIMULACIONES EN DEMANDA ALTA – HIDROLOGÍA SECA

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FALLA EN BARRA 500 KV S/E ANCOA

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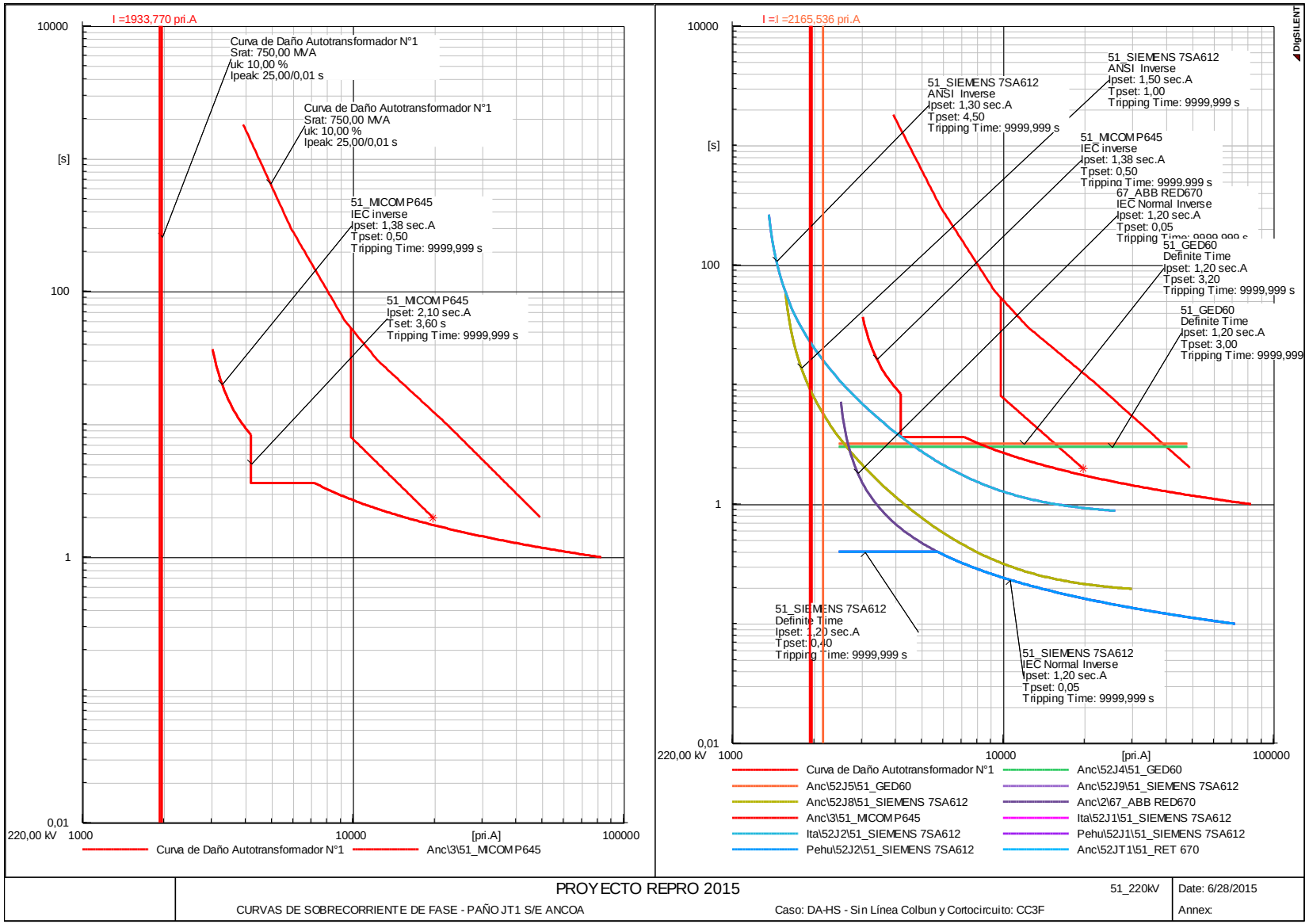
FUNCIÓN 51 LADO DE 220 KV



	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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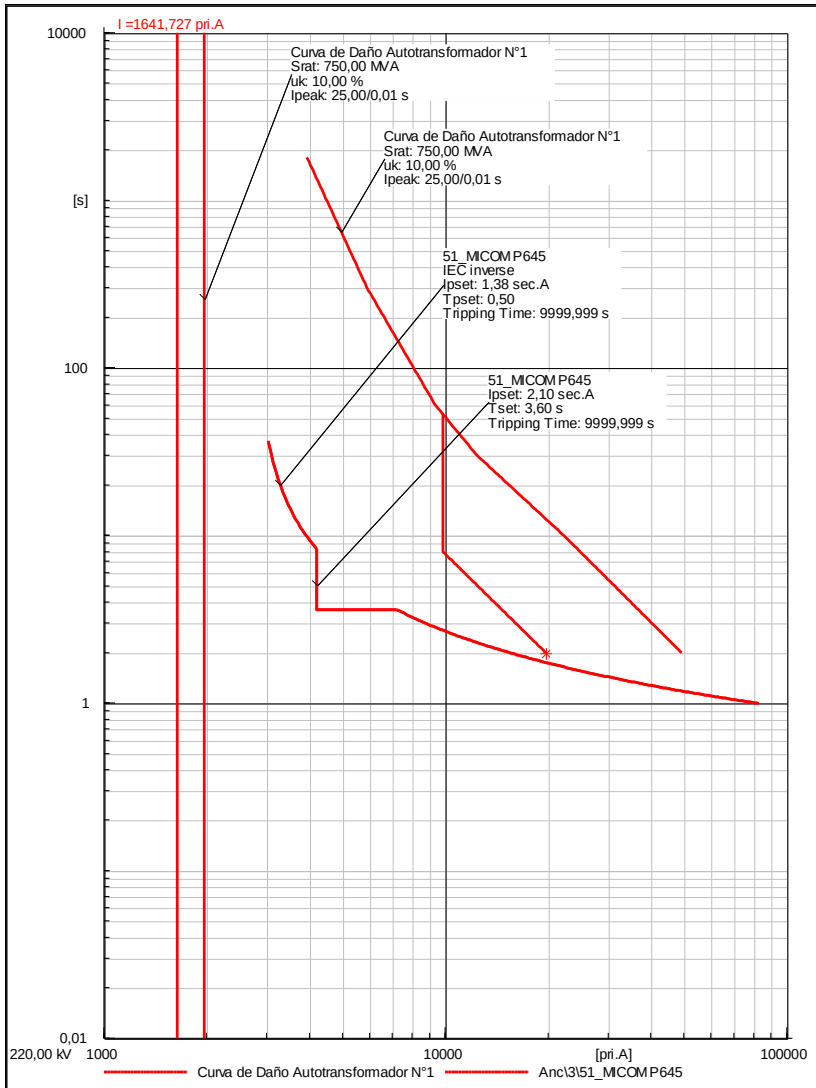
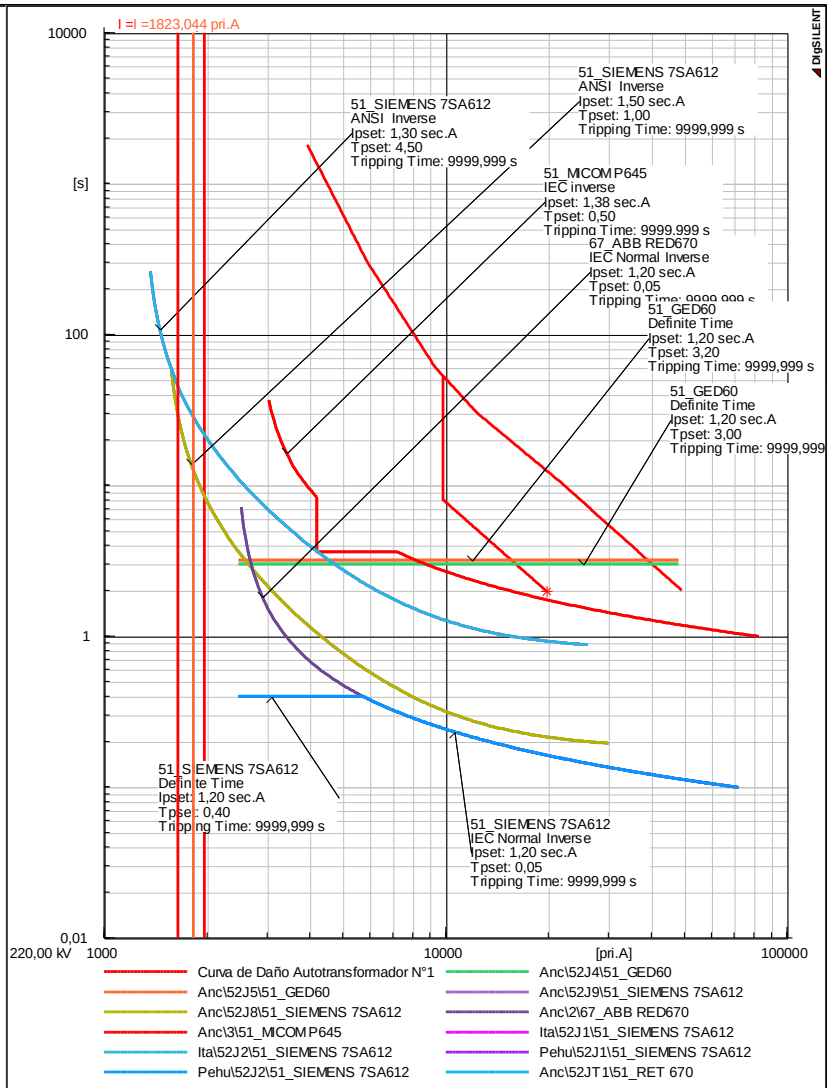
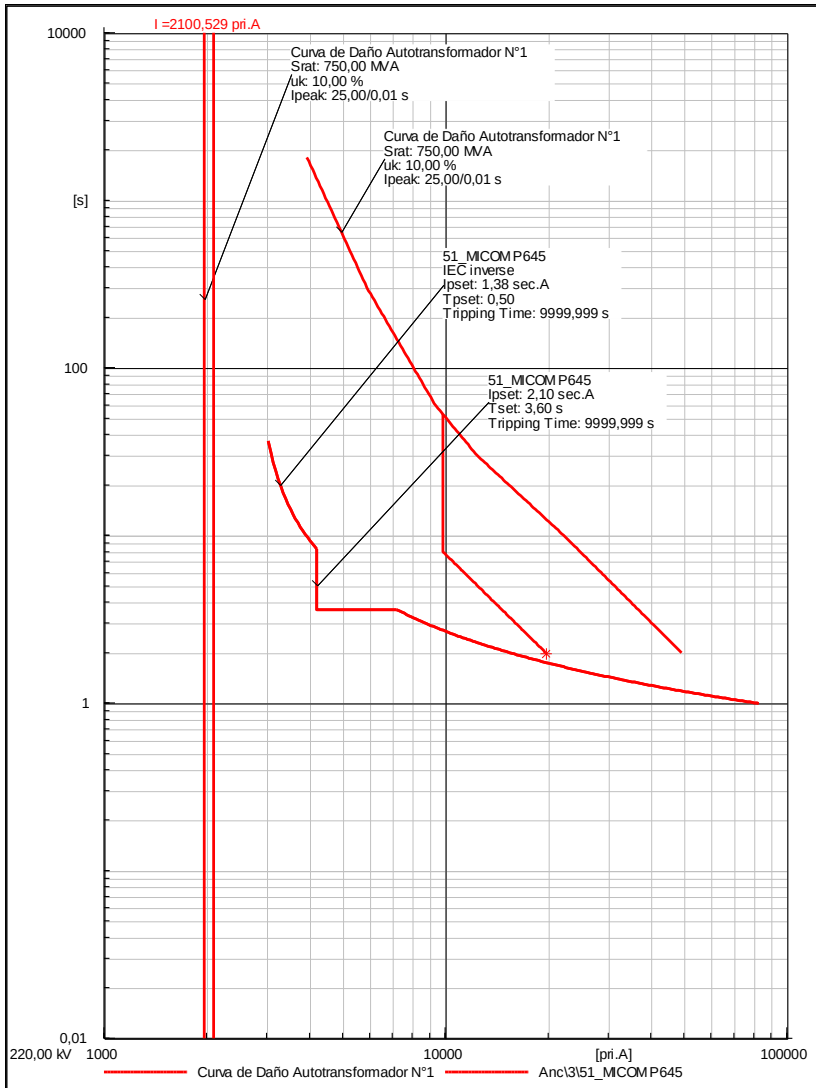
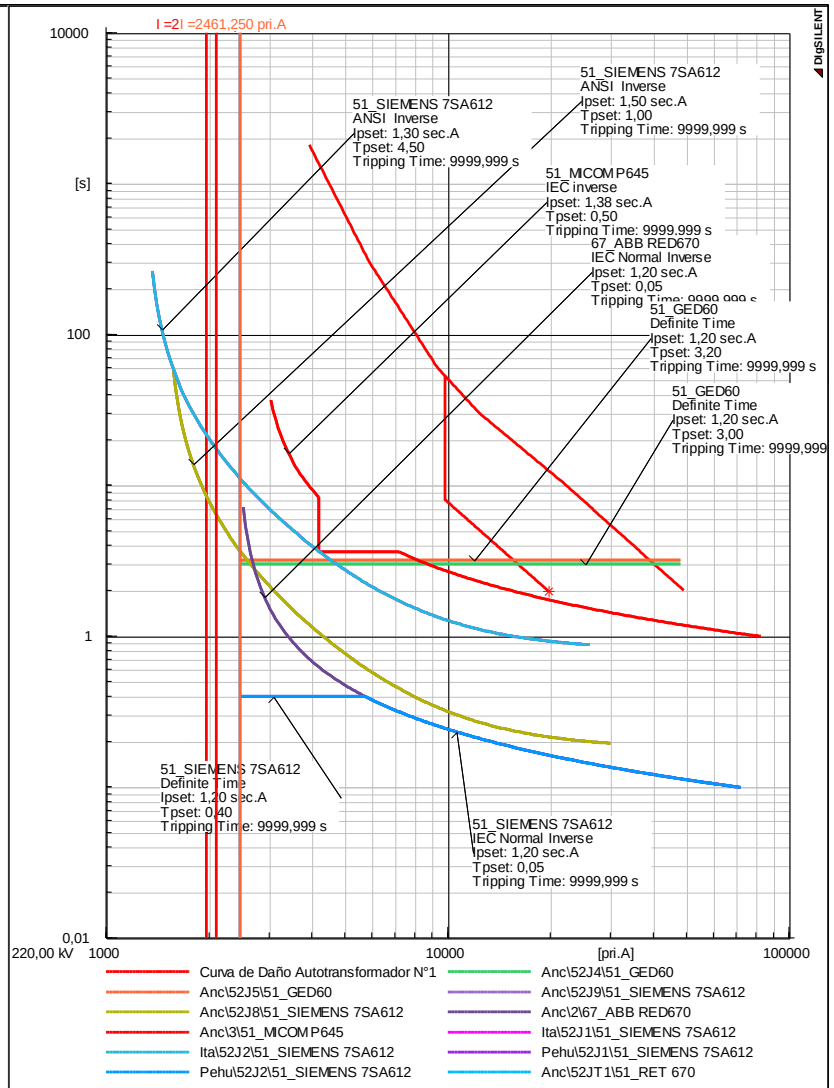


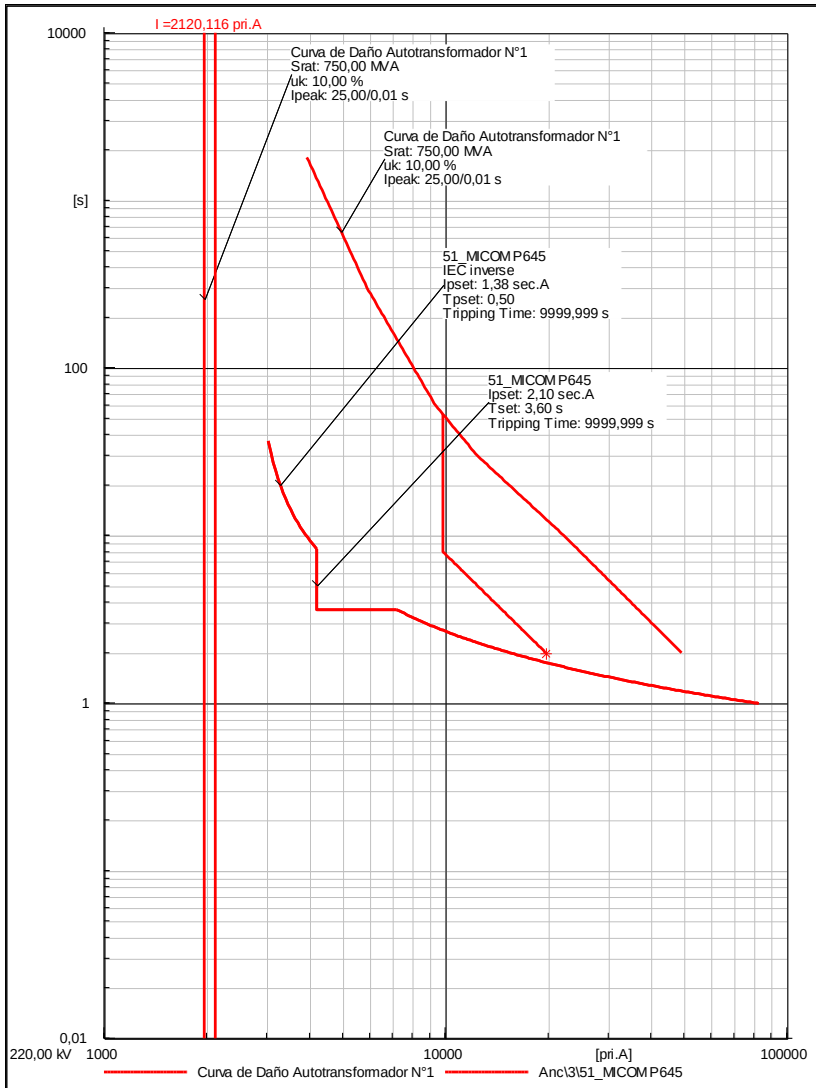


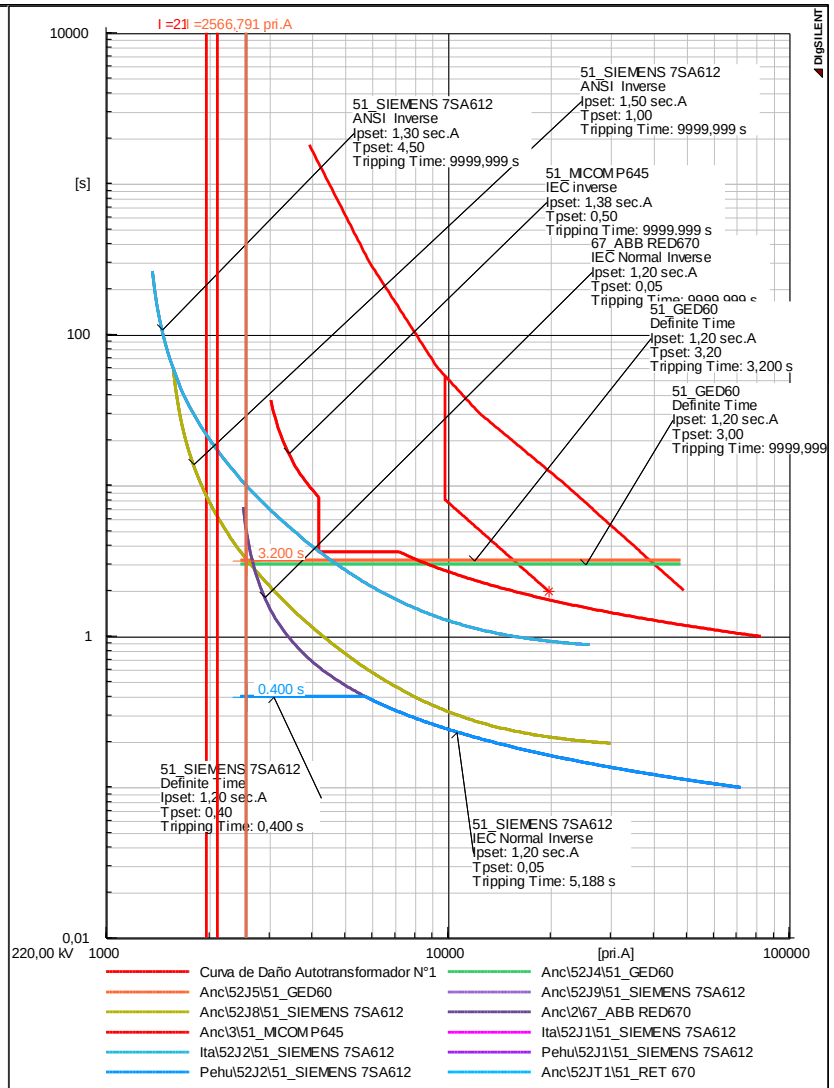
	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2F	Annex:





	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:





	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:

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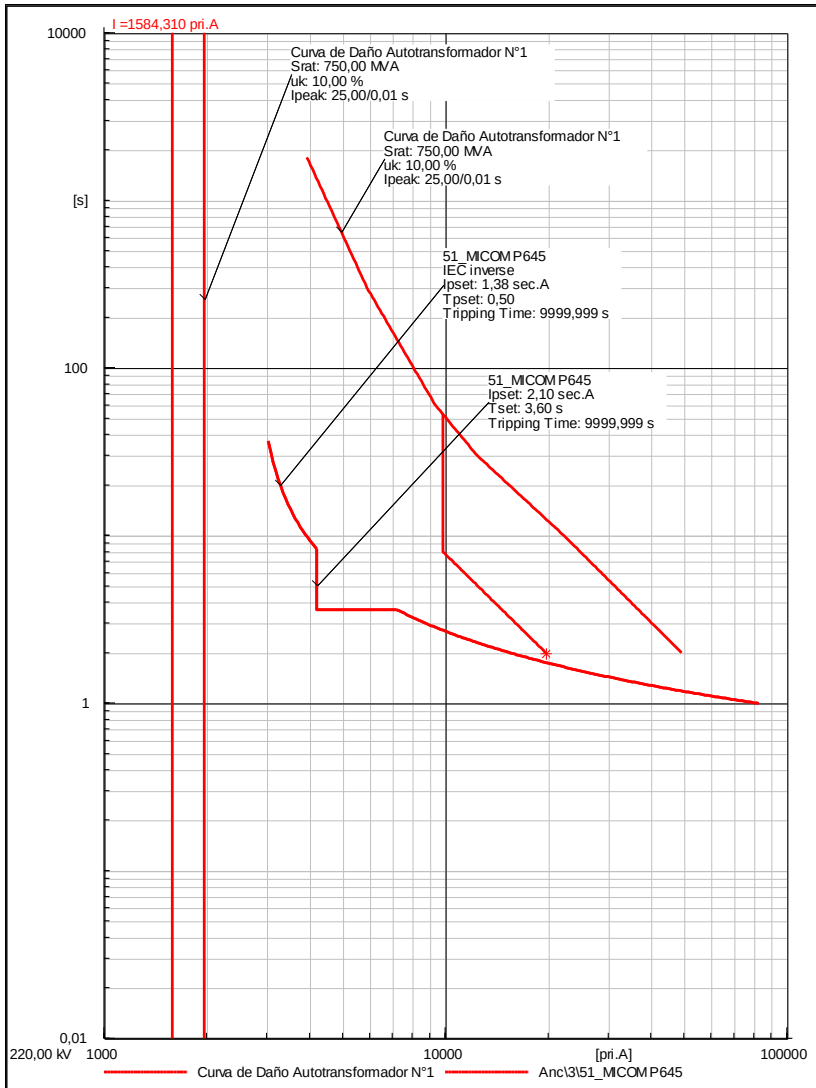
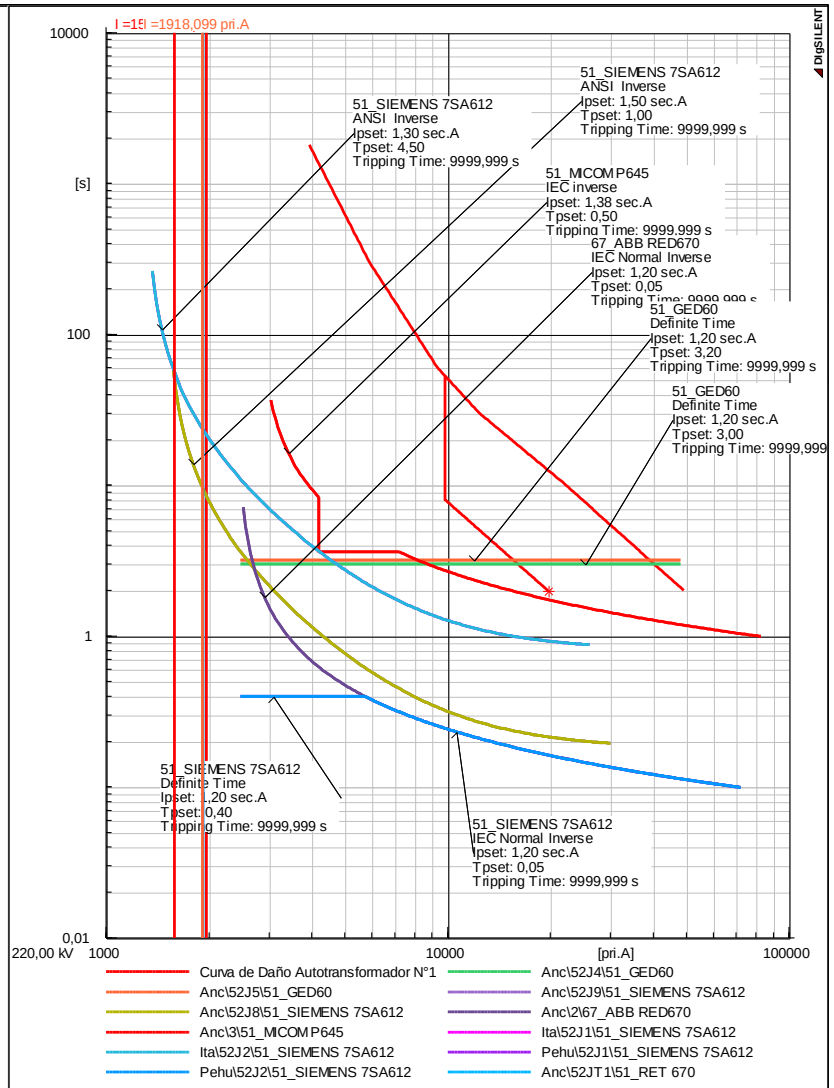
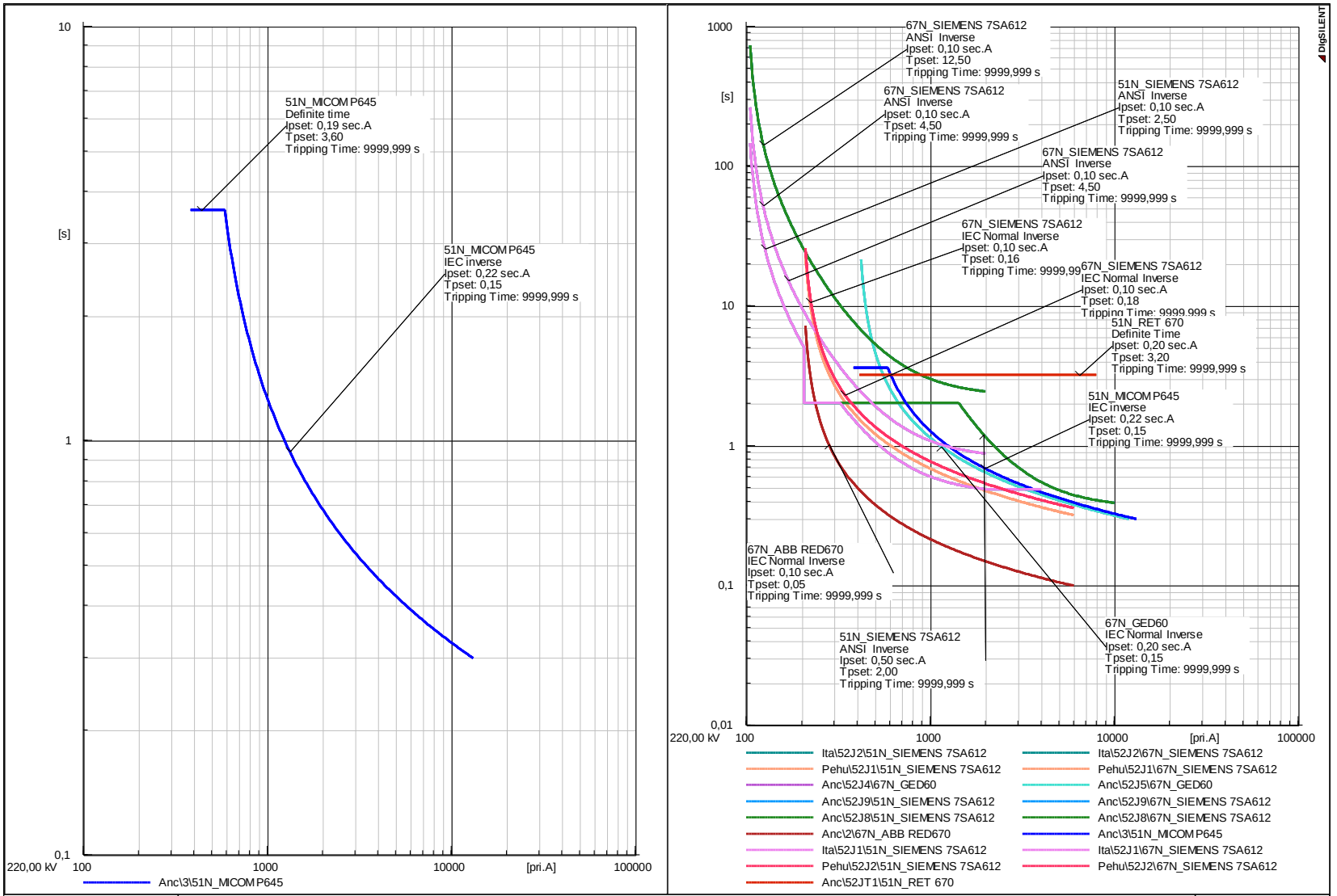




	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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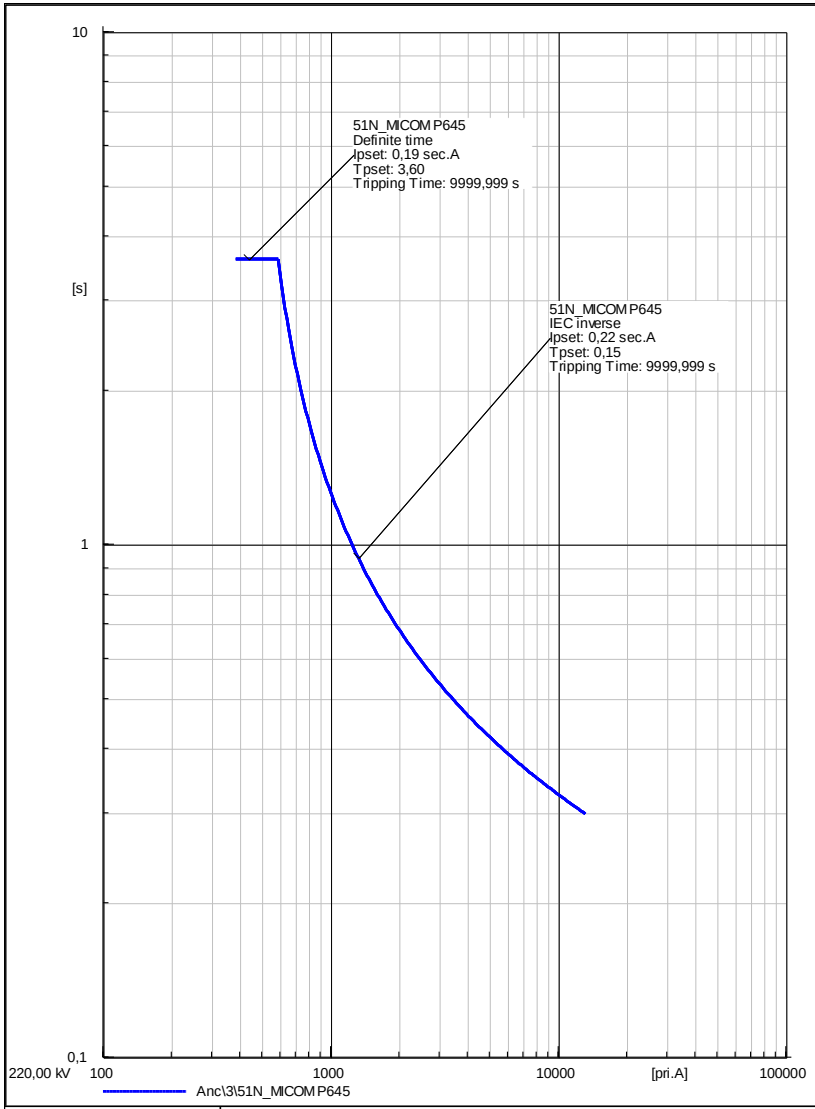

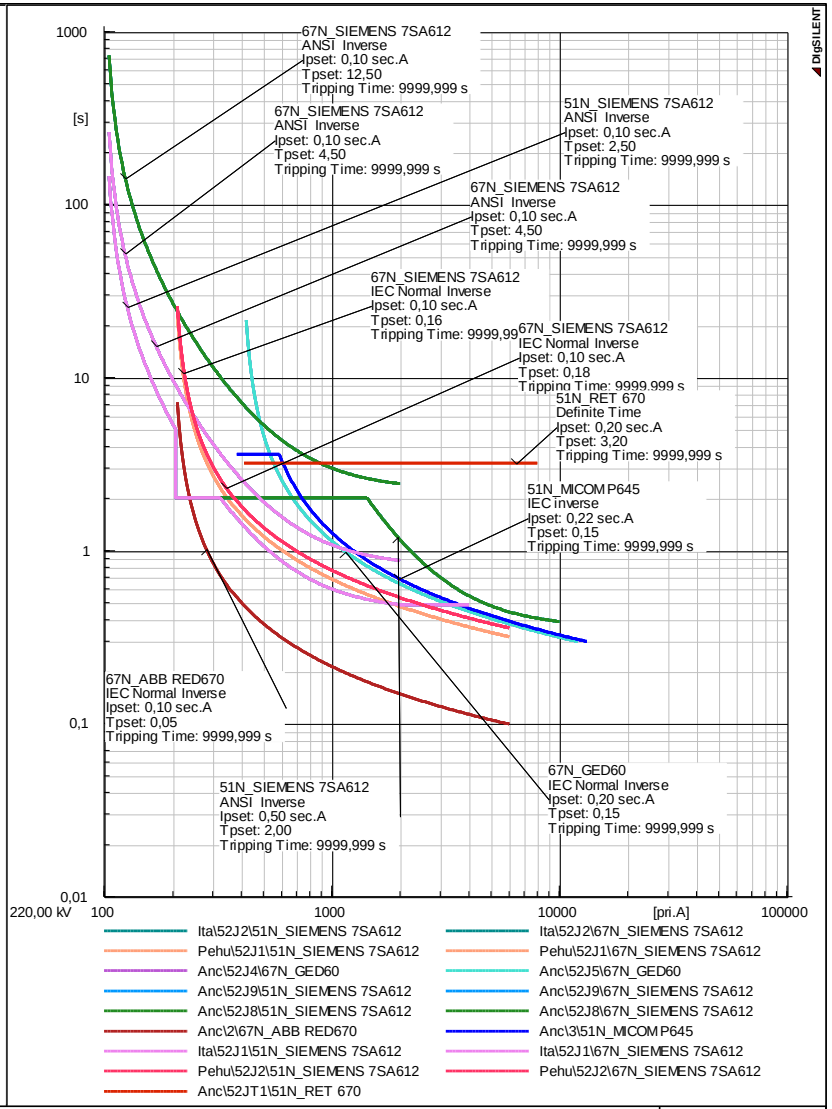

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2F	Annex:

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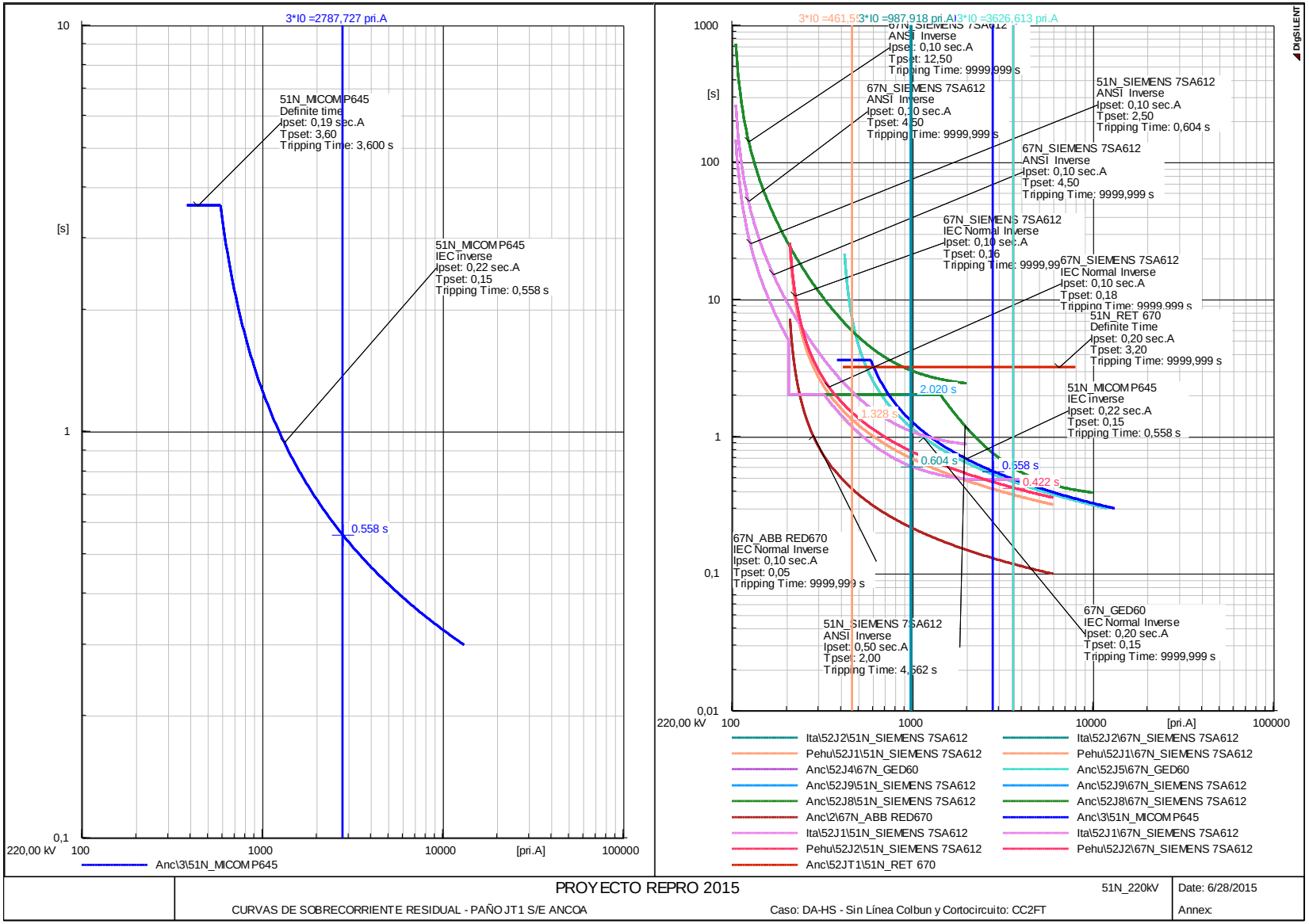
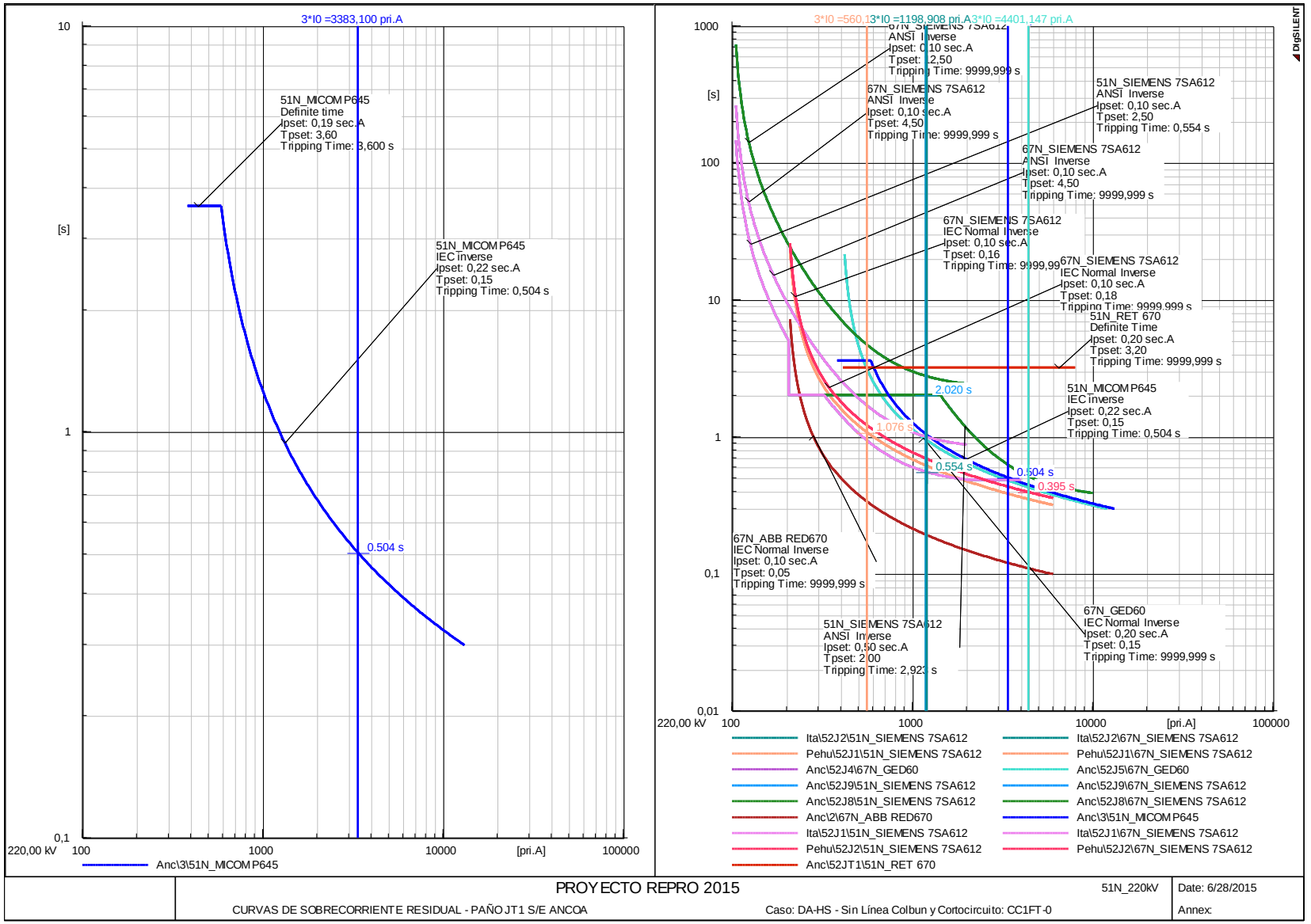


	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2FT	Annex: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Tripping Time: 3,600 s
51N_MICOM P645
IEC inverse
Ipset: 0,22 sec.A
Tpset: 0,15
Tripping Time: 0,504 s
0.504 s
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10
1
0,1
220,00 kV
100
1000
10000
[pri.A]
100000
Anc\3\51N_MICOM P645
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67N_SIEMENS 7SA612
ANSI Inverse
Ipset: 0,10 sec.A
Tpset: 2,50
Tripping Time: 9999,999 s
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ANSI Inverse
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Tpset: 4,50
Tripping Time: 9999,999 s
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Tpset: 2,50
Tripping Time: 0,554 s
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ANSI Inverse
Ipset: 0,10 sec.A
Tpset: 4,50
Tripping Time: 9999,999 s
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IEC Normal Inverse
Ipset: 0,10 sec.A
Tpset: 0,16
Tripping Time: 9999,99
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Definite Time
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ANSI Inverse
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Ipset: 0,20 sec.A
Tpset: 0,15
Tripping Time: 9999,999 s
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100
10
1
0,1
0,01
220,00 kV
100
1000
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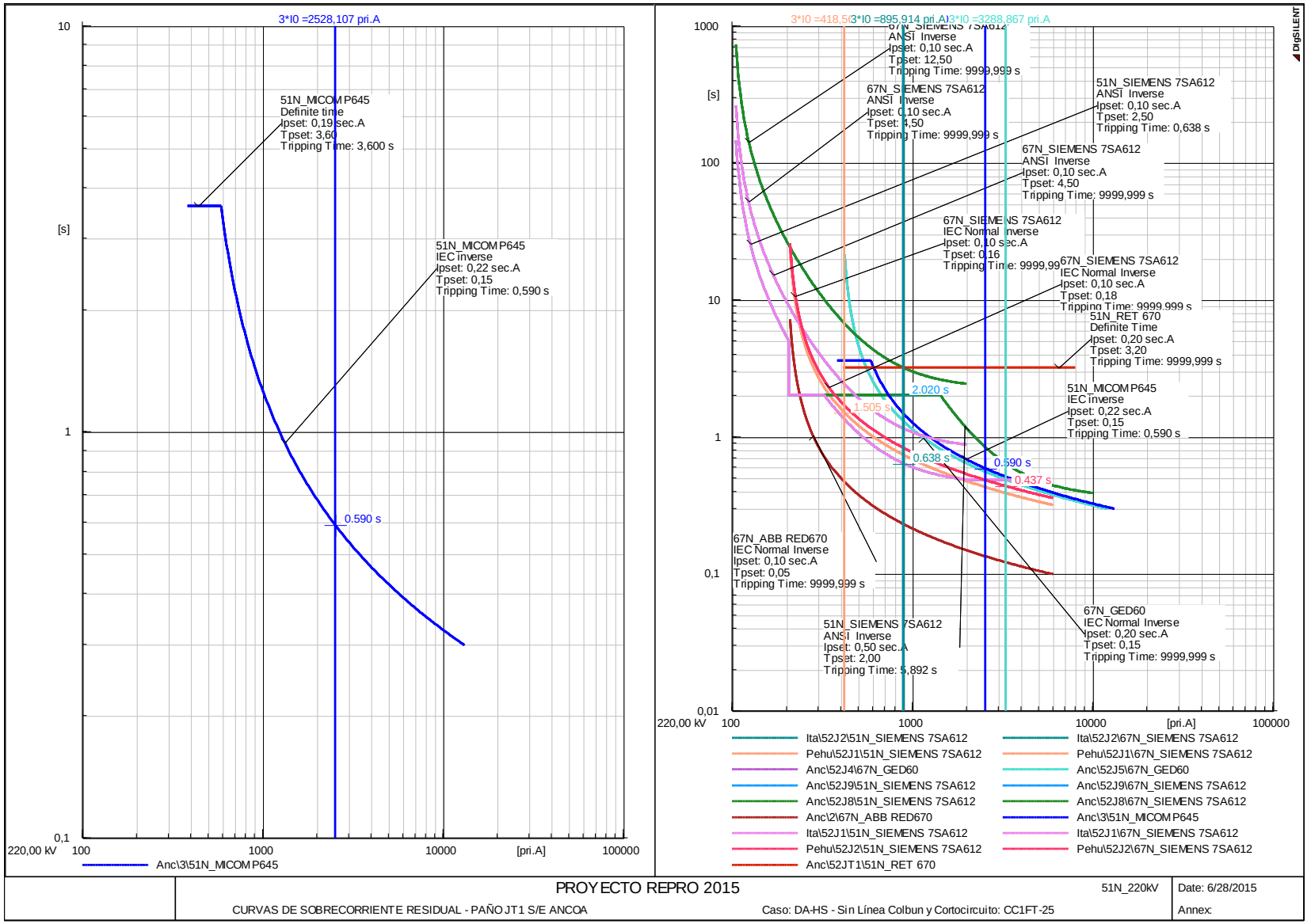
Anc\3\51N_MICOM P645
Ita\52J1\67N_SIEMENS 7SA612
Pehu\52J2\67N_SIEMENS 7SA612
DIgSILENT
PROYECTO REPRO 2015
51N_220kV
Date: 6/28/2015
CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA
Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-0
Annex:



PROYECTO REPRO 2015 | 51N_220kV | Date: 6/28/2015

CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA | Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-25 | Annex:

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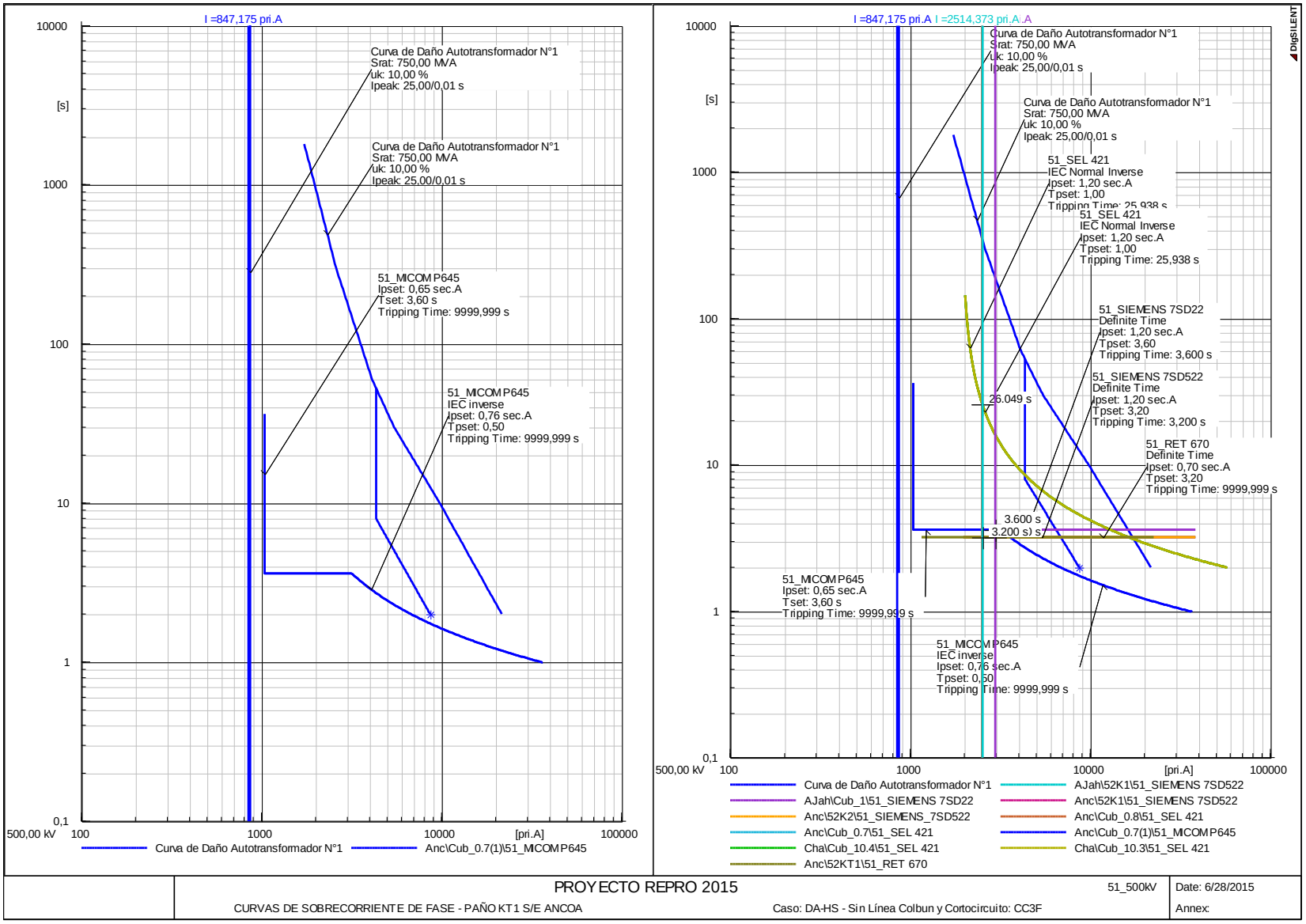
FUNCIÓN 51 LADO DE 500 KV



	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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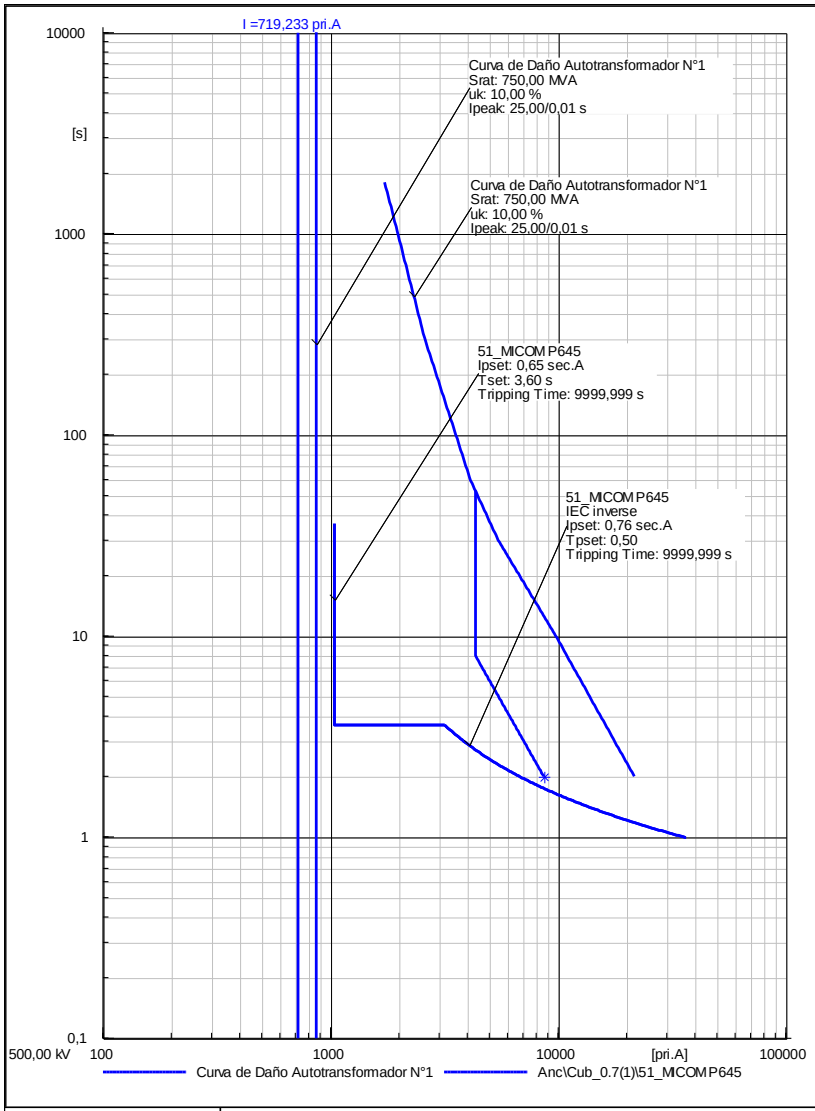

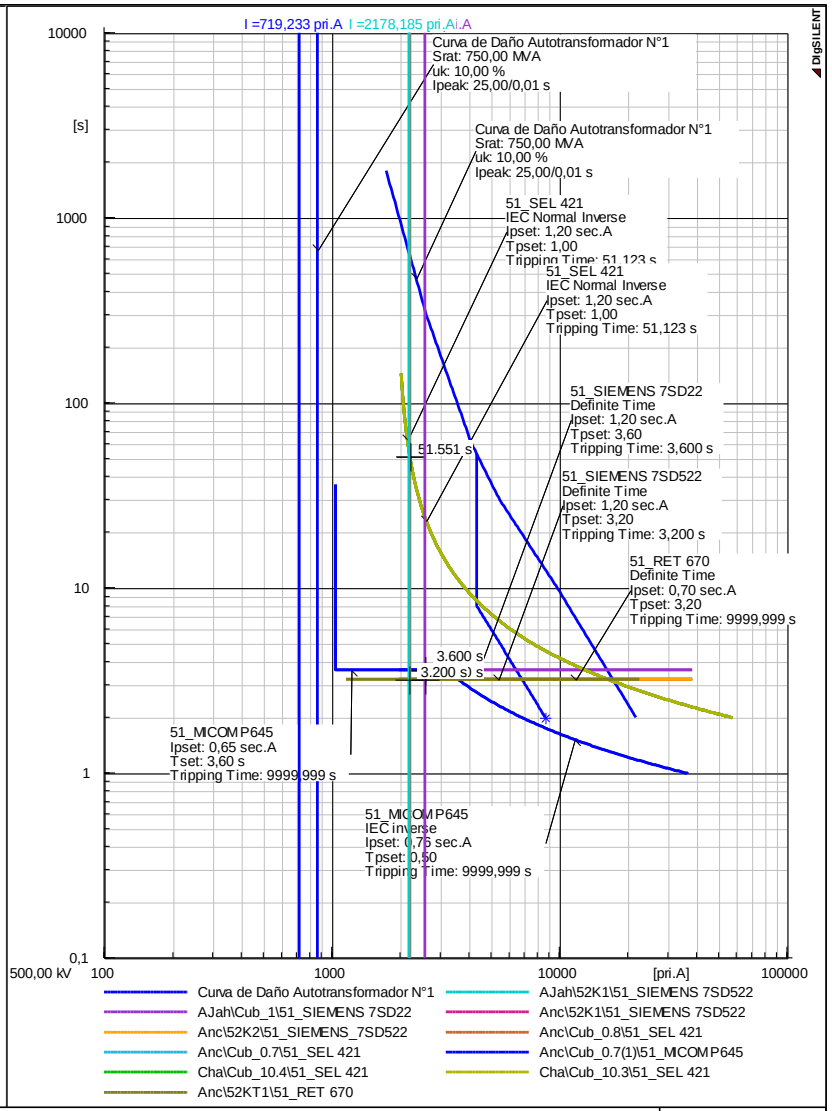

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2F	Annex:

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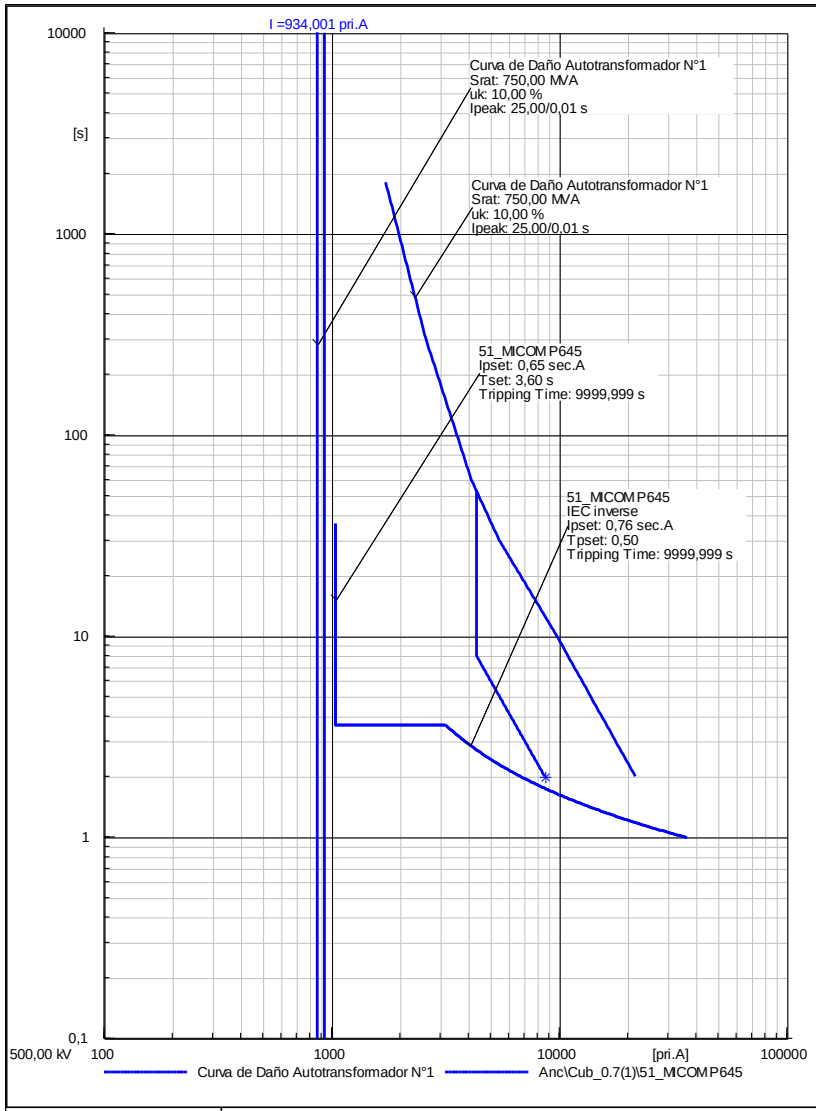
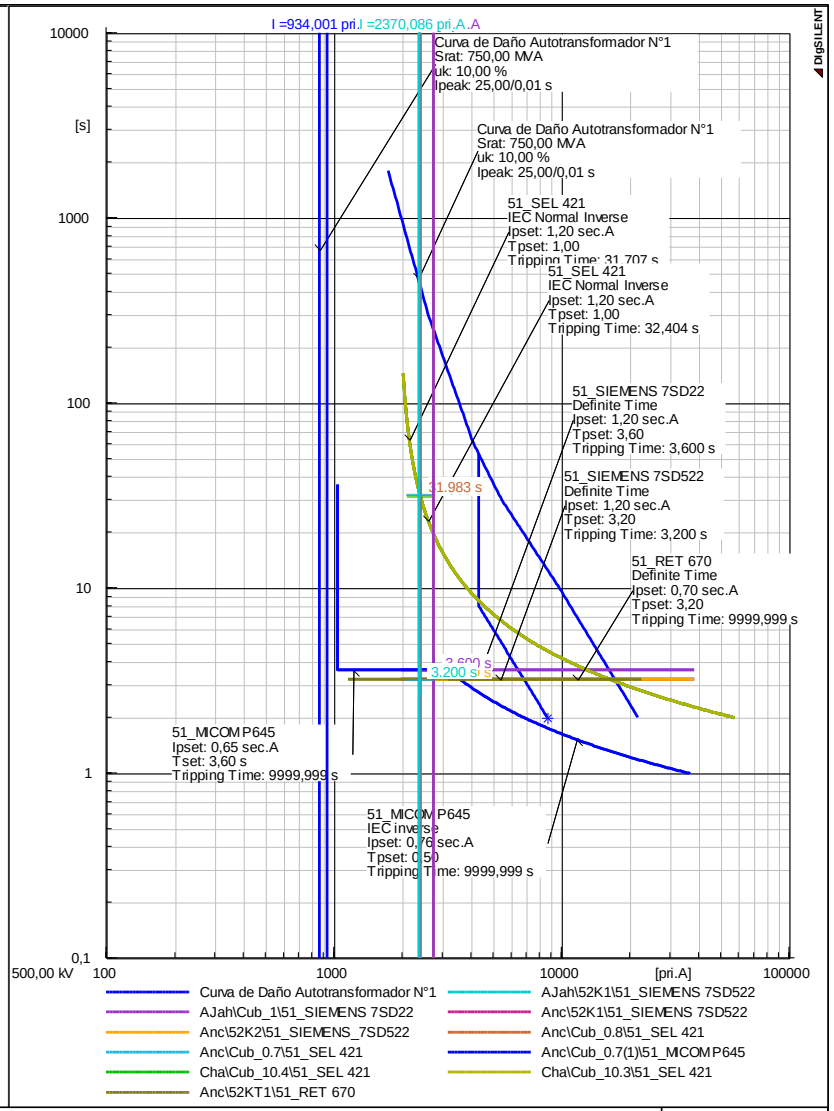
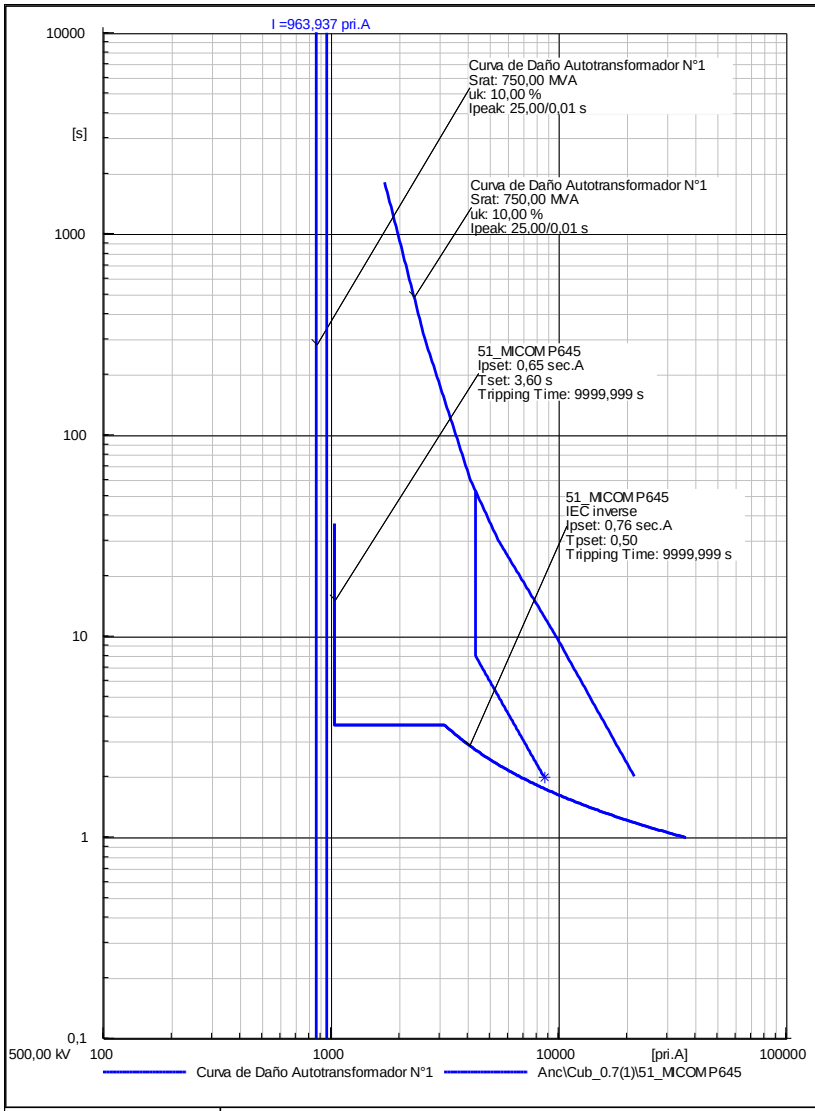
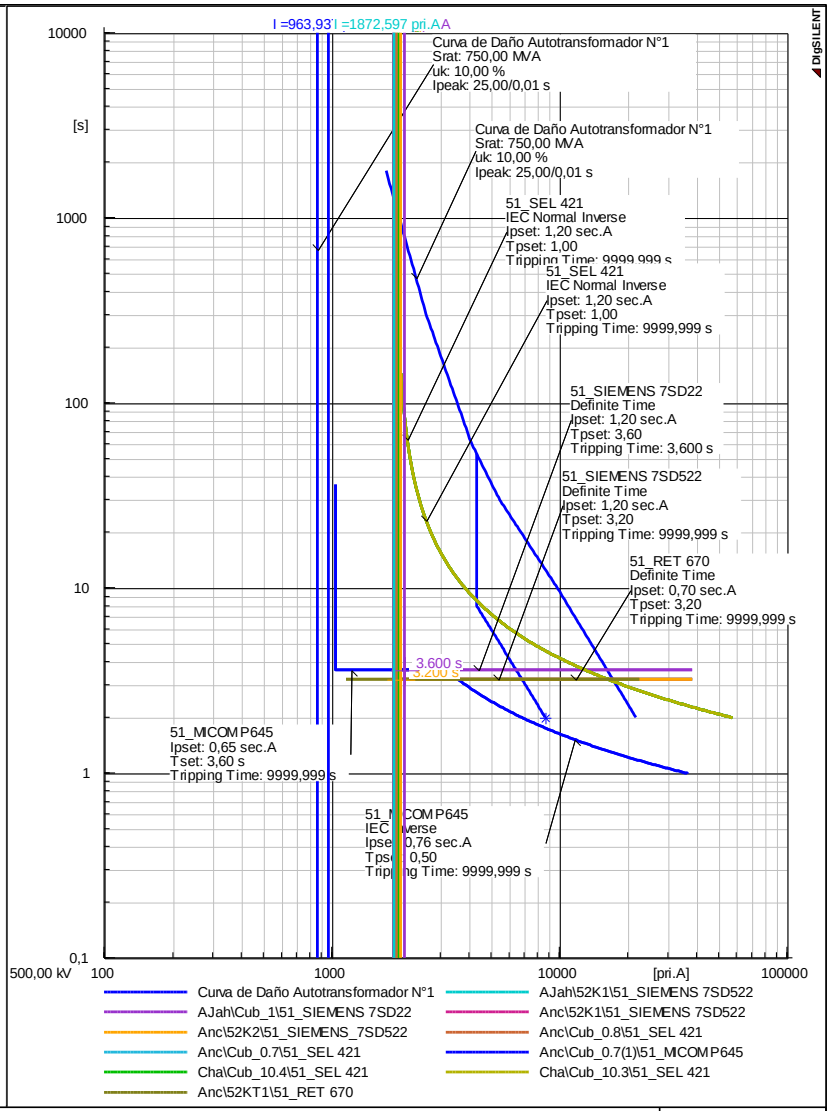




	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:





	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:

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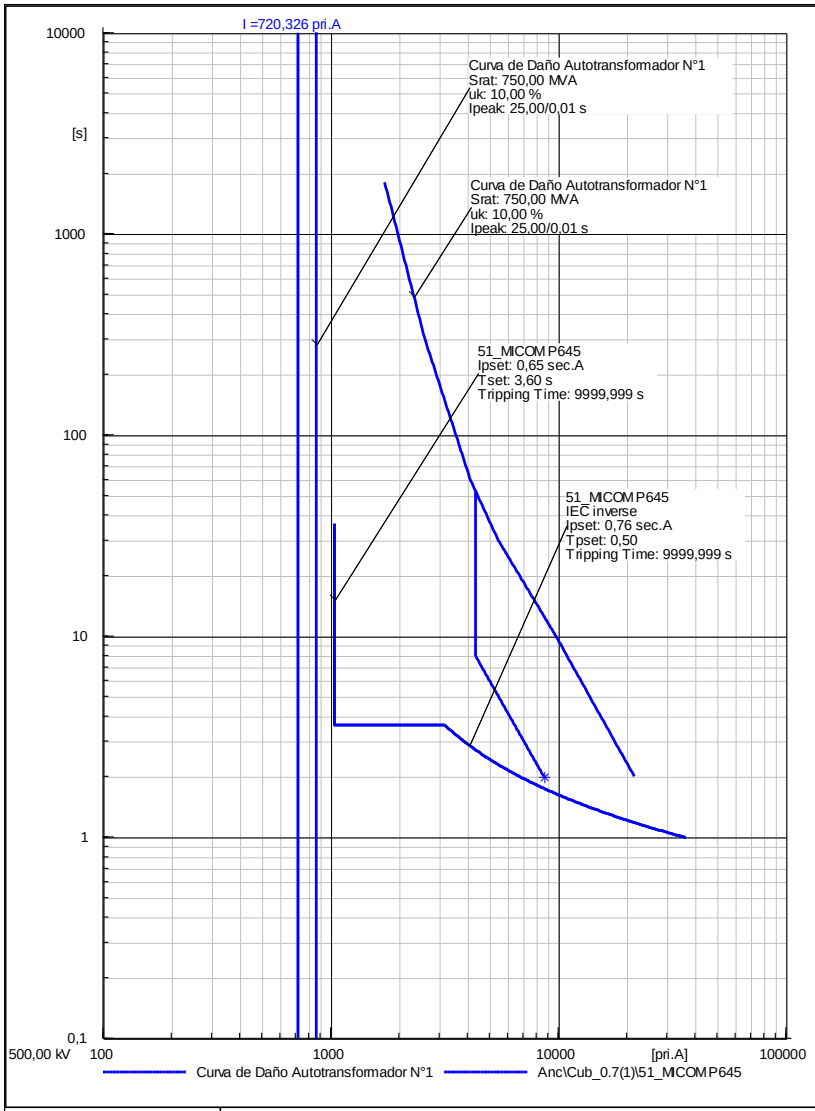

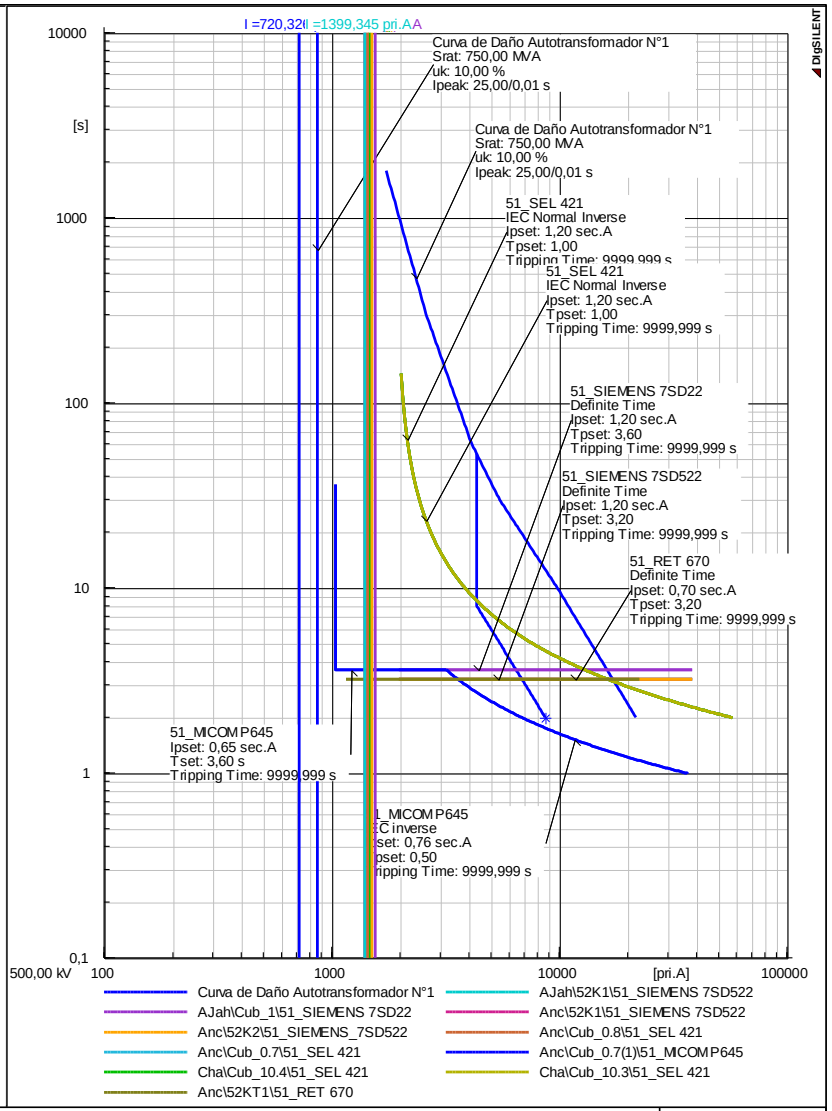

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

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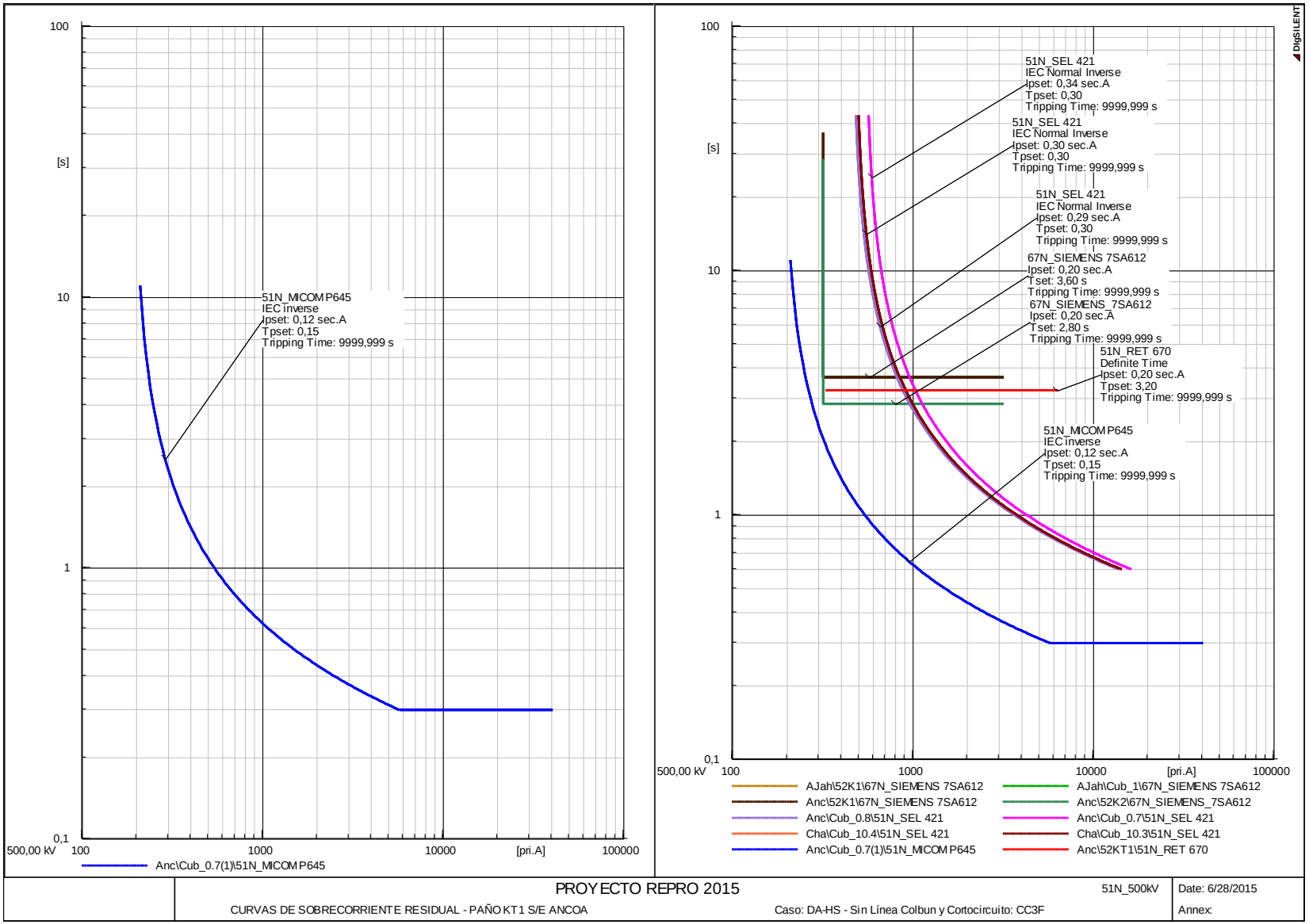
FUNCIÓN 51N LADO DE 500 KV



	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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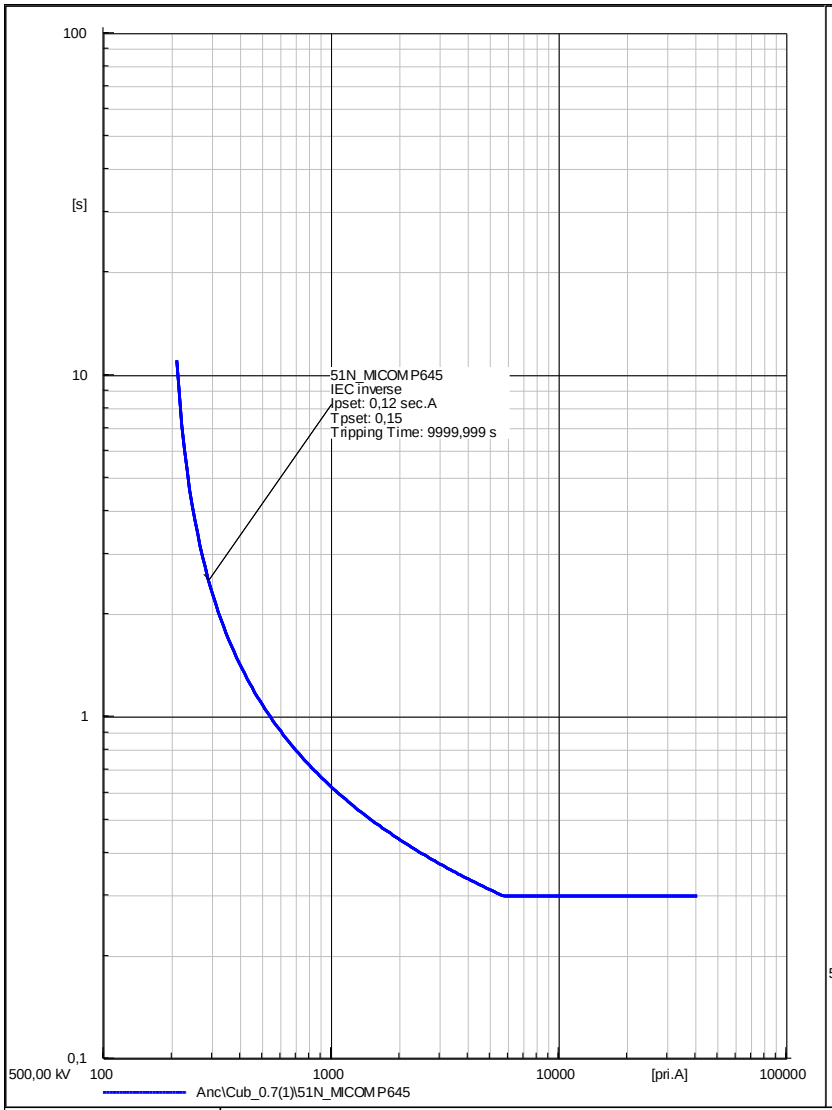
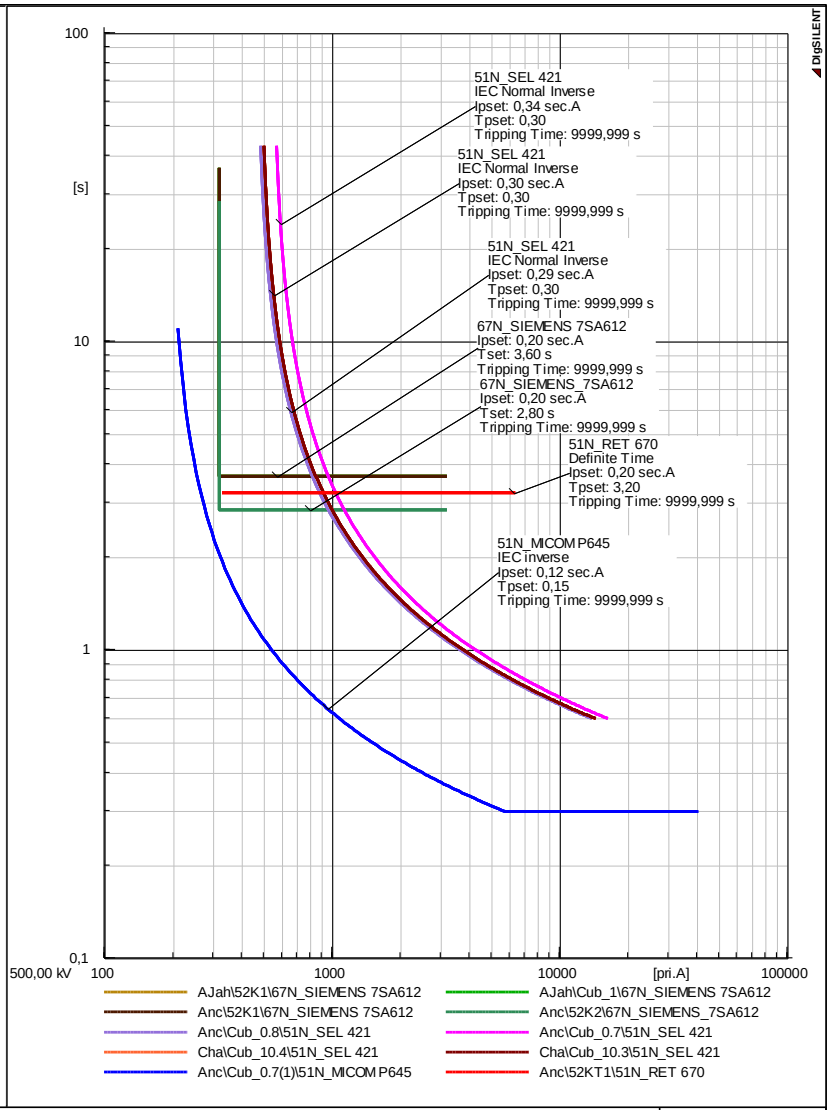
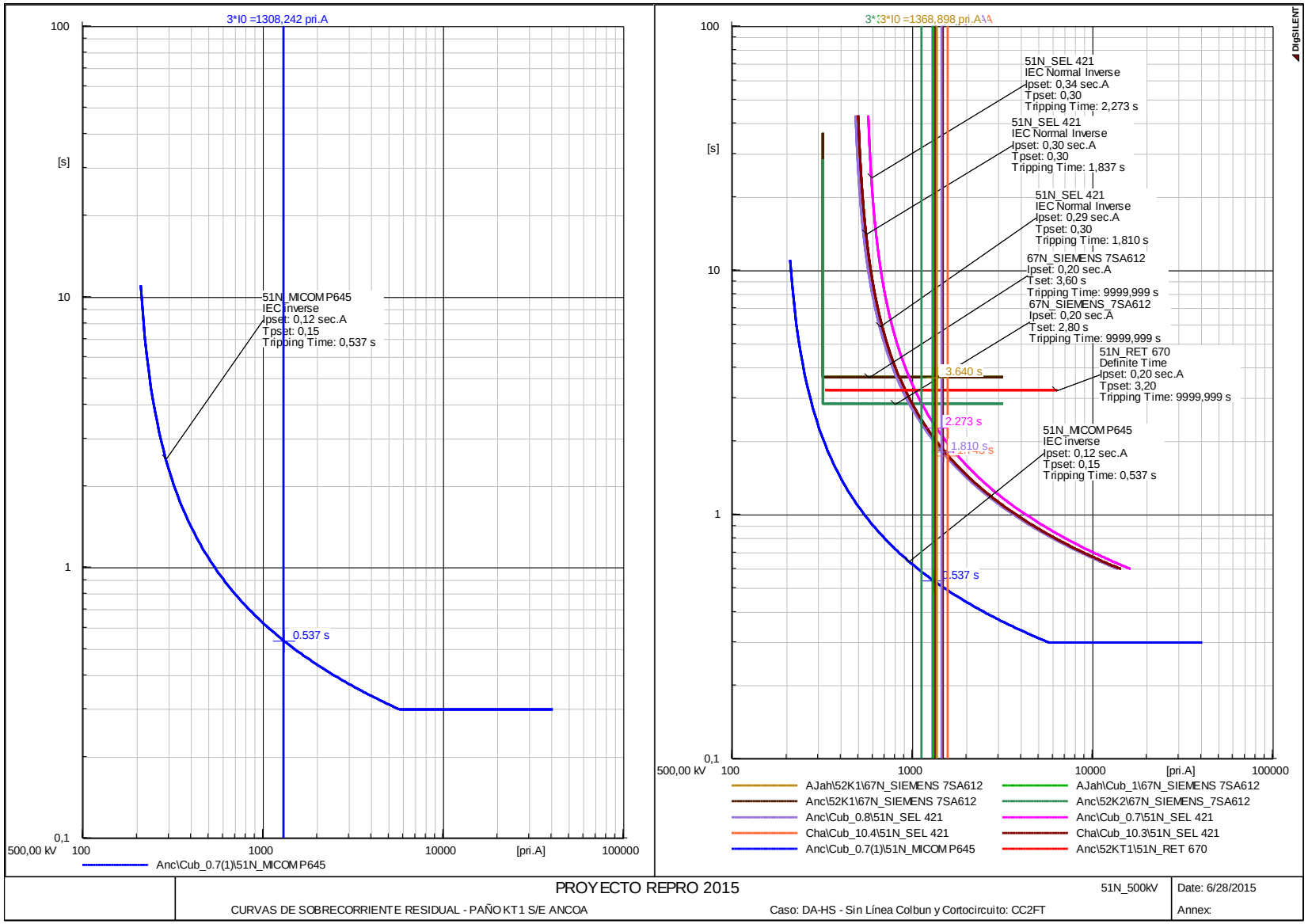




	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2F	Annex:



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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:

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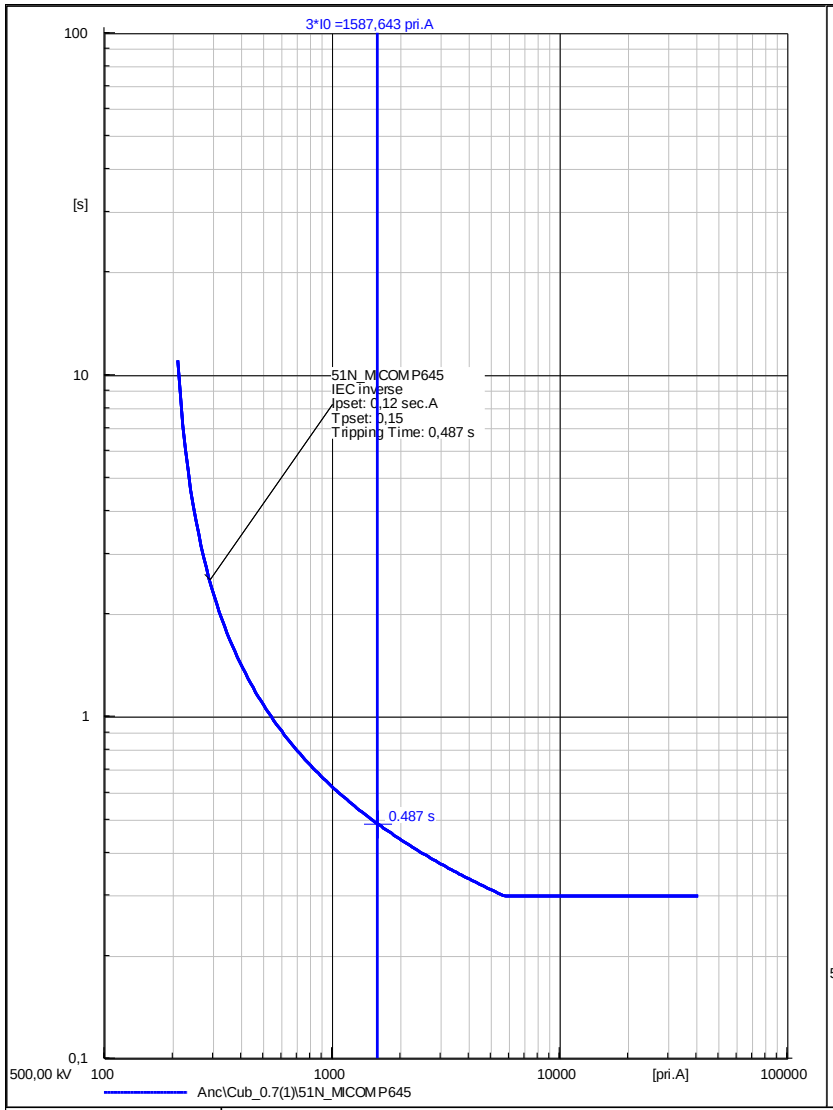

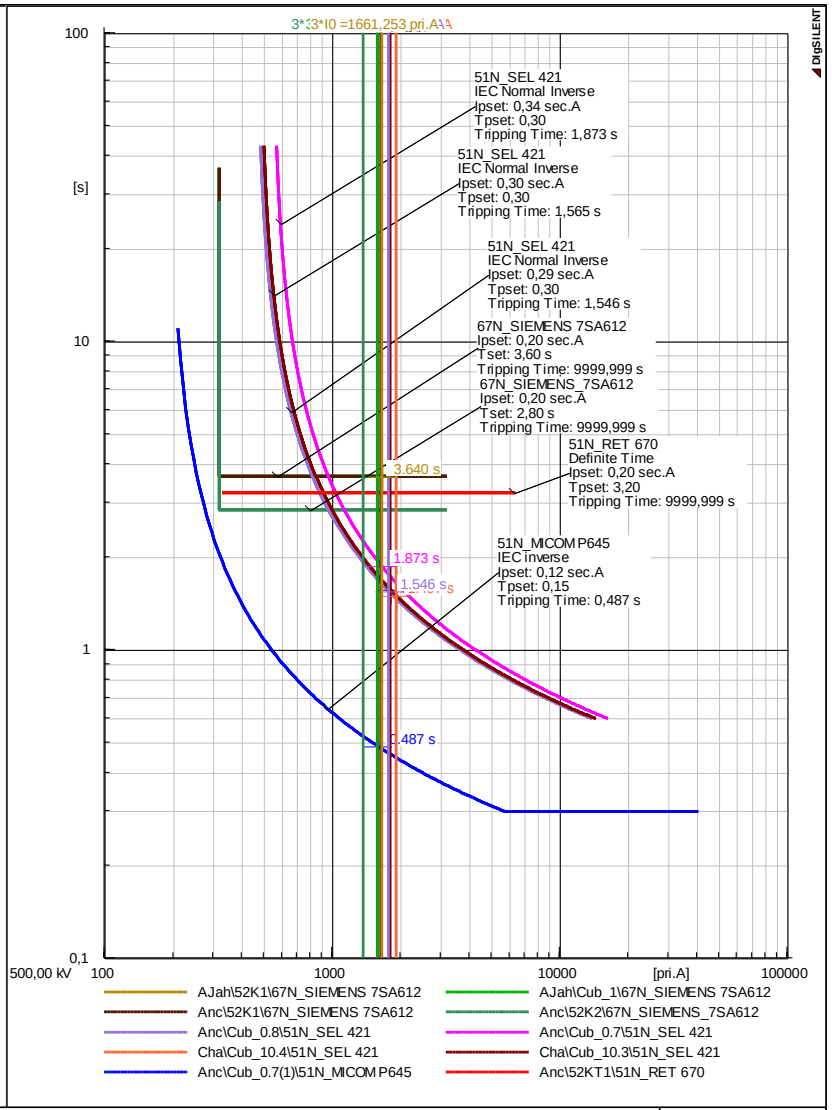

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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:

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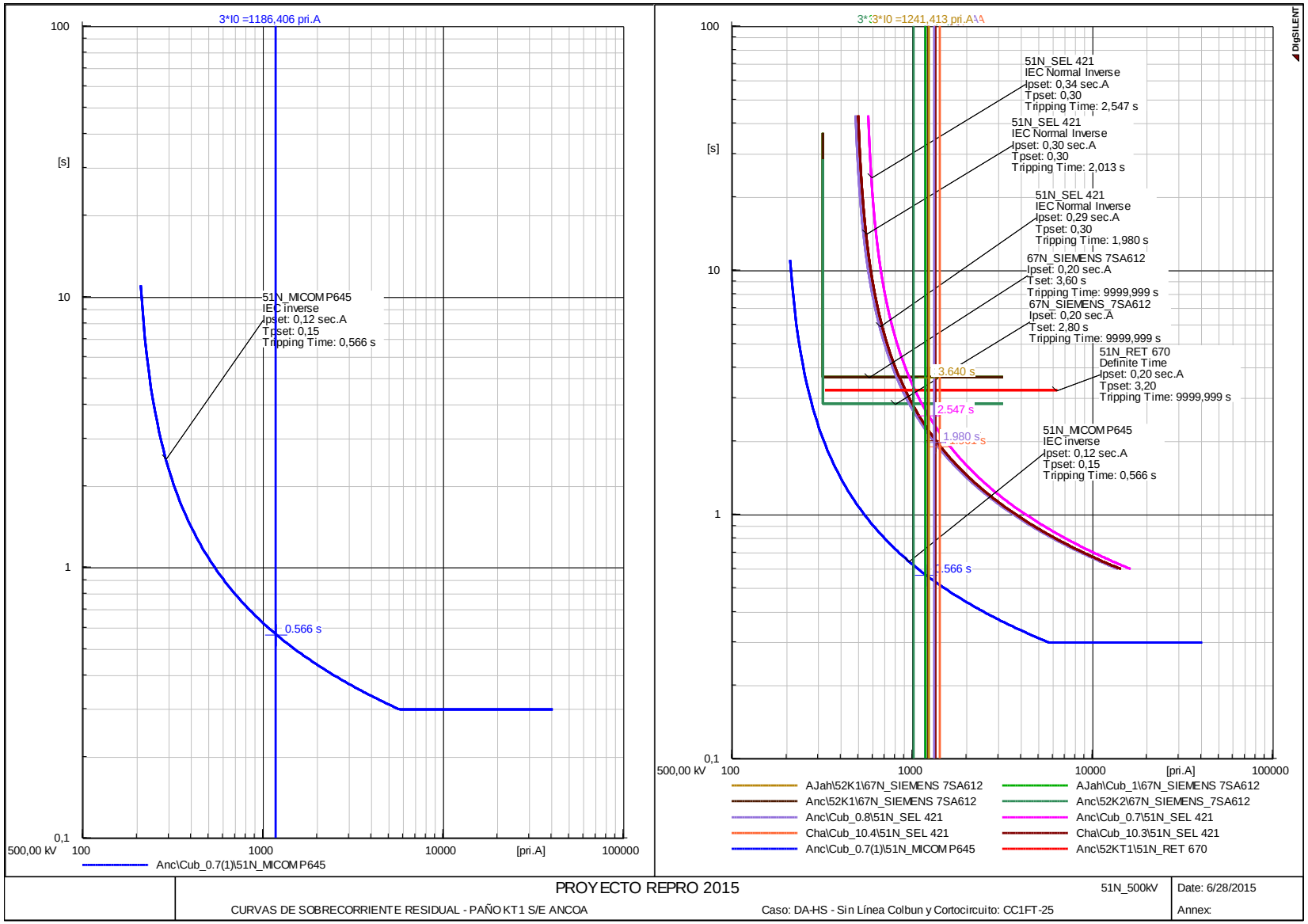

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FALLA EN EL TERMINAL DE 525 KV DEL AUTOTRANSFORMADOR N°1

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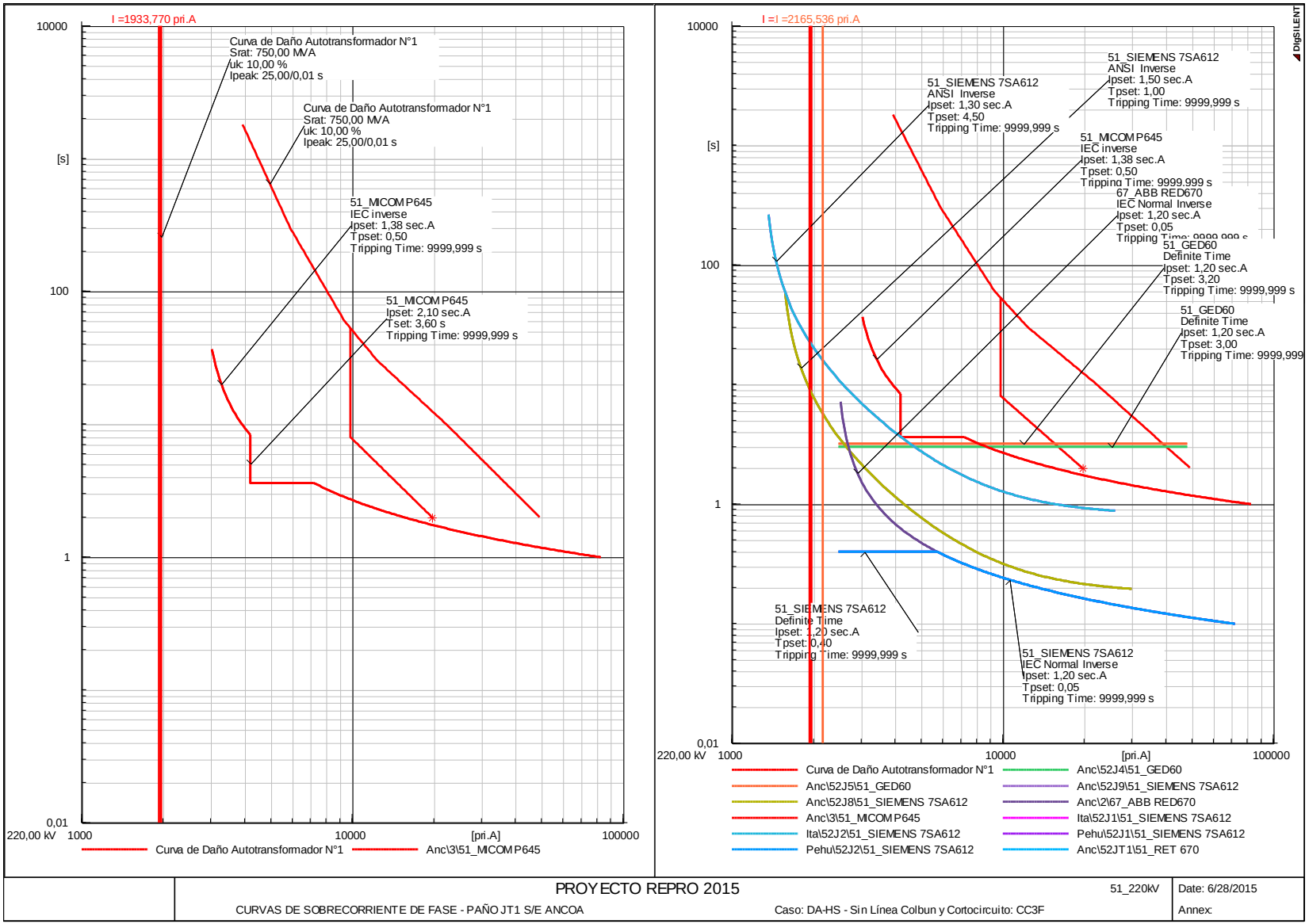
FUNCIÓN 51 LADO DE 220 KV



	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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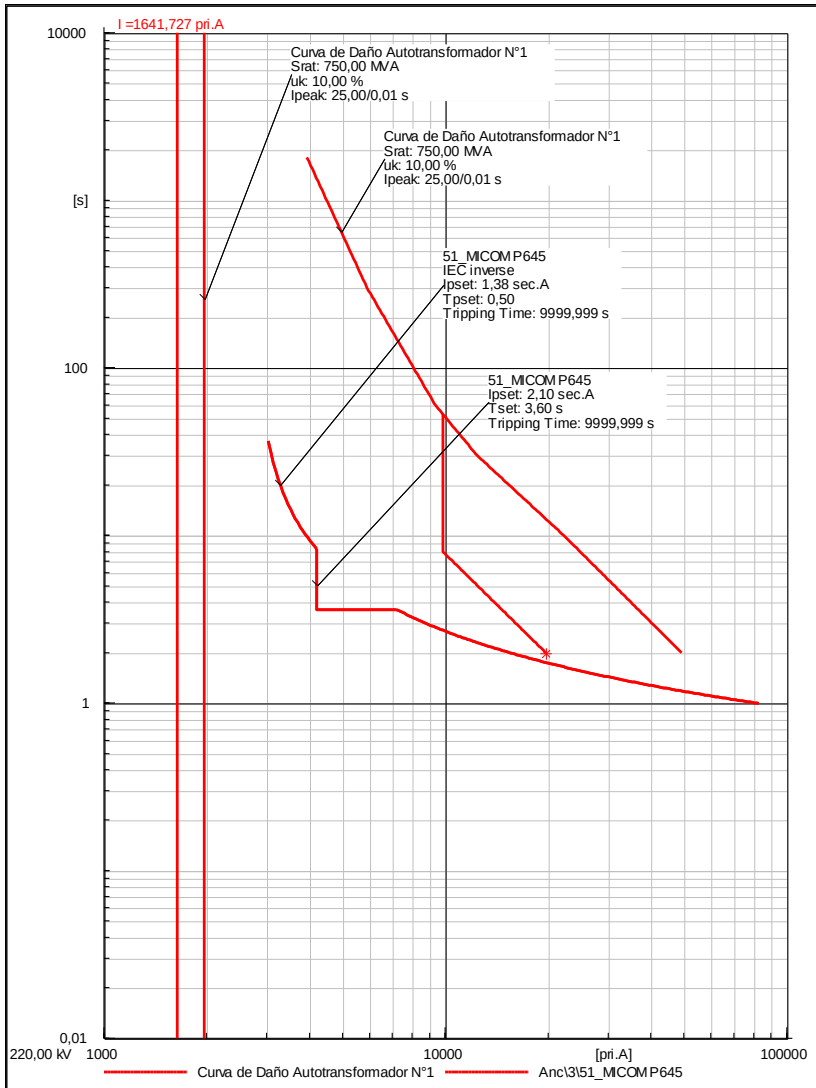

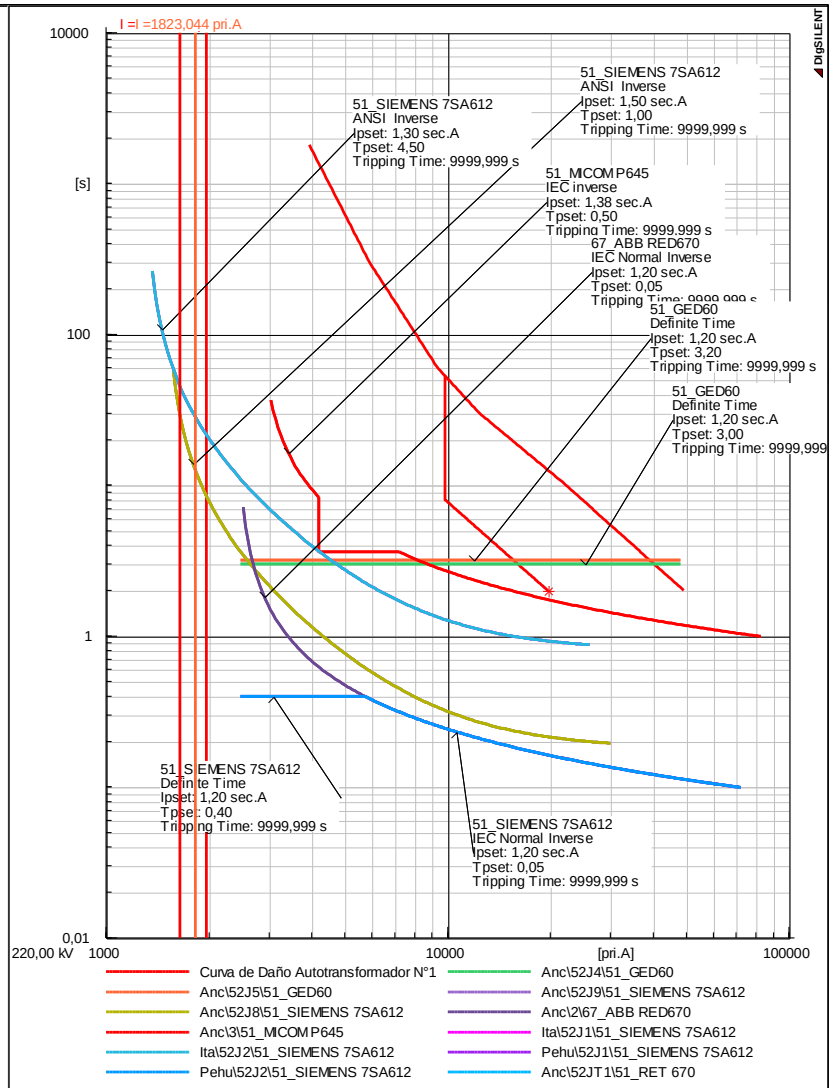

	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2F	Annex:

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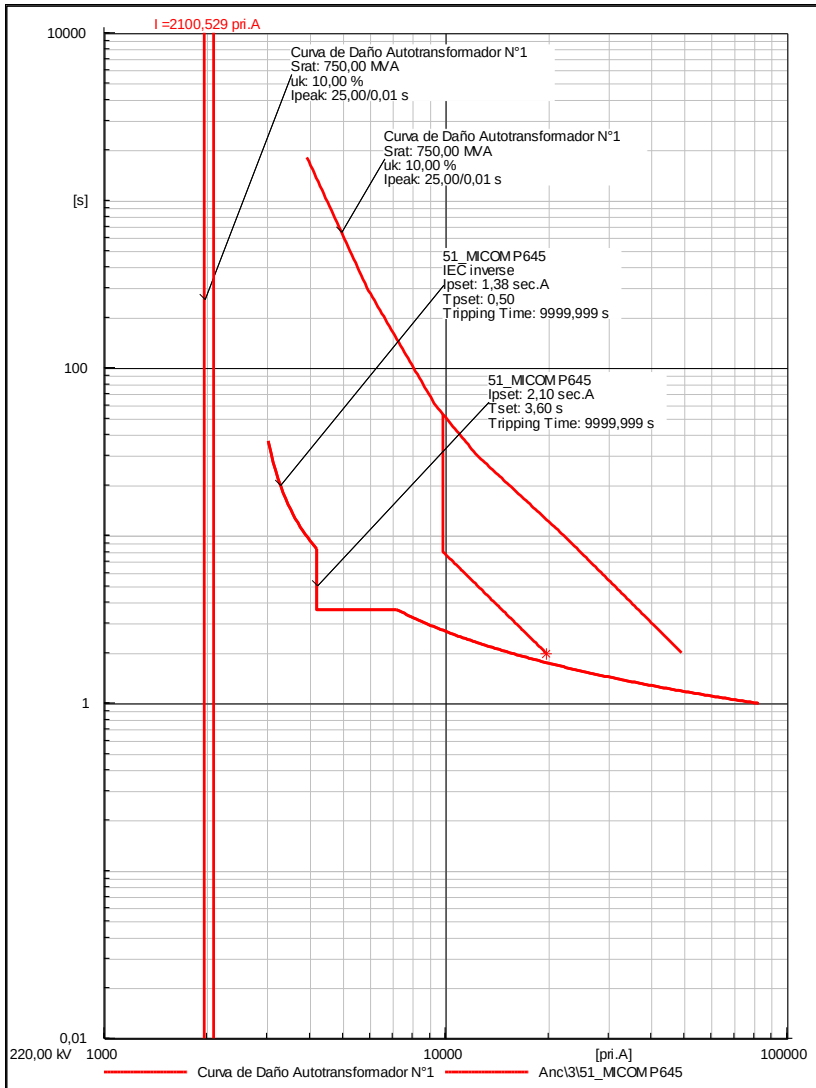
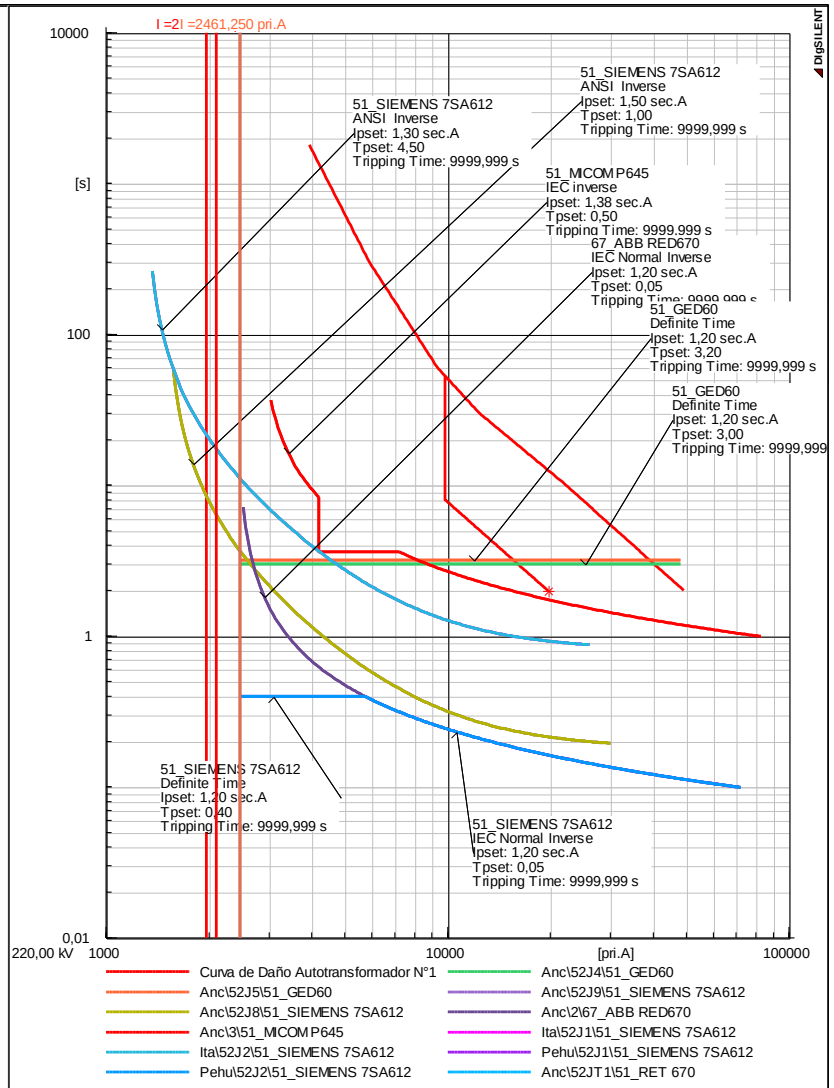
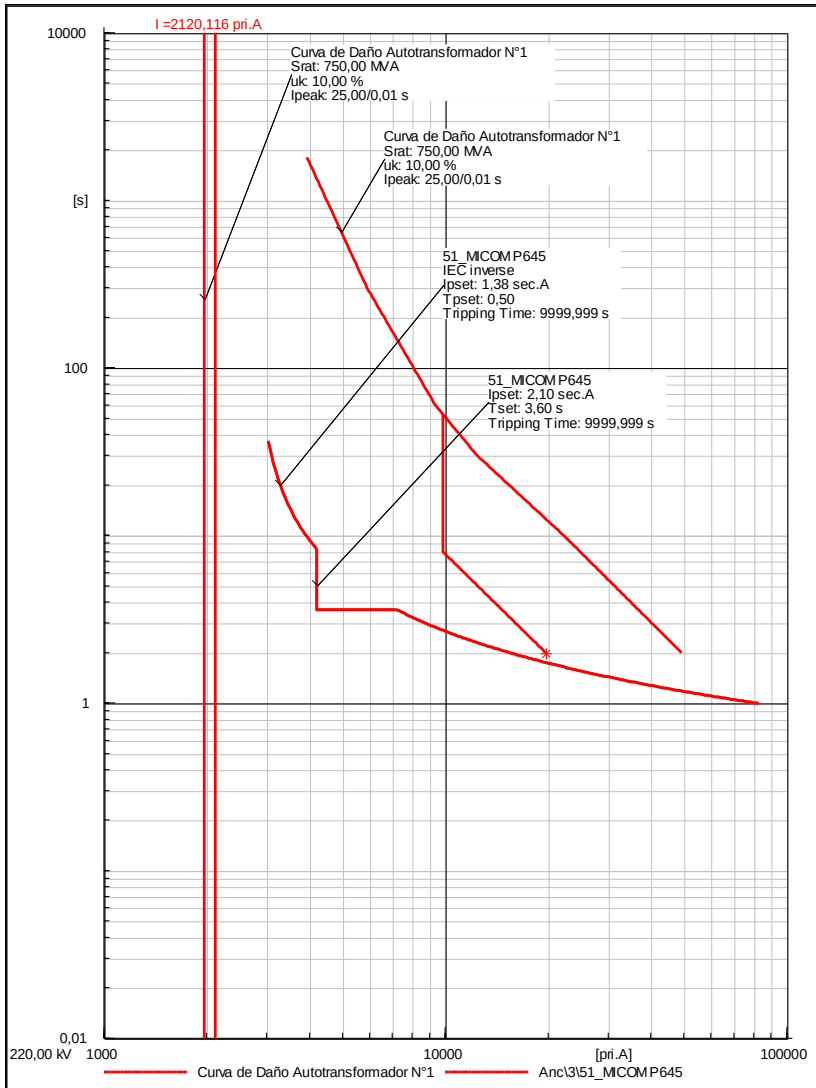
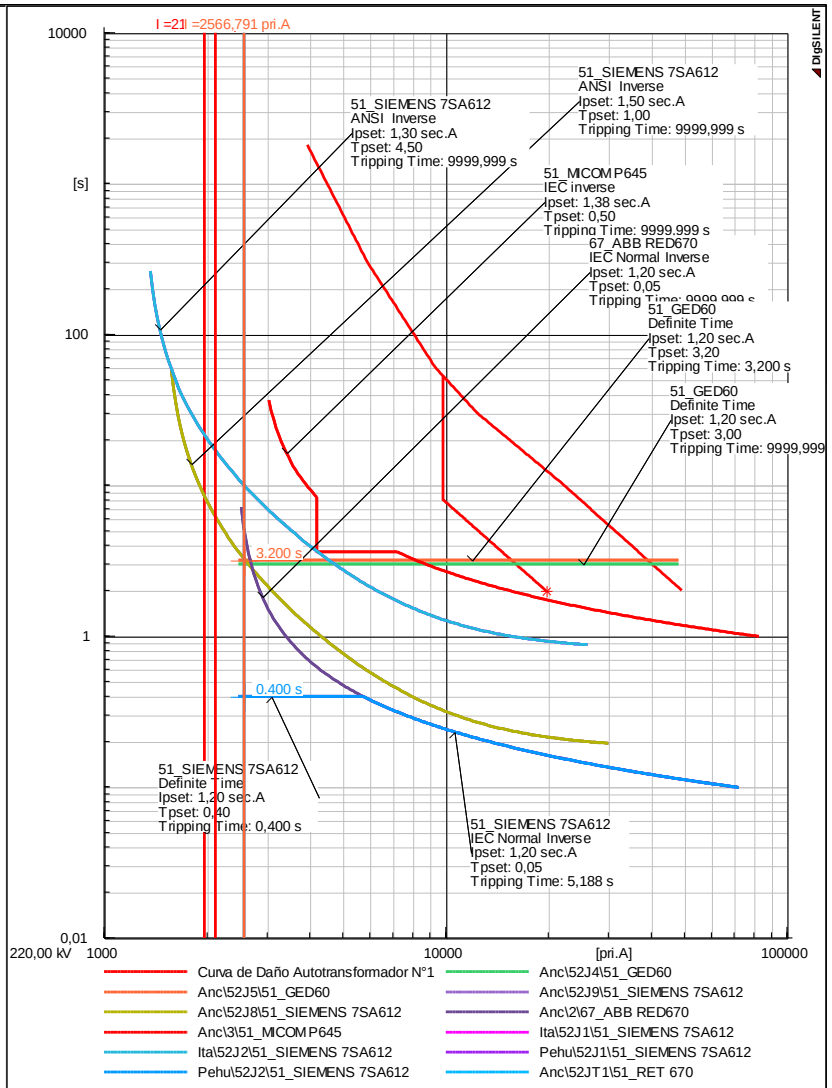




	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:





	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:

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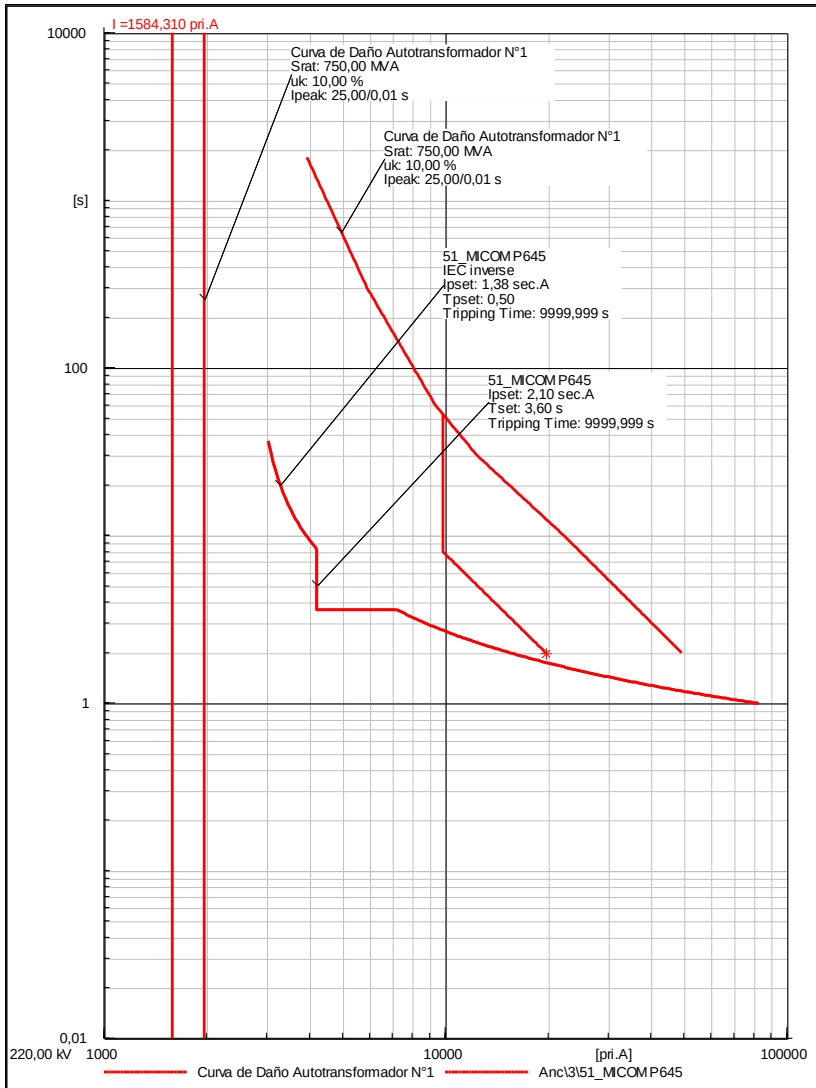
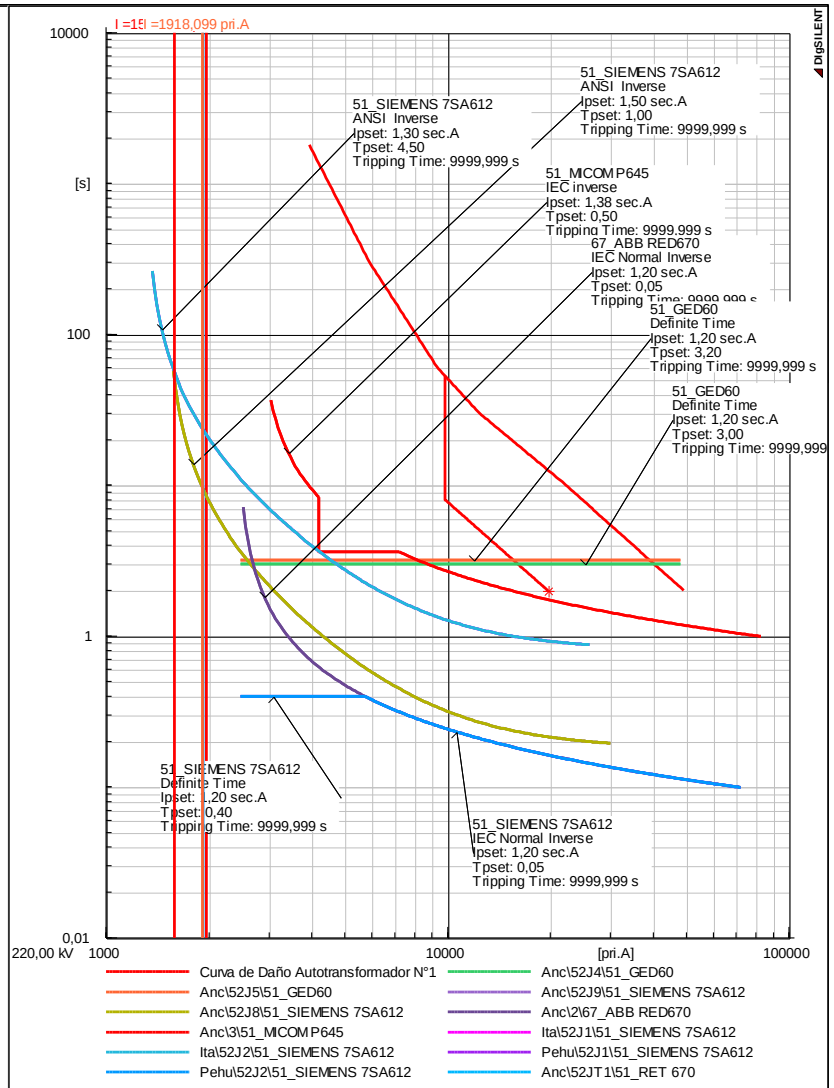
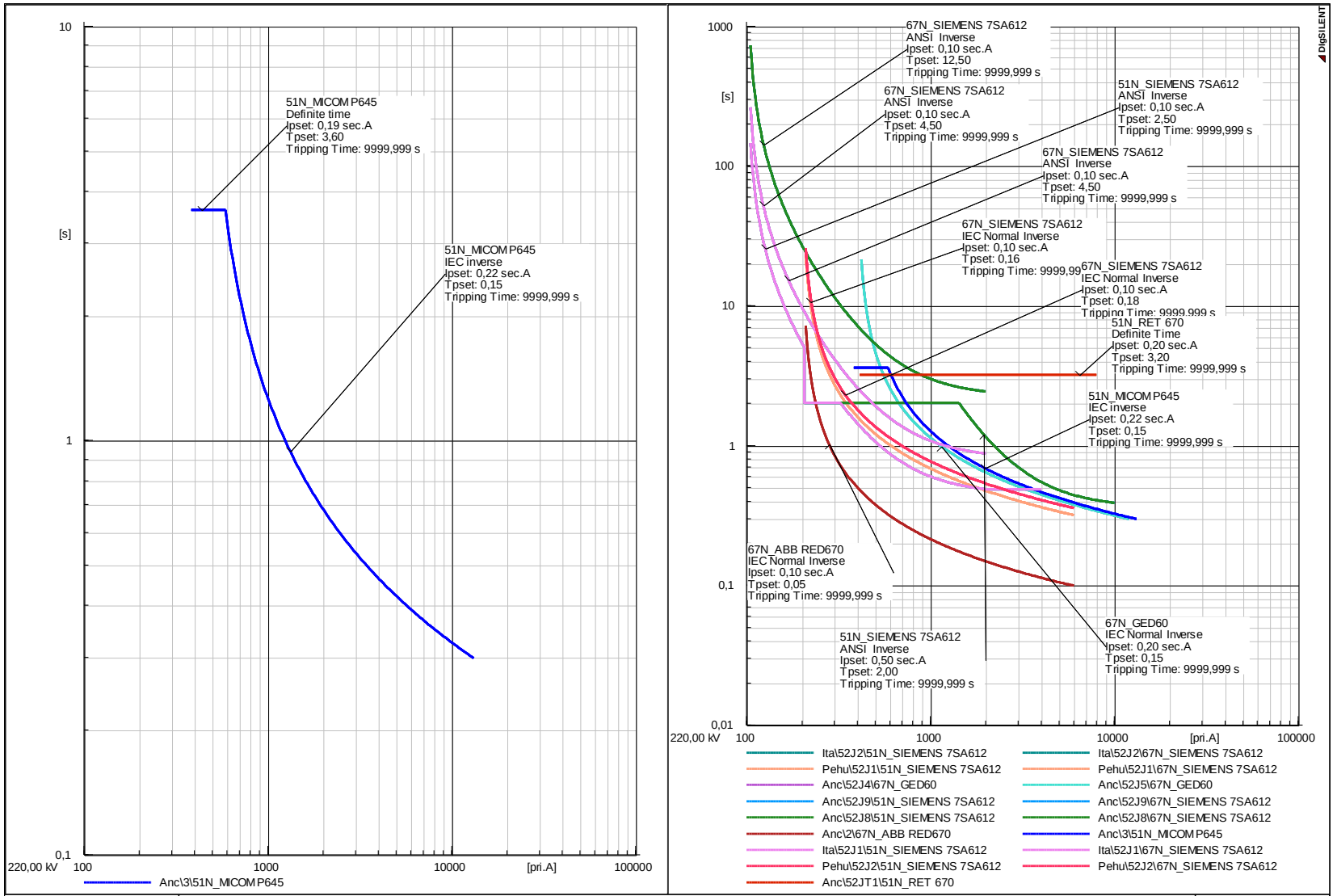




	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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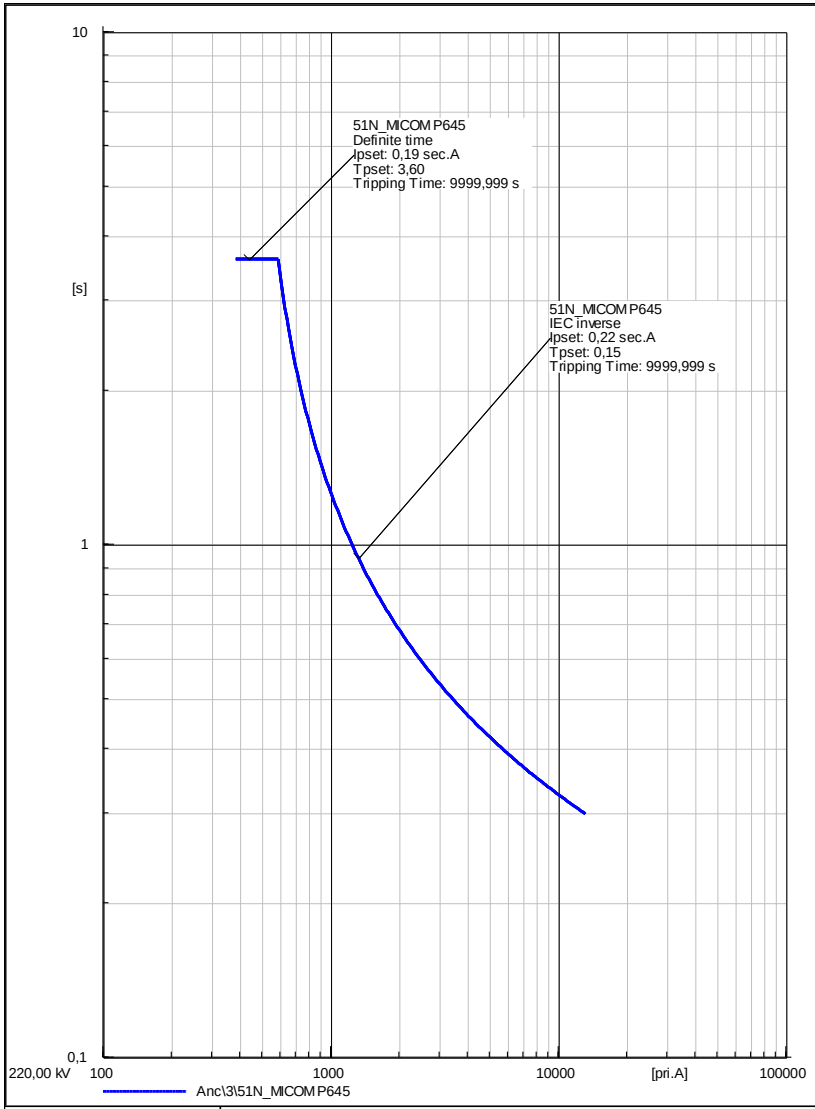
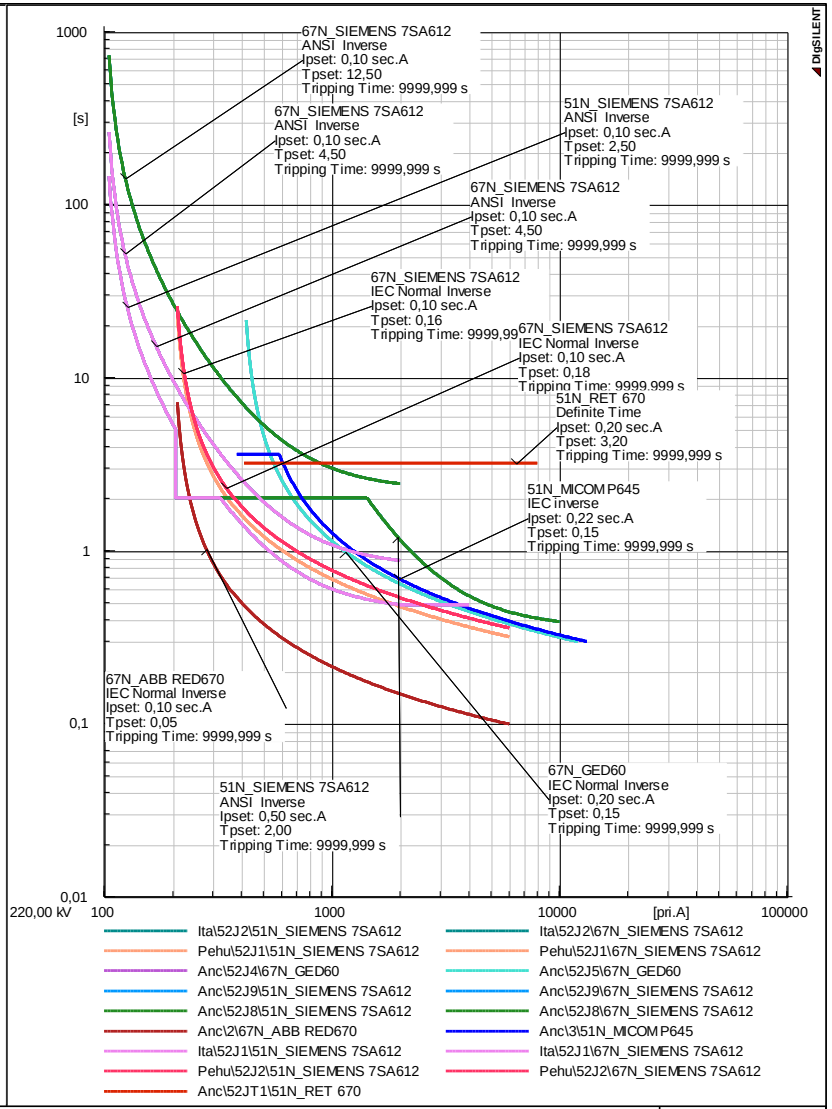
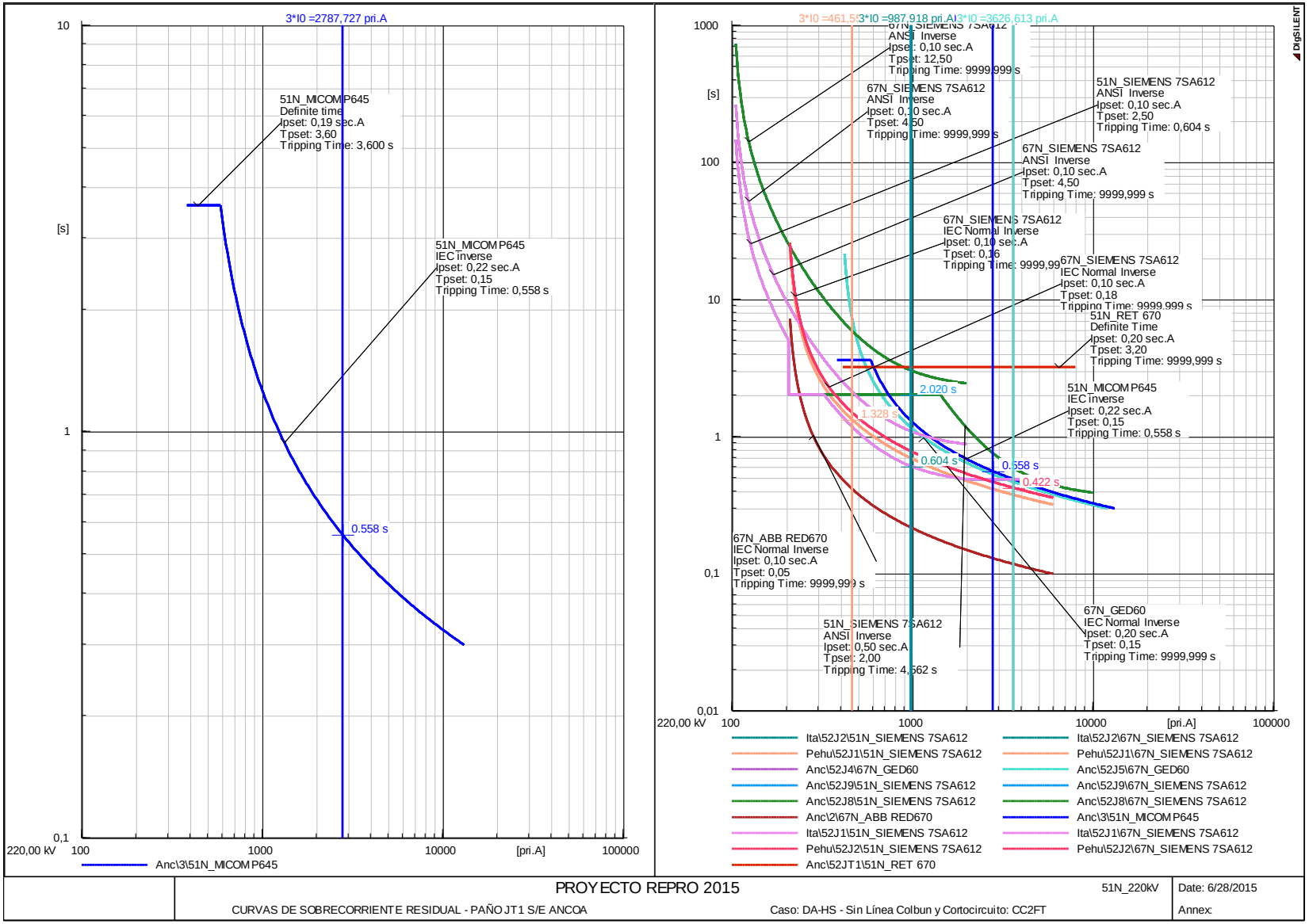




	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2F	Annex:



	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:

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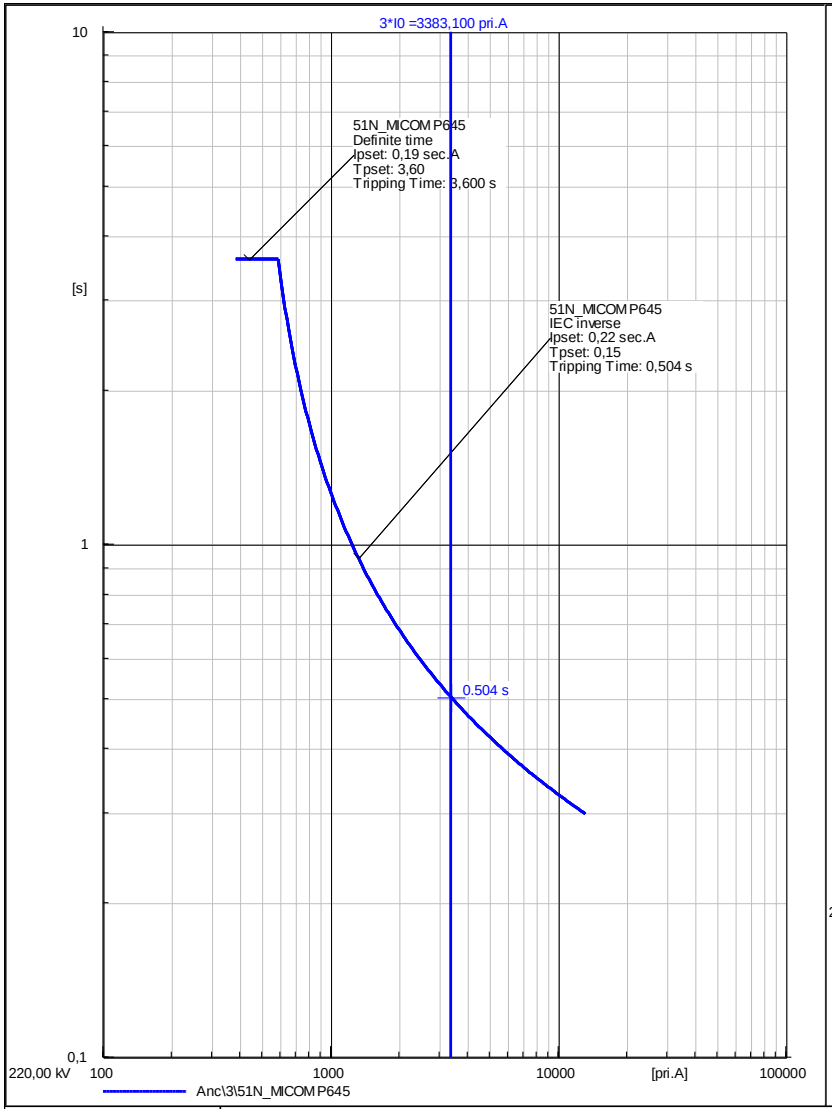

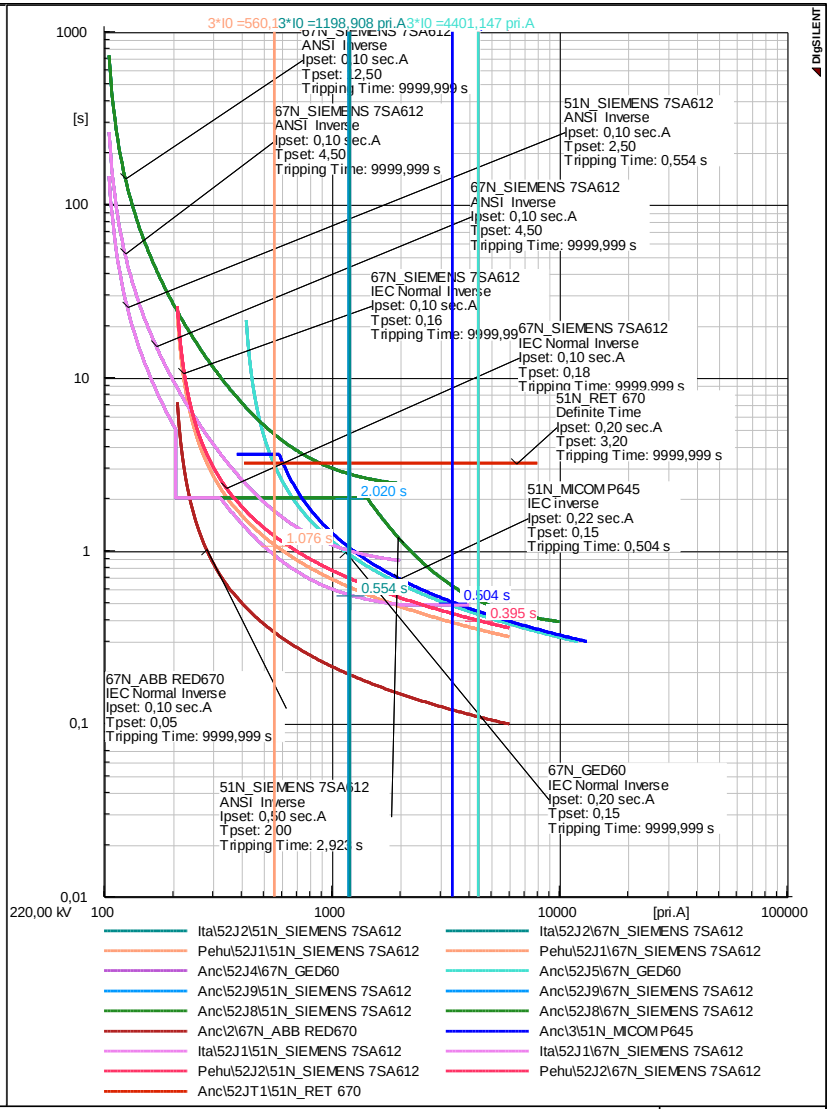

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:

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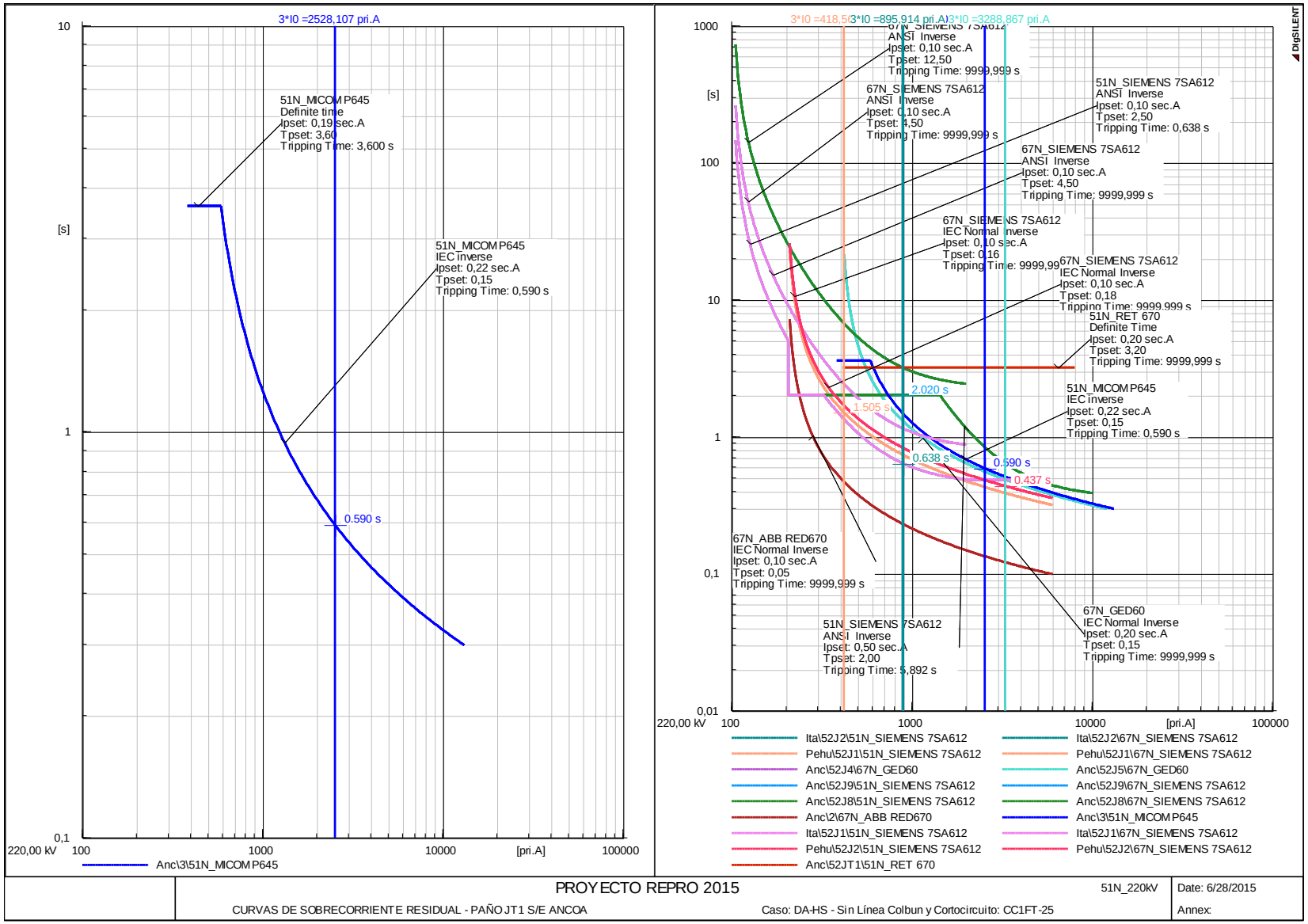

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

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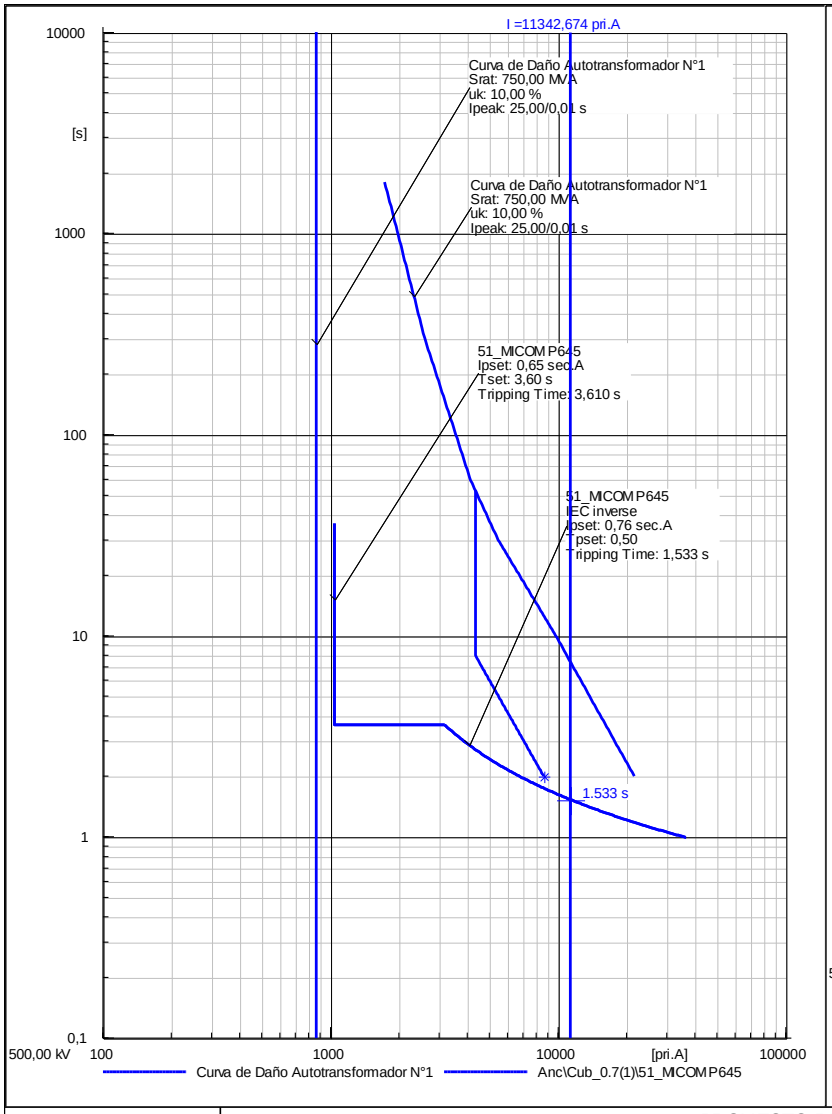
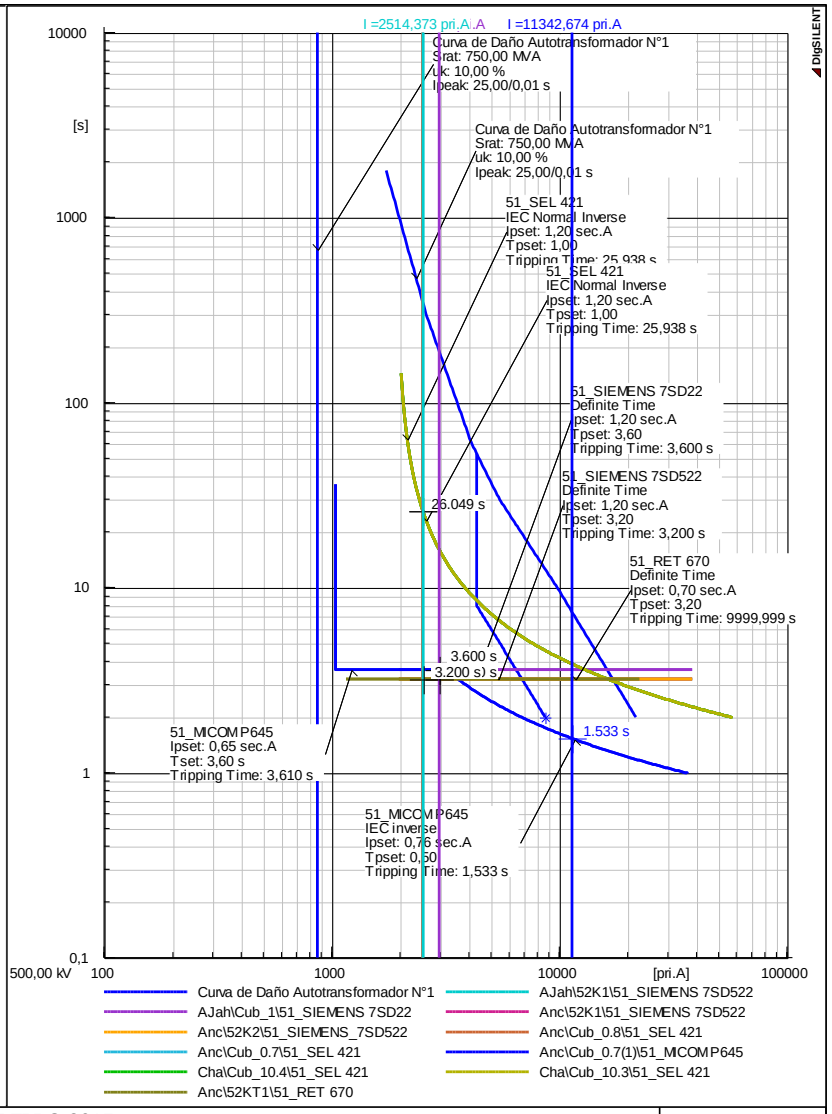
FUNCIÓN 51 LADO DE 500 KV





	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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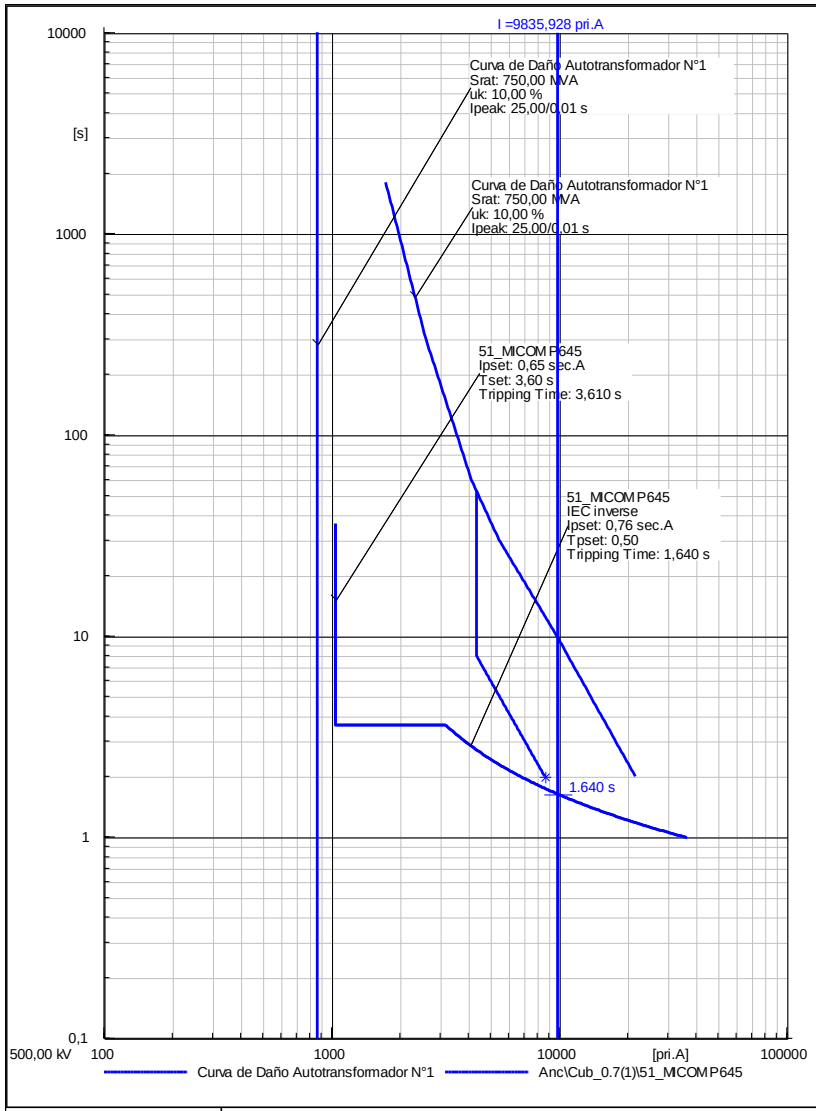

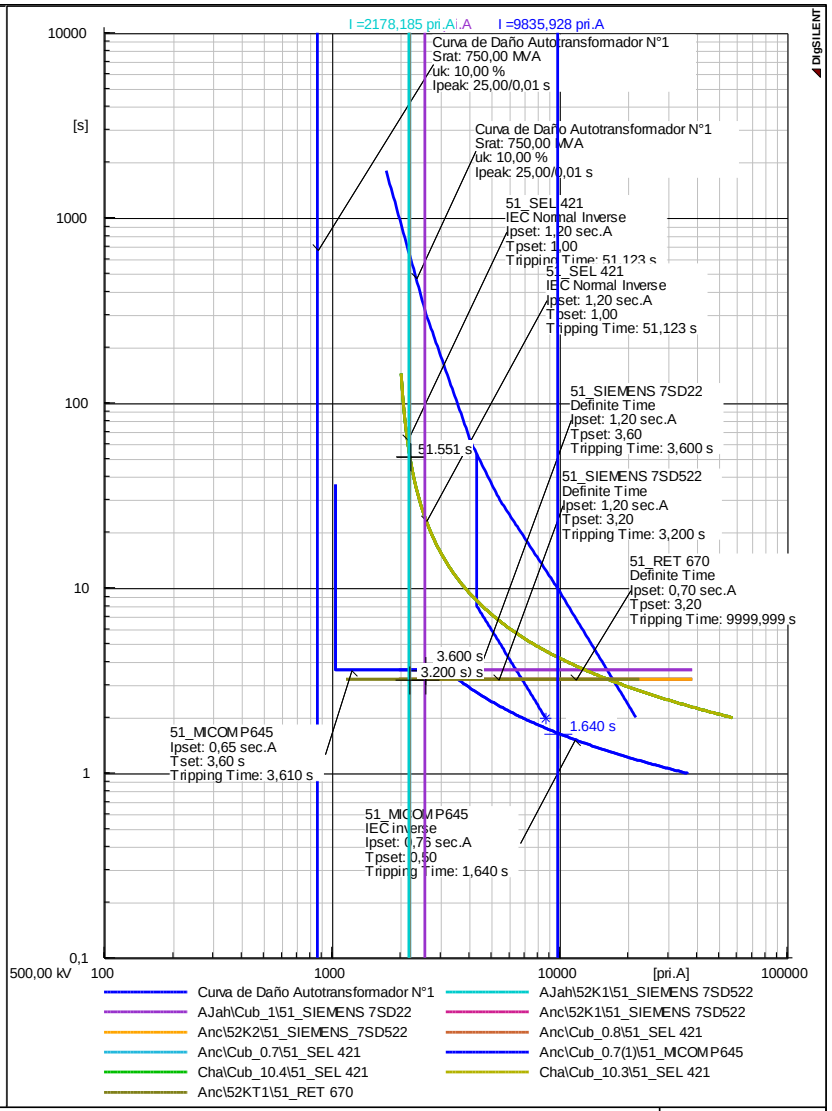

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2F	Annex:

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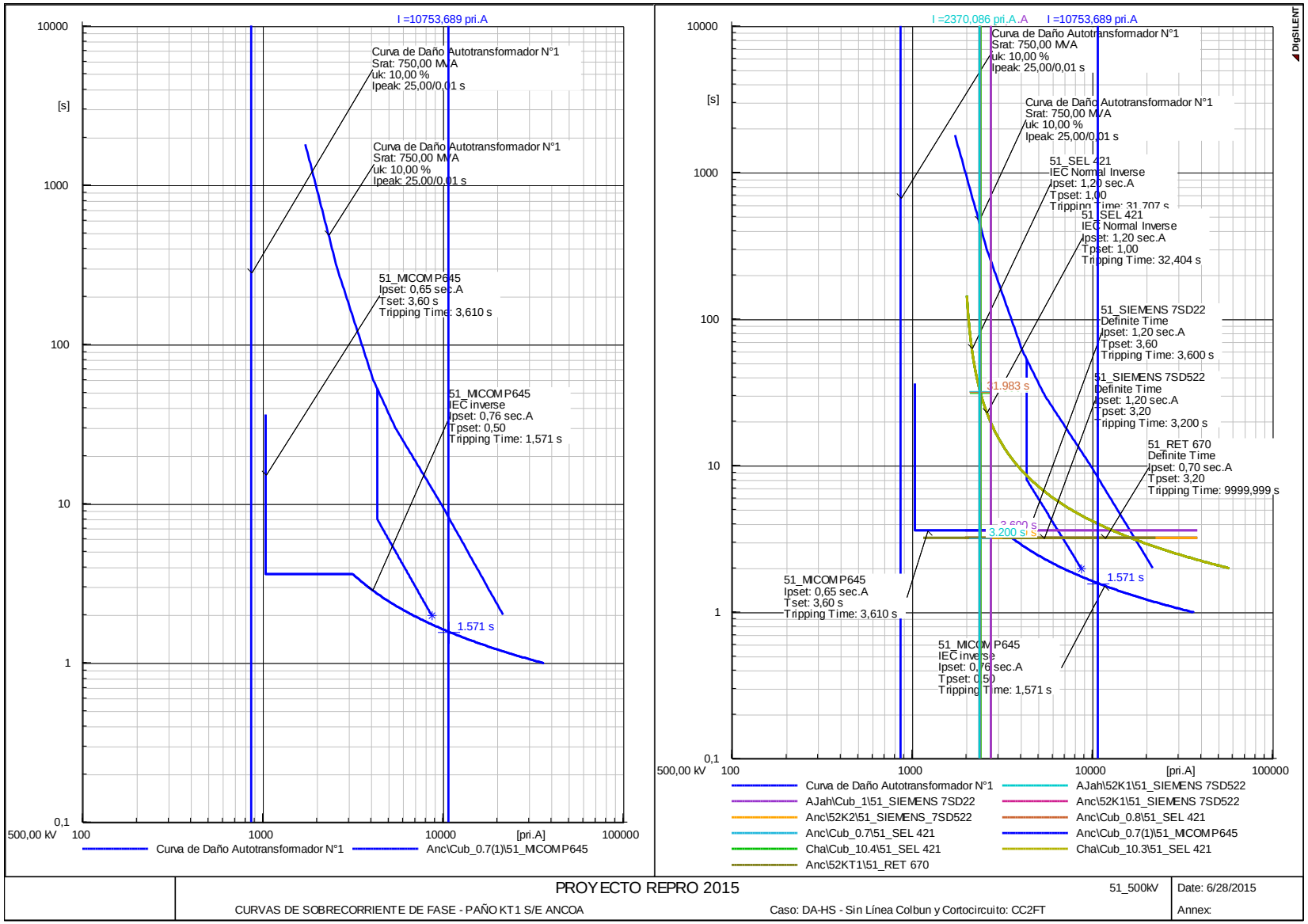

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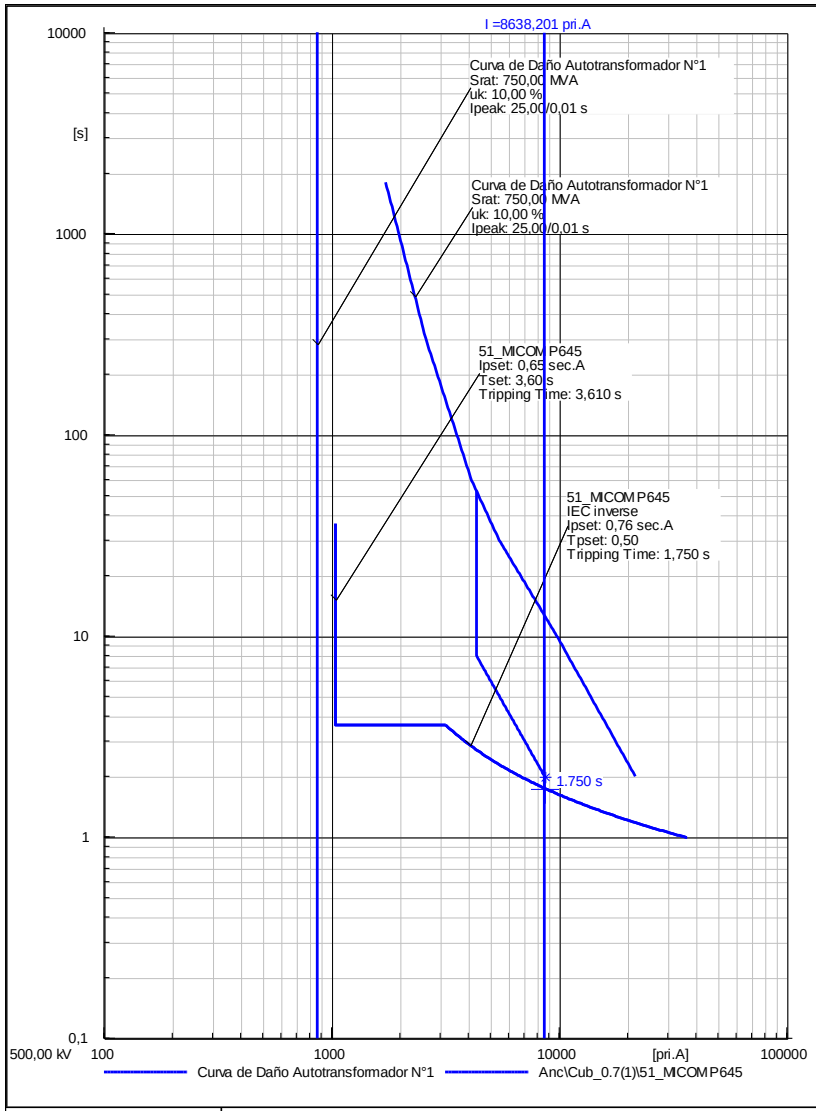

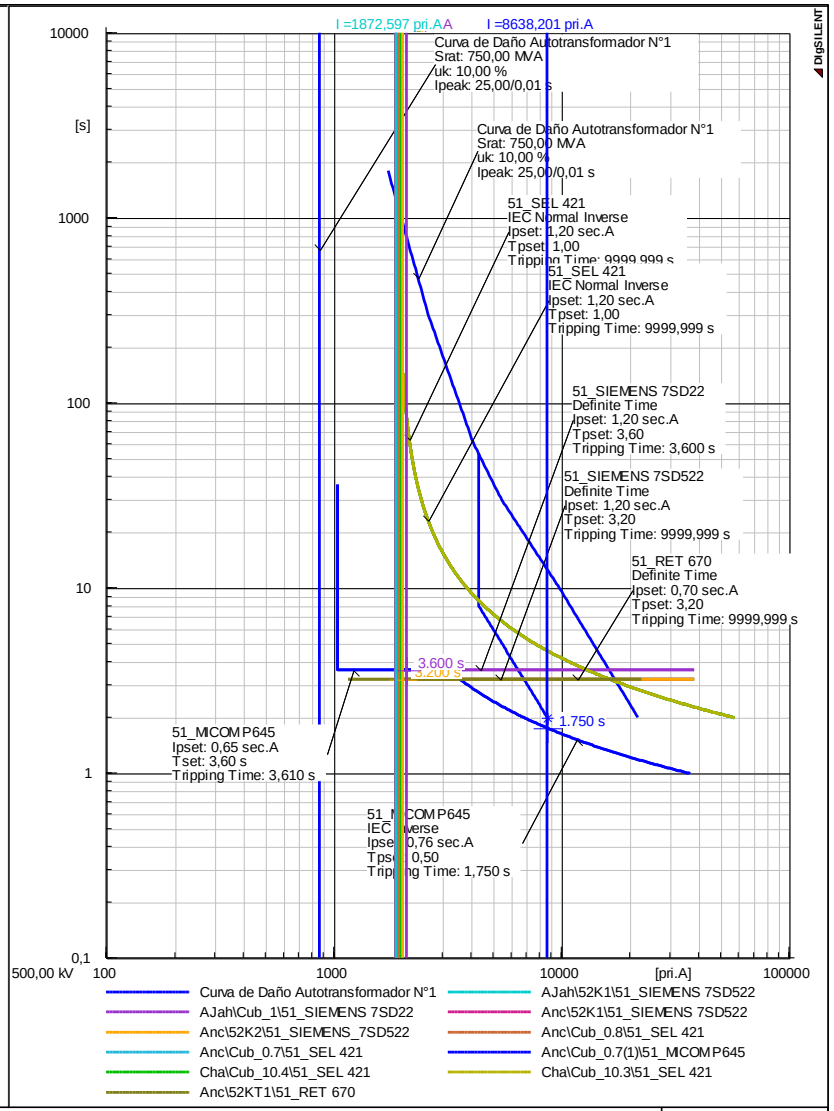

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:

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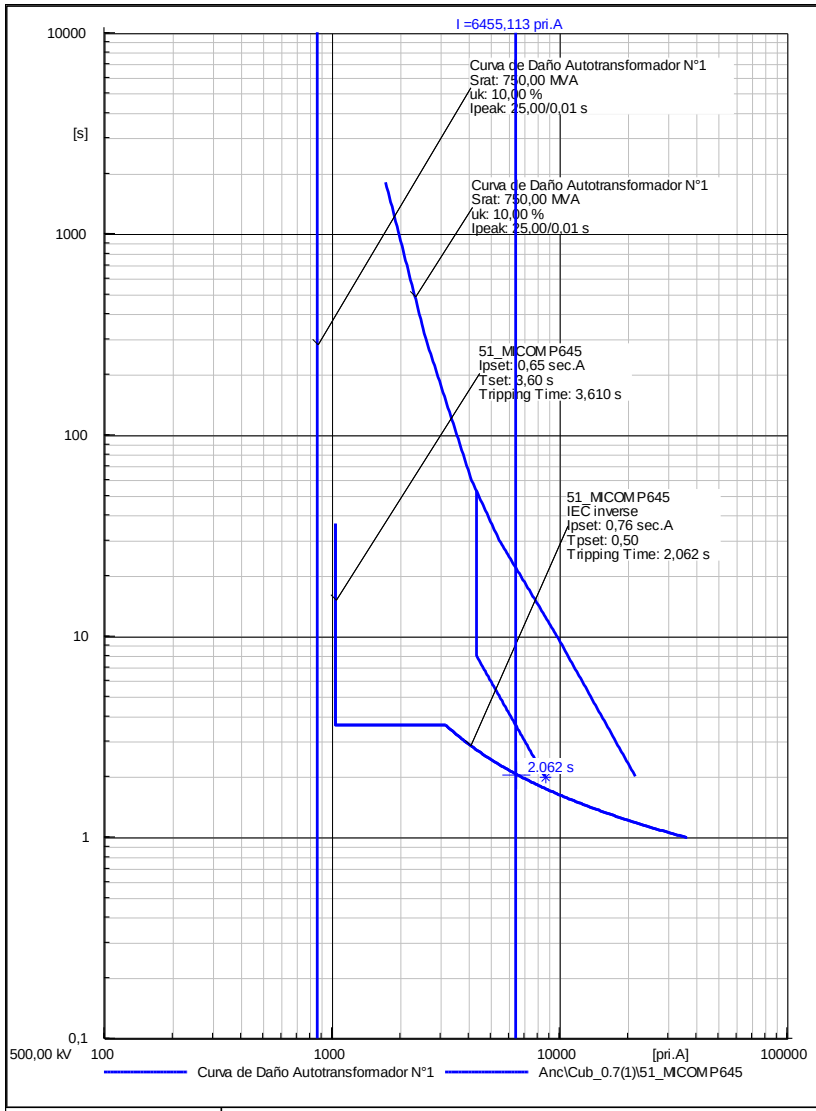

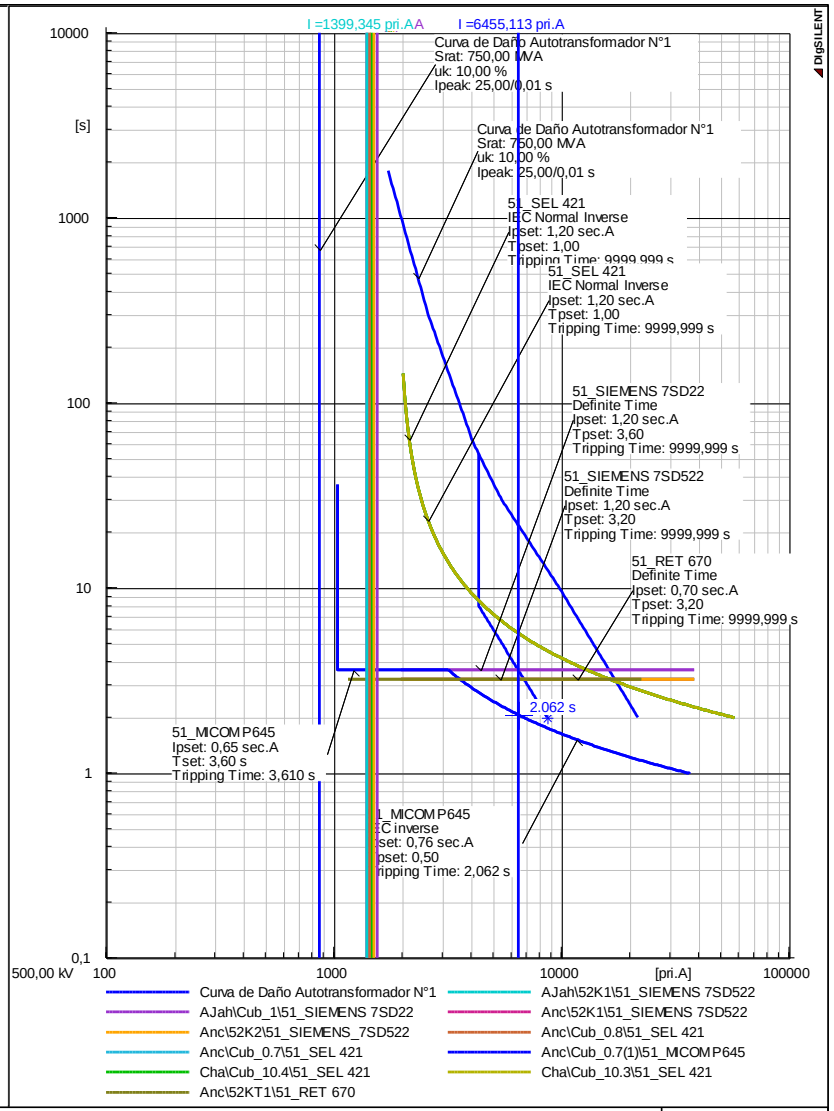

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

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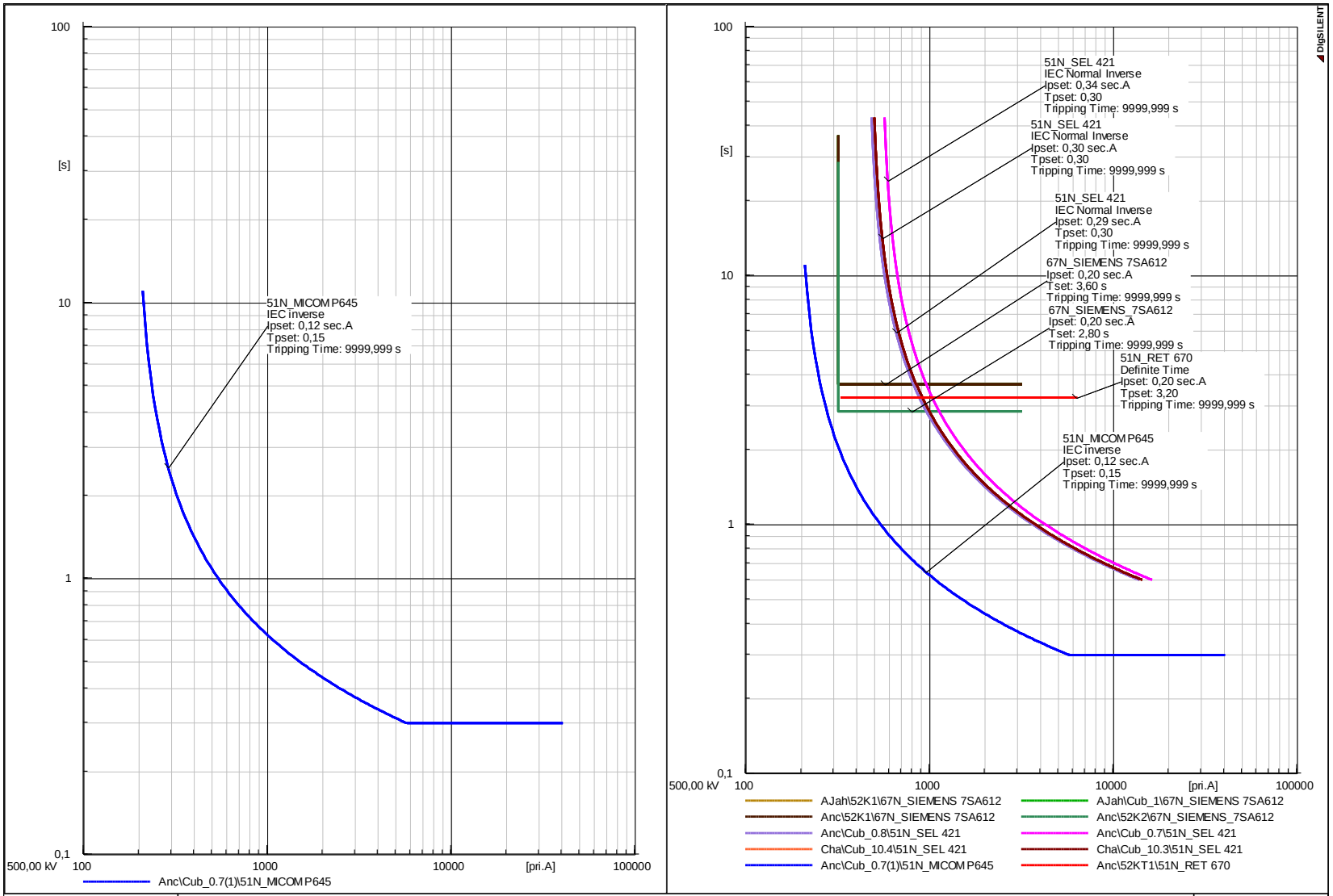
FUNCIÓN 51N LADO DE 500 KV



	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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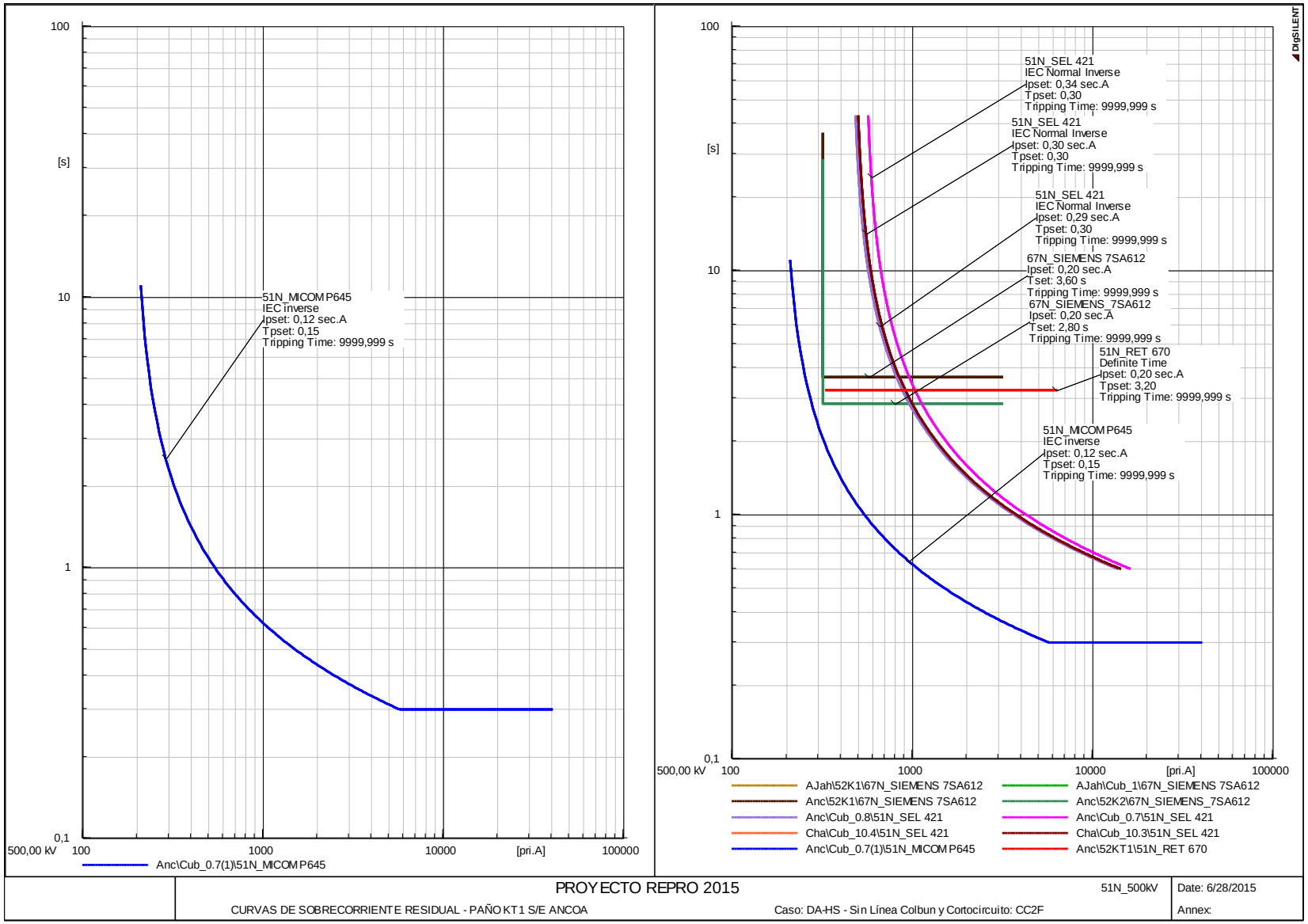

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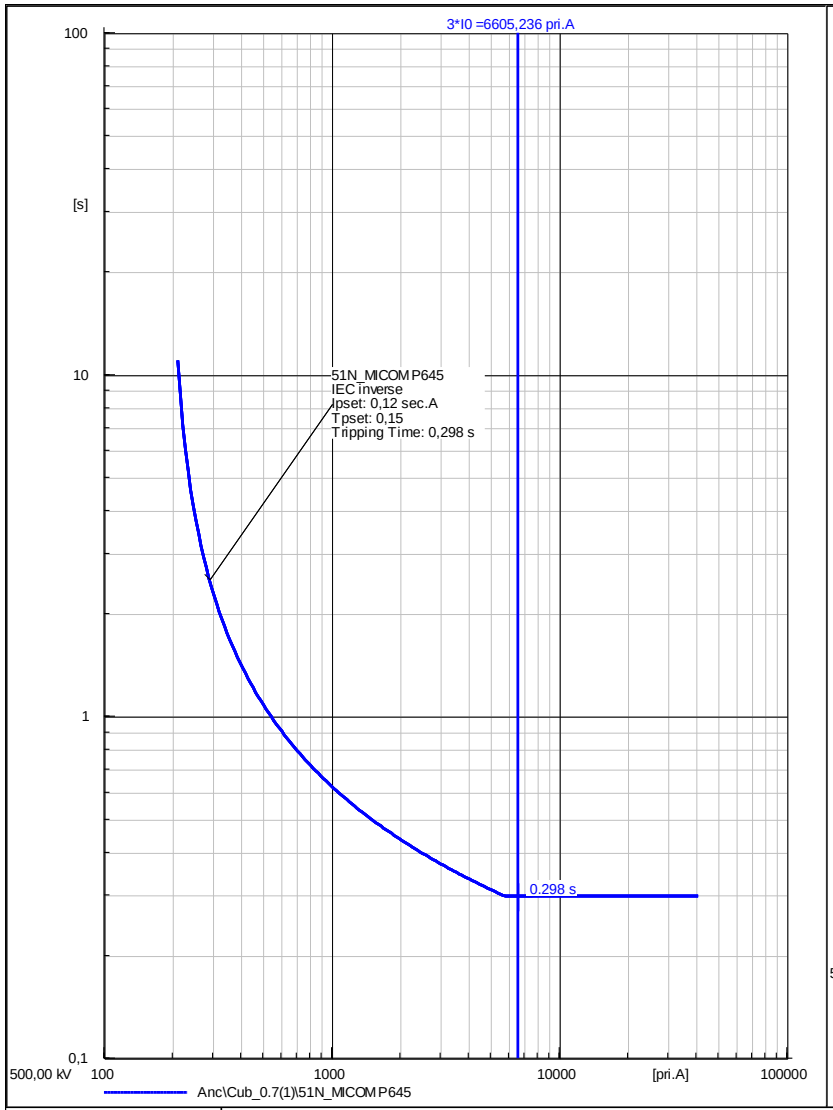
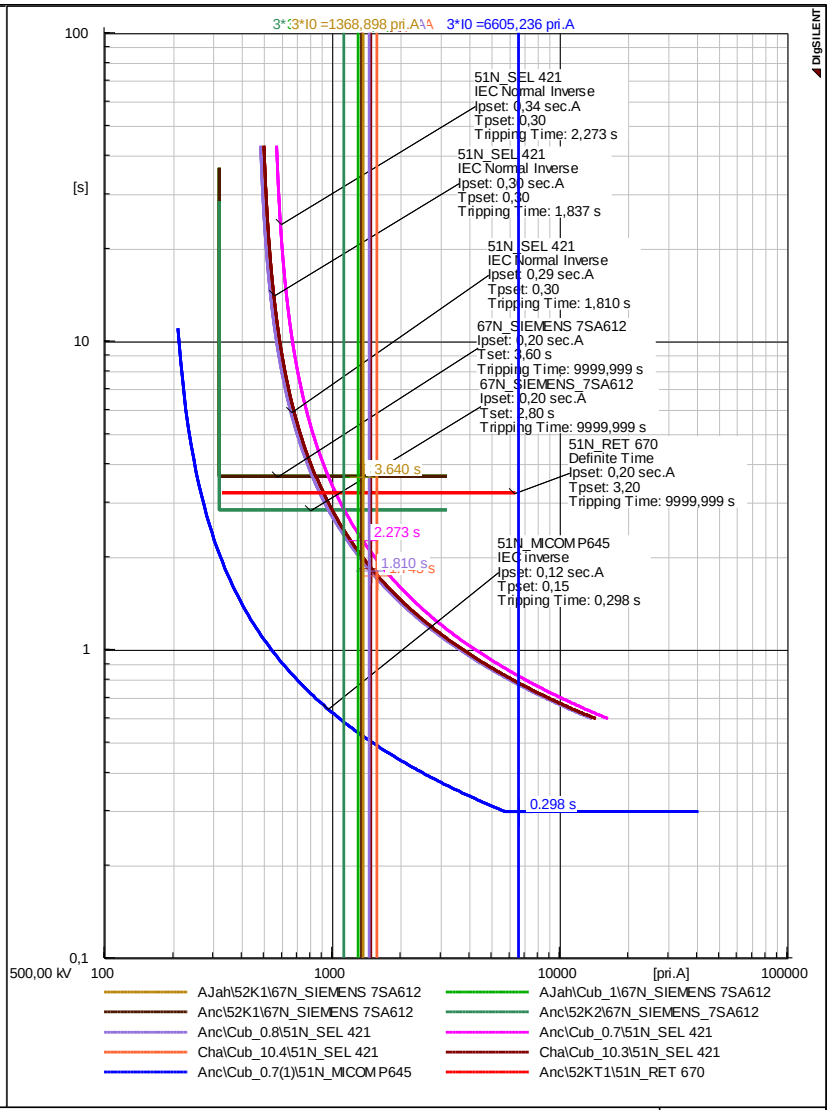
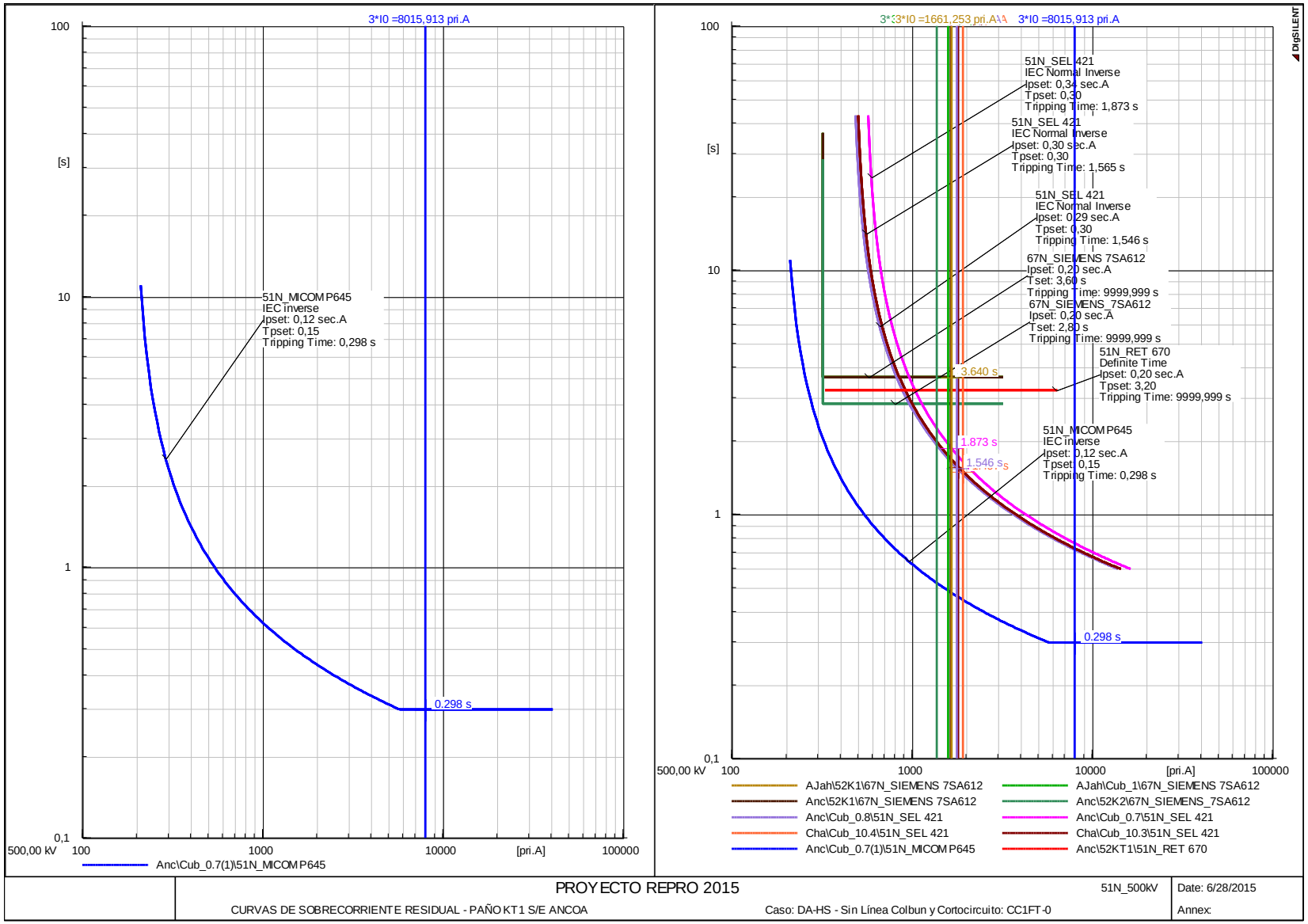
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2F	Annex:





	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:



	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:

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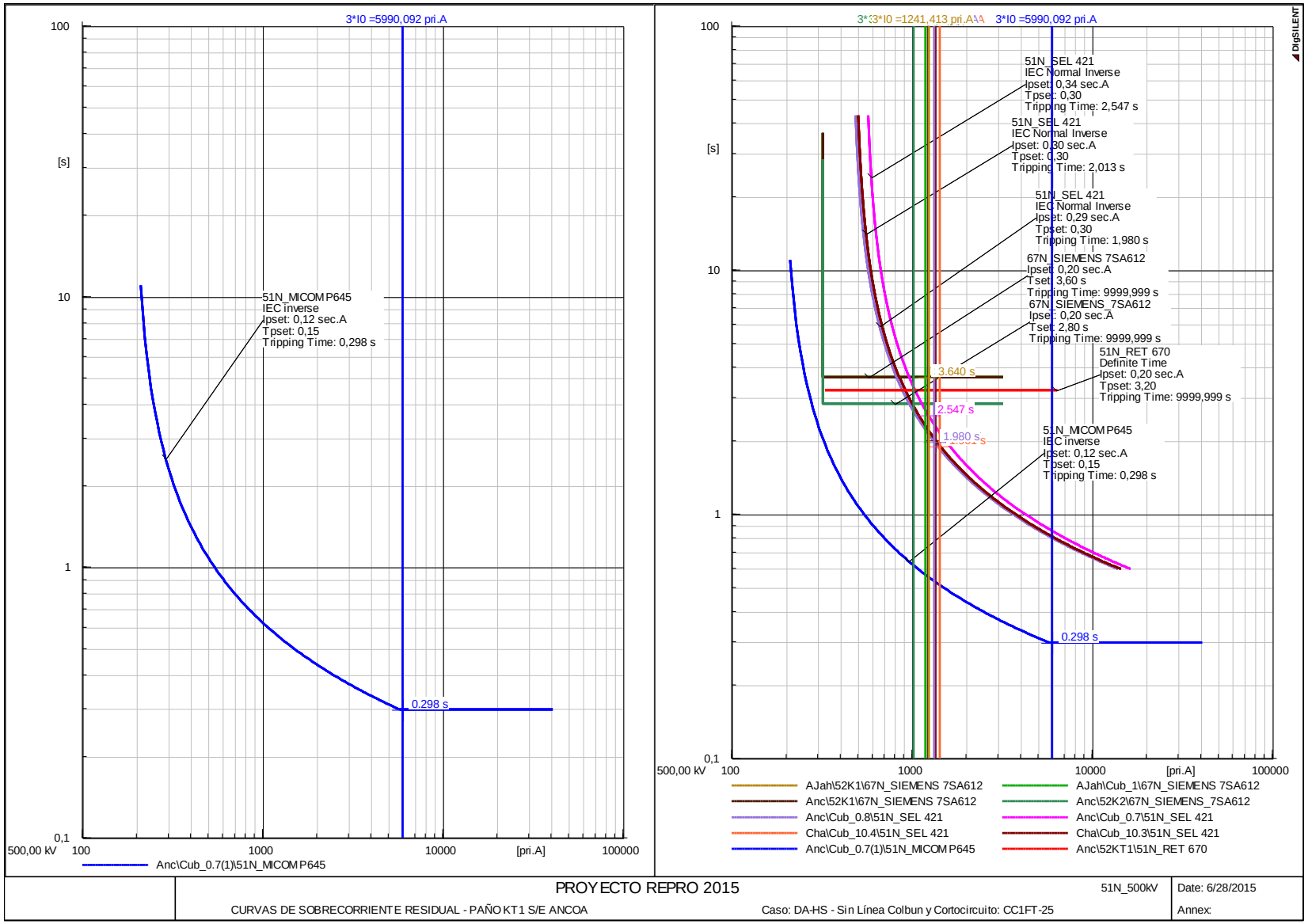

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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

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FALLA EN BARRA 220 KV S/E ANCOA

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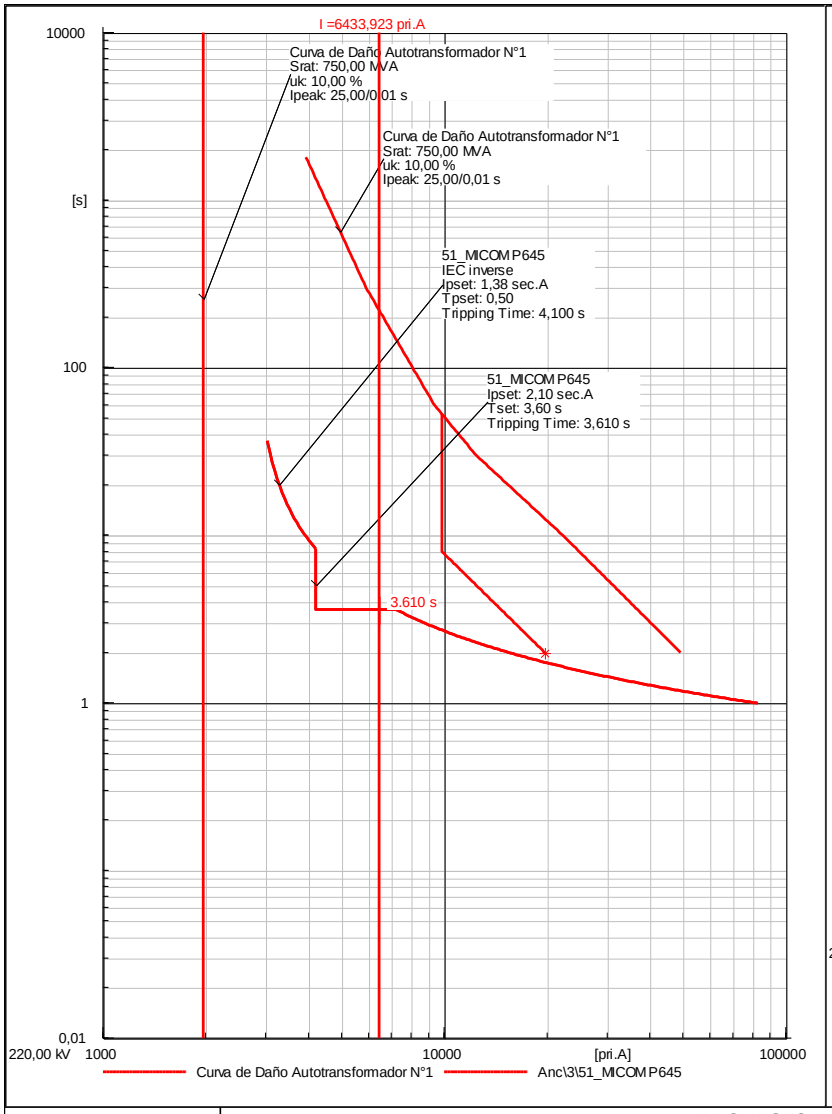
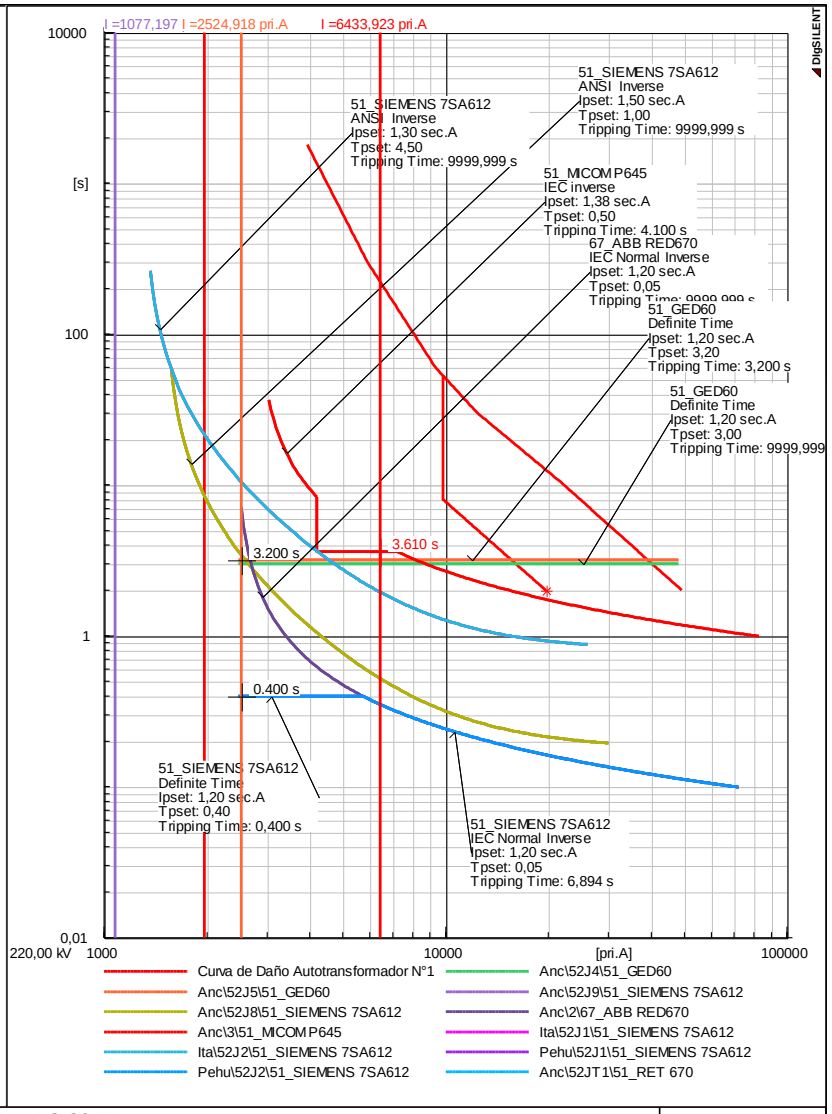
FUNCIÓN 51 LADO DE 220 KV





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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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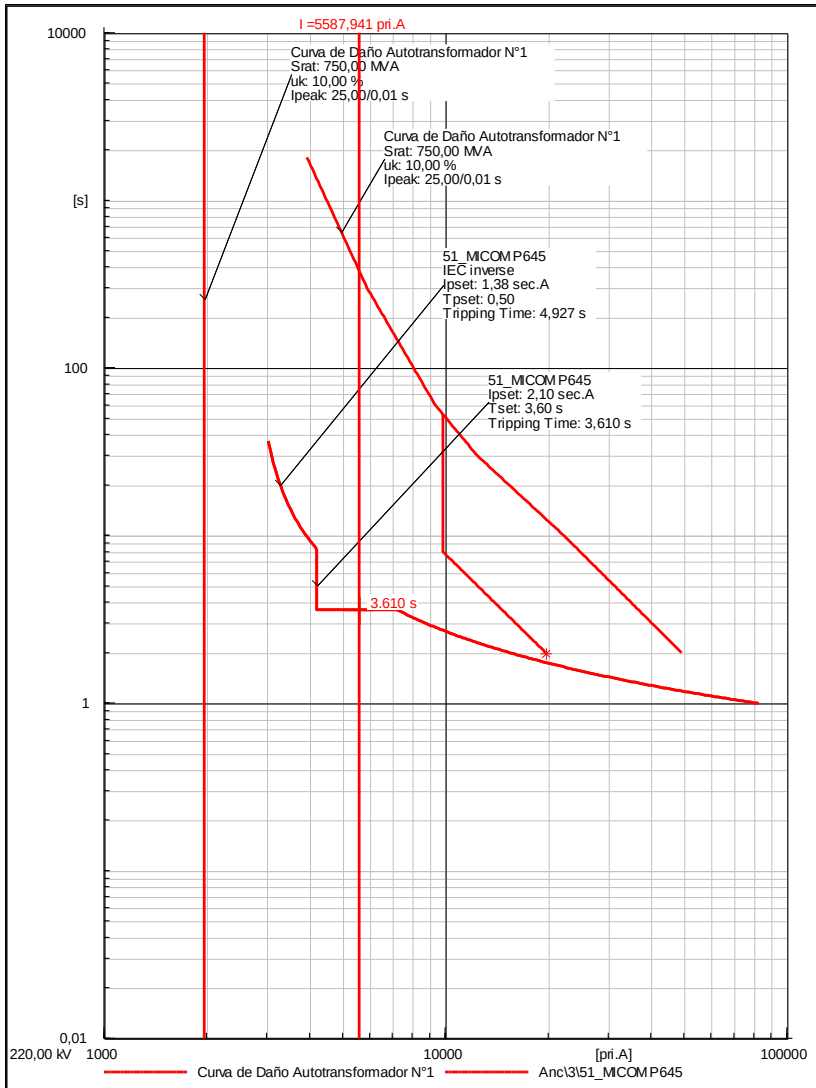

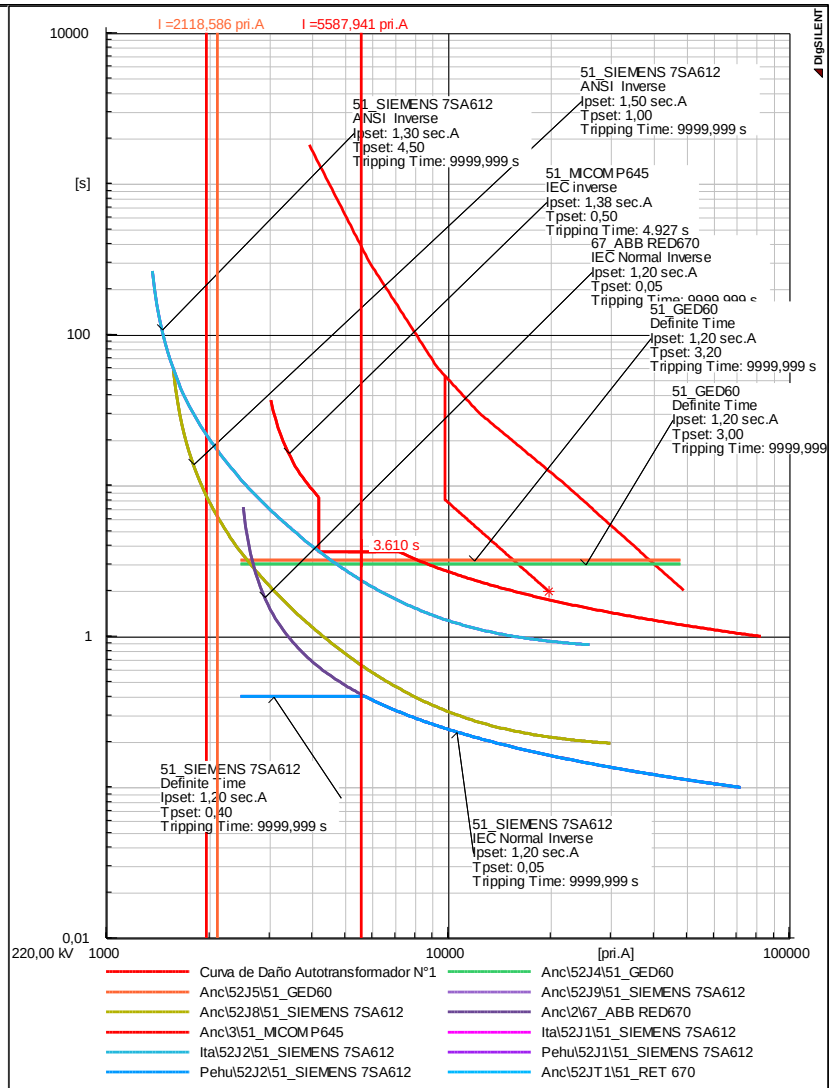

	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2F	Annex:

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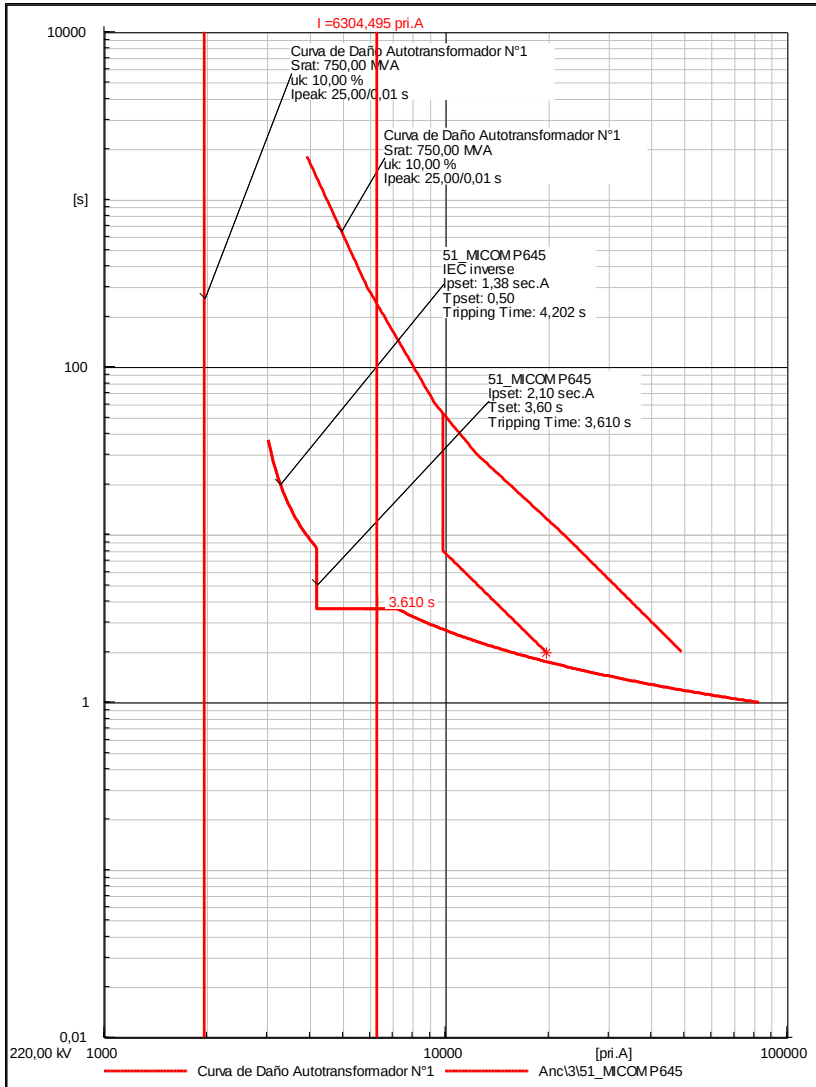

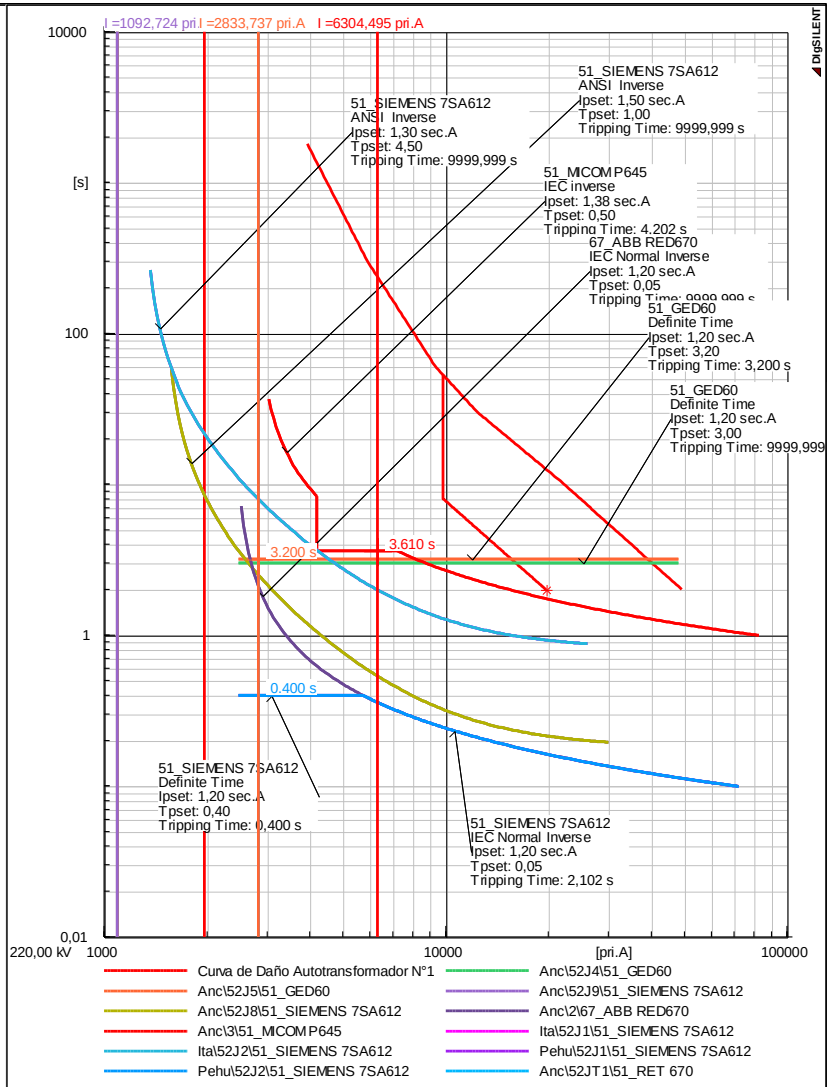

	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:

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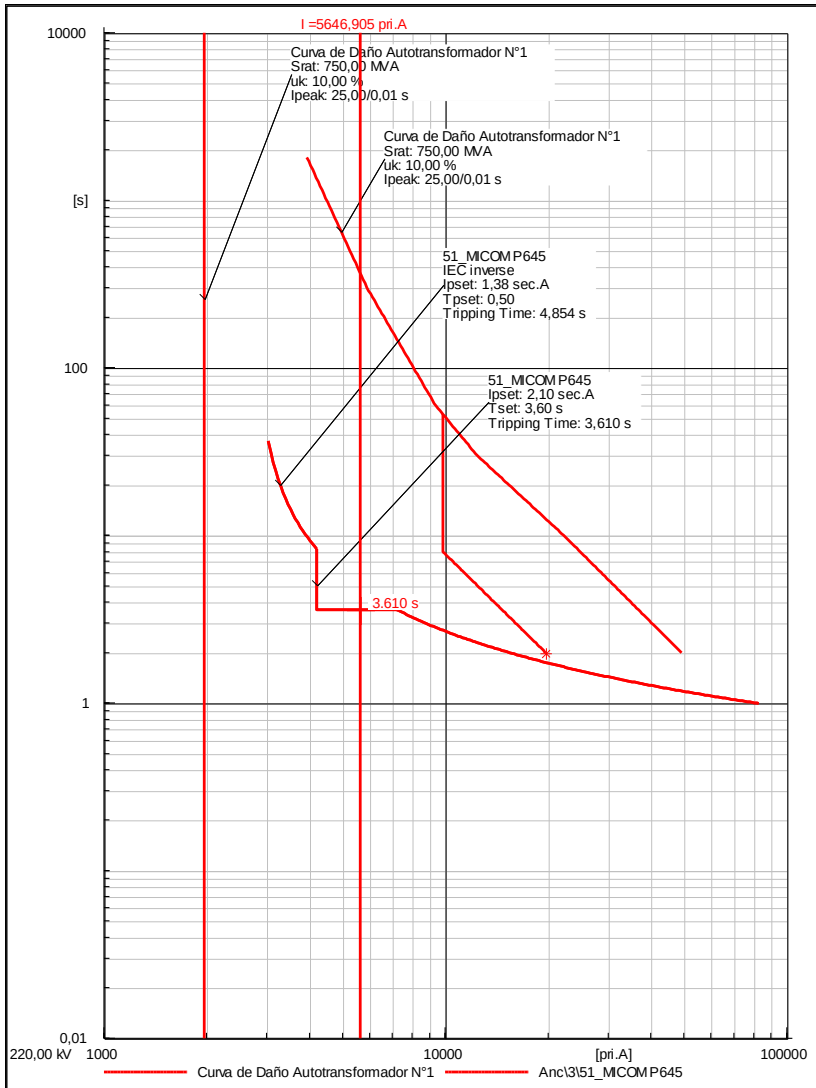
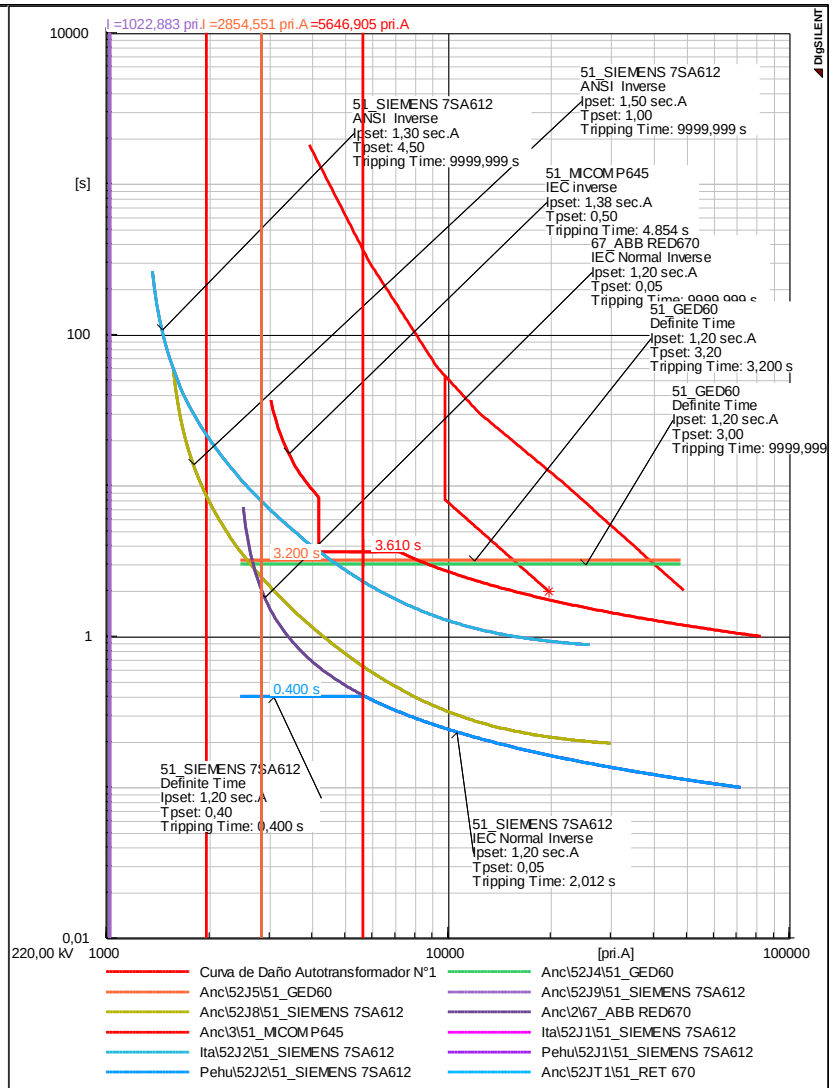
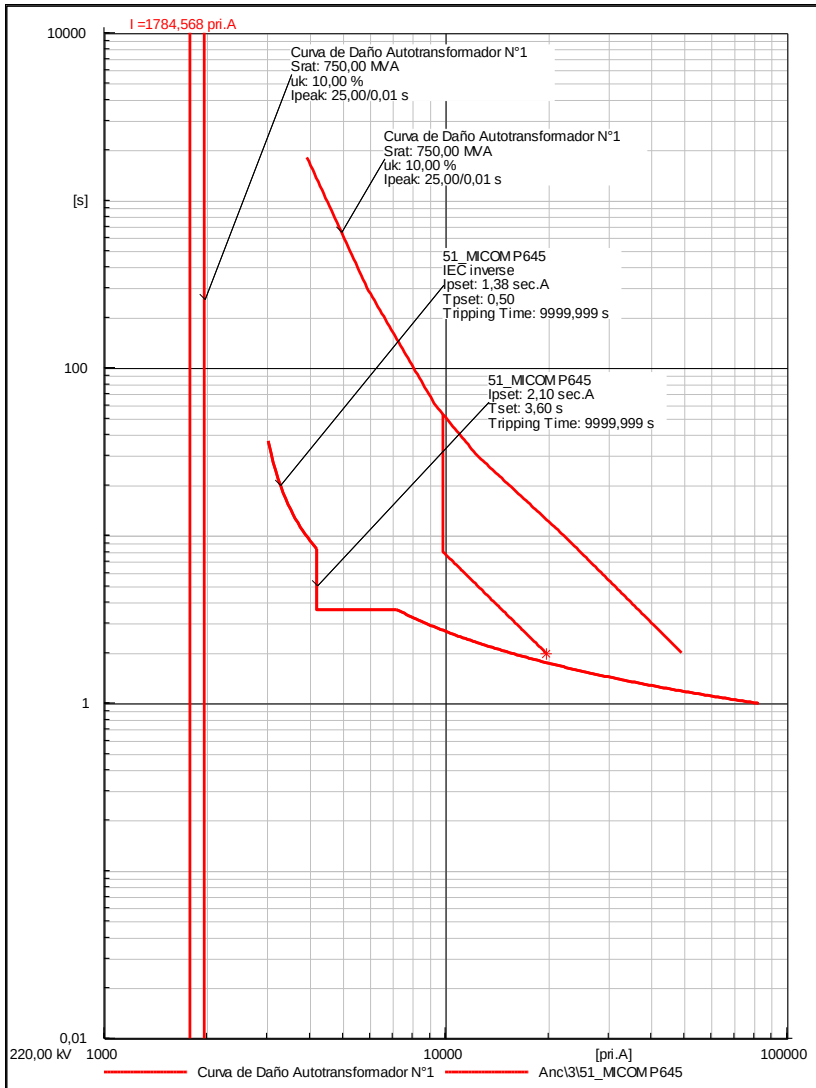
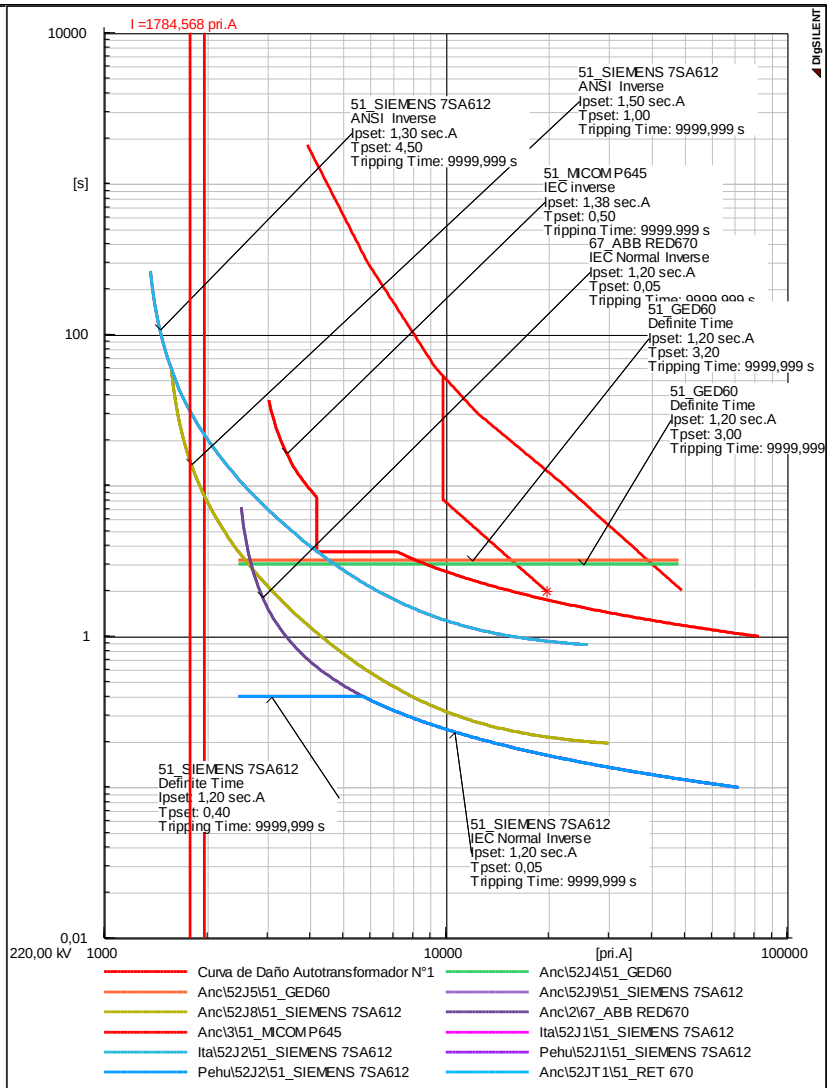




	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:





	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

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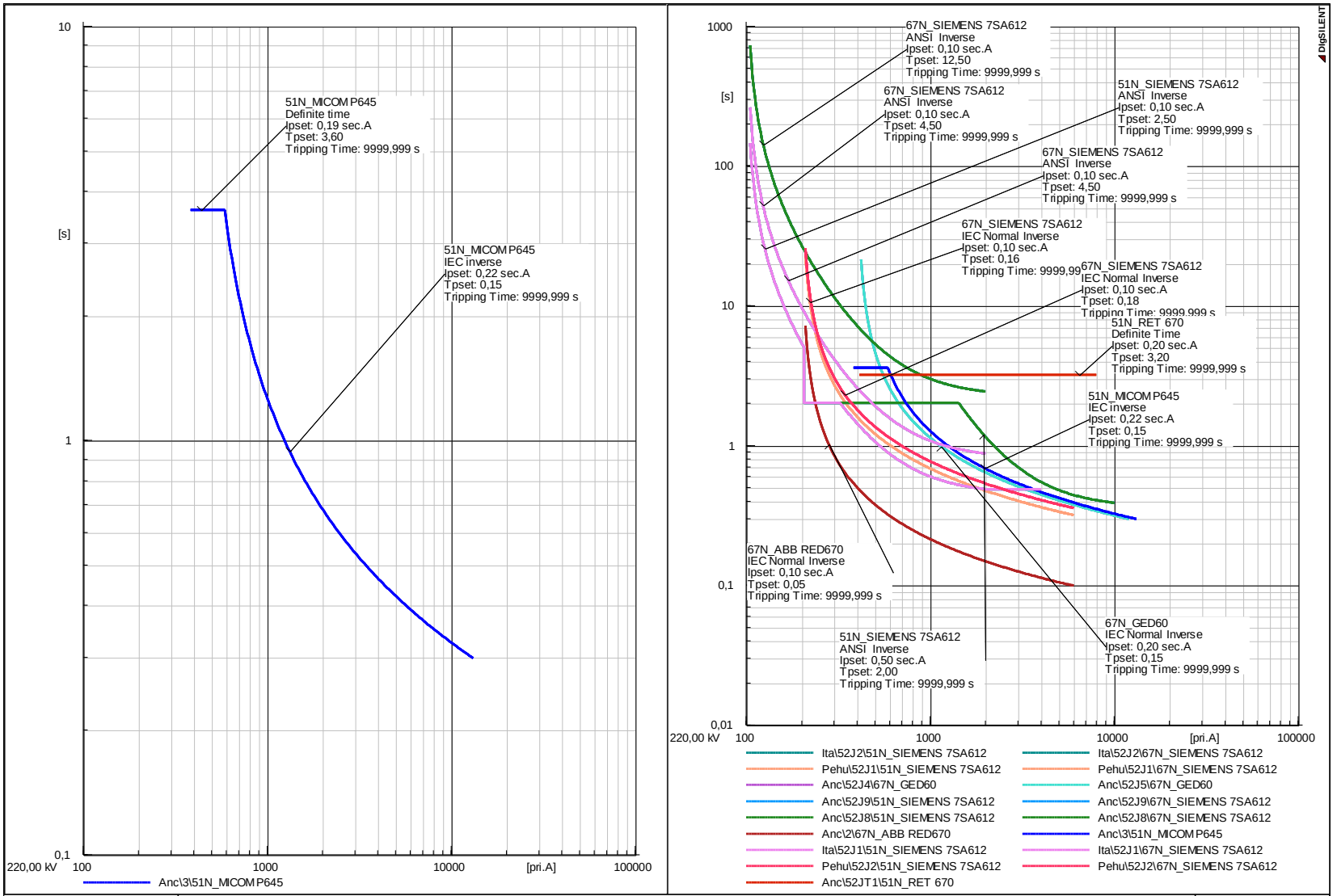
FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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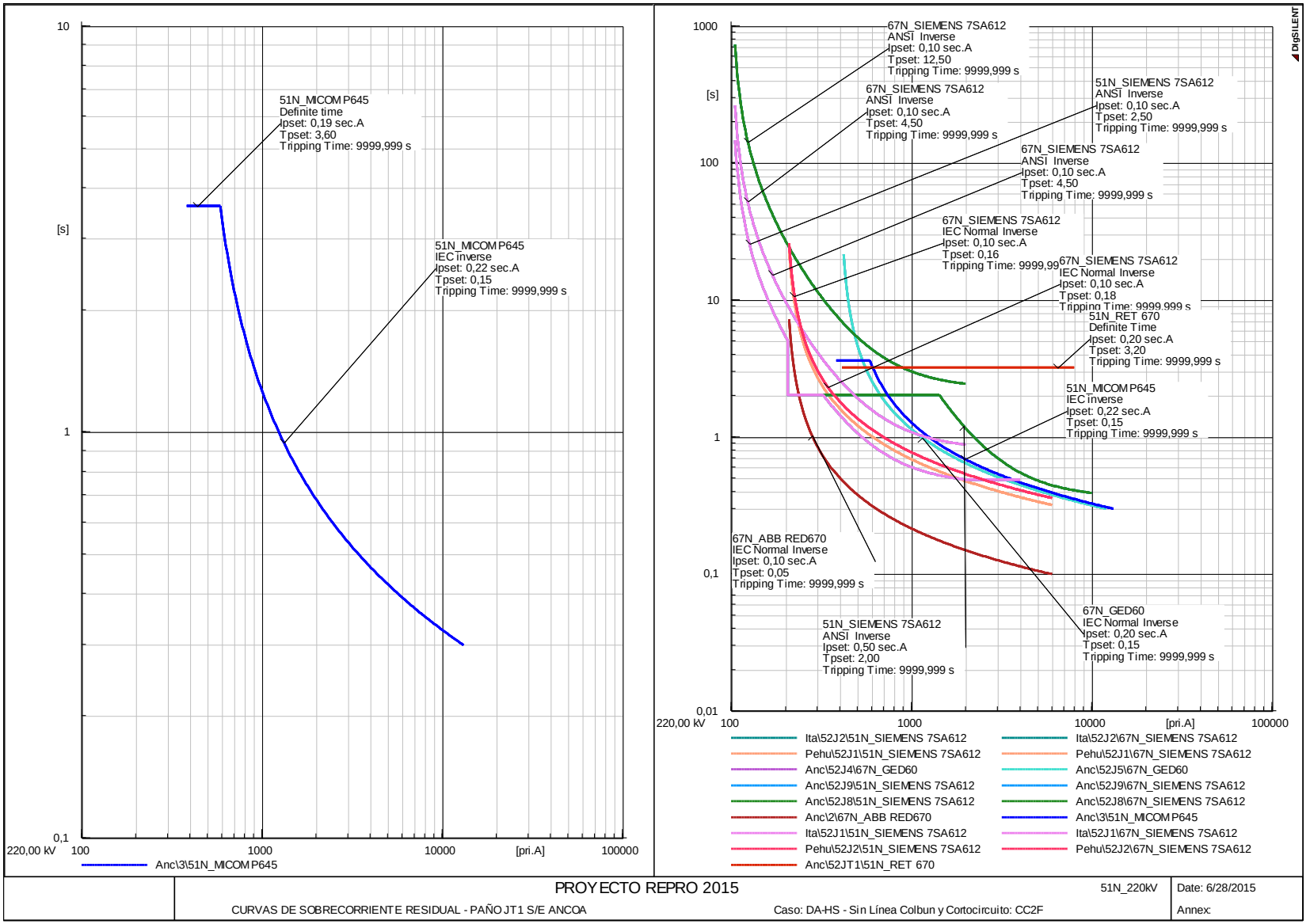

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2F	Annex:

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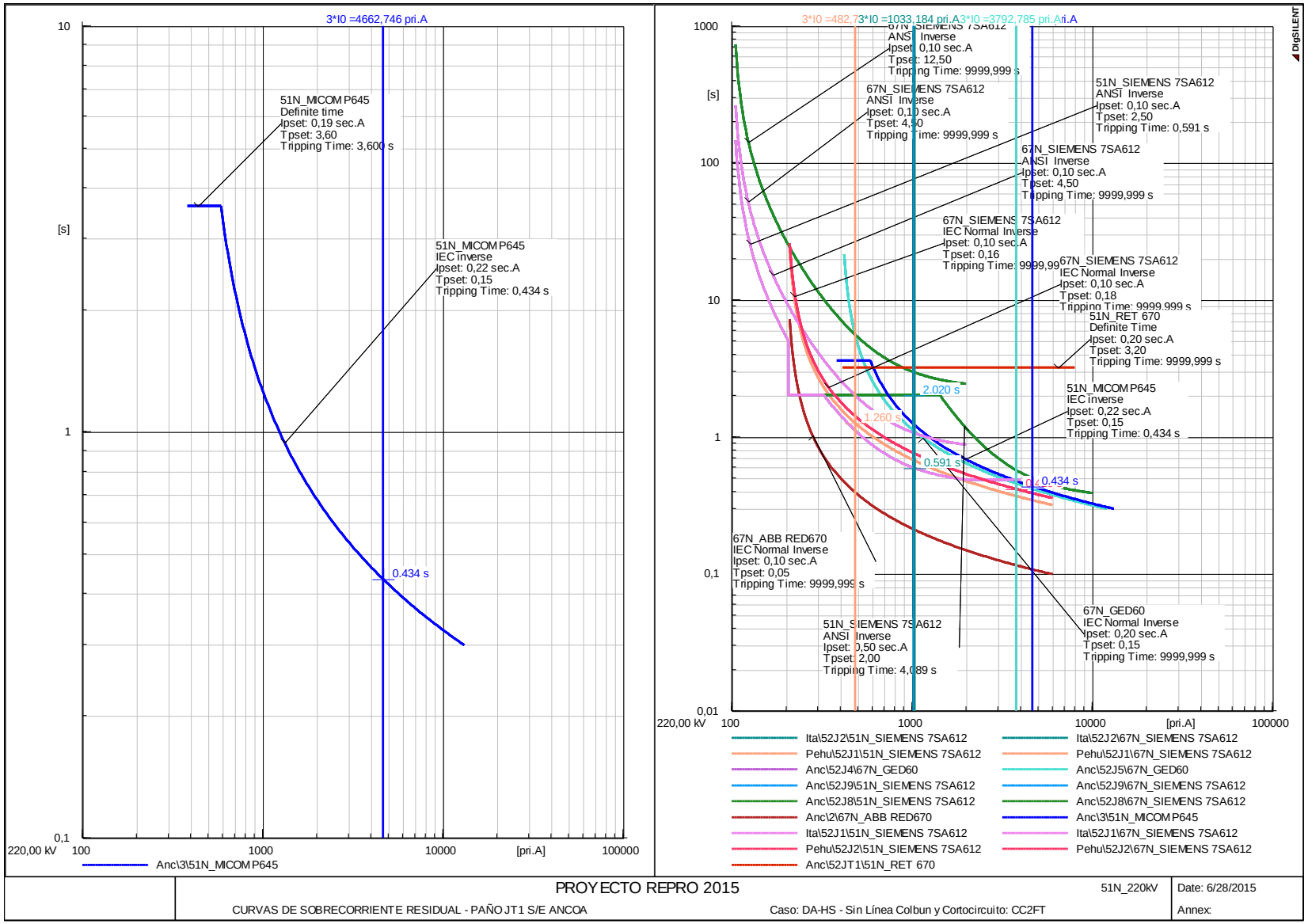

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:

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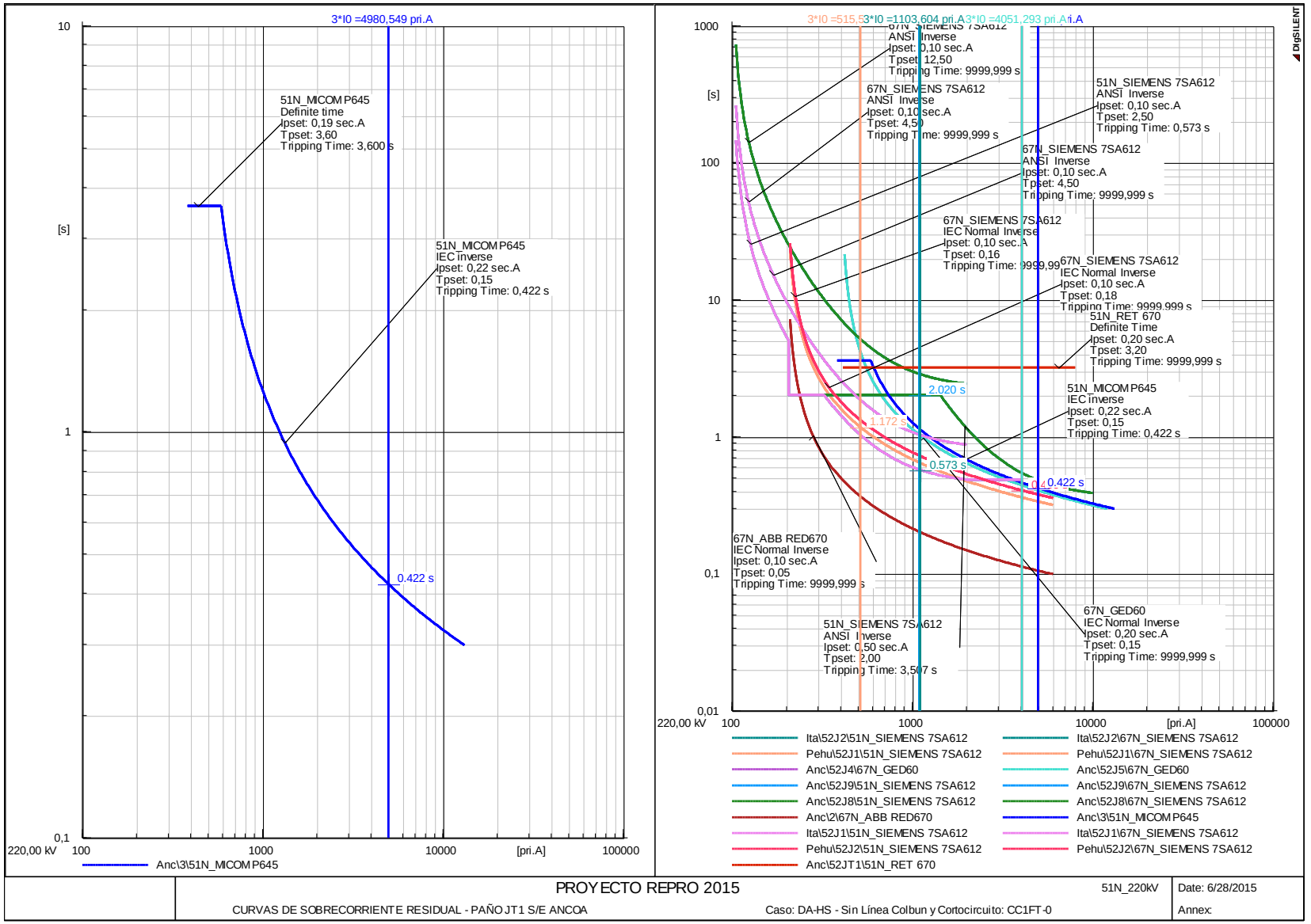

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:

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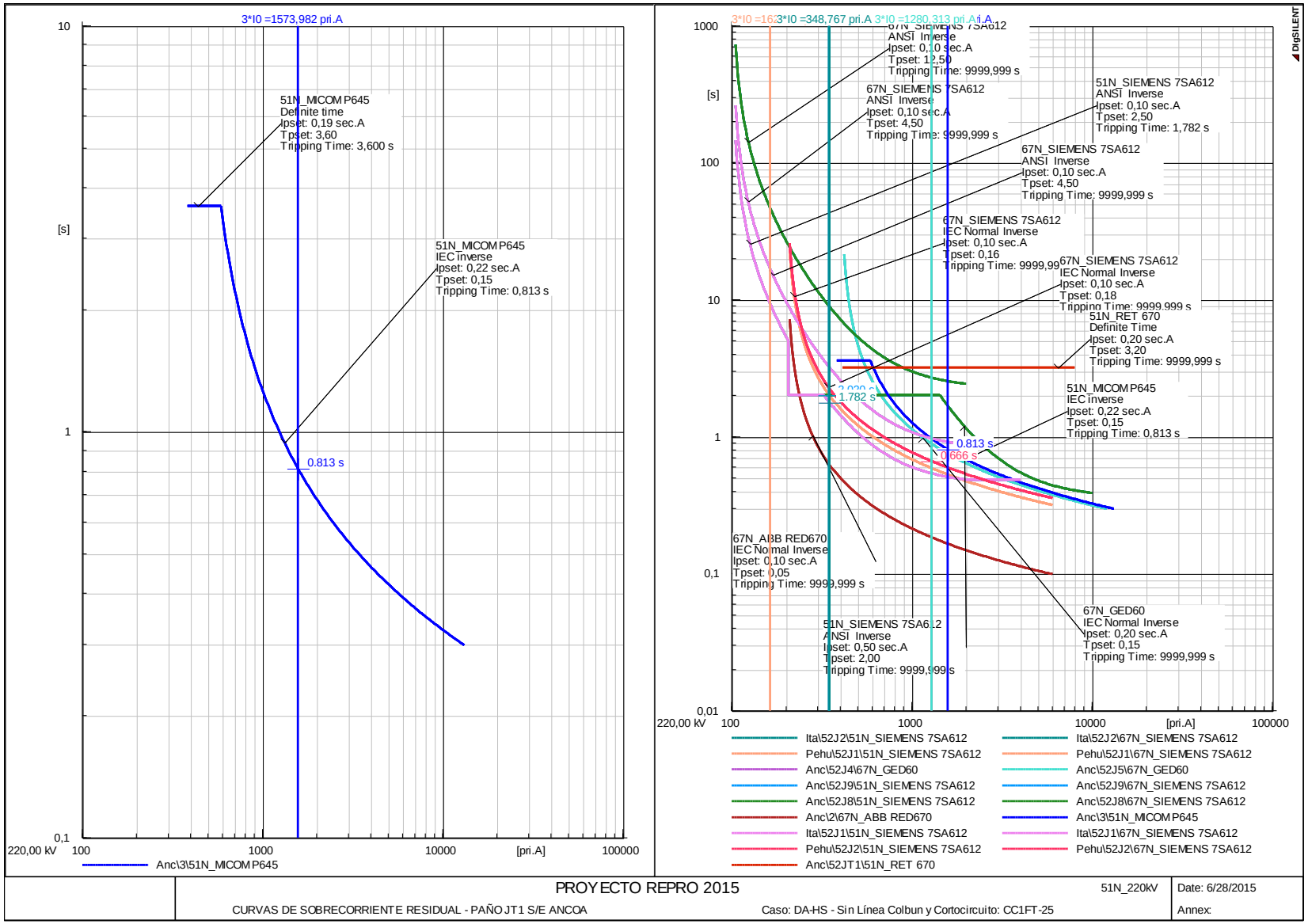

	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

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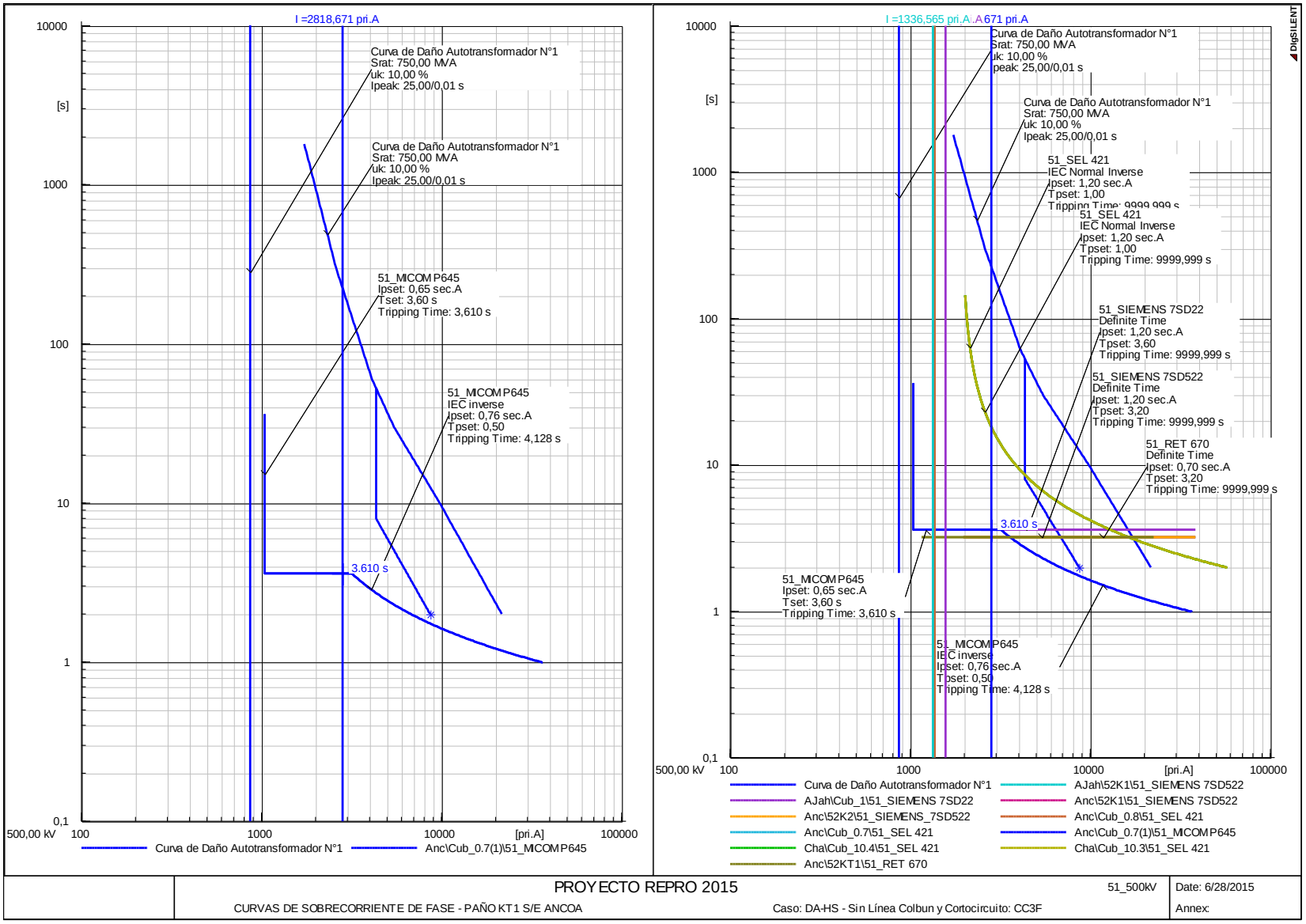
FUNCIÓN 51 LADO DE 500 KV



	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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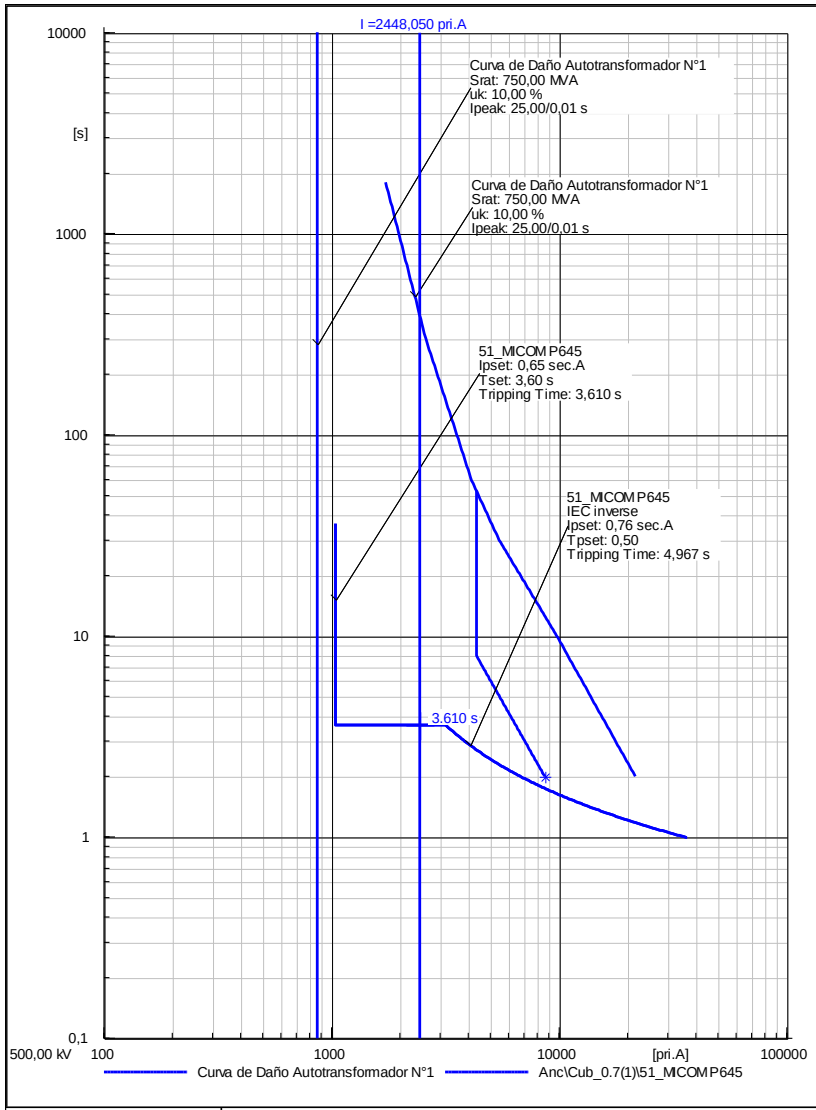

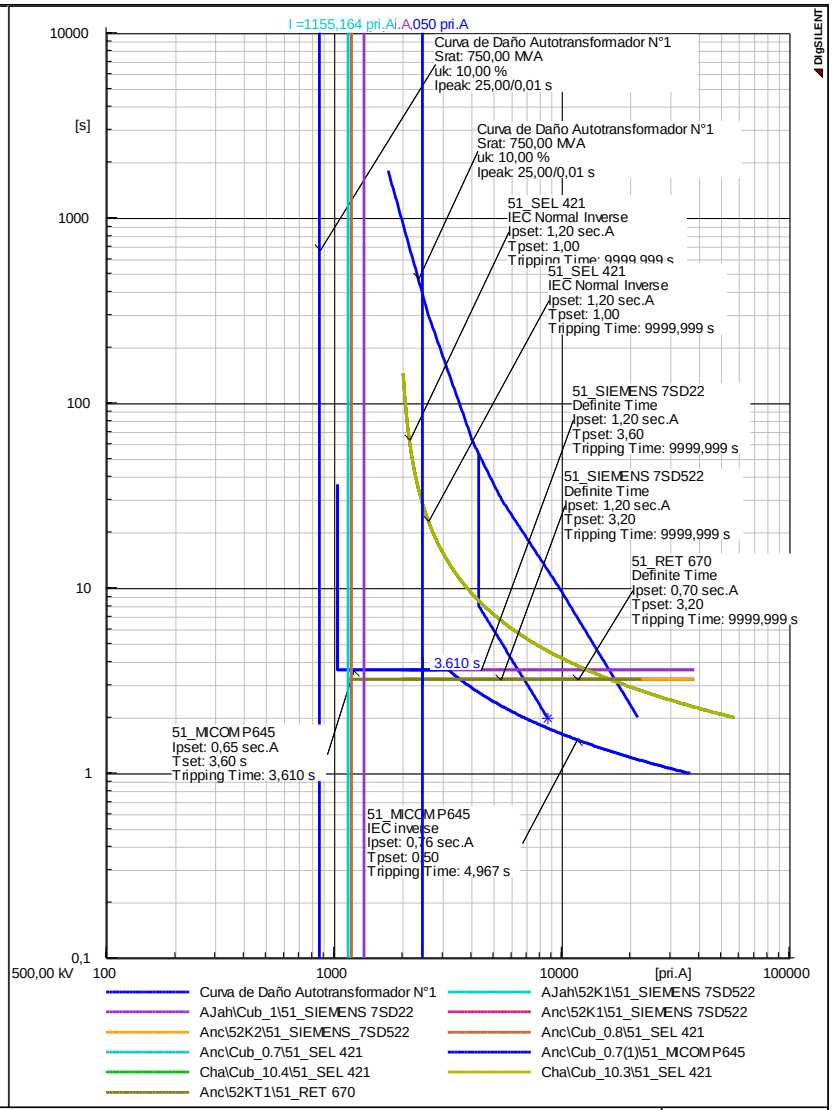

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2F	Annex:

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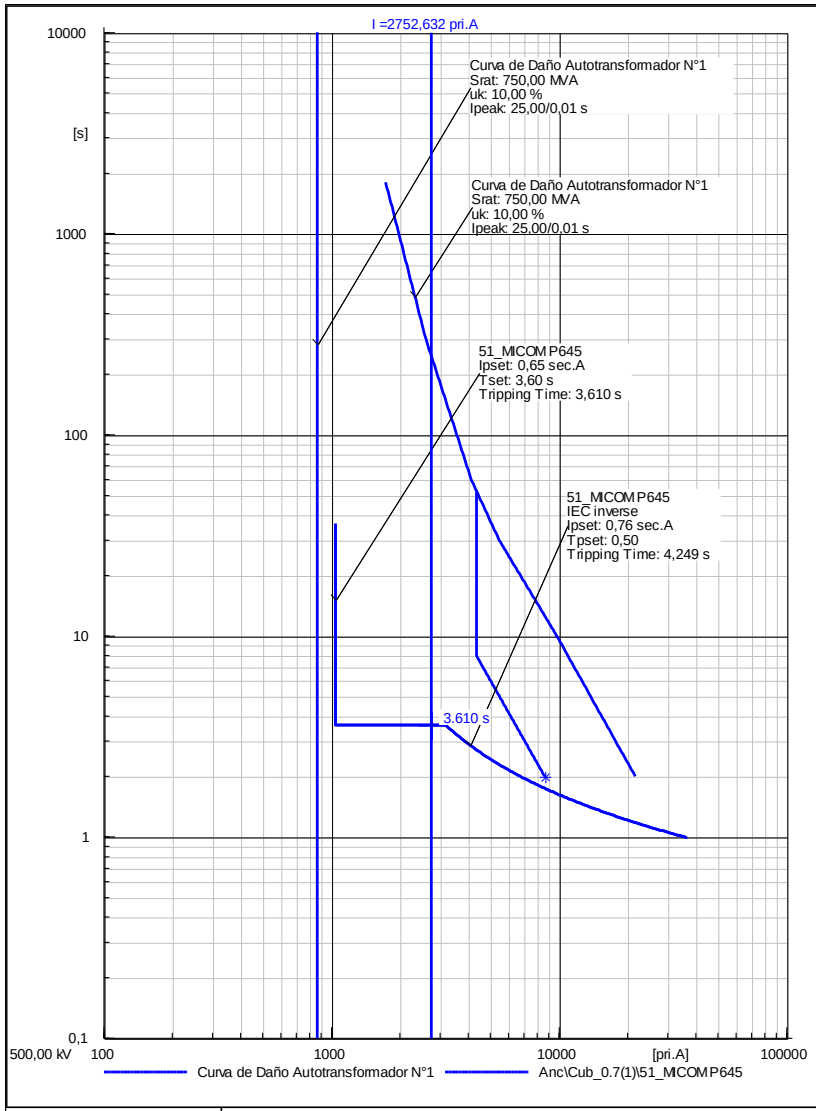

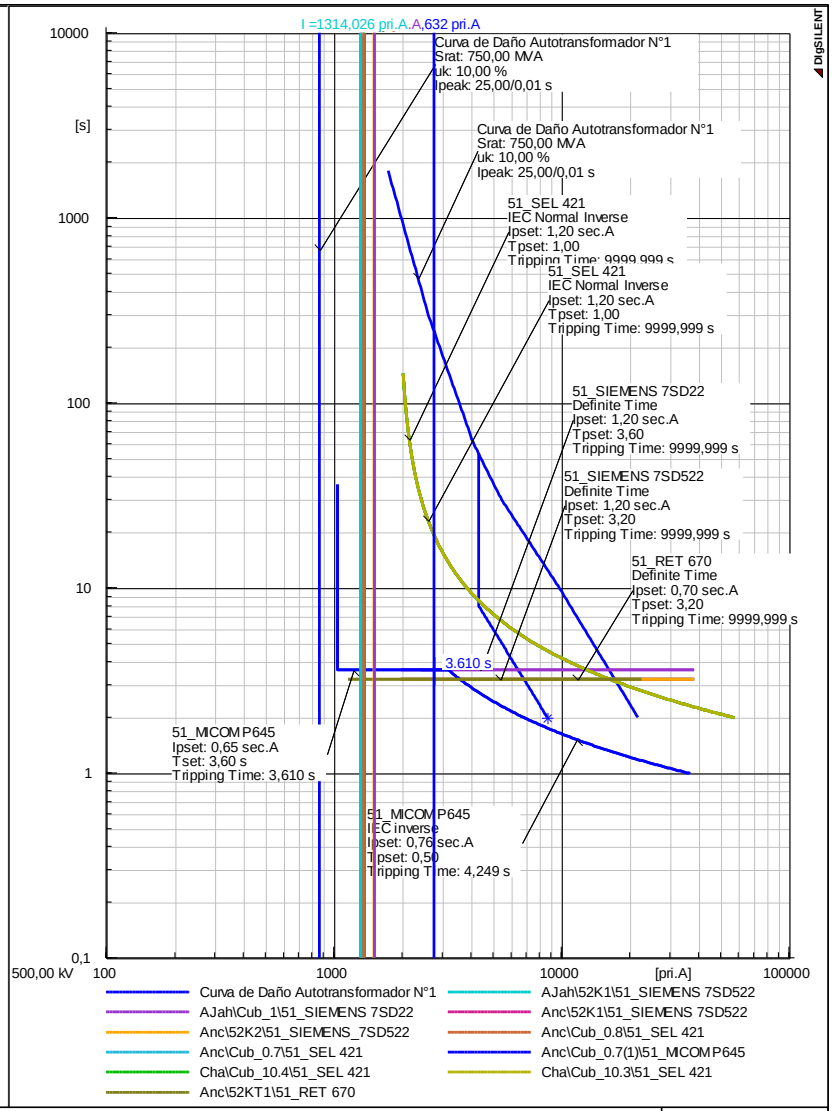

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:

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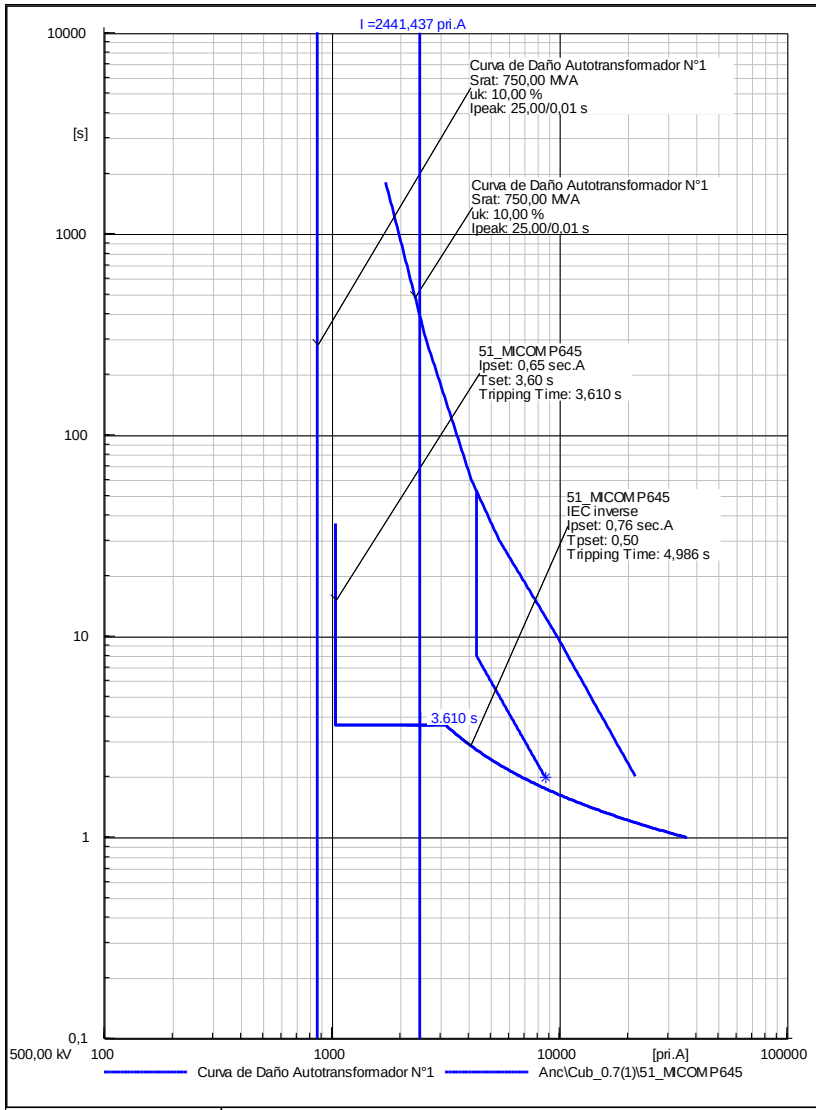

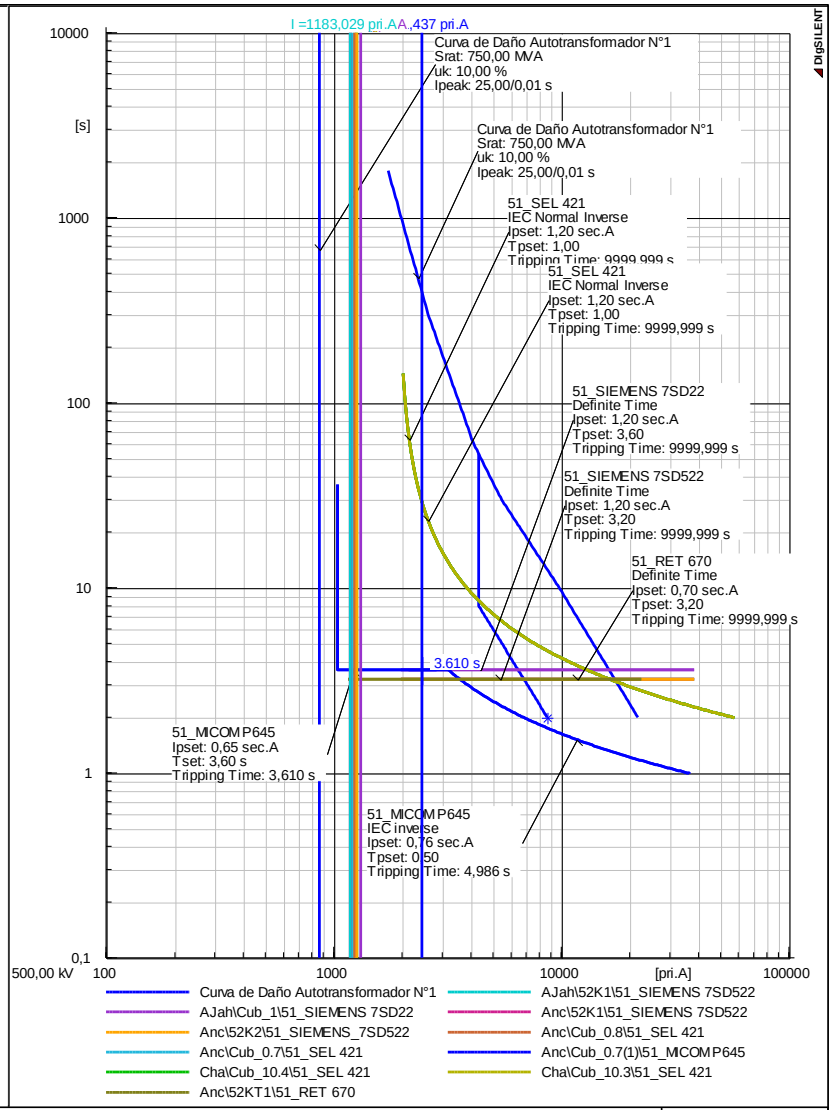

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:

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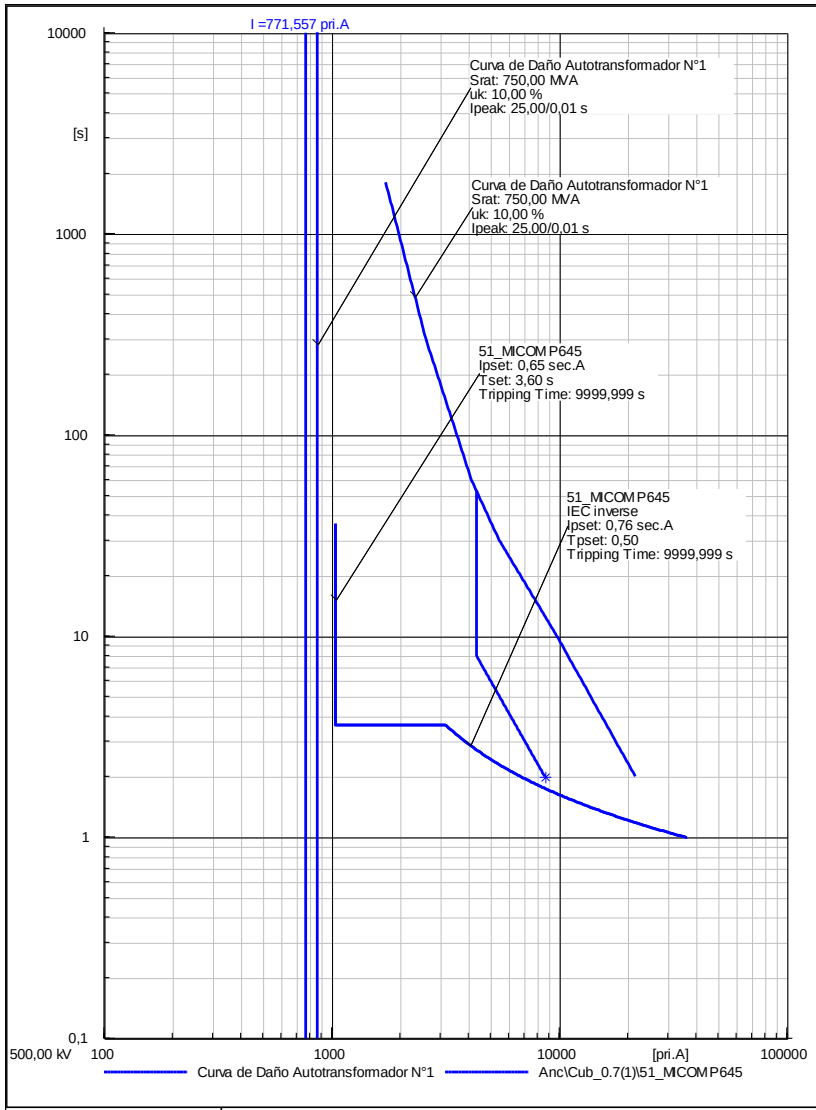

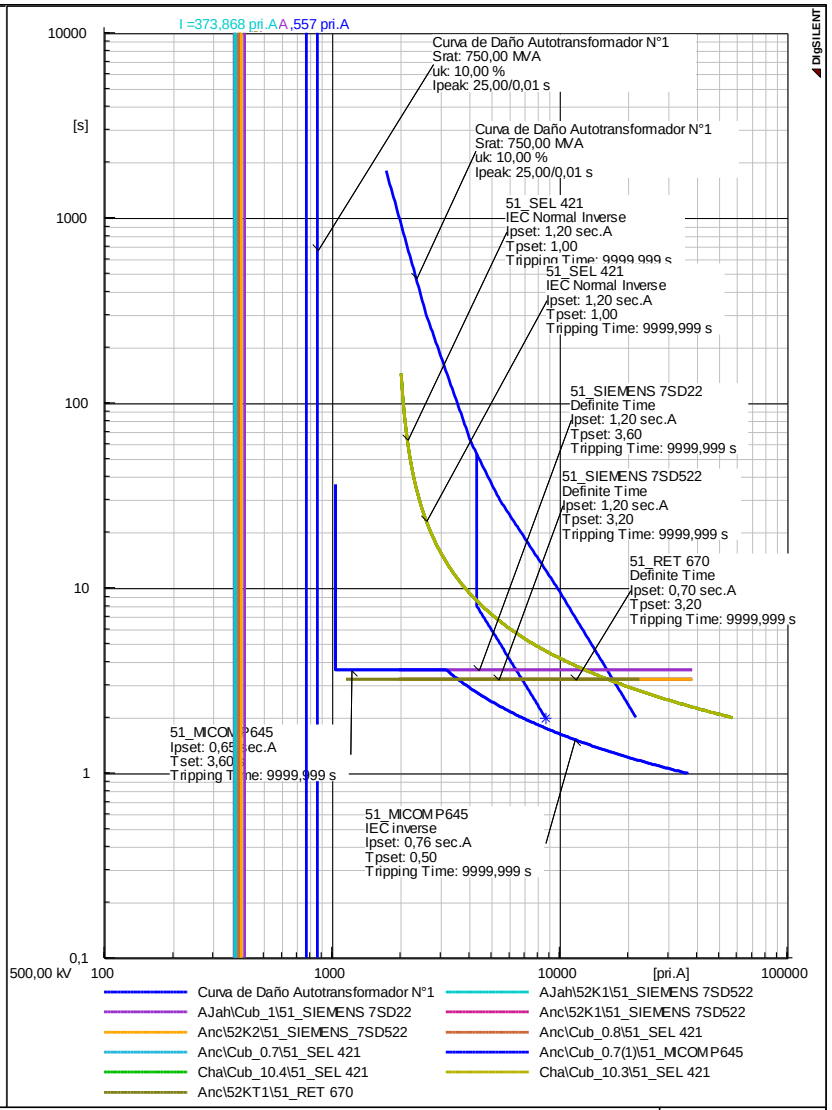

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

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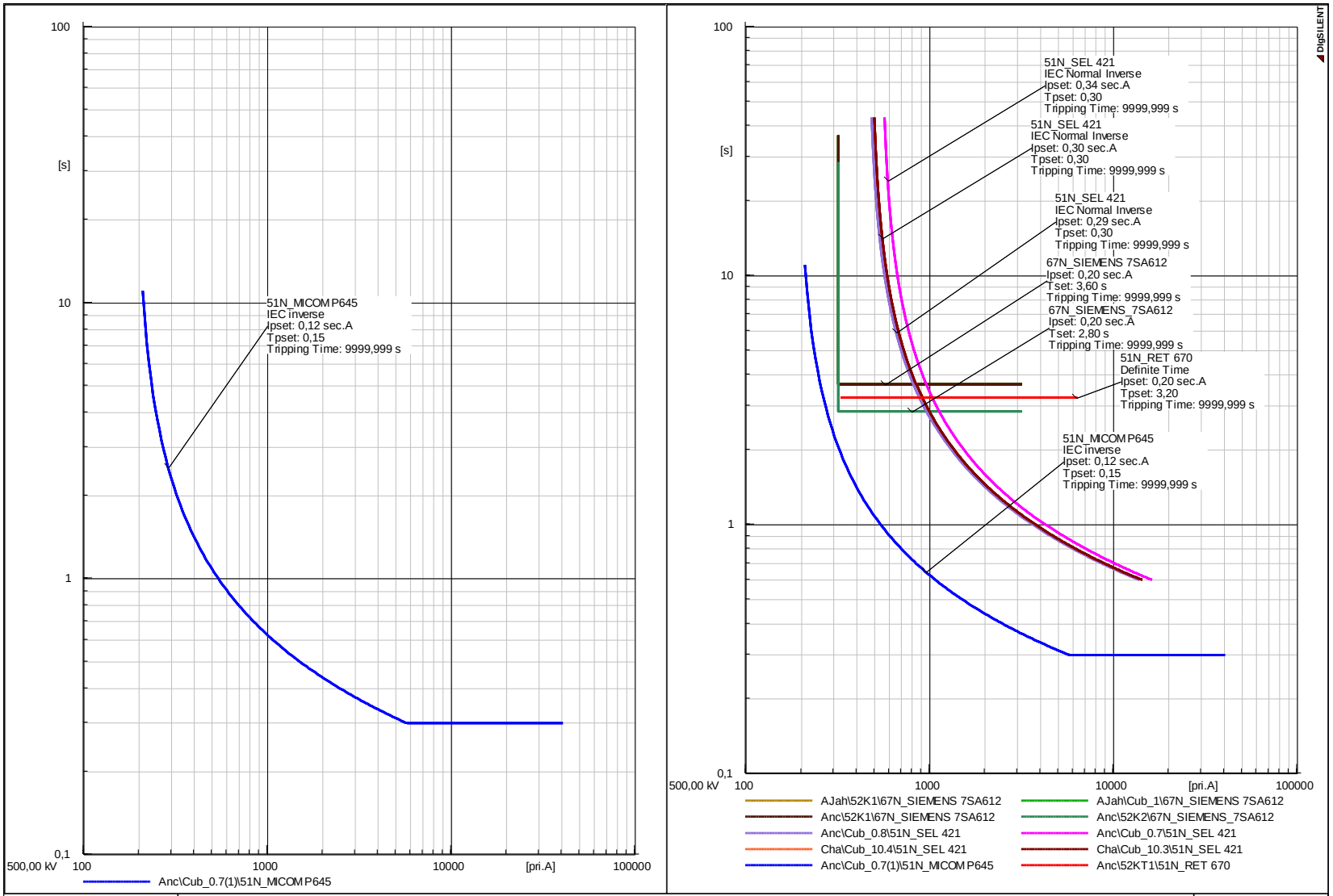
FUNCIÓN 51N LADO DE 500 KV



	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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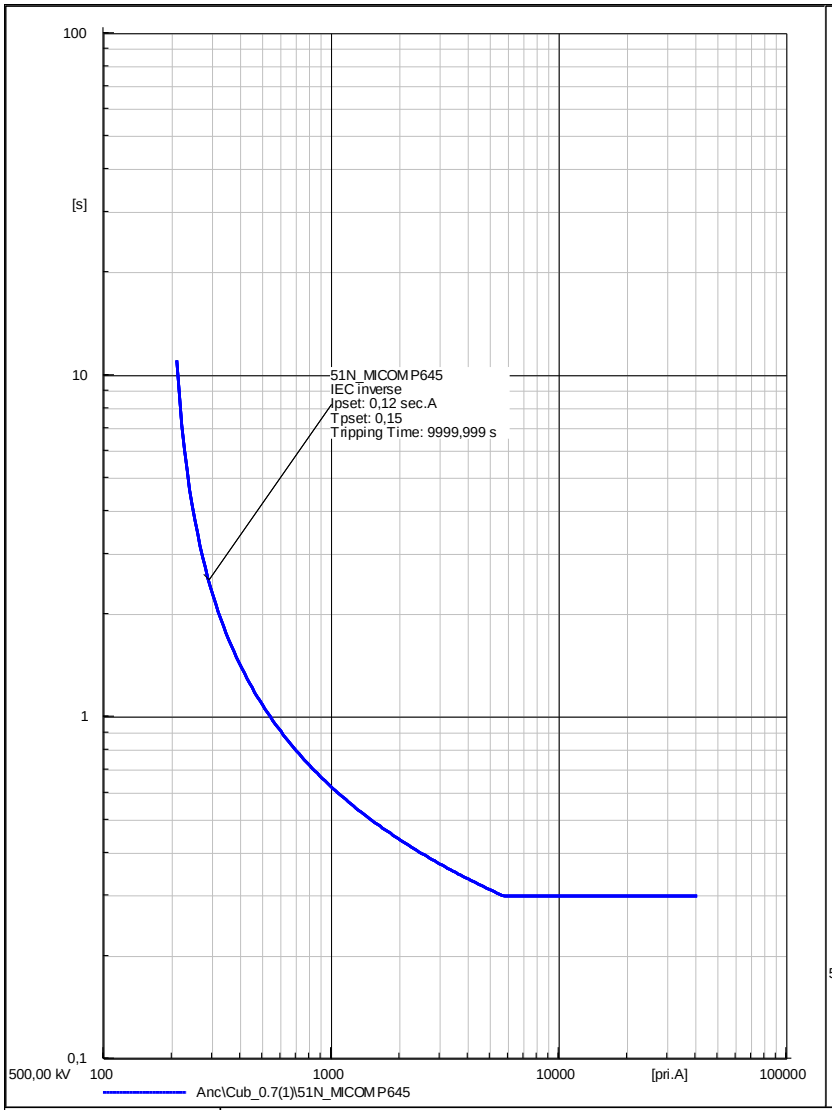
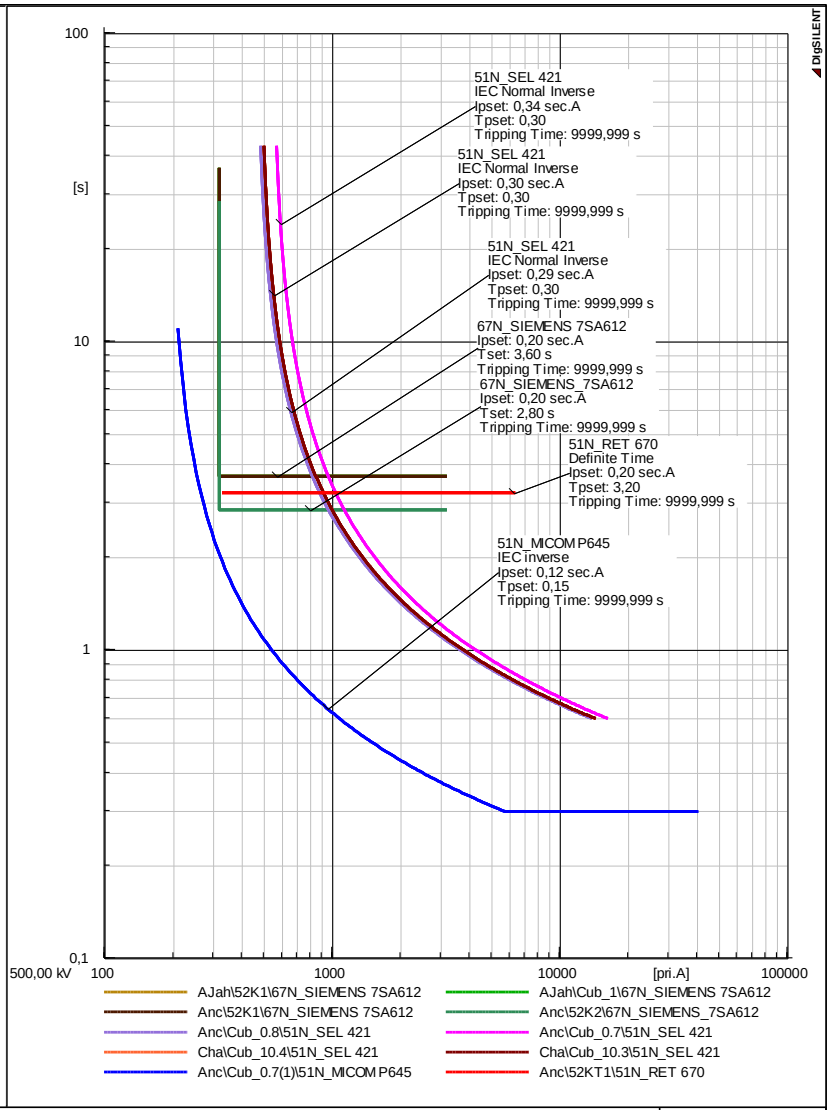
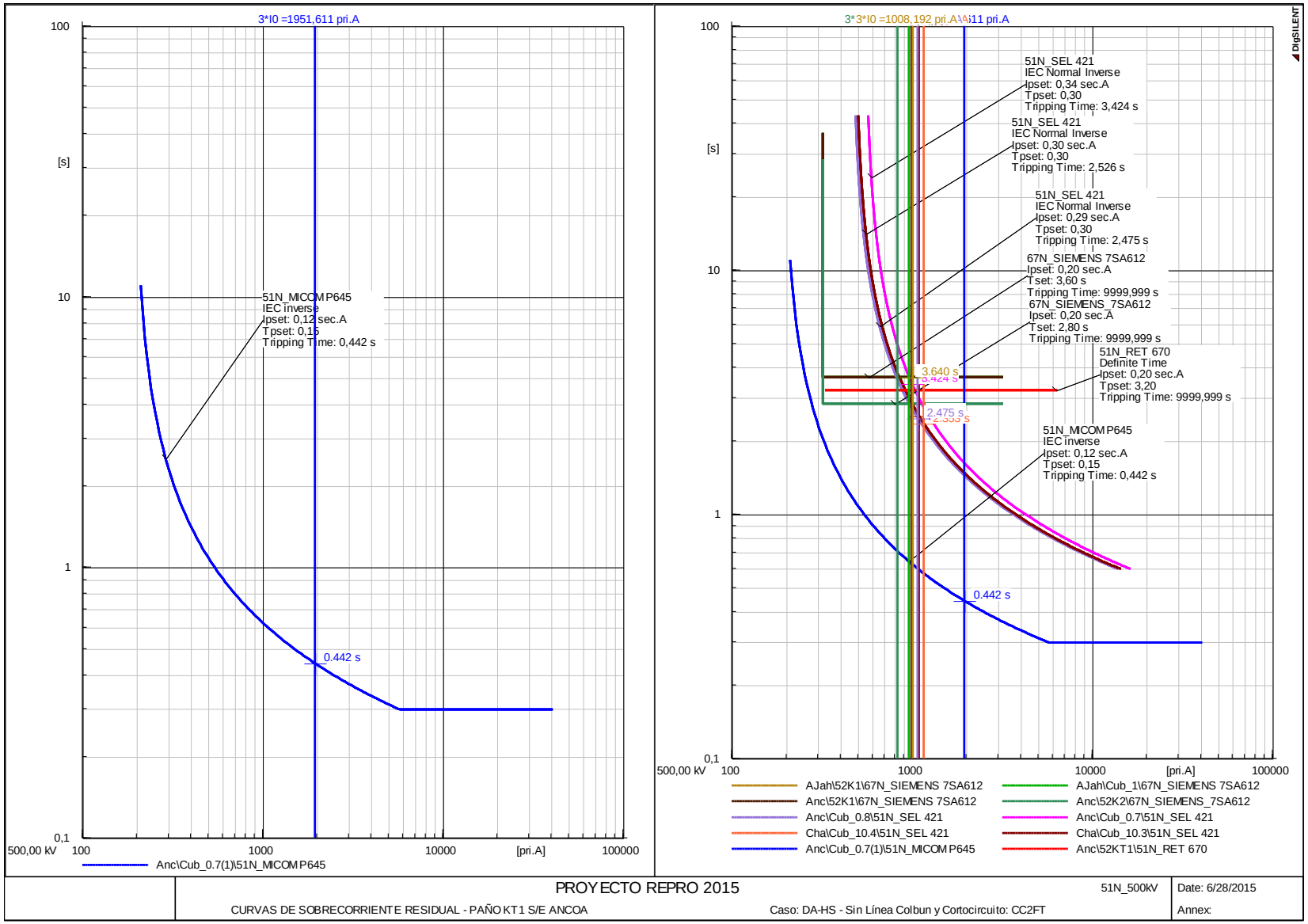




	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2F	Annex:



	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:

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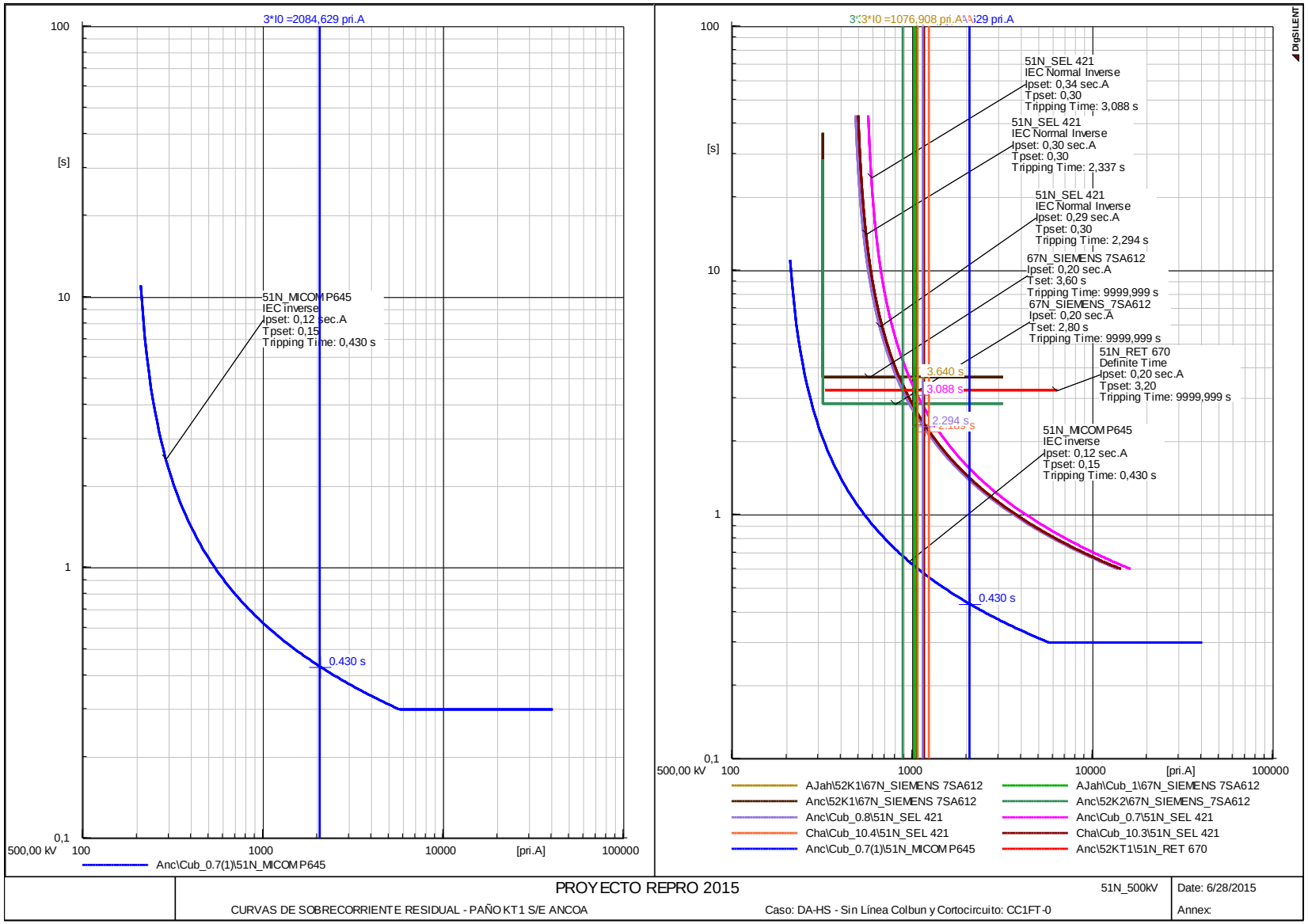

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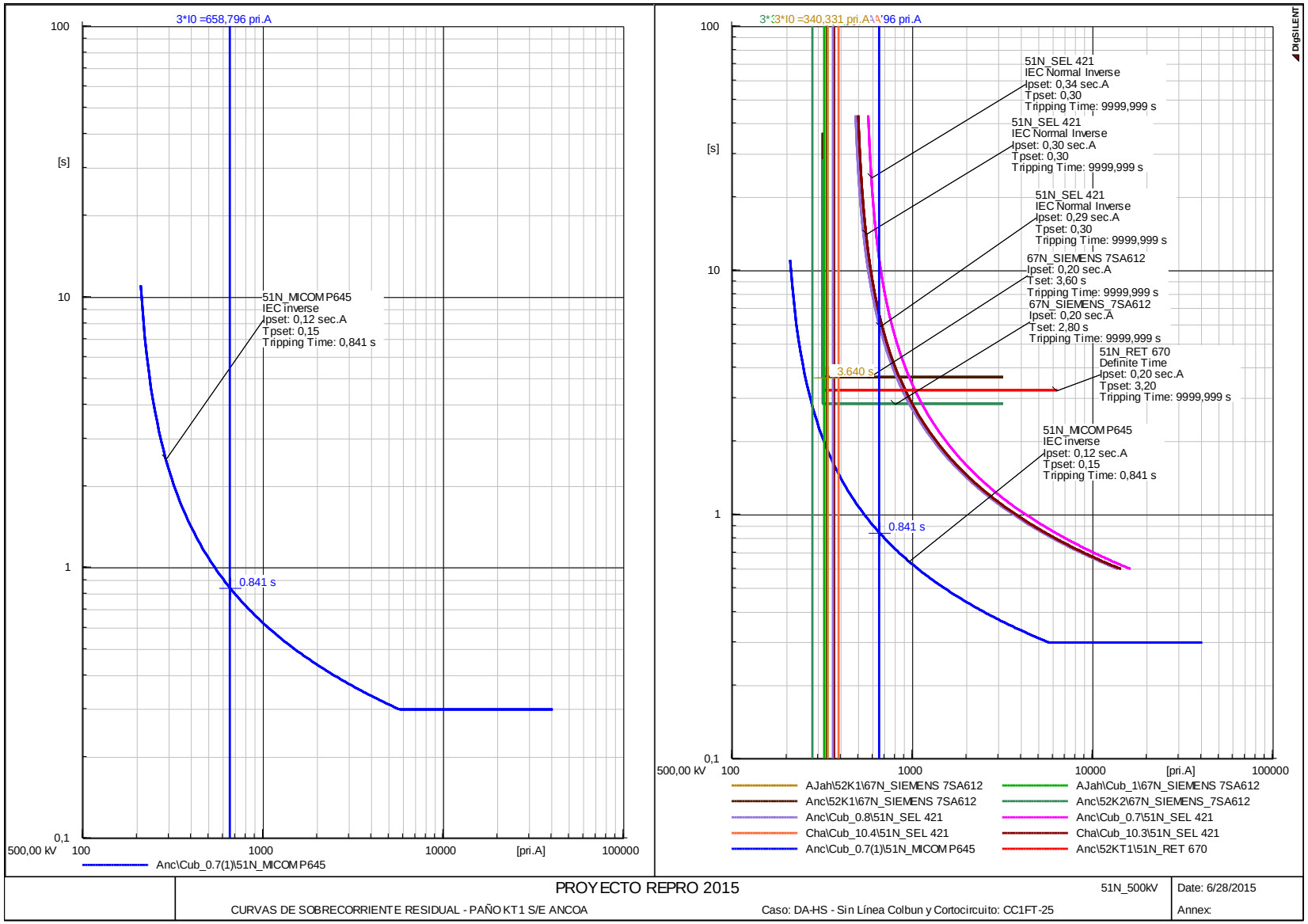

	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

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FALLA EN EL TERMINAL DE 230 KV DEL AUTOTRANSFORMADOR N°1

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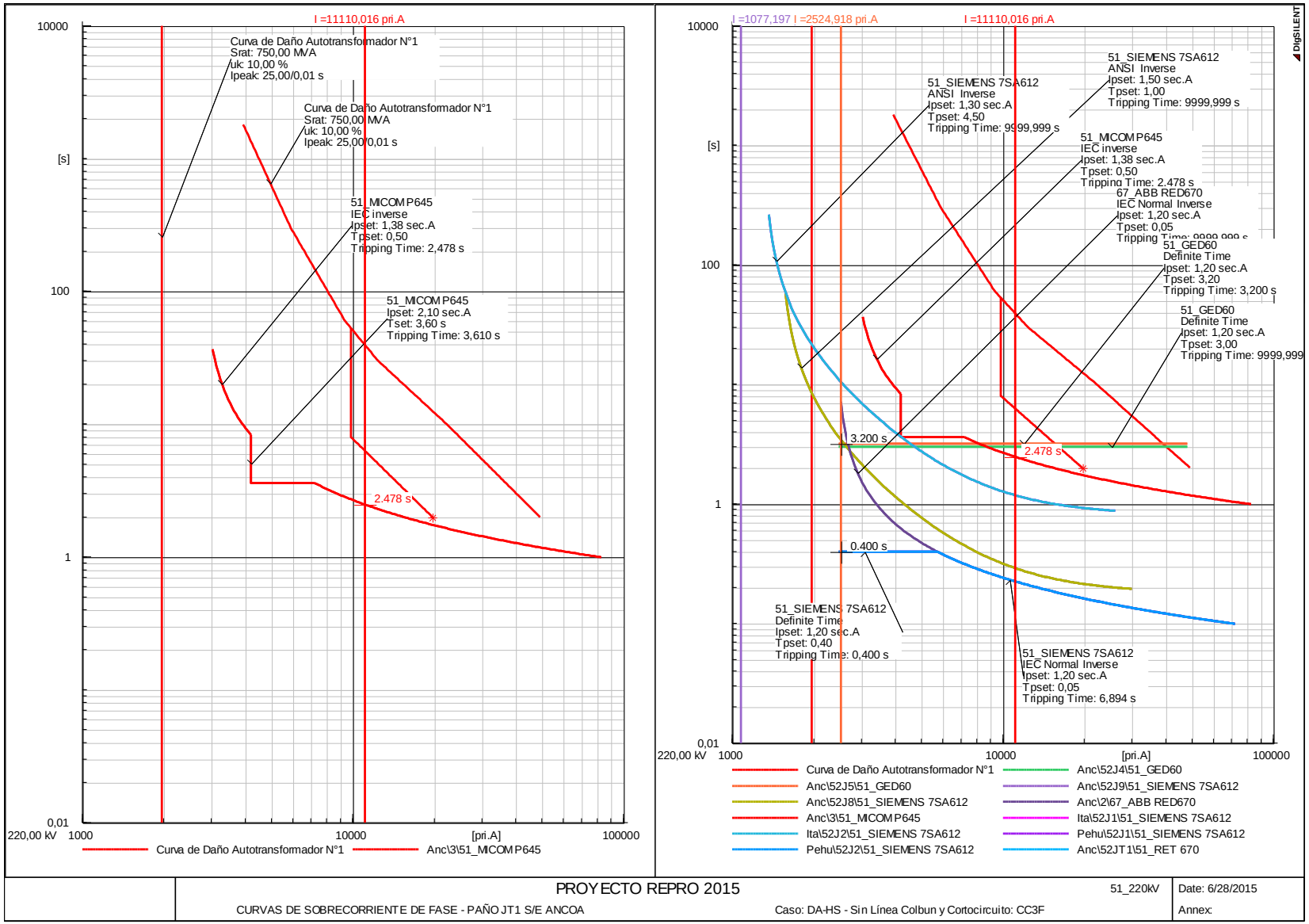
FUNCIÓN 51 LADO DE 220 KV



	PROYECTO REPRO 2015	51_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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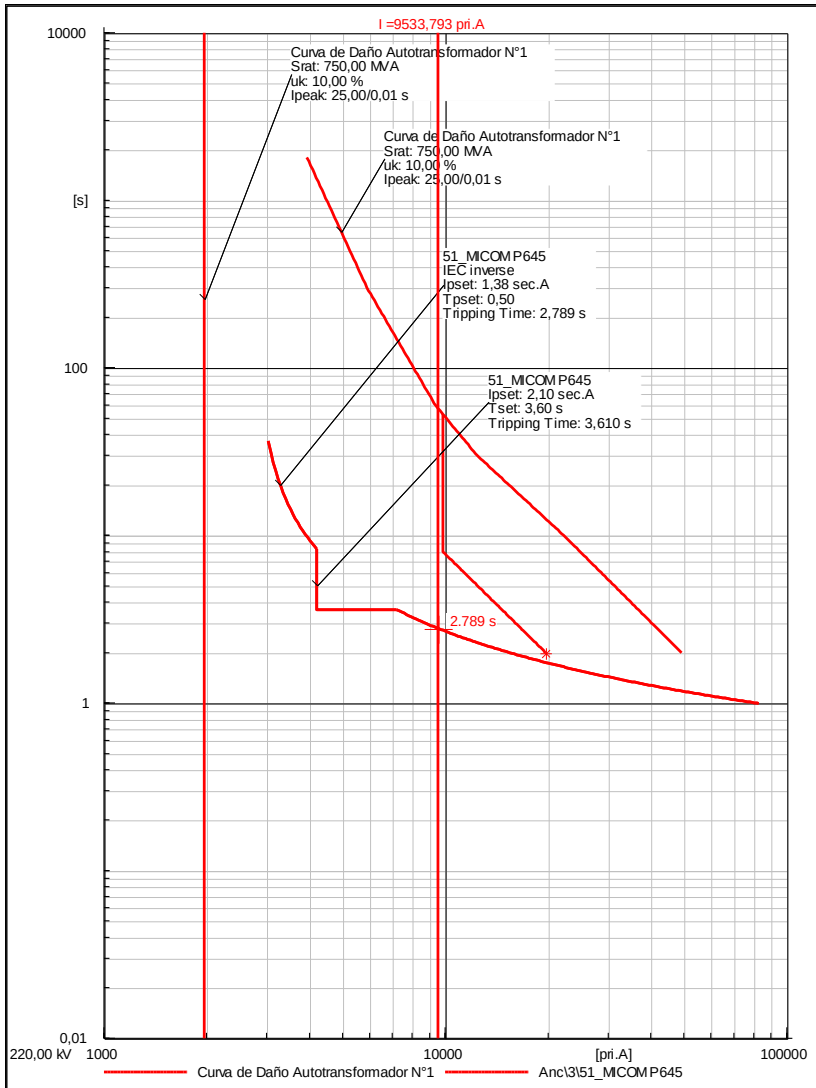

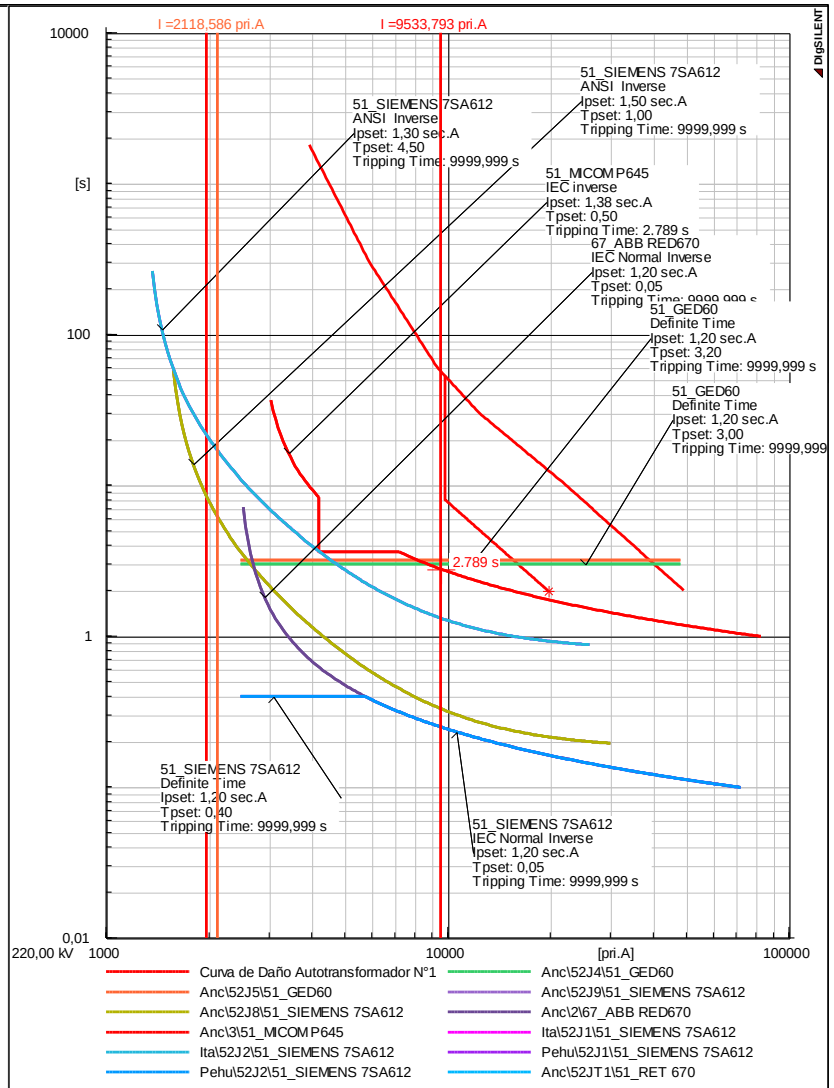

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2F	Annex:

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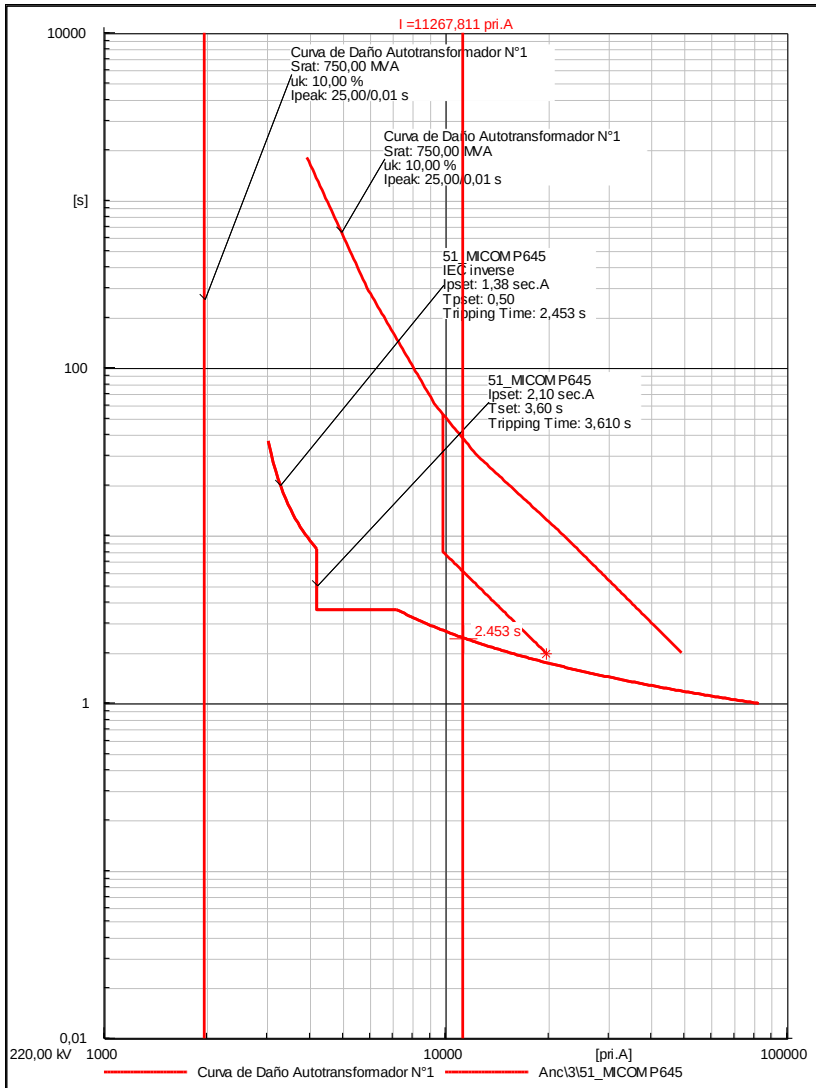

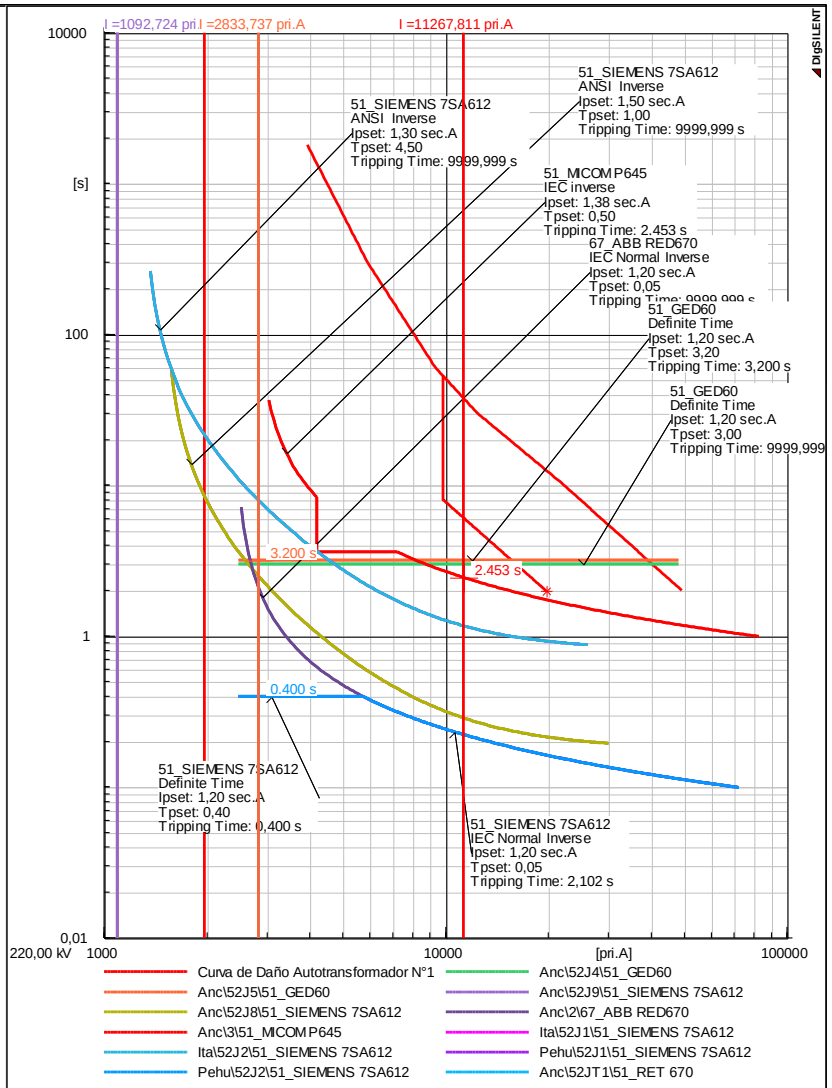

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:

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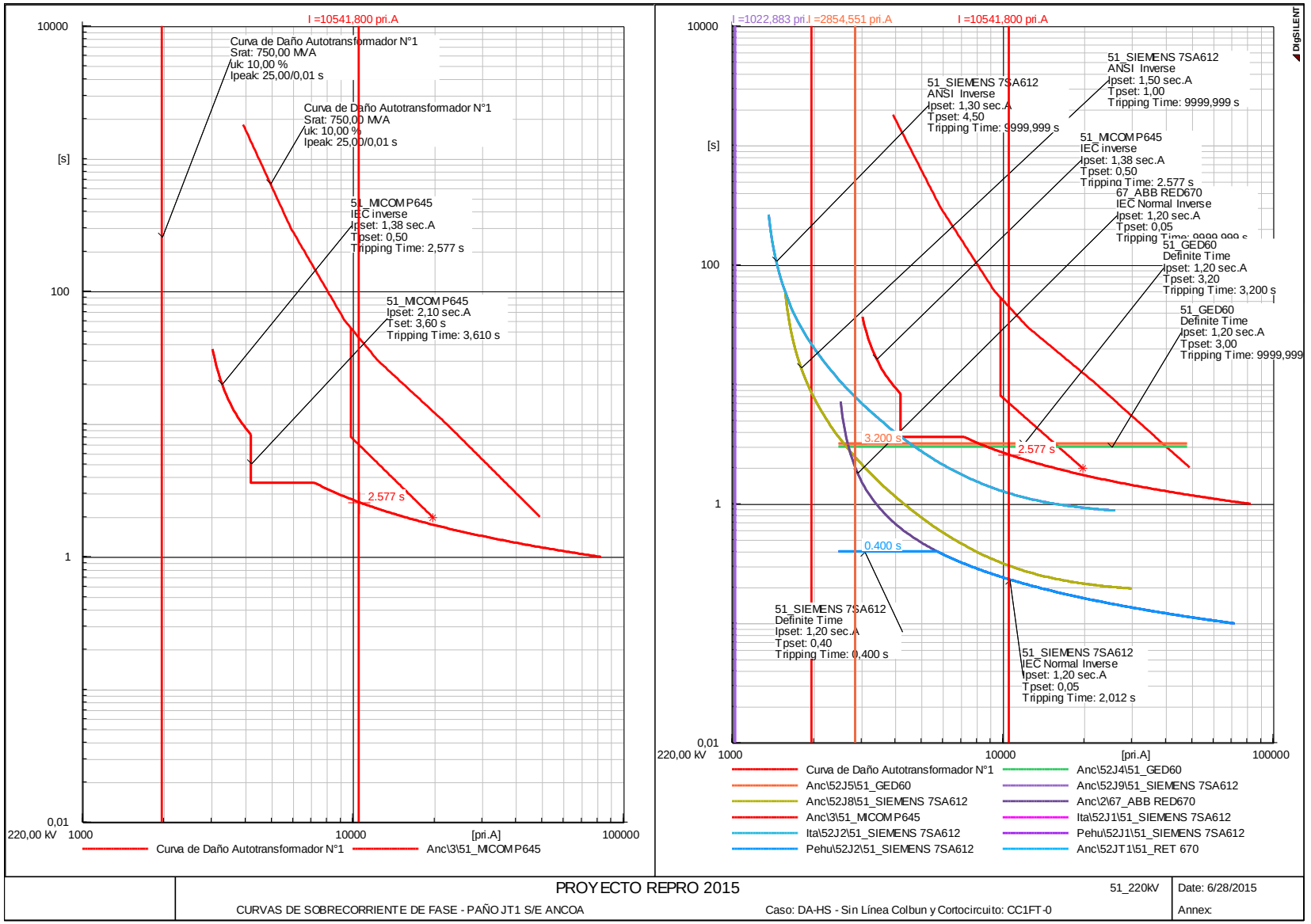

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:

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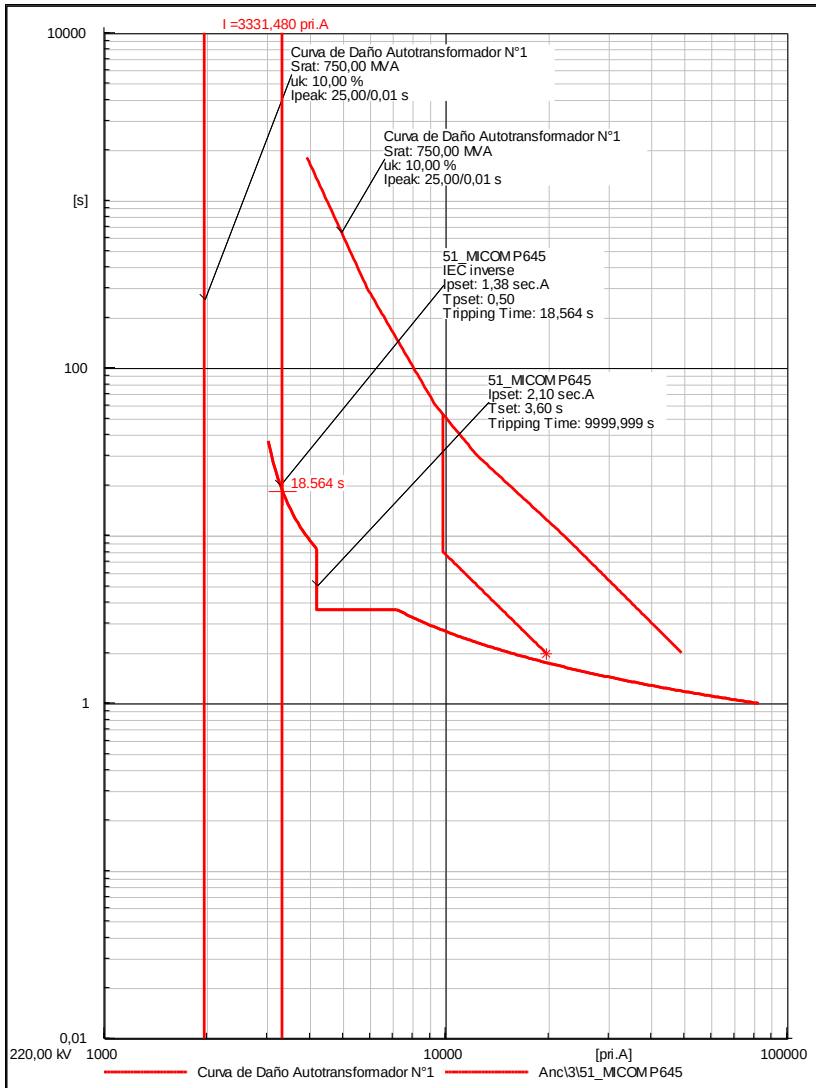

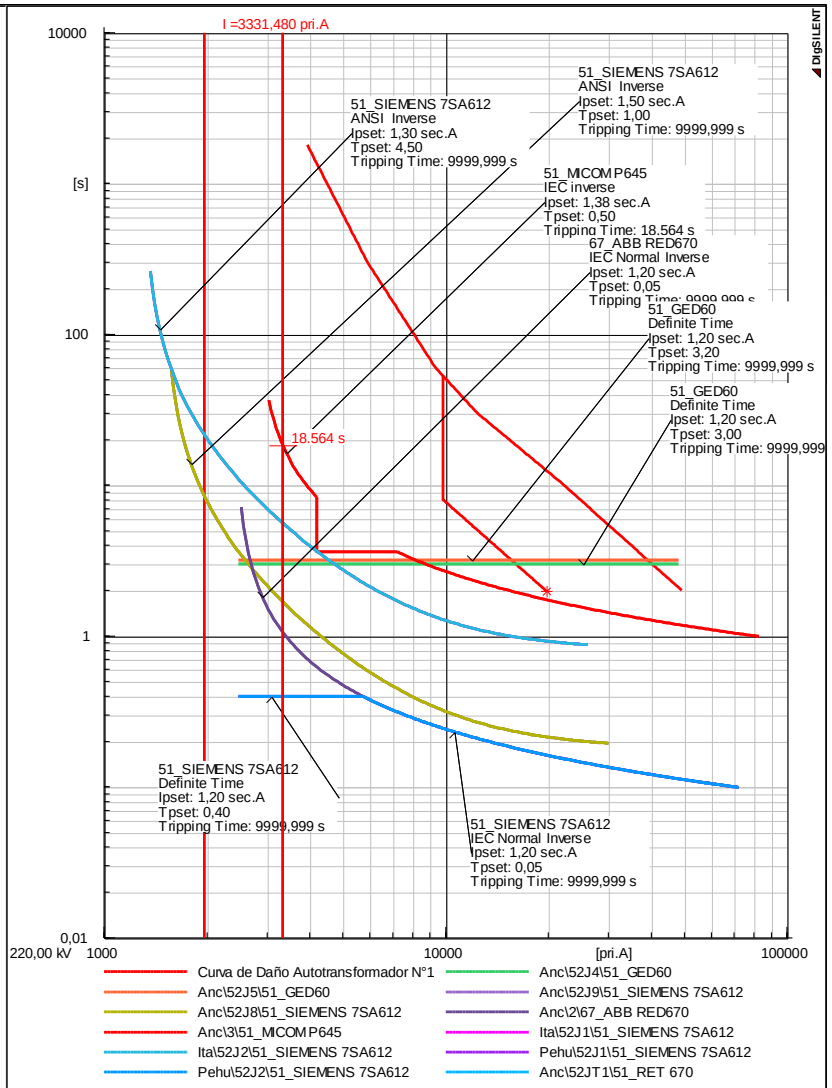

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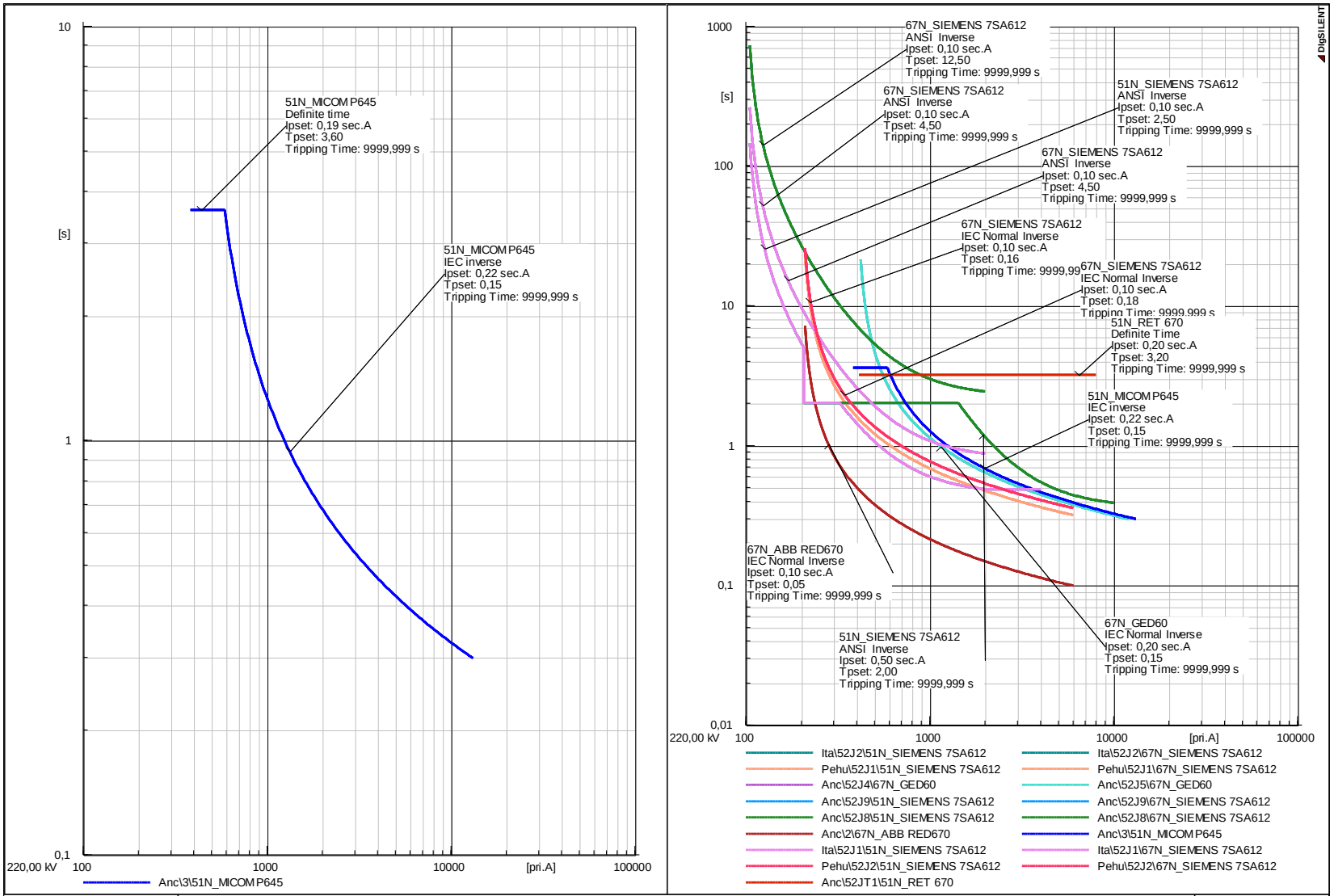
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

FUNCIÓN 51N LADO DE 220 KV



	PROYECTO REPRO 2015	51N_220kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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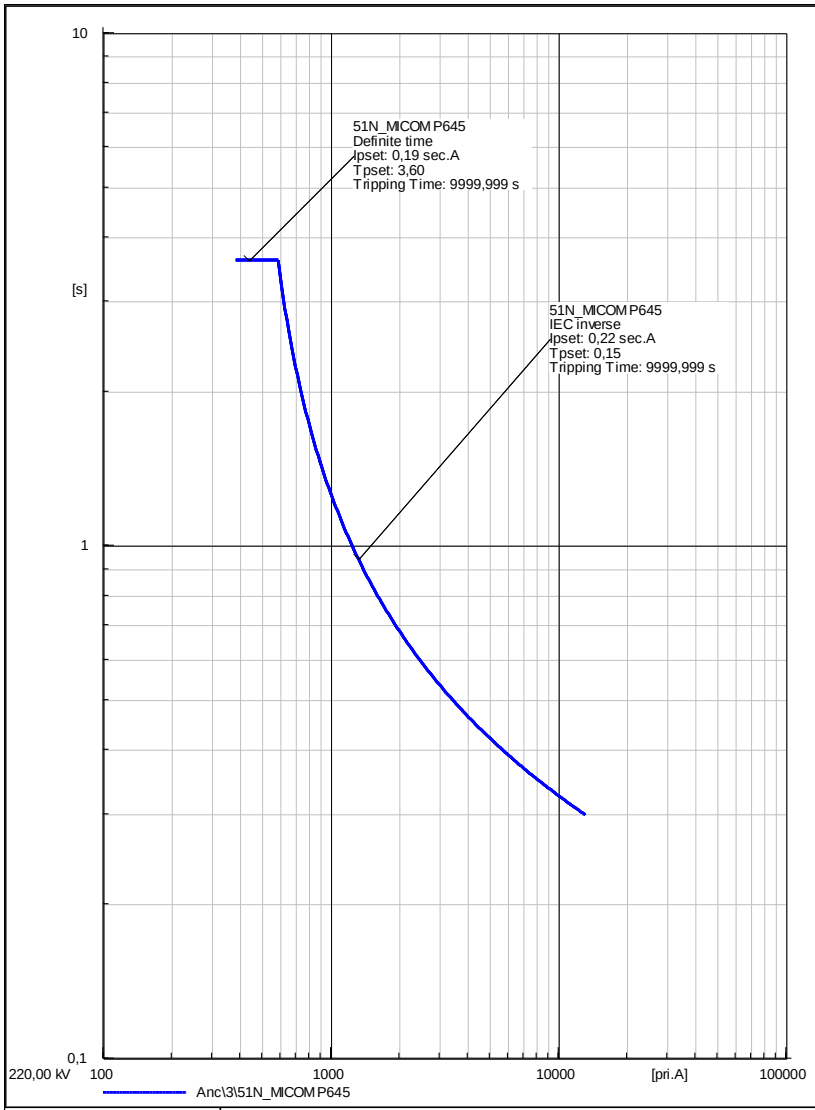

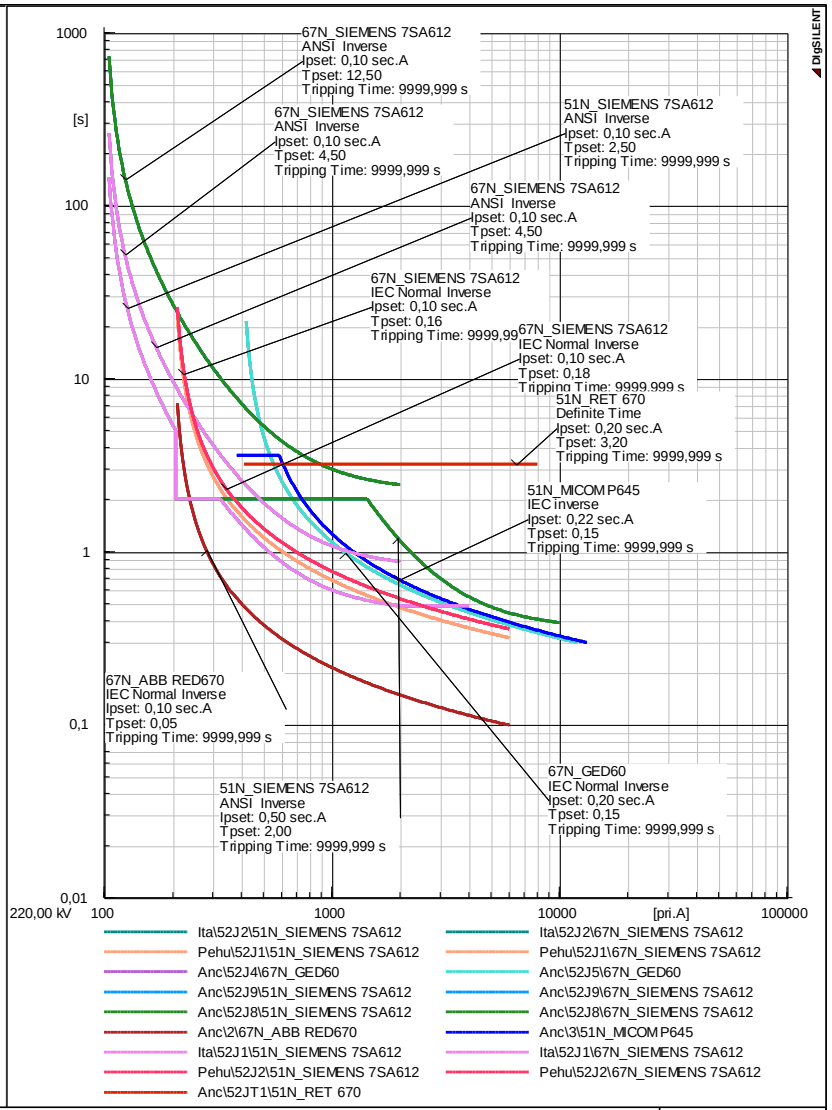

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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2F	Annex:

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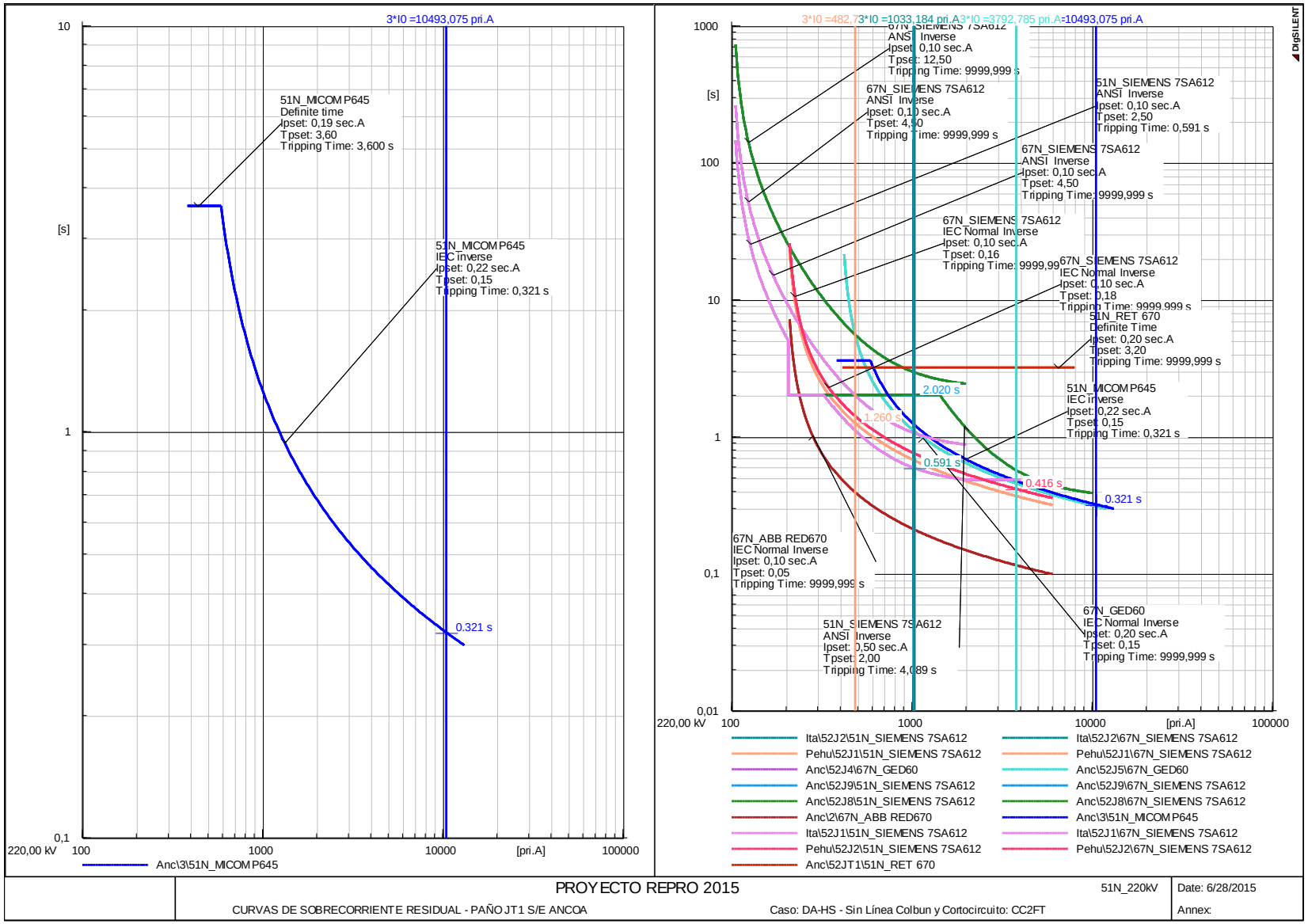

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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:

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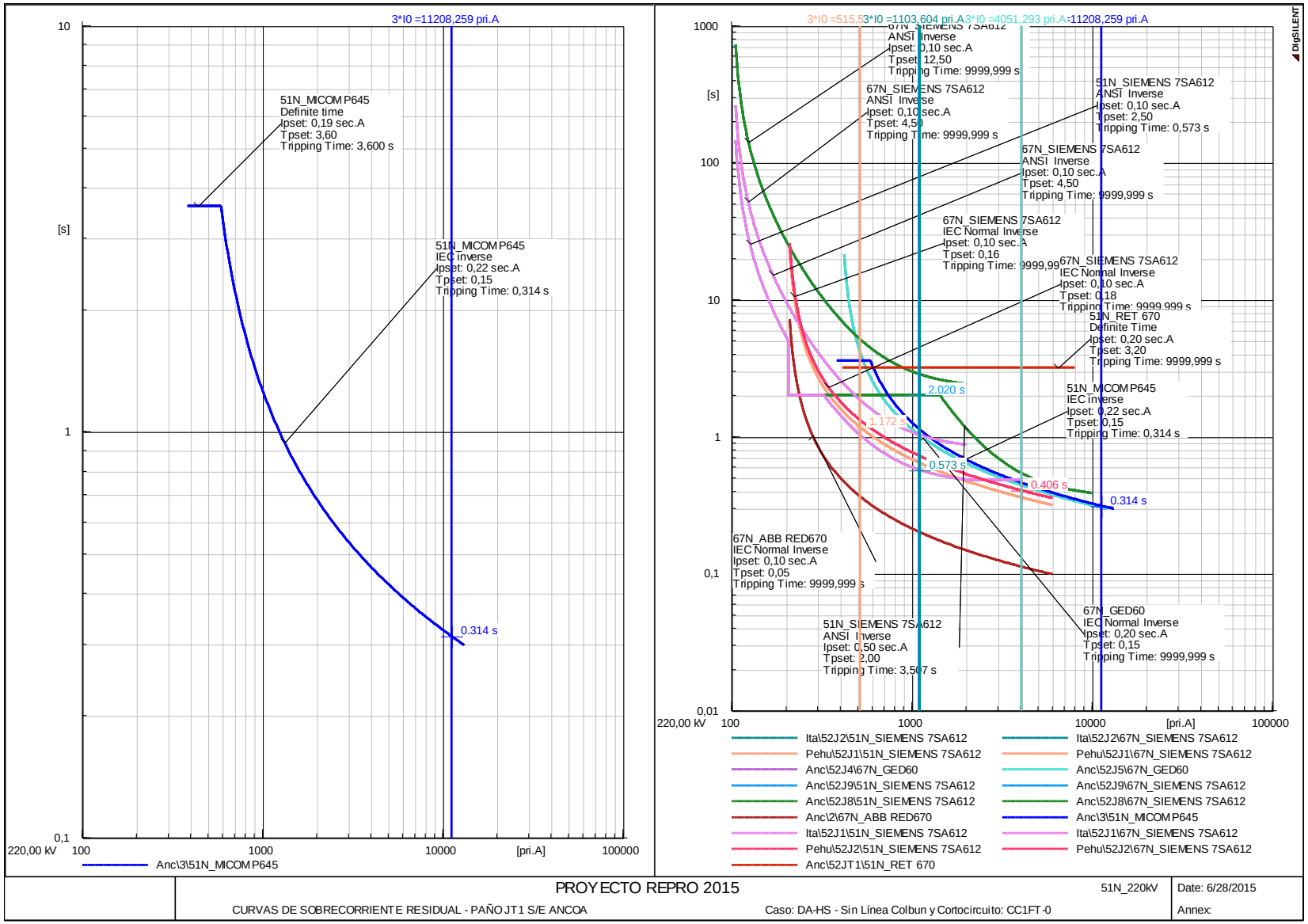

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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:

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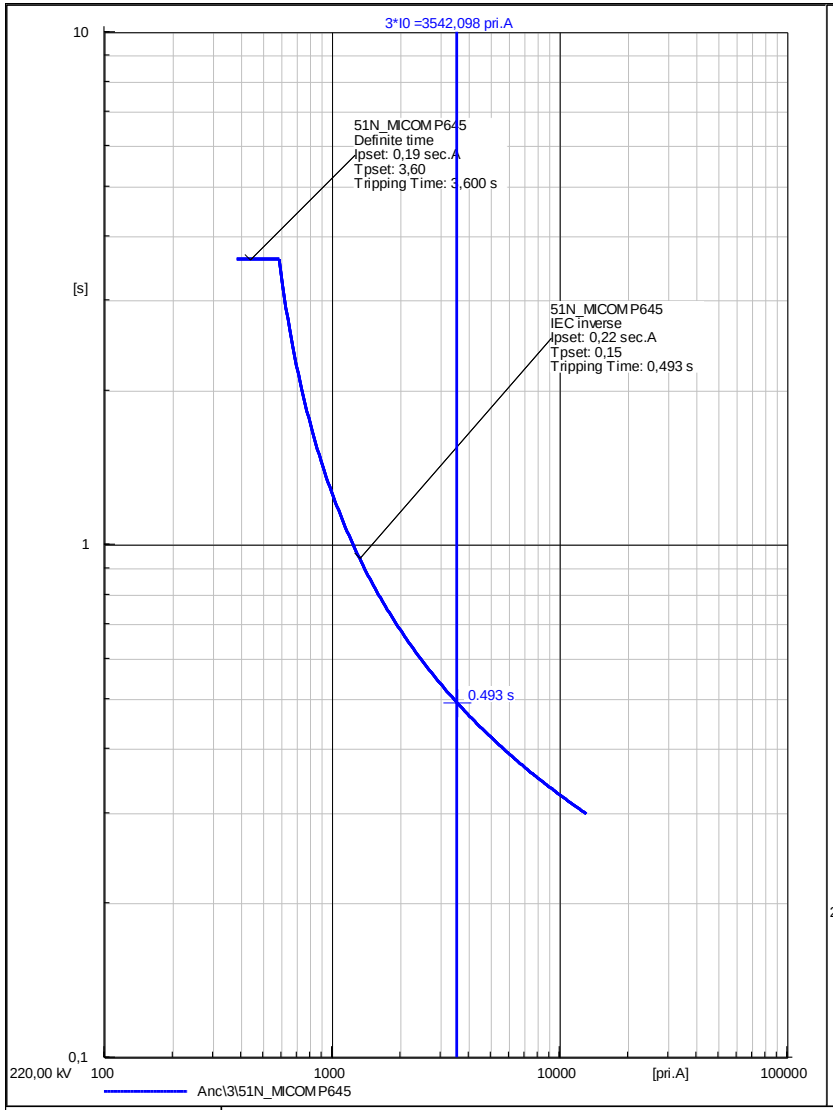

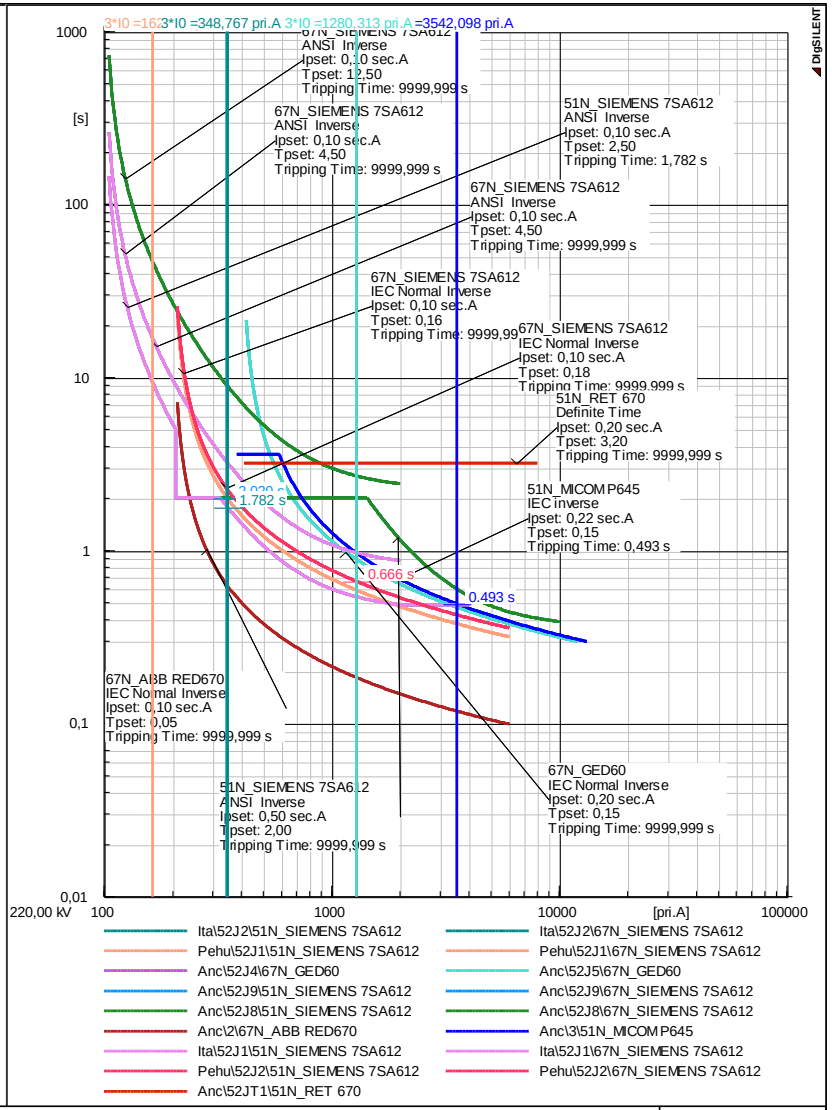

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	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO JT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

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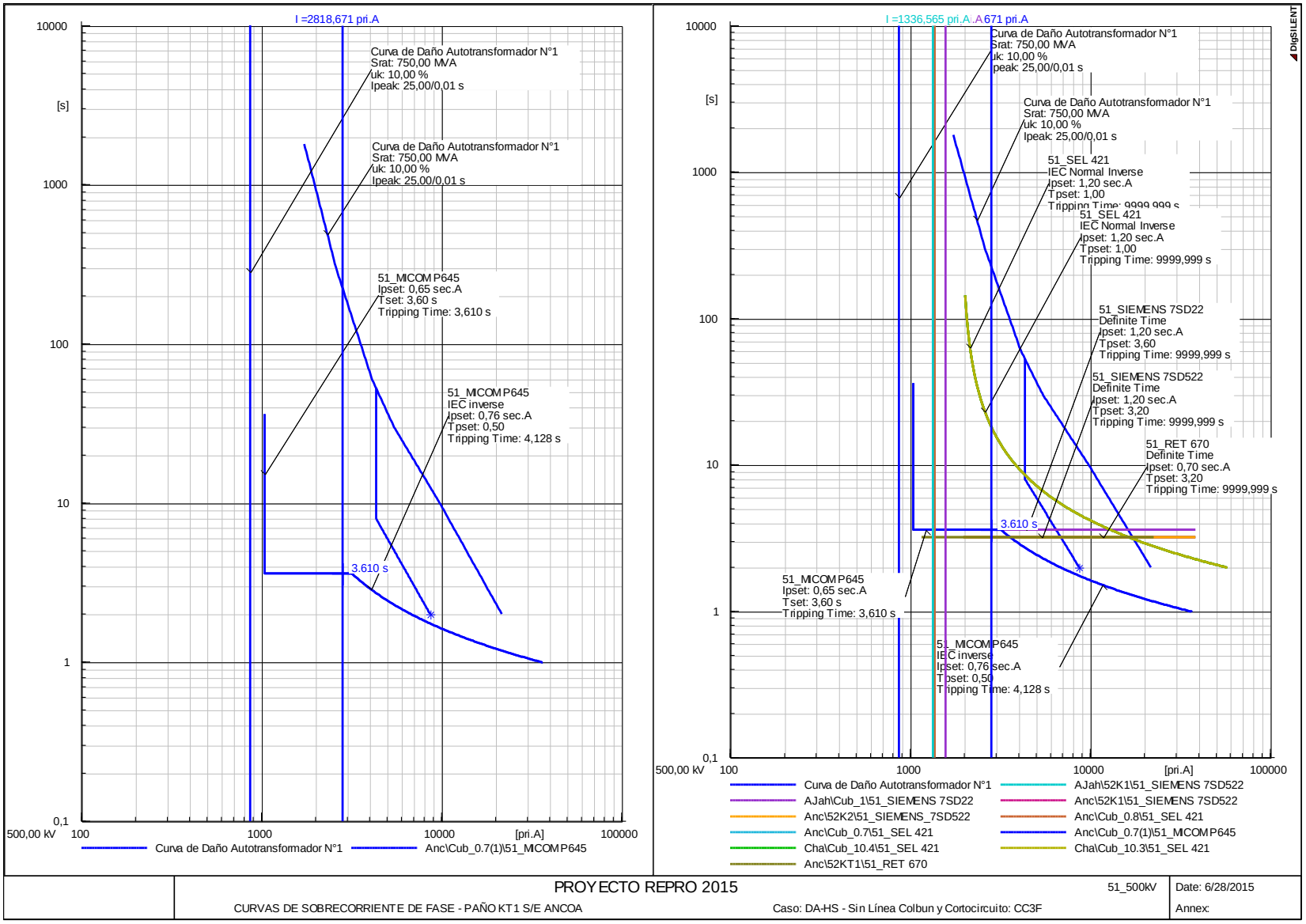
FUNCIÓN 51 LADO DE 500 KV



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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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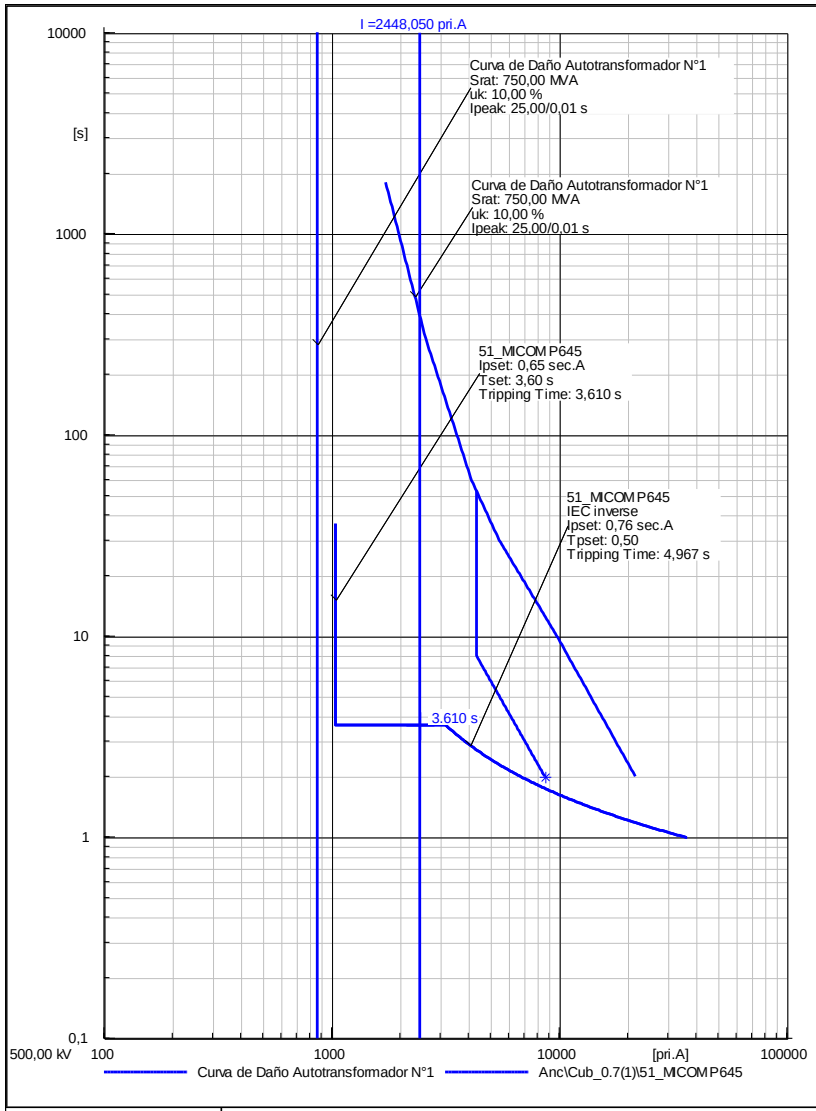

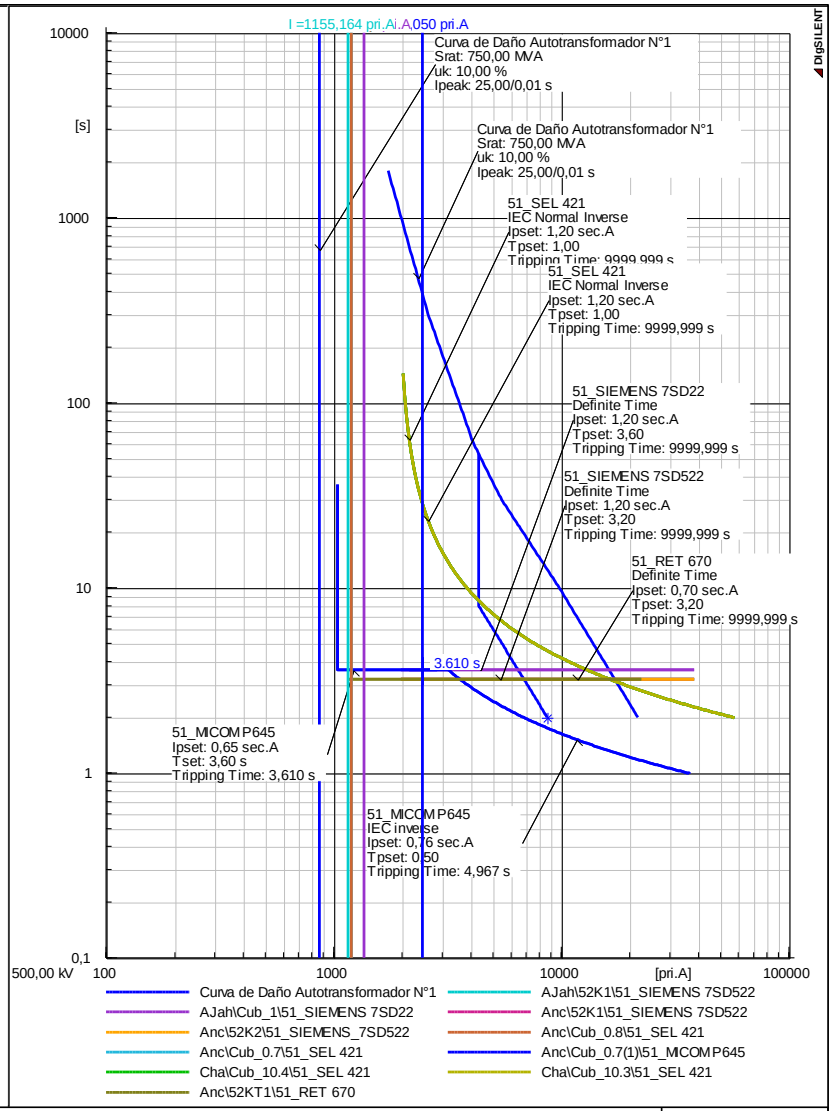

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	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2F	Annex:

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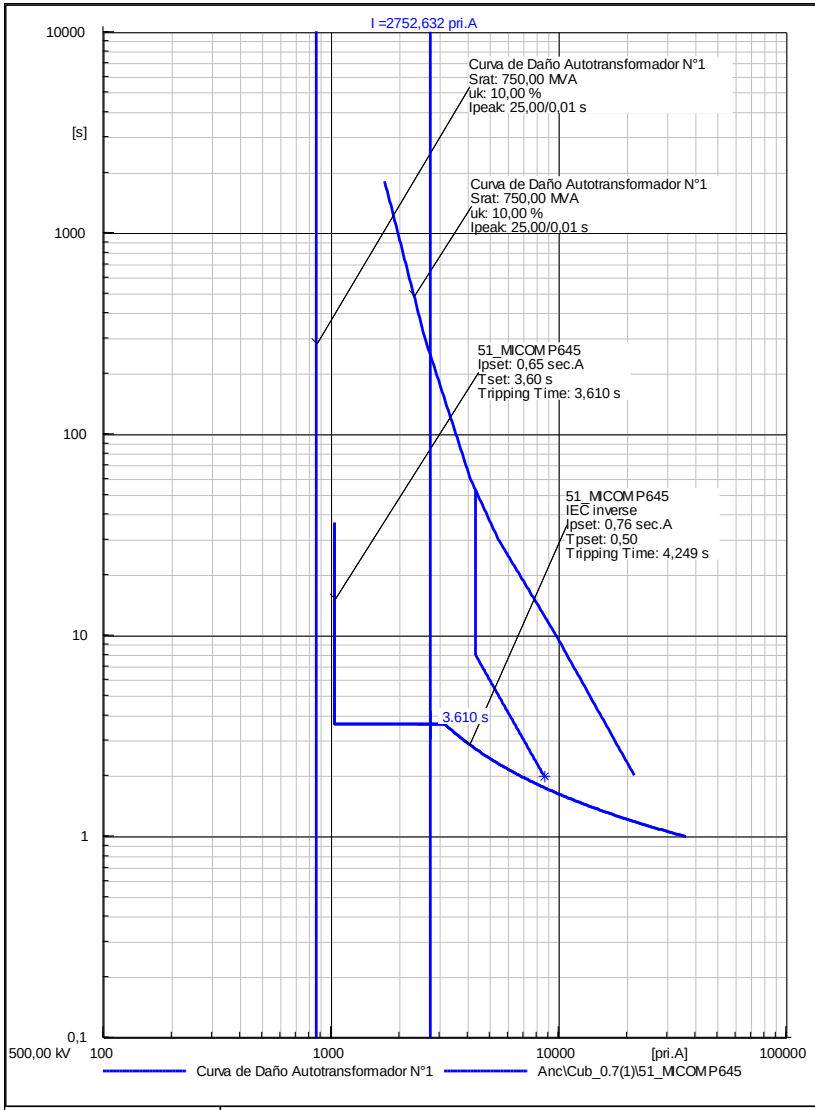

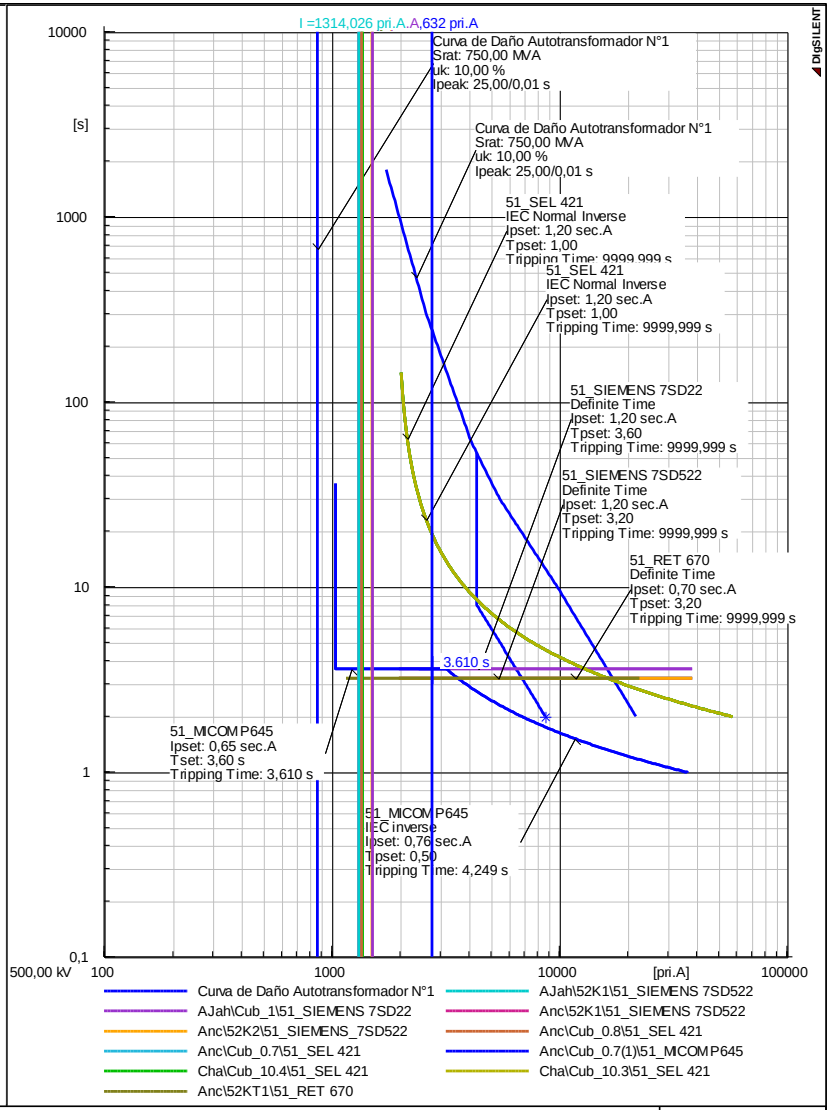

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:

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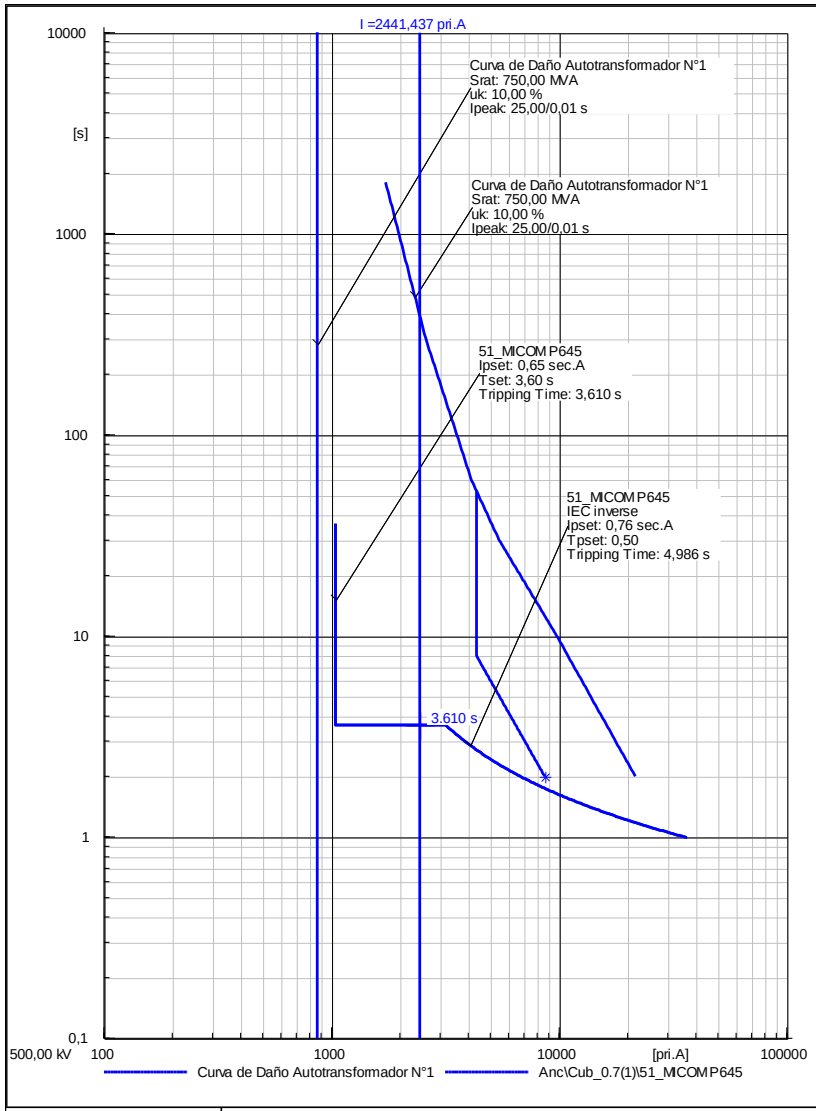

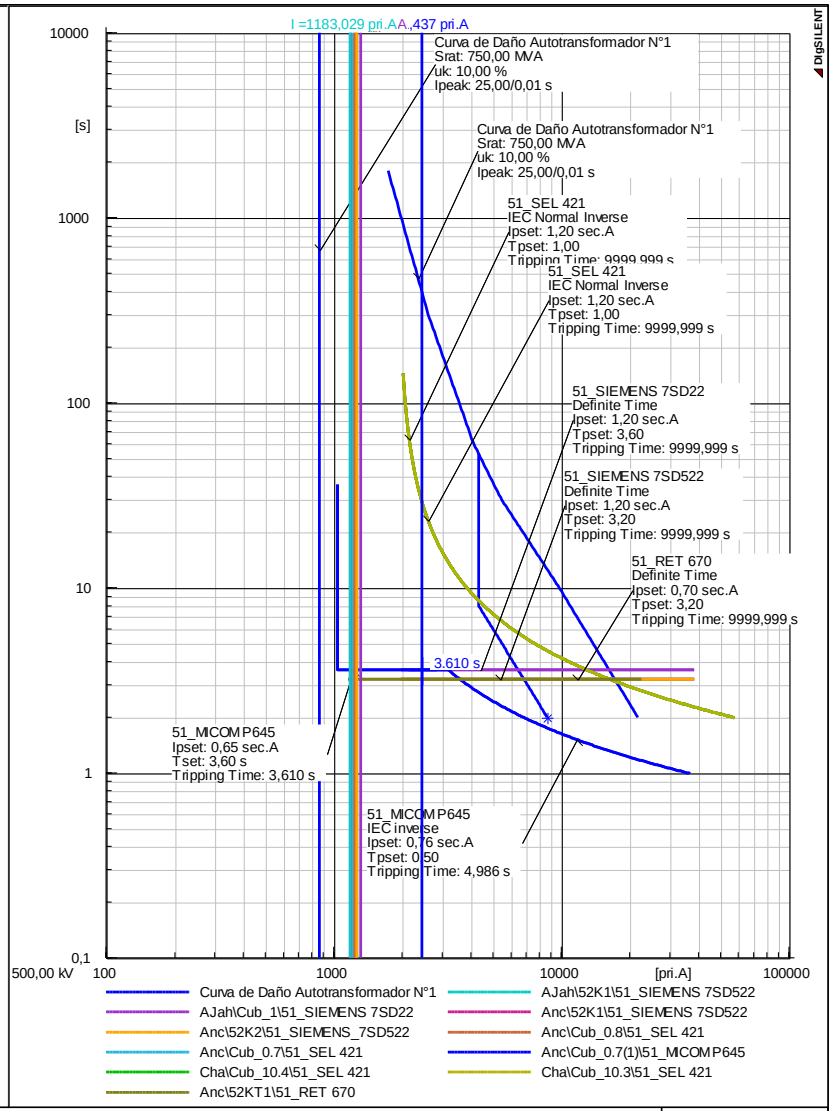

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-0	Annex:

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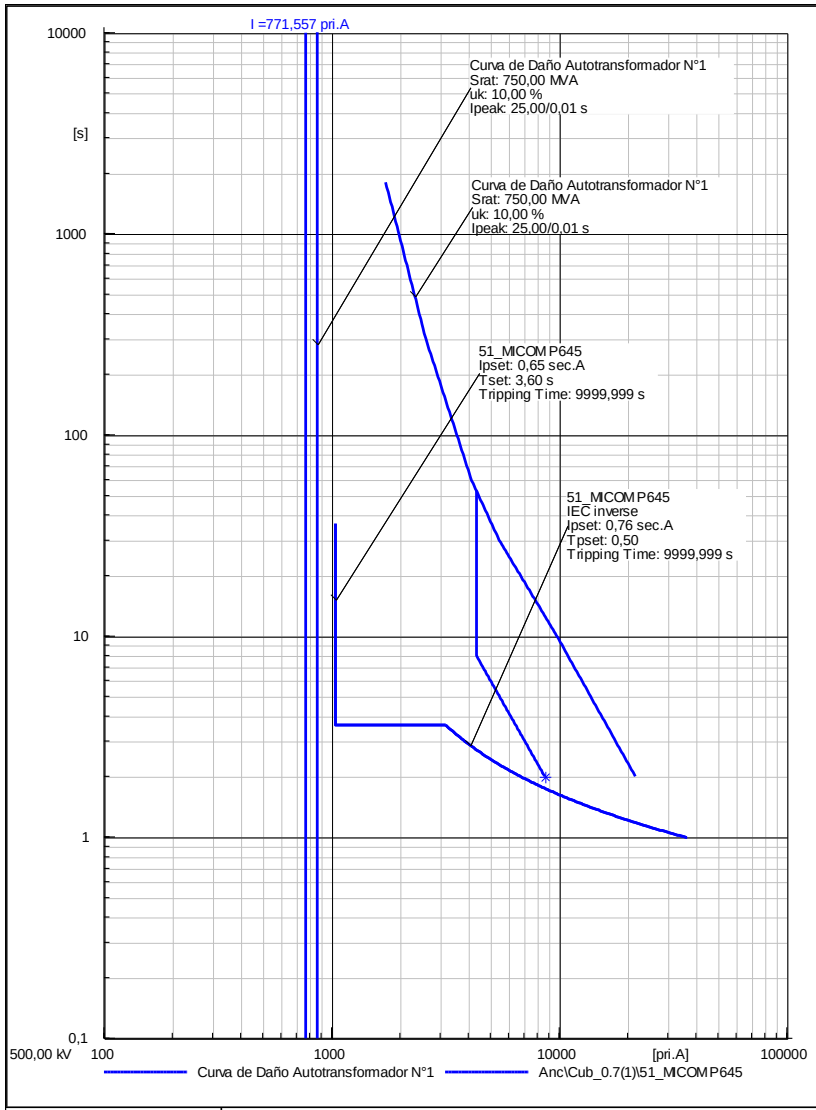

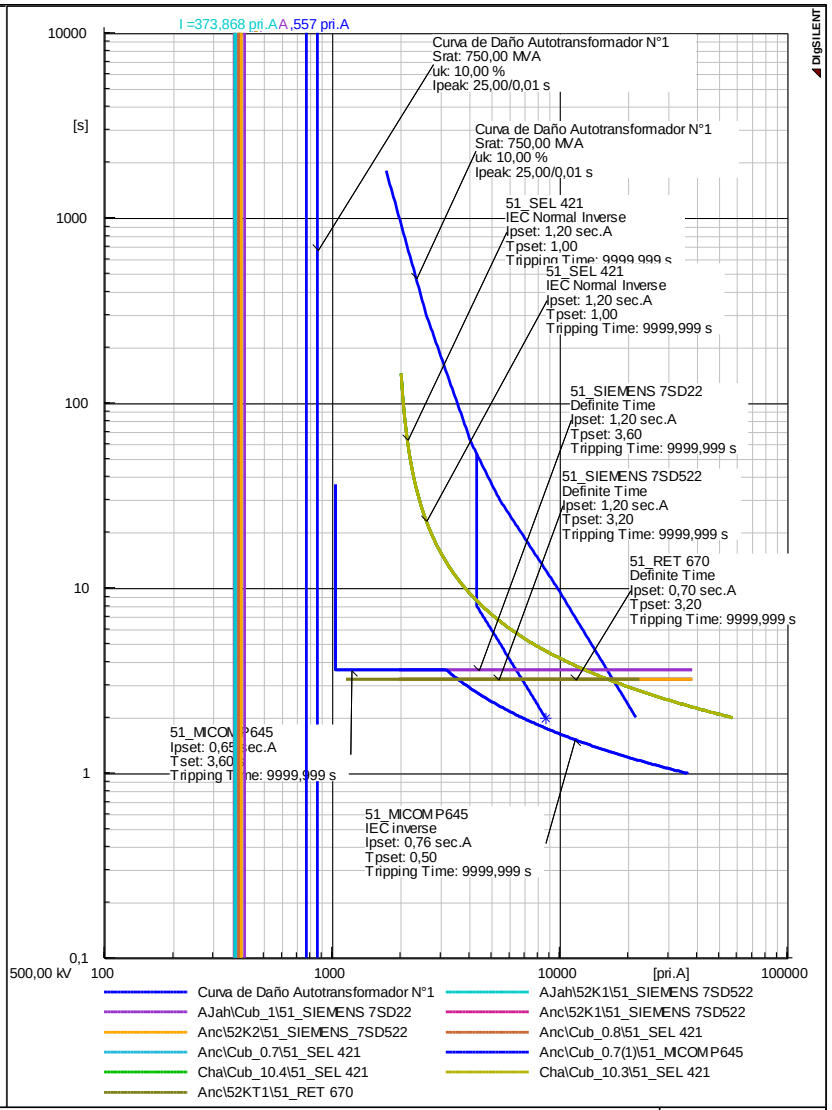

	PROYECTO REPRO 2015	51_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE DE FASE - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

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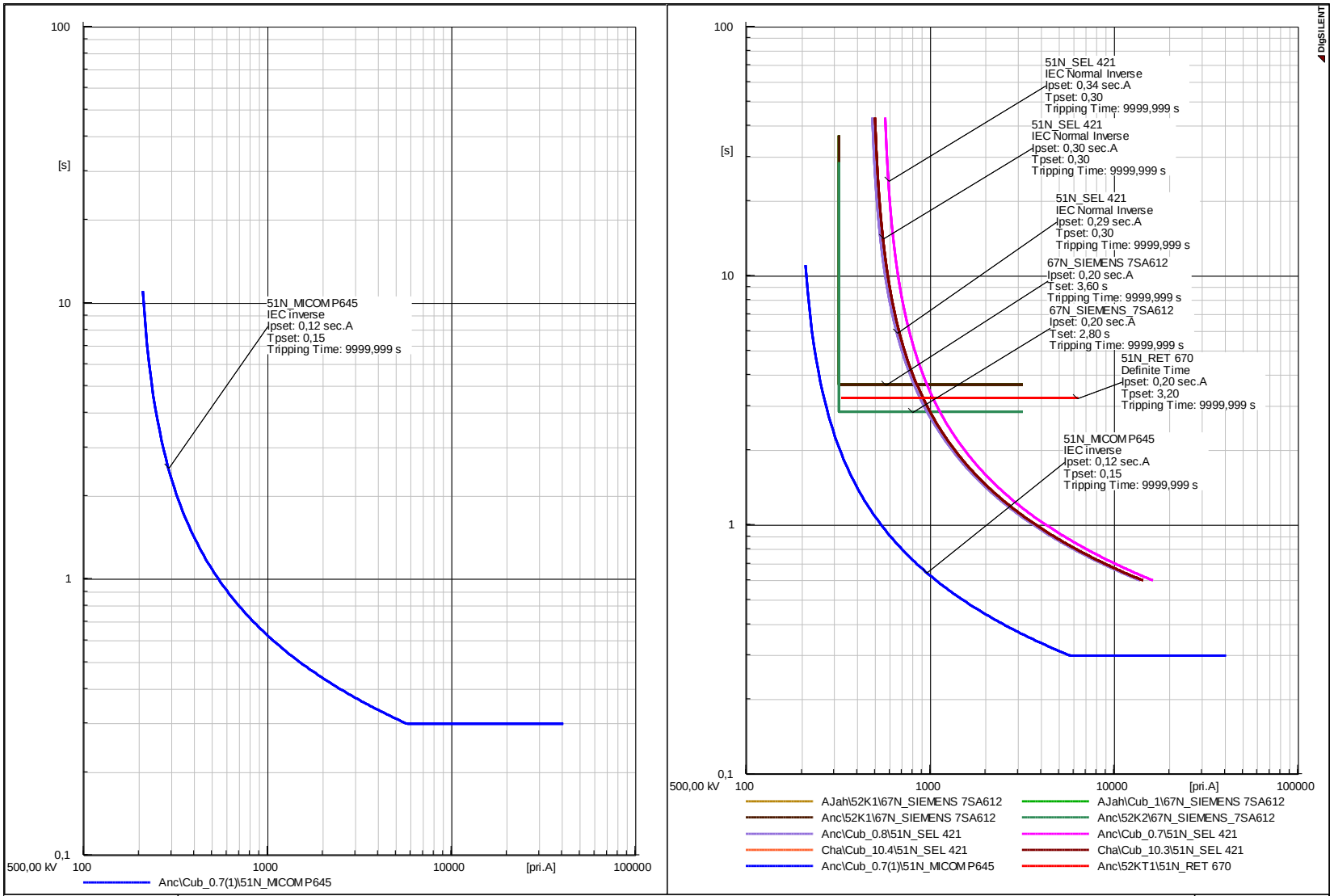
FUNCIÓN 51N LADO DE 500 KV



	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC3F	Annex:

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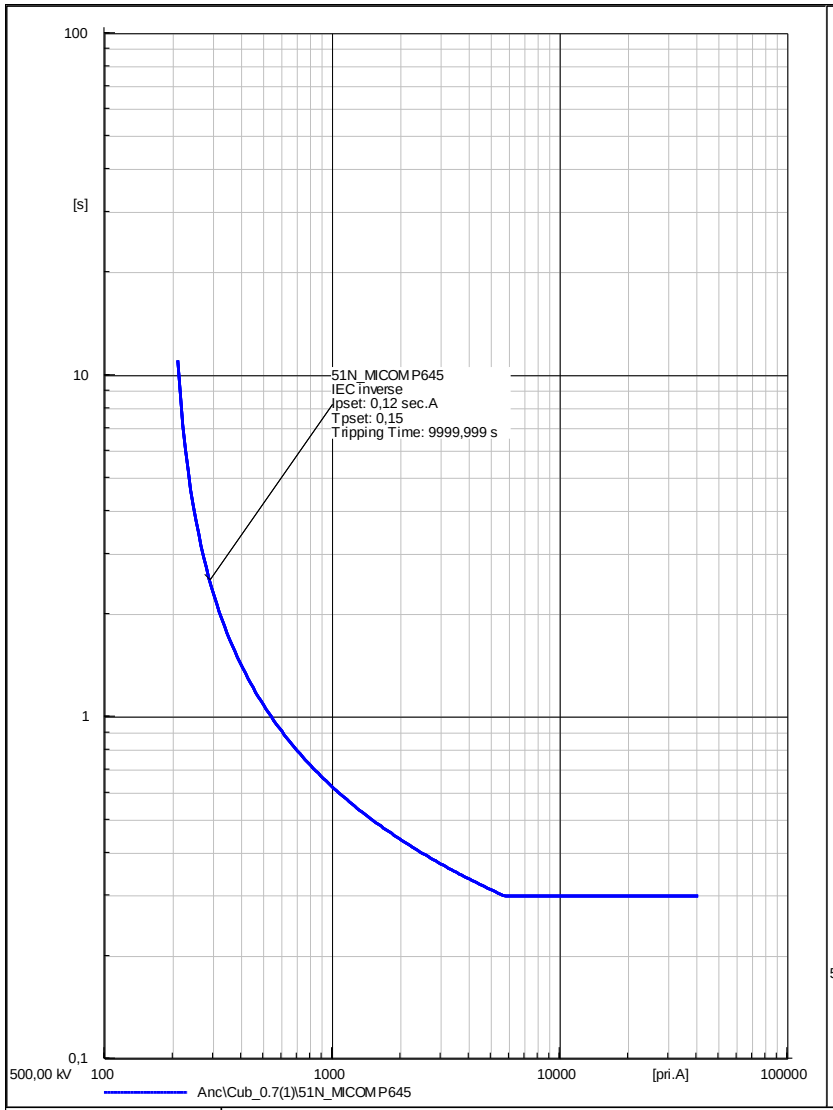
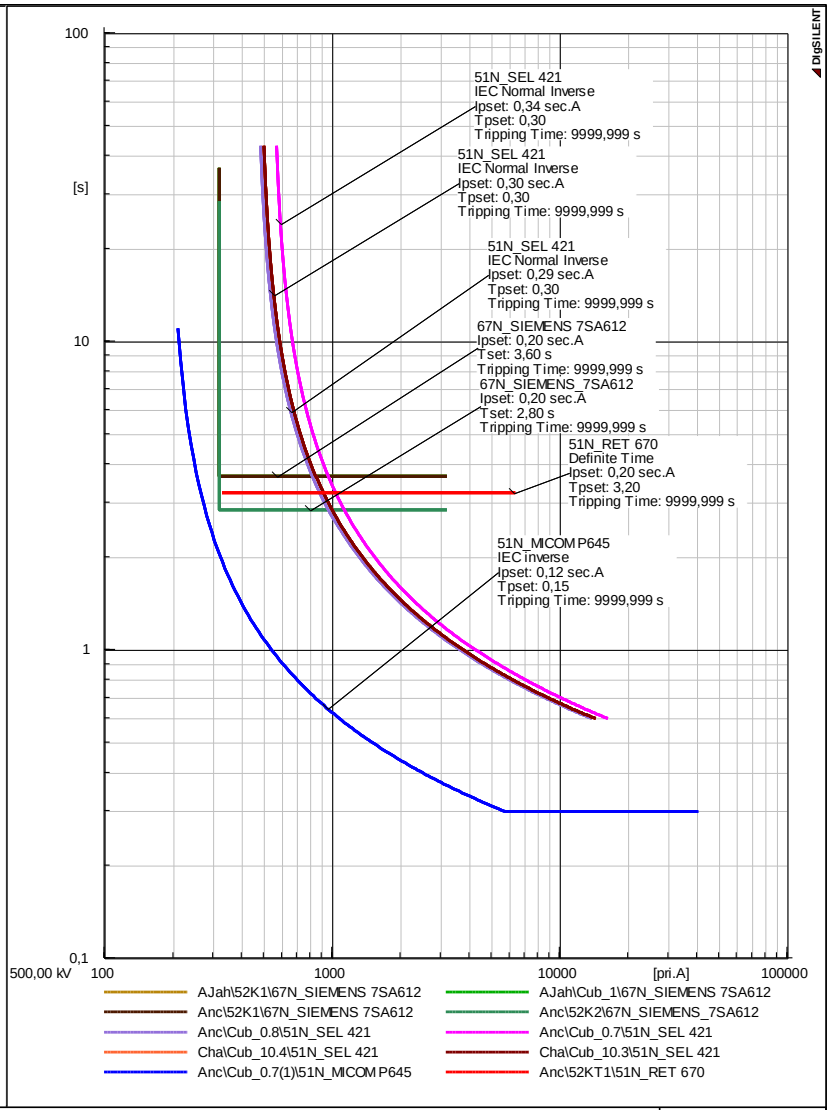
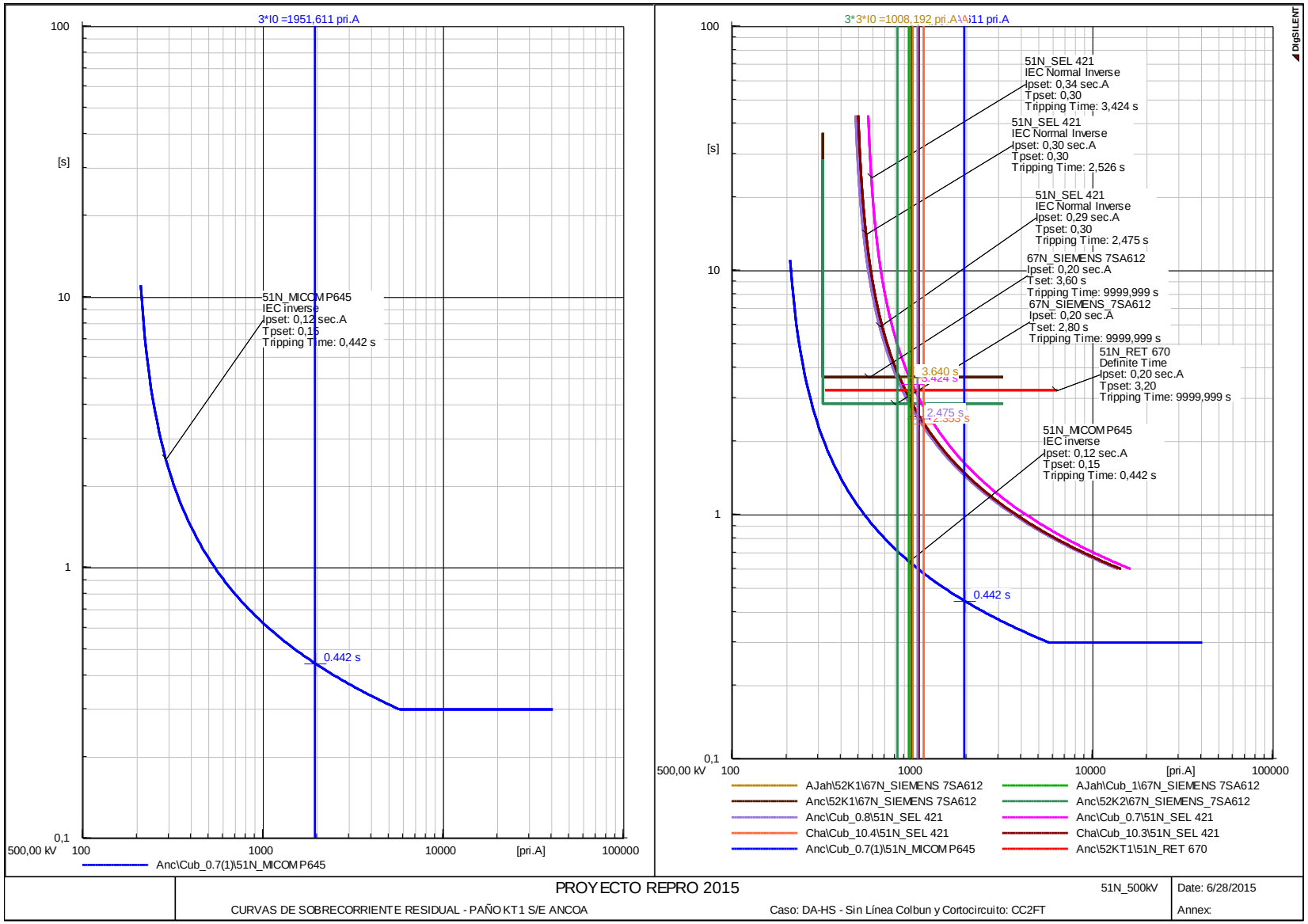




	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2F	Annex:



	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC2FT	Annex:

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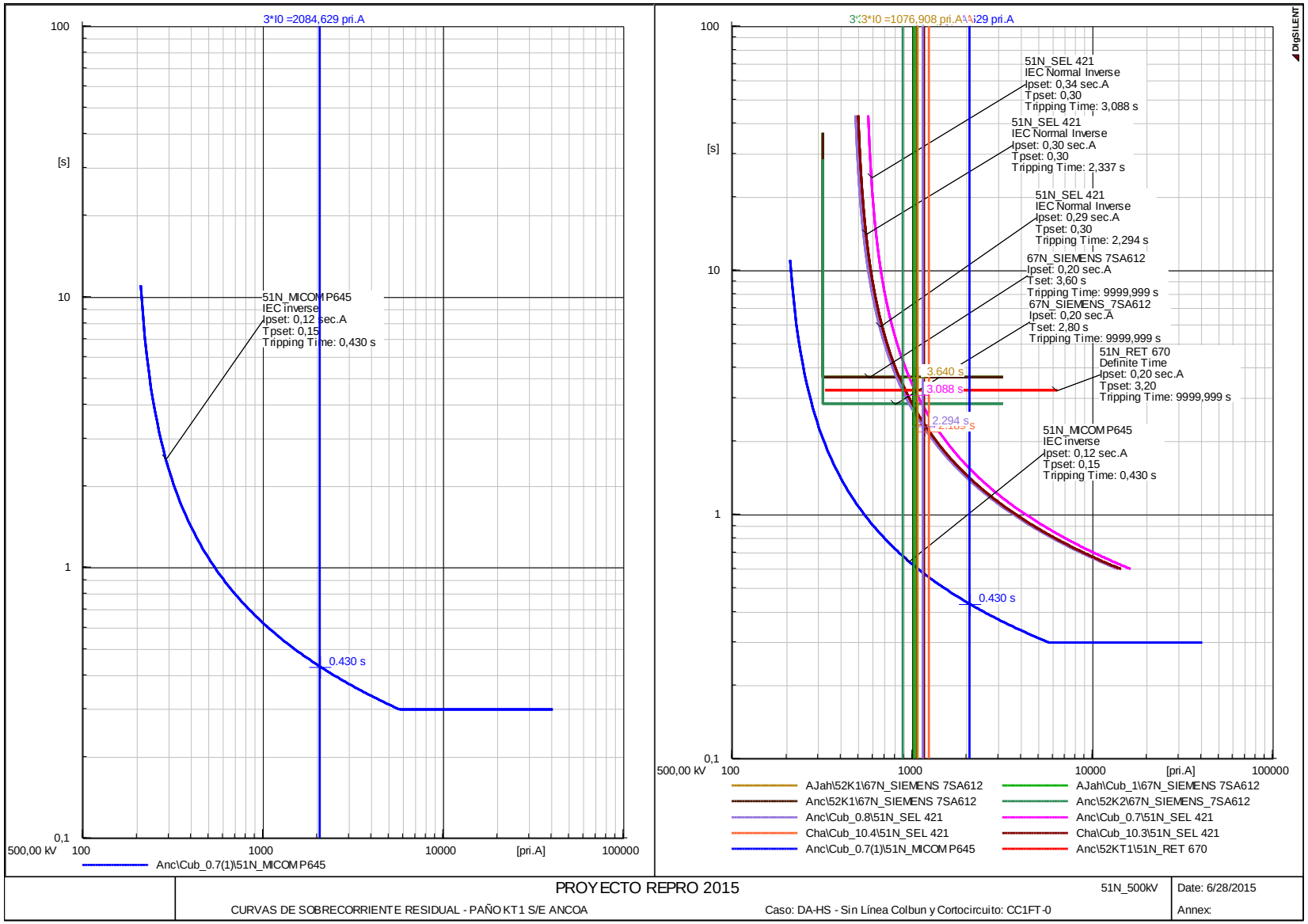

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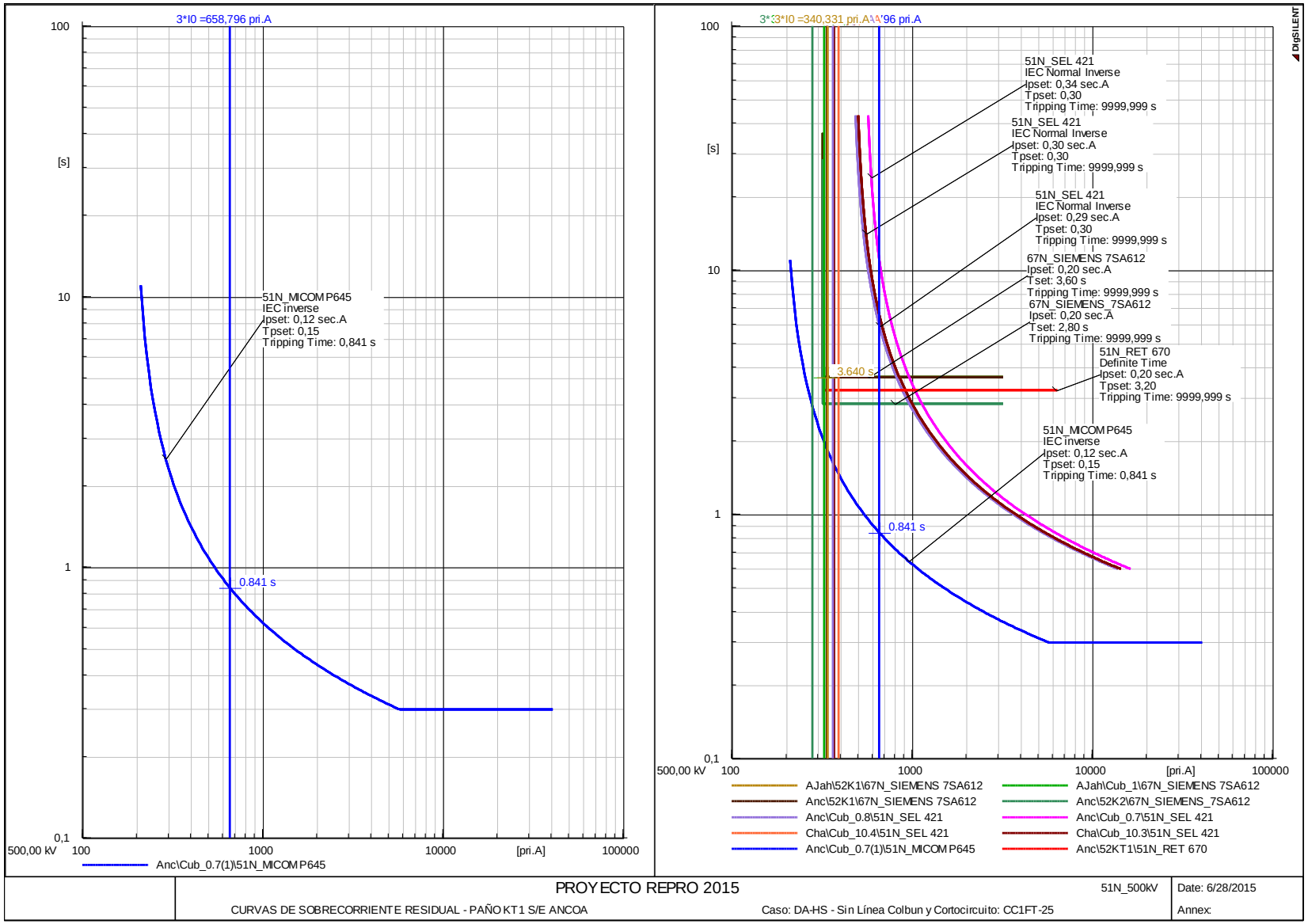

	PROYECTO REPRO 2015	51N_500kV	Date: 6/28/2015
	CURVAS DE SOBRECORRIENTE RESIDUAL - PAÑO KT1 S/E ANCOA	Caso: DA-HS - Sin Línea Colbun y Cortocircuito: CC1FT-25	Annex:

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