

DEPARTAMENTO DE PROTECCION y COMUNICACIÓN

Coordinación de Pruebas y Mediciones

Pruebas al Transformador T-3

Subestación: Llano Sánchez

Fecha de Prueba: 22-Octubre-2017

Prueba Realizada por: Ing. Josué Martínez



Informe Realizado por: Ing. Julio Ruíz C.

Fecha: 13-Noviembre-2017



INSULATION TESTS AUTO TRANSFORMERS WITH TERTIARY



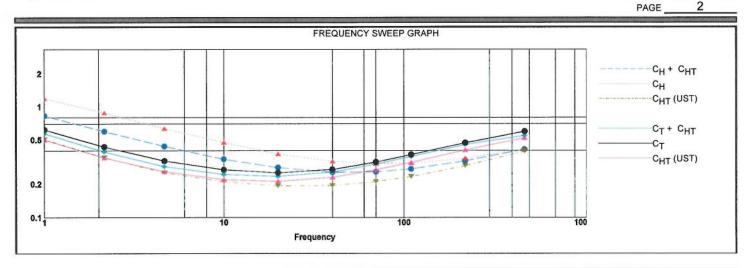
										DATE	/22/2017	PAGE		1	
									AMB	ENT TEMP30	.4 °c	JOB #	921	832	
SUBSTATIO	NC	LLANC	SÁN	ICHEZ						HUMIDITY	71.9 %	ASSET ID		T-3	
POSITION		LLANC	SÁN	ICHEZ I	I - PAT	10 230K	V		TE	ST STATUS					
EQUIPMEN	IT LOC	ATION _													
	MFR	IL	IIN				REASON	Routine			BUSHIN	G NAMEPLATE			
	R NO	11TI0	09001				WEIGHT 9	3,700 Kg	DSG	SERIAL NUM	MFR.	TYPE/CLASS	l kV	AMPS	YEAR
	YEAR -	20			V	VINDING M		Cu	H1	11F0269-03 AEI	TE	Other	230	SAME	
0 - 0 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	LASS	OA/F OIL	AVFA				VOLUME	48 %		11F0269-04 AEI	TE	Other	230		
DU	BIL_ ASES	750		kV			EDANCE	9.14 %	Н3	11F0269-08 AEI	TE	Other	230		
CONFIGURA		YNy		_		VV	EATHER	Sunny	Но	1000031151	ABB	O+C	34.5		
	TYPE [OPEN-C	ONSE	2					X1	11F0256-55AEP	TE	Other	115		
	VOLTA	AGE (kV)	141/4	RATED I	#	NOMINAL	CHANGER	TAP	X2	11F0256-47AEP	TE	Other	115		
	L-L	L-G	MVA	KATEDI	TAPS	NOMINAL	CHANGER	SETTING	ХЗ	11F0256-50AEP	TE	Other	115		
PRIMARY:	230	133	100	251.02	5	3	Off Load		XO		NONE	NONE			
SECOND:	115	66	100	502.04	1				Y1	1000031147	ABB	O+C	24.5		-
TERTIARY	34.5	2000	60	1,004.09	1							***************************************	34.5		
COMMENTS								***	Y2	1000031149	ABB	O+C	34.5		
	<u></u>								Y3		NONE	NONE			
									YO		NONE	NONE			

		TRANSFO TE		R OVE ET UP							TRAN	ISFORMER O]
Test	INSULATION	Test	Tes	t Lead	Connec	tions	TEST	DFR	Capacitance	P	OWER FACTOR	₹ %	DIR	ECT		IR	1
No.	TESTED	Mode	HV	Red	Blue	Gnd	kV	DFR	C (pF)	Measured	@ 20°C	Corr Factor	mA	Watts	%VDF	IIX	
1	CH + CHT	GST-GND	H+L	Т		G	10.00	V	13,275.20	0.23	0.30	1.270	49.9874	1.1610	0.02	G	0.
2	СН	GSTg-RB	H+L	Т		G	10.00	~	6,393.31	0.29	0.36	1.270	24.0319	0.6875	0.01	G	0-
3	C _{HT} (UST)	UST-R	H+L	Т		G	10.00	*	6,888.15	0.18	0.23	1.270	25.8340	0.4707	0.01	G	0-1
4	C _{HT} '		Te	est 1 Mi	nus Tes	12			6,881.89				25.9555	0.4735		Valid	1
5	CT + CHT	GST-GND	т	H+L		G	10.00	~	14,662.50	0.20	0.25	1.270	55.2556	1.0980	0.02	G	0.
6	C _T	GSTg-RB	Т	H+L		G	10.00	~	7,780.60	0.21	0.27	1.270	29.3085	0.6220	0.01	G	0.
7	C _{HT} (UST)	UST-R	Т	H+L		G	10.00	~	6,888.97	0.18	0.23	1.270	25.7908	0.4733	0.01	G	
8	C _{HT} '		Te	est 5 Min	nus Tes	t 6			6,881.91				25.9471	0.4761		Valid	
9	cH.		СН	Minus H	IL Bush	ings			2,940.72			Rend	18.0780	0.5270			1
10	CT,		СТ	Minus '	T Bushi	ngs			7,117.13				23.5150	0.4789			
Oil Fest 1	Overall Oil Test	UST-R	т	H+L		G						0.300				N. S.	
Oil Fest 2	LTC Chamber Oil Test	UST-R	Т	H+L		G						0.300					

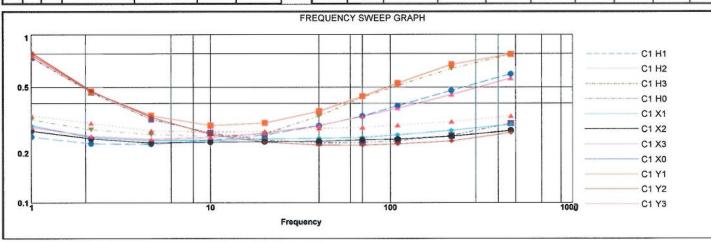


INSULATION TESTS AUTO TRANSFORMERS WITH TERTIARY





							Tran	sformer	- Bushi	ng C1 Tests							
Te			Busi	hing Namepla	te		Test	TEST		Capacitance	PO	WER FACTOR	₹%	DIR	ECT	0/1/05	
No		Dsg.	SERIAL#	CAT.#	PF	Cap. (pF)	Mode	kV	DFR	C (pF)	Measured	@ 20°C	Corr Factor	mA	Watts	%VDF	IR
	16	H1	11F0269-03 AEP		0.32	533.0	UST-R	10.00	V	522.27	0.25	0.41	1.646	1.966	0.0486	0.01	G
н	17	H2	11F0269-04 AEP		0.30	530.0	UST-R	10.00	~	527.97	0.28	0.47	1.646	1.989	0.0566	0.01	G
kV	18	нз	11F0269-08 AEP		0.32	533.0	UST-R	10.00	~	531.41	0.28	0.46	1.646	1.999	0.0553	0.02	G
	19	но	1000031151		0.24	335.0	UST-E	10.00	~	332.39	0.24	0.39	1.646	1.253	0.0295	0.02	G
	20	X1	11F0256-55AEP		0.27	514.0	UST-F	10.00	~	512.80	0.25	0.41	1.646	1.930	0.0485	0.02	G
.ow	21	Х2	11F0256-47AEP		0.27	517.0	UST-E	10.00	~	515.21	0.24	0.40	1.646	1.939	0.0468	0.01	G
kV	22	ХЗ	11F0256-50AEP		0.31	512.0	UST-F	10.00	~	510.54	0.25	0.41	1.646	1.924	0.0478	0.01	G
	23	X0					UST-F	10.00	*				1.646				
	24	Y1	1000031147		0.23	335.0	UST-E	10.00	~	332.13	0.24	0.39	1.646	1.252	0.0295	0.02	G
т	25	Y2	1000031149		0.23	335.0	UST-E	10.00	~	331.34	0.23	0.38	1.646	1.245	0.0289	0.02	G
kV	26	Y3					UST-F	10.00	×				1.646				
	27	Y0					UST-F	10.00	×				1.646				
	28						UST-F		×				1.646				





INSULATION TESTS AUTO TRANSFORMERS WITH TERTIARY



PAGE 3

							Transfo	rmer - Bu	shing C2 Tests	S						
29 H: H 30 H2 31 H3 32 H6 32 H6 A 33 X: A 34 X2 A 35 X3 36 X6		Bushin	g Nameplate	,		Test	TEST	Capacitance	PO	WER FACTOR	R %	DIR	ECT			
N	0.	Dsg.	SERIAL#	CAT.#	PF	Cap. (pF)	Mode	kV	C (pF)	Measured	@ 20°C	Corr Factor	mA	Watts	%VDF	IR
	29	H1	11F0269-03 AEP		0.28	0,597.00	GSTg-RB	0.50	10,459.67	0.27	0.45	1.646	1.967	0.0027	0.01	
н	30	H2	11F0269-04 AEP		0.28	0,534.00	GSTg-RB	0.50	10,533.98	0.32	0.52	1.646	1.991	0.0032	0.01	
kV	31	нз	11F0269-08 AEP		0.25	0,597.00	GSTg-RB	0.50	10,587.29	0.27	0.44	1.646	1.998	0.0027	0.01	
	32	но	1000031151		0.11	650.00	GSTg-RB	0.50	660.04	0.27	0.44	1.646	0.124	0.0002	0.05	
	33	X1	11F0256-55AEP		0.28	5,804.00	GSTg-RB	0.50	5,814.47	0.24	0.39	1.646	1.094	0.0013	0.01	397.55.091.5
	34	X2	11F0256-47AEP		0.32	5,892.00	GSTg-RB	0.50	5,901.53	0.23	0.39	1.646	1.114	0.0013	0.01	
kV	35	ХЗ	11F0256-50AEP		0.25	5,846.00	GSTg-RB	0.50	5,852.14	0.24	0.39	1.646	1.105	0.0013	0.01	
	36	хо					GSTg-RB	0.50				1.646				
	37	Y1	1000031147		0.12	625.00	GSTg-RB	0.50	625.98	0.25	0.41	1.646	0.118	0.0001	0.06	t described
Tert	38	Y2	1000031149		0.12	622.00	GSTg-RB	0.50	624.27	0.30	0.49	1.646	0.117	0.0002	0.05	
k∨	39	Y3					GSTg-RB	0.50				1.646				
	40	YO		1			GSTg-RB	0.50				1.646				

EXCITING CURRENT TESTS

C	ONNEC	TIONS:	PH.	ASE A: H1	-H0	US	ST-R	PH	ASE B: F	12-H0	U	ST-R	PH	IASE C: H3	-H0	US	ST-R	
	DETO	1.70	TEST	L(H) /	T \	EQUIV	. 10 kV	TEST	L(H) /		EQUIV	√. 10 kV	TEST	L(H) /	ma	EQUIV	'. 10 kV	
	DETC	LTC	kV	C (pF)	mA	mA	Watts	k∨	C (pF)	mA	mΑ	Watts	kV	C (pF)	mA	mA	Watts	IR
73	1	N/A	10.00					10.00					10.00					
74	2	N/A	10.00					10.00					10.00					
75	3	N/A	10.00					10.00					10.00					
76	4	N/A	10.00	-302.95	15.4167	15.43	153.52	10.00	657.88	pF 10.4527	10.46	100,80	10.00	46,408.00 H	15.7374	15.75	156.40	
77	5	N/A	10.00					10.00					10.00					

COMMENTS:

Los valores de Capacitancia son buenos y bastante cercanos a los obtenidos en el 2016. El Factor de Potencia aumenta un poco debido al método de prueba utiliza el equipo Megger, todos estos valores de F.P. están dentro de los límites y la prueba es satisfactoria.

En la prueba de bushings C1, los valores de Capacitancia son buenos y parecidos a los de la prueba del 2016. El F.P. los valores aumenta por el sistema de e que utiliza Megger. Estamos evaluando emigrar hacia este nuevo sistema de evaluación.

En la prueba de bushings C2, los valores de Capacitancia y F.P. son bastante parecidos a los obtenidos en el 2016. Prueba Satisfactoria.

La prueba de Corriente de Excitación dió resultados bastante parecidos a los del 2016, prueba buena.

DEFICIENCIES:

Form Number and Date: 95500, REVISED 10/28/2016

Serial Number: 2164 1016

Firmware Information: 2,0,630

Calibration Date: 10/05/2016 01:09:11 p.m

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95500, REVISED 10/28/2016

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TRANSFORMER POLARIZATION INDEX (PI) TEST



										Empres	e de Transmento I	Cleaters 5.4
								DATE _	10/22/2017	PAGE	1	
								AMBIENT TEMP.	32 °C	JOB #	928832	2
SUBSTATION	LLANO	SÁNCI	HEZ					HUMIDITY_	65 %	ASSET ID	T-3	
POSITION	LLANO	SÁNCI	HEZ II -	PATIO	230KV			TEST STATUS _				
EQUIPMENT LO												
EQUIT MENT EC	OATION BY					-	namica mira a a s					
NAMEPLATE D	ATA_											
MFR	ILJIN		CLASS _	OA/F	FA/FA	PHASES _	3	_				
SER NO	11TI009001	_ co	OLANT C	OIL		REASON E	Routine					
YEAR	2011	TANI	K TYPE C	PEN-CO	NSER	WEIGHT	93700 kg					
H2 - X2 H1 H0X0 H1 X3 H3	Y ₁	Y ₂			OI	MATERIAL C L VOLUME _ OIL TEMP _ IPEDANCE _	31,000 Ji					
Diagram # 7						WEATHER _	Sunny					
Diagram # /	_ (ANSI)					BIL _	750					
V	OLTAGE (kV)	MVA	RATED I	# TAPS	NOMINAL	CHANGER	TAP					
	L-L L-G		101120	TAPS		OFFICER	SETTING					
	230 133	100	251.02	5	3	DETC						
	115 66 34.5	100	502.04 1,004.09	1								
COMMENTS:								Ī				
TEST VOLTAG	E:	HIGH T	O LOW+G	ND	10 KVI	DC L	LOW TO HIGH	H+GND 10 1	KVDC	HIGH+LOW TO GND	10	KVDC
CORE/COIL TE				с —		r TCF Manual	중 화생님 [100] [10] 전 시스 시스 [10] [10] [10]	MP. CORR. FACTOR			LIQUID	
Use Instrument	PI / DAR Valu	е: Г								3.15	50.000	
				7				TRANSFORMER				
	2			mile extrace	HX V	SY		HX VS T		YVST		

			TRANS	FORMER		
0.25 0.50 0.75 1.00 2.00 3.00 4.00 5.00	НХ	VS Y	НХ	VST	Y	VS T
MINUTES	READING (megohms)	CORR. VALUE (megohms)	READING (megohms)	CORR. VALUE (megohms)	READING (megohms)	CORR. VALUE (megohms)
0.25	13,850.00	77,560.00	8,510.00	47,656.00	9,170.00	51,352.00
0.50	28,200.00	157,920.0	14,070.00	78,792.00	21,000.00	117,600.0
0.75	37,900.00	212,240.0	15,240.00	85,343.99	27,500.00	154,000.0
1.00	47,500.00	266,000.0	17,050.00	95,480.00	34,100.00	190,960.0
2.00	64,900.00	363,440.0	17,900.00	100,240.0	44,600.00	249,760.0
3.00	73,800.00	413,280.0	19,120.00	107,072.0	47,000.00	263,200.0
4.00	79,500.00	445,200.0	17,920.00	100,352.0	51,000.00	285,600.0
5.00	83,700.00	468,720.0	19,420.00	108,752.0	52,400.00	293,440.0
6.00	88,800.00	497,280.0	19,710.00	110,376.0	53,800.00	301,280.0
7.00	92,200.00	516,320.0	18,840.00	105,504.0	54,500.00	305,200.0
8.00	95,200.00	533,120.0	19,990.00	111,944.0	51,100.00	286,160.0
9.00	98,400.00	551,040.0	19,950.00	111,720.0	53,400.00	299,040.0
10.00	101,100.0	566,160.0	20,400.00	114,240.0	55,900.00	313,040.0
P. I.	1	2.13	1	.20		1.64
D. A. R.		.68	1	1.21		1.62

EST EQUIPMENT USED:	MIT1025	TESTED BY:	JOSUE MARTINEZ	



TRANSFORMER POLARIZATION INDEX (PI) TEST



PAGE

INSULATION CONDITION	POLARIZATION INDEX (PI)
DANGEROUS	< 1.0
POOR	1.0 to 1.1
QUESTIONABLE	1.1 to 1.25
FAIR	1.25 TO 2.0
GOOD	> 2.0

NOTES:

PI ranges from IEEE C57.152-2013

Polarization Index should not be used to assess insulation in new power transformers (IEEE C57.152-2013)

The polarization index for insulation liquid is always close to 1. Therefore, the polarization index for transformers with low conductivity liquids (e.g. new mineral oil) may be low in spite of good insulation condition, (IEEE C57.152-2013)

The second secon	
INSULATION CONDITION	DAR 60/30 SEC
QUESTIONABLE	1.0 - 1.25
GOOD	1.4 to 1.6
EXCELLENT	>16

NOTES:

DAR ranges from A Stitch In Time (Megger, 2006)

These values must be considered tentative and relative - subject to experience, over time

DATE 10/22/2017

SUBSTATION

TEMPERATURE 32 °C

LLANO SÁNCHEZ

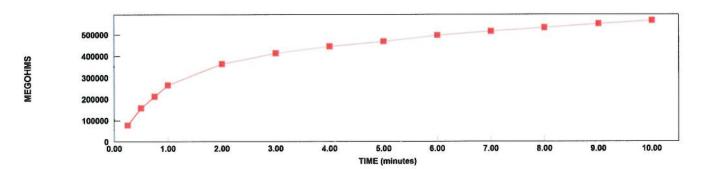
HUMIDITY 65 % EQPT. LOCATION

BARRA D

LLANO SÁNCHEZ II - PATIO 230KV **POSITION**

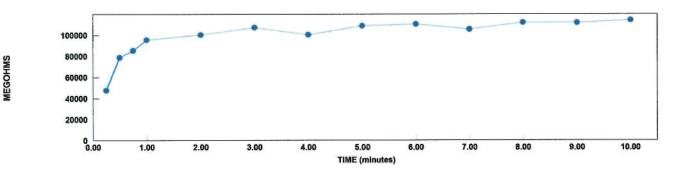
POLARIZATION CURVE

HX VS Y : Red Square



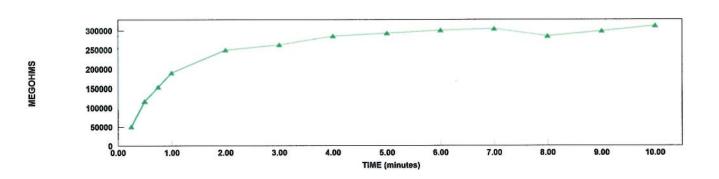
POLARIZATION CURVE

HX VS T : Blue Circle



POLARIZATION CURVE

Y VS T : Green Triangle





TRANSFORMER POLARIZATION INDEX (PI) TEST



PAGE

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COMMENTS:

No podemos evaluar esta prueba ya que se hizo a otro voltaje 10 kV. Los Indices de Polarización unos aumentan y otros disminuyen, esto ha ocurrido desde panteriores. Darle seguimiento en la siguiente prueba que se realice con 5 kV.

DEFICIENCIES:



TRANSFORMER WINDING RESISTANCE TEST



							DA	TE 10/22/2	017	PAGE	1
						,		P. 34 °		7.5	928832
SUBSTATIO	on II	ANO SÁ	NCHE7			450					T-3
POSITION	FREEZE		NCHEZ II	- PATIO	230KV						
EQUIPMEN		2000 00 - 1000	***************************************	-17110	2501(1		TEST STATE				MARKET TO SEE THE SECOND SECON
EQUIFINEN	LOCATI	ON BATTA	0(0								
MFR SER NO YEAR TYPE CLASS PHASES		ILJIN 11TI009001 2011 PEN-CONSE OA/FA/FA 3		WEATHER BIL MPEDANCE REASON	9.14 %	OIL T WINDING T	EMP 4	000 I 5 °C 47 °C 75 °C OIL	X1 H1	2 - x2 - HOXO X3 H3	Y ₁
PHASES			TRANS		EMAGNETIZED				Diagra	am # <u>7</u> (Al	NSI)
		LTAGE (kV	IVIVA	RATEDI	RECOMMENDED TEST I	# TAPS	NOMINAL	CHANGER	T	ETTING	WINDING MATERIAL
PRIMARY:	230	132.7	791 100	251.02	10.0A	5	3	DETC			Cu
SECOND: TERTIARY:	34.		95 100 60	502.04 1,004.09	10.0A 10.0A	1					Cu Cu
		Current	Nameplate		H VOLTAGE WINDING Corrected Resistance to 7	75°C		Reading	Windin	Show Grap	Units: Ω
#	TAP	(amp)	Voltage	H ₁ - H ₁	0 H ₂ - H ₀	H ₃ - H		tability %	Differenc	e% Val	ores Normalis
1	1		241,500								
2	2		235,750								
3	Nominal		230,000								
4	4	9.5489	224,250	0.761	0.761	0.760)	99.9950	0.165	0-69	2/0.692/0.691
5	5		218,500								
				LO	W VOLTAGE WINDING	RESISTA	NCE	-		Show Grap	
		Current	Nameplate		Corrected Resistance to 7	75°C		Reading	Windin		Units: Ω
#	TAP	(amp)	Voltage	X ₁ - X	0 X ₂ -X ₀	X3 - X		tability %	Differenc		
6	Nominal	10.0057	115,000	0.389	0.385	0.386	5	99.9879	1.167	0.35	40.350 0-351
					Corrected Resistance to 7		E			Show Grap	ph Units: Ω
#	TAP	Current (amp)	Nameplate Voltage	Y ₁ - Y;		Y3 - Y		Reading tability %	Windin Difference		
7	Nominal	10.0235	34,500	0.574				99.9809		8	.522
COMMENT	500 C S S S S S S S S S S S S S S S S S S	Todos los va	lores son bu	enos y pareci	dos a los del 2016, Además	cumplen co	n la norma IEE	E.			
	Form Nu	mber and Da	ate: <u>56353,</u>	REVISED 11	/23/2016 Seria	al Number:	3831_0116				
	Firmwa	are Informati	on: 310		Calibra	ation Date:	1/22/2016				



THREE PHASE TTR TEST WITH TAP CHANGER



									DATE	10/22/2	017	PAGE	1
									AMBIENT TEMP.	35	С	JOB #	928832
SUBSTATION	LLA	NO S	ÁNCI	HEZ					HUMIDITY	52	%	ASSET ID	T-3
POSITION	LLA	NO S	ÁNCI	HEZ II -	PATIO	230KV			TEST STATUS			Pass	
EQUIPMENT I	W-	5000000	CORRESPONDED TO										
equi iliziti i	200/11101				Carlos August	the second second second							
NAMEPLATE	DATA		HAS	TERTIAR	Y V	ALLOW	ED ERROR _	0.5					
MFR _	ILJIN		-	CLASS _	OA/F	A/FA	PHASES_	3	•				
SER NO	11TI009	001	_ co	OLANT [OIL		REASON _	Routine	_				
YEAR _	2011	ĺ	TAN	K TYPE	OPEN-CO	NSER	WEIGHT	93700 kg]				
H2						WINDING	MATERIAL [Cu	1				
-x2			√Y2			OI	L VOLUME	31,000 1	,]				
X1 HOXO		Y1 O	\in				-	45 °C					
12 X3 P	13		Y3					9.14 kV	•				
							The second second		-				
Diagram # _7	(ANSI)						WEATHER _	S1400000 900	-				
Detect	Transfo	mer T	ype				BIL _	750 %	-				
	VOLTAG		1		1 "			710	1				
			MVA	RATED	TAPS	NOMINAL	CHANGER	SETTING					
DDIMADV	L-L	L-G	100	054.00	<u> </u>	3	DETC	ļ	ļ				
PRIMARY: SECOND:	230 115	133	100	251.02 502.04		3	DETC	NAME OF TAXABLE PARTY.	i				
TERTIARY:	35	00	60	989.74					1				
OMMENTS:													
_													

HIGH SIDE TAPS TO LOW SIDE NOMINAL TURNS RATIO TESTS

						H ₁ - H ₀ / X ₁ - X ₀				H2-H0/X2-X0				H ₃ - H ₀ / X ₃ - X ₀			
#	TAP H/L	Voltage H/L		Test V	TTR	Actual TTR	% Error	I exc mA	Phase (Deg)	Actual TTR	Error	I exc mA	Phase (Deg)	Actual TTR	% Error	I exc mA	Phase (Deg)
1		241,500	115,000		2.100												
2		235,750	115,000		2.050												
3		230,000	115,000		2.000												
4		224,250	115,000	80	1.950	1.951	0.03	0.8	-0.11°	1.949	-0.03	0.5	-0.11°	1.950	0.02	0.8	-0.11°
5		218,500	115,000		1.900												

HIGH SIDE NOMINAL TO LOW SIDE TAPS TURNS RATIO TESTS

						H ₁ - H ₀ / X ₁ - X ₀				H ₂ -H ₀ / X ₂ -X ₀				H ₃ -H ₀ / X ₃ -X ₀			
#	AP /L		tage /L	Test V	TTR	Actual TTR	% Error	I exc mA	Phase (Deg)	Actual TTR	% Error	I exc mA	Phase (Deg)	Actual TTR	% Error	I exc mA	Phase (Deg)
1		230,000	115,000		2.000										102		

COMMENTS: DEFICIENCIES: Prueba buena, los valores obtenidos están dentro de lo permitido por la Norma IEEE.



Prueba de Alarmas y Disparos



Número de prueba LLST3-8-17

Clima

Soleado

Fecha

22-oct-17

Temp. Ambiente 36°C

Subestación

O Prueba regular
O Prueba deficiente

Llano Sanchez

Humedad Relativa 52%

5abestacio	,,,,		Trumedau Nelativa 3270									
Equipo		T3	2									
Realizada _I	por	Josué Ma	rtínez									
VALORES DE AJUSTE ENCONTRADOS PARA LAS ALARMAS Y DISPAROS (°C)												
Termómetro	Etapa 1	Etapa 2	Bomba	Alarma	Disparo	Ob:	es					
Aceite				95	105							
Bobina de Alta	75	85		95	105							
Bobina de Media	75	85		95	105							
Bobina de Baia												
VALORES DE PRUEBA PARA LAS ALARMAS Y DISPAROS (°C)												
Termómetro	Etapa 1	Etapa 2	Bomba	Alarma	Disparo	Obs	s					
Aceite	Aceite					sale en gabinete	sale en gabinete del Tx y CC					
Bobina de Alta	76	86		95	105	sale en gabinete del Tx y CC						
Bobina de Media	76	86		95	110	sale en gabinete del Tx y CC						
Bobina de Baia	Bobina de Baia											
Protección		744 AAA		Alarma		Observaciones	and Same					
Sobrepresión repe	entina en e	el transfor	rmador			sale en gabinete de	el Tx y CC					
Buchholz del trans	sformador			•	✓ 5	sale en gabinete de	el Tx y CC					
Bajo nivel de aceit	te			✓		sale en gabinete de	ale en gabinete del Tx y CC					
Alto nivel de aceit	e											
Bajo nivel de aceit	te en el Ta	p Change	r									
Valvula de segurio	dad de pre	sión		•	✓	sale en gabinete del Tx y CC						
Falta AC				✓		ale en gabinete del Tx y CC						
Falta DC												
Bulbo y foso de so	onda			Se revisaro	n y tenían a	ceite.						
Proteccio	nes del 1	ap Chan	ger	Fase	Α	Fase B	Fas	se C				
		8		Alarma	Disparo	Alarma Dispar	Alarma	Disparo				
Sobrepresión r	epentina (del Tap Ch	anger									
Flujo inverso de	el Tap Cha	nger (Buc	cholz)	- 🗌								
		8.0	Observac	iones								
Resultado de la	Prueba -		las alarm	as salen p	rincipal y	respaldo.						
Prueba buena												