

## **IMS SITE TEST REPORT**

POWER TRANSFORMER  
GI 150 KV KTT DATA CENTER



### **PT. Elsewedy Electric Indonesia**

(Formerly Known as PT CG Power Systems Indonesia)

Registered Office & Plant:

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## **IMS SITE TEST REPORT**

### **POWER TRANSFORMER**

Manufacture : PT ELSEWEDY ELECTRIC INDONESIA  
Serial Number : 3011230065  
MVA Rating : 60 MVA  
Voltage Rating : 150/22 kV  
Connection : YNyn0+d1  
Type : ORF 60/275  
Cooling Class : ONAN / ONAF  
Year Manufacture : 2024

## **IMS SITE TEST REPORT**

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**TRANSFORMER DATA**

**Transformer Data**

**Customer**

PT PLN (Persero)

Serial Number : 3011230065  
 Manufacturer : ELSEWEDY ELECTRIC INDONESIA  
 Production Year : 2024  
 Manufact Location : CILEUNGSI  
 Rating Category : POWER TRANSFORMER  
 Phases : 3 Phase  
 MVA Rating : 60 MVA  
 Rate Voltage : 150/22 KV  
 Winding Connection : YNyn0+d1  
 Frequency : 50 Hz  
 Cooling System : ONAN / ONAF  
 Tank Type : CONSERVATOR  
 Fluid Type : ERGON HYVOLT 1  
 Fluid Volume : 22.600 Kg

**Tapping Selector Type**

Manufacturer : MR  
 Model : VVSIII400Y-76-10193G  
 Serial Number : 2631832  
 Year : 2023

**Impedance**

**Reference**

HV [H] - LV [X]	Z PU Imp (%)	Base MVA	Base KV	Load Loss KW	Base OLTC
	13,289	60	165	-	Tap 1
	12,327	60	150	-	TAP 9
	11,576	60	135	-	TAP 17

HV [Primer] LV [Second]	I Rated [A]	V Rated [KV]
	230,9	150
	1574,6	22

<b>Leakage Test</b>		<b>DOC. NO. : FW-QLT-TB0201</b>
		Rev : 0
Serial No : 3011230065 Customer : PT PLN (Persero)		Location : GI 150 KV KTT DATA CENTER Type : ORF 60/275
		STANDARD IEC 60076-1:2011
60 MVA 150/22 KV KV 50 Hz YNyn0+d1 CONNECTION		3 PHASE
<p>Instrument : PRESSURE GAUGE Brand : WIKA Ambient temp : 30 °C</p> <p>PLACE OF TEST PERFORMED : GI 150 KV KTT DATA CENTER DATE OF TEST PERFORMED : 10-11 Maret 2024</p>		
<p>On 10 Maret 2024 at 16:00 of Local Time Dry air was introduced into Main Tank until steady pressure reaches 0,25 Bar measured at the Top Conservator of the Transformer</p> <p>On 11 Maret 2024 at 8:00 of local Time The Pressure inside the Main Tank is still 0,20 Bar above ambient Pressure and no leaks out of the Transformer</p>		
<p><i>Note : Temperature Awal OTI 38°, Selesai Leakage Test 29°</i></p>		
<p>11-12 Maret 2024</p>		
<p>Witnessed by,</p>  <p>Argianka S Putra PT. PLN (Persero) UPP JBT 3</p>	<p>Checked by,</p>  <p>M Ngapan Hadi PT. PLN (Persero) PUSMANPRO UPMK 1</p>	<p>Tested by,</p>  <p>Yopi Sopyan PT. Elsewedy Electric Indonesia</p>  <p>Gilang Maulana Sidik PT. Sandika Kurnia Permata</p>

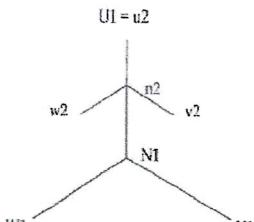
Breakdown Voltage of the Insulating Oil					DOC. NO. : FW-QLT-TB0201 Rev : 0 Page 1 of 1																																												
Serial No	: 3011230065		Location	: GI 150 KV KTT DATA CENTER		STANDARD																																											
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60 MVA		150/22 KV	KV	50	Hz	YNyn0+d1	CONNECTION	3	PHASE																																								
<table> <tr> <td>Instrument</td> <td colspan="9">: Breakdown Voltage Test Set</td> </tr> <tr> <td>Brand</td> <td colspan="9">: MEGGER</td> </tr> <tr> <td>Type</td> <td colspan="9">: OTS 100 AF/2/NSN</td> </tr> <tr> <td>Serial No.</td> <td colspan="9">: 101670991</td> </tr> </table>										Instrument	: Breakdown Voltage Test Set									Brand	: MEGGER									Type	: OTS 100 AF/2/NSN									Serial No.	: 101670991								
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Main Tank MIDDLE			Main Tank BOTTOM			Tap Changer																																											
Test	Oil (kV/2.5mm)	Oil Temp	Test	Oil (kV/2.5mm)	Oil Temp	Test	Oil (kV/2.5mm)	Oil Temp																																									
1	100.0	32 °C	1	98.3	33 °C	1	88.6	33 °C																																									
2	86.1	32 °C	2	84.8	33 °C	2	90.6	33 °C																																									
3	85.6	32 °C	3	89.3	33 °C	3	95.9	33 °C																																									
4	93.2	32 °C	4	84.7	33 °C	4	85.2	33 °C																																									
5	96.8	32 °C	5	86.6	33 °C	5	86.3	33 °C																																									
6	100.0	32 °C	6	95.2	33 °C	6	82.5	33 °C																																									
AVG	93.6		AVG	89.8		AVG	88.2																																										
<i>Acceptance criteria : Minimum value is 60 KV/2.5 mm</i>																																																	
11-12 Maret 2024																																																	
Witnessed by,				Checked by,			Tested by,																																										
 Argianka S Putra				 M Ngapan Hadi			 Yopi Sopyan																																										
PT. PLN (Persero) UPP JBT 3				PT. PLN (Persero) PUSMANPRO UPMK 1			PT. Elsewedy Electric Indonesia																																										
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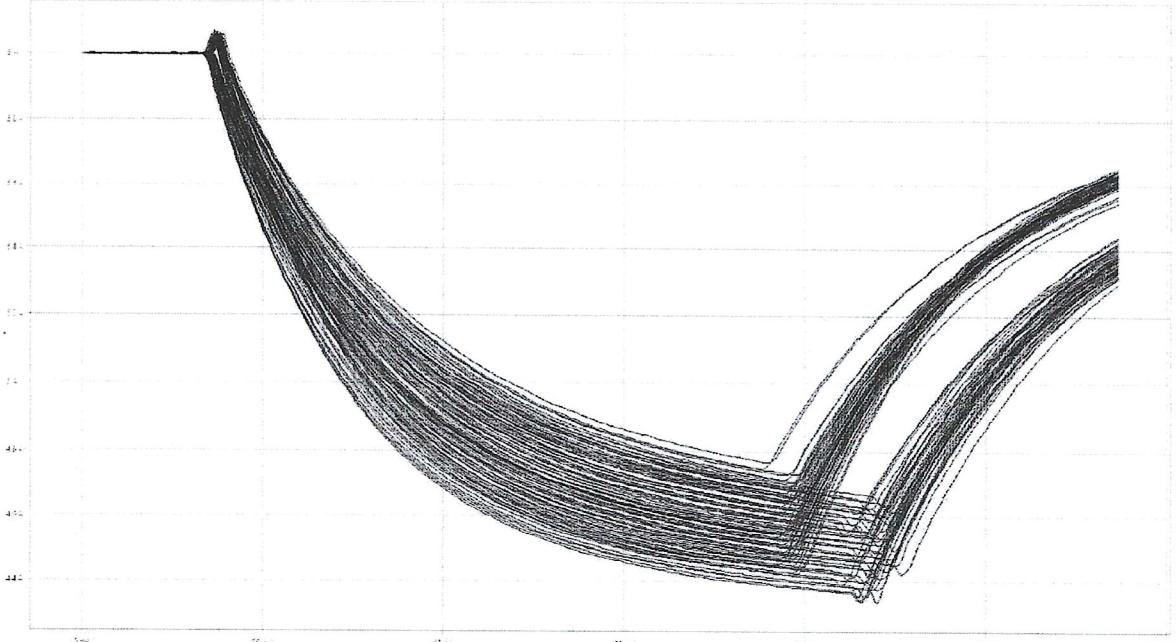
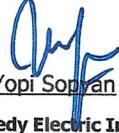
Water in Insulating Liquid Test				DOC. NO. : FW-QLT-TB0201													
				Rev : 0	Page 1 of 1												
Serial No Customer	: 3011230065 : PT PLN (Persero)	Location Type	: GI 150 KV KTT DATA CENTER : ORF 60/275	STANDARD IEC 60076-1:2011													
<table border="1"> <tr> <td>60</td> <td>MVA</td> <td>150/22 kV</td> <td>KV</td> <td>50</td> <td>Hz</td> <td>YNyn0+d1</td> <td>CONNECTION</td> <td>3</td> <td>PHASE</td> </tr> </table>				60	MVA	150/22 kV	KV	50	Hz	YNyn0+d1	CONNECTION	3	PHASE				
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<p>Instrument : Water Content Test Set          Brand : VAISALA          Type : MI70          Serial No. : J32500013</p>																	
<table border="1"> <thead> <tr> <th>No</th> <th>Transformer ID</th> <th>ppm H<sub>2</sub>O</th> <th>Temperature (°C)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>3011230065</td> <td>4.00</td> <td>31.4</td> </tr> </tbody> </table> 										No	Transformer ID	ppm H <sub>2</sub> O	Temperature (°C)	1	3011230065	4.00	31.4
No	Transformer ID	ppm H <sub>2</sub> O	Temperature (°C)														
1	3011230065	4.00	31.4														
<p><b>Acceptance Criteria : <math>\leq 5 \text{ ppm}</math></b></p>																	
<p>11-12 Maret 2024</p>																	
<p>Witnessed by,</p>  <p>Argianka S Putra PT. PLN (Persero) UPP JBT 3</p>			<p>Checked by,</p>  <p>M Ngapan Hadi PT. PLN (Persero) PUSMANPRO UPMK 1</p>			<p>Tested by,</p>  <p>Yopi Sopyan PT. Elsewedy Electric Indonesia</p>											
						 <p>Gilang Maulana Sidik PT. Sandika Kurnia Permata</p>											

Insulation Resistance and Polarization Index Test				DOC. NO. : FW-QLT-TB0201																																																																					
				Rev : 0																																																																					
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Instrument : Insulation Resistance Test Set Brand : SANWA Type : MG 5000 Serial No. : 16115900122																																																																									
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="text-align: center; padding: 5px;">No ( Minute )</th> <th colspan="4" style="text-align: center; padding: 5px;">Insulation resistance</th> </tr> <tr> <th style="text-align: center; padding: 5px;">HV - (LV+TV+E) G OHM</th> <th style="text-align: center; padding: 5px;">LV - (HV+TV+E) G OHM</th> <th style="text-align: center; padding: 5px;">TV - (HV+LV+E) G OHM</th> <th style="text-align: center; padding: 5px;">(HV+LV+TV) - ( E ) G OHM</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; padding: 5px;">1</td> <td style="text-align: center; padding: 5px;">5.65</td> <td style="text-align: center; padding: 5px;">6.82</td> <td style="text-align: center; padding: 5px;">15.4</td> <td style="text-align: center; padding: 5px;">6.70</td> </tr> <tr> <td style="text-align: center; padding: 5px;">2</td> <td style="text-align: center; padding: 5px;">6.30</td> <td style="text-align: center; padding: 5px;">10.0</td> <td style="text-align: center; padding: 5px;">25.2</td> <td style="text-align: center; padding: 5px;">7.40</td> </tr> <tr> <td style="text-align: center; padding: 5px;">3</td> <td style="text-align: center; padding: 5px;">9.03</td> <td style="text-align: center; padding: 5px;">11.58</td> <td style="text-align: center; padding: 5px;">29.7</td> <td style="text-align: center; padding: 5px;">8.25</td> </tr> <tr> <td style="text-align: center; padding: 5px;">4</td> <td style="text-align: center; padding: 5px;">9.43</td> <td style="text-align: center; padding: 5px;">12.03</td> <td style="text-align: center; padding: 5px;">32.8</td> <td style="text-align: center; padding: 5px;">8.64</td> </tr> <tr> <td style="text-align: center; padding: 5px;">5</td> <td style="text-align: center; padding: 5px;">10.07</td> <td style="text-align: center; padding: 5px;">12.30</td> <td style="text-align: center; padding: 5px;">33.1</td> <td style="text-align: center; padding: 5px;">9.08</td> </tr> <tr> <td style="text-align: center; padding: 5px;">6</td> <td style="text-align: center; padding: 5px;">11.07</td> <td style="text-align: center; padding: 5px;">13.21</td> <td style="text-align: center; padding: 5px;">37.0</td> <td style="text-align: center; padding: 5px;">9.13</td> </tr> <tr> <td style="text-align: center; padding: 5px;">7</td> <td style="text-align: center; padding: 5px;">13.00</td> <td style="text-align: center; padding: 5px;">14.05</td> <td style="text-align: center; padding: 5px;">38.0</td> <td style="text-align: center; padding: 5px;">9.25</td> </tr> <tr> <td style="text-align: center; padding: 5px;">8</td> <td style="text-align: center; padding: 5px;">13.07</td> <td style="text-align: center; padding: 5px;">14.36</td> <td style="text-align: center; padding: 5px;">40.0</td> <td style="text-align: center; padding: 5px;">9.64</td> </tr> <tr> <td style="text-align: center; padding: 5px;">9</td> <td style="text-align: center; padding: 5px;">14.0</td> <td style="text-align: center; padding: 5px;">14.41</td> <td style="text-align: center; padding: 5px;">41.8</td> <td style="text-align: center; padding: 5px;">9.78</td> </tr> <tr> <td style="text-align: center; padding: 5px;">10</td> <td style="text-align: center; padding: 5px;">15.0</td> <td style="text-align: center; padding: 5px;">15.05</td> <td style="text-align: center; padding: 5px;">43.1</td> <td style="text-align: center; padding: 5px;">10.0</td> </tr> <tr> <td style="text-align: center; padding: 5px;"><b>PI</b></td> <td style="text-align: center; padding: 5px;"><b>2.65</b></td> <td style="text-align: center; padding: 5px;"><b>2.20</b></td> <td style="text-align: center; padding: 5px;"><b>2.80</b></td> <td style="text-align: center; padding: 5px;"><b>1.49</b></td> </tr> <tr> <td style="text-align: center; padding: 5px;"><b>Insulation Condition</b></td> <td style="text-align: center; padding: 5px;"><b>Good</b></td> <td style="text-align: center; padding: 5px;"><b>Good</b></td> <td style="text-align: center; padding: 5px;"><b>Good</b></td> <td style="text-align: center; padding: 5px;"><b>Fair</b></td> </tr> </tbody> </table>					No ( Minute )	Insulation resistance				HV - (LV+TV+E) G OHM	LV - (HV+TV+E) G OHM	TV - (HV+LV+E) G OHM	(HV+LV+TV) - ( E ) G OHM	1	5.65	6.82	15.4	6.70	2	6.30	10.0	25.2	7.40	3	9.03	11.58	29.7	8.25	4	9.43	12.03	32.8	8.64	5	10.07	12.30	33.1	9.08	6	11.07	13.21	37.0	9.13	7	13.00	14.05	38.0	9.25	8	13.07	14.36	40.0	9.64	9	14.0	14.41	41.8	9.78	10	15.0	15.05	43.1	10.0	<b>PI</b>	<b>2.65</b>	<b>2.20</b>	<b>2.80</b>	<b>1.49</b>	<b>Insulation Condition</b>	<b>Good</b>	<b>Good</b>	<b>Good</b>	<b>Fair</b>
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Test voltage : 5000 VDC		Polarisation Index	Insulation Condition																																																																						
		< 1	Dangerous																																																																						
		1.0 - 1.1	Poor																																																																						
Remark		1.1 - 1.25	Questionable																																																																						
PI = G Ohm 10 mnt / G Ohm 1 mnt		1.25 - 2.0	Fair																																																																						
		Above 2.0	Good																																																																						
<i>Acceptance Criteria : Insulation Resistance <math>\geq</math> 400 M Ohm &amp; Polarisation index shall be minimum FAIR</i>																																																																									
Witnessed by,  Argianka S Putra PT. PLN (Persero) UPP JBT 3		Checked by,  M Ngapan Hadi PT. PLN (Persero) PUSMANPRO UPMK 1		11-12 Maret 2024 Tested by,  Yopi Sopyan PT. Elsewedy Electric Indonesia																																																																					
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<b>Insulation Resistance of Core/Frame/Grounding</b>				<b>DOC. NO. : FW-QLT-TB0201</b>																				
				Rev : 0	Page 1 of 1																			
Serial No	: 3011230065			Location	: GI 150 KV KTT DATA CENTER																			
Customer	: PT PLN (Persero)			Type	: ORF 60/275																			
60	MVA	150/22 kV	KV	50	Hz	YNyn0+d1 CONNECTION 3 PHASE																		
<p>Instrument : Insulation Resistance Test Set          Brand : SANWA          Type : MG 5000          Serial No. : 16115900122</p>																								
<p><b>Test voltage : 2500 VDC</b></p> <table> <tr> <td>Core</td> <td>-</td> <td>Frame</td> <td>=</td> <td>8.32</td> <td>G Ohm</td> </tr> <tr> <td>Core</td> <td>-</td> <td>Ground</td> <td>=</td> <td>10.7</td> <td>G Ohm</td> </tr> <tr> <td>Frame</td> <td>-</td> <td>Ground</td> <td>=</td> <td>10.6</td> <td>G Ohm</td> </tr> </table>							Core	-	Frame	=	8.32	G Ohm	Core	-	Ground	=	10.7	G Ohm	Frame	-	Ground	=	10.6	G Ohm
Core	-	Frame	=	8.32	G Ohm																			
Core	-	Ground	=	10.7	G Ohm																			
Frame	-	Ground	=	10.6	G Ohm																			
<p><b>Acceptance Criteria : minimum value is 1000 M Ohm</b></p>																								
<p>11-12 Maret 2024</p>																								
<p>Witnessed by,</p>  <p><u>Argianka S Putra</u> PT. PLN (Persero) UPP JBT 3</p>			<p>Checked by,</p>  <p><u>M Ngapan Hadi</u> PT. PLN (Persero) PUSMANPRO UPMK 1</p>		<p>Tested by,</p>  <p><u>Gilang Maulana Sidik</u> PT. Sandika Kurnia Permata</p>																			

Voltage Ratio of Phase Relationship						DOC. NO. : FW-QLT-TB0201				
						Rev : 0	Page 1 of 1			
Serial No	: 3011230065		Location	: GI 150 KV KTT DATA CENTER			STANDARD			
Customer	: PT PLN (Persero)		Type	: ORF 60/275			IEC 60076-1:2011			
	60	MVA	150/22 KV	KV	50	Hz	YNyn0+d1	CONNECTION	3	PHASE
<p>Instrument : Turn Ratio Test Set          Brand : OMICRON          Type : CPC 100 + CP SB1          Serial No. : TD083A + DN7936</p>										
Tap Pos	Primary (Volts)	Secondary (Volts)	Theory	Measured			Deviation			
				1U-1N/2u-2n	1V-1N/2v-2n	1W-1N/2w-2n	%	%	%	
1	165000	22000	7,5000	7,5187	7,5184	7,5189	0	0,25	0,25	
2	163125	22000	7,4148	7,4322	7,4312	7,4319	0,23	0,22	0,23	
3	161250	22000	7,3295	7,3450	7,3448	7,3451	0,21	0,21	0,21	
4	159375	22000	7,2443	7,2587	7,2580	7,2585	0,20	0,19	0,20	
5	157500	22000	7,1591	7,1717	7,1710	7,1715	0,18	0,17	0,17	
6	155625	22000	7,0739	7,0854	7,0848	7,0848	0,16	0,15	0,15	
7	153750	22000	6,9886	6,9982	6,9980	6,9982	0,14	0,13	0,14	
8	151875	22000	6,9034	6,9117	6,9111	6,9119	0,12	0,11	0,12	
9	150000	22000	6,8182	6,8249	6,8245	6,8248	0,10	0,09	0,10	
10	148125	22000	6,7330	6,7383	6,7379	6,7383	0,08	0,07	0,08	
11	146250	22000	6,6477	6,6516	6,6509	6,6519	0,06	0,05	0,06	
12	144375	22000	6,5625	6,5650	6,5644	6,5646	0,04	0,03	0,03	
13	142500	22000	6,4773	6,4783	6,4779	6,4782	0,02	0,01	0,01	
14	140625	22000	6,3920	6,3917	6,3910	6,3915	0,00	-0,02	-0,01	
15	138750	22000	6,3068	6,3051	6,3046	6,3051	-0,03	-0,03	-0,03	
16	136875	22000	6,2216	6,2183	6,2176	6,2182	-0,05	-0,06	-0,05	
17	135000	22000	6,1364	6,1319	6,1309	6,1315	-0,07	-0,09	-0,08	
<p><i>Acceptance Criteria : Maximum deviation is <math>\pm 0.5\%</math></i></p>										
<p>11-12 Maret 2024</p>										
 Witnessed by, <b>Argianka S Putra</b> <b>PT. PLN (Persero) UPP JBT 3</b>				 Checked by, <b>M Ngapan Hadi</b> <b>PT. PLN (Persero) PUSMANPRO UPMK 1</b>				 Tested by, <b>Gilang Maulana Sidik</b> <b>PT. Elsewedy Electric Indonesia</b> <b>PT. Sandika Kurnia Permata</b>		

Check of Phase Displacement		DOC. NO. : FW-QLT-TB0201															
		Rev : 0	Page 1 of 1														
Serial No	: 3011230065	Location	: GI 150 KV KTT DATA CENTER														
Customer	PT PLN (Persero)	Type	STANDARD IEC 60076-1:2011														
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">60</td> <td style="width: 10%;">MVA</td> <td style="width: 10%;">150/22 KV</td> <td style="width: 10%;">KV</td> <td style="width: 10%;">50</td> <td style="width: 10%;">Hz</td> <td style="width: 10%;">YNyn0+d1</td> <td style="width: 10%;">CONNECTION</td> <td style="width: 10%;">3</td> <td style="width: 10%;">PHASE</td> </tr> </table>		60	MVA	150/22 KV	KV	50	Hz	YNyn0+d1	CONNECTION	3	PHASE						
60	MVA	150/22 KV	KV	50	Hz	YNyn0+d1	CONNECTION	3	PHASE								
<p>Instrument : Multi Meter          Brand : SANWA          Serial No. : 17075703307</p>																	
<p><b>Test Connection</b></p> 																	
<p><b>Measured Terminal</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">U1 - V1 = 393 Volt</td> <td style="width: 50%;">u2 - v2 = 64 Volt</td> </tr> <tr> <td>V1 - W1 = 393 Volt</td> <td>v2 - w2 = 64 Volt</td> </tr> <tr> <td>W1 - U1 = 393 Volt</td> <td>w2 - u2 = 64 Volt</td> </tr> <tr> <td>V1 - v2 = 328 Volt</td> <td>U1 - N1 = 227 Volt</td> </tr> <tr> <td>V1 - w2 = 365 Volt</td> <td>U1 - n2 = 37 Volt</td> </tr> <tr> <td>W1 - w2 = 329 Volt</td> <td>N1 - n2 = 190 Volt</td> </tr> <tr> <td>W1 - v2 = 365 Volt</td> <td></td> </tr> </table>				U1 - V1 = 393 Volt	u2 - v2 = 64 Volt	V1 - W1 = 393 Volt	v2 - w2 = 64 Volt	W1 - U1 = 393 Volt	w2 - u2 = 64 Volt	V1 - v2 = 328 Volt	U1 - N1 = 227 Volt	V1 - w2 = 365 Volt	U1 - n2 = 37 Volt	W1 - w2 = 329 Volt	N1 - n2 = 190 Volt	W1 - v2 = 365 Volt	
U1 - V1 = 393 Volt	u2 - v2 = 64 Volt																
V1 - W1 = 393 Volt	v2 - w2 = 64 Volt																
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W1 - v2 = 365 Volt																	
$U1-N1 = U1-n2 + n2-N1$ $V1-w2 > V1-v2, W1-v2 > W1-w2$																	
<p><b>Acceptance criteria : Actual measurement value match with phase diagram</b></p>																	
<p>11-12 Maret 2024</p>																	
<p>Witnessed by</p> 		<p>Checked by,</p> 															
<p>Argianka S Putra PT. PLN (Persero) UPP JBT 3</p>		<p>Yopi Sopyan PT. Elsewedy Electric Indonesia</p>															
<p>M Ngapan Hadi PT. PLN (Persero) PUSMANPRO UPMK 1</p>		<p>Tested by, Gilang Maulana Sidik PT. Sandika Kurnia Permata</p>															

Dyn. OLTC-scan (DRM) Prim (Continuitas Arus OLTC)		DOC. NO. : FW-QLT-TB0201								
		Rev : 0								
		Page 1 of 1								
Serial No	: 3011230065	Location : GI 150 KV KTT DATA CENTER	STANDARD							
Customer	: PT PLN (Persero)	Type : ORF 60/275	IEC 60076-1:2011							
60	MVA	150/22 KV	KV	50	Hz	YNyn0+d1	CONNECTION	3	PHASE	
Instrument : CPC 100 + CP SB1										
Brand : OMICRON										
Serial No. : TD083A + DN7936										
Start Tap	1	Test Current	6 Ampere							
Stop Tap	17	Recording time	100 ms							
Mode	Auto switching of taps	Noise suppression	Yes							
Tap Time	10 s	Dynamic shorting	Yes							
Impulse time	2 s	Winding temperature	30 °C							
Tolerance R dev	0,10%	Reference temperatur	75 °C							
Setting Time	10 s	Correction factor	1,17							
										
Assessment : Pass										
					11-12 Maret 2024					
 Argianka S Putra PT. PLN (Persero) UPP JBT 3		Witnessed by	 M Ngapan Hadi PT. PLN (Persero) PUSMANPRO UPMK 1		Checked by,	 Yopi Sopyan PT. Elsewedy Electric Indonesia		Tested by,	 Gilang Maulana Sidik PT. Sandika Kurnia Permata	

Winding Resistance Measurement HV								DOC. NO. : FW-QLT-TB0201	Rev : 0	Page 1 of 2																																												
Serial No : 3011230065				Location : GI 150 KV KTT DATA CENTER				STANDARD																																														
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<b>HV SIDE</b>																																																						
Ambient Temperature 30 °C																																																						
Tapping Pos	1U - 1N			1V - 1N			1W - 1N																																															
	R Meas (Ω)	R 75°C (Ω)	R dev (%)	R Meas (Ω)	R 75°C (Ω)	R dev (%)	R Meas (Ω)	R 75°C (Ω)	R dev (%)																																													
1	0,30512	0,35699	0,090	0,30596	0,35797	0,080	0,30598	0,35800	0,080																																													
2	0,29968	0,35063	0,070	0,30064	0,35175	0,050	0,30056	0,35166	0,060																																													
3	0,29450	0,34456	0,070	0,29526	0,34546	0,060	0,29541	0,34563	0,060																																													
4	0,28919	0,33836	0,080	0,28997	0,33926	0,080	0,29014	0,33946	0,070																																													
5	0,28395	0,33222	0,090	0,28482	0,33324	0,080	0,28492	0,33336	0,080																																													
6	0,27873	0,32612	0,090	0,27951	0,32703	0,090	0,27964	0,32718	0,100																																													
7	0,27343	0,31992	0,080	0,27426	0,32089	0,090	0,27435	0,32099	0,090																																													
8	0,26829	0,31391	0,100	0,26902	0,31475	0,060	0,26912	0,31487	0,040																																													
9	0,26216	0,30672	0,070	0,26269	0,30735	0,030	0,26223	0,30681	0,070																																													
10	0,26419	0,30910	0,100	0,26485	0,30988	0,070	0,26501	0,31006	0,080																																													
11	0,25877	0,30276	0,050	0,25953	0,30365	0,090	0,25963	0,30377	0,050																																													
12	0,25348	0,29658	0,050	0,25420	0,29742	0,070	0,25432	0,29755	0,040																																													
13	0,24832	0,29053	0,050	0,24900	0,29133	0,070	0,24909	0,29144	0,060																																													
14	0,24306	0,28438	0,040	0,24380	0,28525	0,040	0,24385	0,28530	0,080																																													
15	0,23774	0,27816	0,090	0,23849	0,27903	0,070	0,23859	0,27915	0,030																																													
16	0,23258	0,27212	0,090	0,23336	0,27303	0,050	0,23339	0,27307	0,060																																													
17	0,22676	0,26531	0,050	0,22716	0,26578	0,060	0,22677	0,26532	0,060																																													

<p><b>Acceptance Criteria : Maximum Unbalance Deviation is <math>\pm 5\%</math> between phases</b></p>										
11-12 Maret 2024										
Witnessed by,					Checked by,					Tested by,
 Argianka S Putra					 M Ngapan Hadi					 Yopi Soprian
PT. PLN (Persero) UPP JBT 2					PT. PLN (Persero) PUSMANPRO UPMK 2					PT. Elsewedy Electric Indonesia
										PT. Sandika Kurnia Permata

<b>Winding Resistance Measurement HV</b>		<b>DOC. NO. : FW-QLT-TB0201</b>																																									
		Rev : 0																																									
		Page 2 of 2																																									
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<b>HV SIDE</b>																																											
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Tap Number	Winding Resistance (MΩ)																																										
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14	270																																										
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16	265																																										
Ambient Temperature : 30 °C																																											
11-12 Maret 2024																																											
Witnessed by,  Argianka S Putra PT. PLN (Persero) UPP JBT 3					Checked by,  M Ngapan Hadi PT. PLN (Persero) PUSMANPRO UPMK 1																																						
					Tested by,  Yopi Sopyan PT. Elsewedy Electric Indonesia																																						
					 Gilang Maulana Sidik PT. Sandika Kurnia Permata																																						

Winding Resistance Measurement LV						DOC. NO. : FW-QLT-TB0201 Rev : 0 Page 1 of 1																															
Serial No : 3011230065			Location : GI 150 KV KTT DATA CENTER			STANDARD																															
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Tapping Pos	u2 - n2			v2 - n2			w2 - n2																														
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<i>Acceptance Criteria : Maximum Unbalance Deviastion is ± 5% between phases</i>																																					
Witnessed by,				Checked by,			11-12 Maret 2024 Tested by,																														
 <u>Argianka S Putra</u>				 <u>M Ngapan Hadi</u>			 <u>Yopi Suryan</u>																														
<u>PT. PLN (Persero) UPP JBT 3</u>				<u>PT. PLN (Persero) PUSMANPRO UPMK 1</u>			<u>PT. Elsewedy Electric Indonesia</u>																														
 <u>Gilang Maulana Sidik</u>							<u>PT. Sandika Kurnia Permata</u>																														

Capacitance and Tan δ Winding ( 2 Winding )							DOC. NO. : FW-QLT-TB0201 Rev : 0 Page 1 of 1				
Serial No : 3011230065				Location : GI 150 KV KTT DATA CENTER				STANDARD			
Customer : PT PLN (Persero)				Type : ORF 60/275				IEC 60076-1:2011			
60 MVA			150/22 kV KV		50 Hz		YNyn0+d1 CONNECTION		3 PHASE		
Instrument : Tangen Delta Test Set Brand : OMICRON Type : CPC 100 + CPTD Serial No. : TD083A + QD790W											
TAP POSITION 1											
Test	UST - GST MODE	CAP. SYMBOL	APPLIED VOLTAGE (kV)	I Out ( mA )	Watt Loss ( mW )	CAPACITANCE (pF)	Tan δ (%)		TEST LEAD CONN		
							29 ° C	20 ° C	BLACK	RED	BLUE
1	UST-R	CHL	10	26.25	353.16	8355.6	0.13%	0.11%	H	L	-
2	GSTg-B	CHL+VHG	10	41.62	859.50	13244.4	0.20%	0.16%	H	L	-
3	GSTg-RB	CHG	10	15.37	507.94	4888.1	0.33%	0.27%	H	L	-
4	UST-R	CHL	10	26.25	350.45	8355.9	0.13%	0.13%	L	H	-
5	GSTg-B	CHL+CLG	10	87.97	1577.34	27999.4	0.17%	0.14%	L	H	-
6	GSTg-RB	CLG	10	61.72	1241.80	19643.7	0.20%	0.16%	L	H	-
*Pengujian dilakukan pada saat cuaca mendung											
Acceptance Criteria : Tan δ ≤ 0.5 % at 20°C (Conform to SPLN T3.007-2 : 2016)											
11-12 Maret 2024											
Witnessed by,				Checked by,				Tested by,			
 Argianka S Putra PT. PLN (Persero) UPP JBT 3				 M Ngapan Hadi PT. PLN (Persero) PUSMANPRO UPMK 1				 Yopi Sopyan PT. Elsewedy Electric Indonesia			
 Gilang Maulana Sidik PT. Sandika Kurnia Permata											

Capacitance and Tan δ Winding ( 3 Winding )						DOC. NO. : FW-QLT-TB0201	Rev : 0	Page 1 of 1																																										
Serial No	: 3011230065		Location	: GI 150 KV KTT DATA CENTER			STANDARD																																											
Customer	: PT PLN (Persero)		Type	: ORF 60/275			IEC 60076-1:2011																																											
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							30 ° C	20 ° C	BLACK	RED	BLUE																																							
1	GSTg - B	CHL+CHG	10	41.13	812.13	13088.0	0.19	0.16	H	L	T																																							
2	GSTg - RB	CHG	10	14.88	449.01	4731.7	0.30	0.24	H	L	T																																							
3	GSTg - R	CLT+CLG	10	61.71	1272.30	19641.9	0.20	0.16	L	H	T																																							
4	GSTg - RB	CLG	10	4.89	272.94	1551.9	0.55	0.45	L	H	T																																							
5	GSTg - R	CLTH+CTH	10	30.12	359.72	19168.4	0.23	0.19	T	H	L																																							
6	GSTg - RB	CTG	10	29.87	357.70	19009.3	0.23	0.19	T	H	L																																							
7	GST-GND	C(HL)T+C(HL)G	10	77.11	1557.46	25541.3	0.20	0.14	H+L	T	-																																							
8	GST-GND	C(HL)T+C(HL)G	10	157.70	2978.28	50191.5	0.18	0.13	H+T	L	-																																							
<p>*Pengujian dilakukan pada saat cuaca mendung</p> <p><b>Acceptance Criteria : Tan δ ≤ 0.5 % at 20°C (Conform to SPLN T3.007-2 : 2016)</b></p>																																																		
11-12 Maret 2024																																																		
<p>Witnessed by,</p>  <p>Argianka S Putra</p> <p>PT. PLN (Persero) UPP JBT 3</p>			<p>Checked by,</p>  <p>M Ngapan Hadi</p> <p>PT. PLN (Persero) PUSMANPRO UPMK</p>			<p>Tested by,</p>  <p>Gilang Maulana Sidik</p> <p>PT. Sandika Kurnia Pramata</p>																																												
Page 12 - 1																																																		

Capacitance and Tan δ Bushing						DOC. NO. : FW-QLT-TB0201														
						Rev : 0	Page 1 of 1													
Serial No	: 3011230065		Location	GI 150 KV KTT DATA CENTER		STANDARD														
Customer	: PT PLN (Persero)		Type	ORF 60/275		IEC 60076-1:2011														
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Instrument	:	Tangen Delta Test Set																		
Brand	:	OMICRON																		
Type	:	CPC 100 + CPTD																		
Serial No.	:	TD083A + QD790A																		
Test	BUSHING		SIDE	TEST MODE	APPLIED VOLTAGE (kV)	CAPACITANCE (pF)	Tan δ (%)		TEST LEAD CONN											
	No	Serial No.					Ph	29 °C	20 °C	BLACK	RED	BLUE								
1	301365	1U	HV	UST-R	10	343,2	0,365	0,299	Terminal	Tap	-									
2	301366	1V	HV	UST-R	10	340,5	0,334	0,274	Terminal	Tap	-									
3	301364	1W	HV	UST-R	10	340,8	0,342	0,280	Terminal	Tap	-									
4	300649	1N	HV	UST-R	10	450,1	0,389	0,319	Terminal	Tap	-									
<p><b>Remark :</b></p> <p>U SN. 301365 C1 = 344 pF &amp; tan δ = 0,38%      V SN. 301366 C1 = 341 pF &amp; tan δ = 0,36%      W SN. 301364 C1 = 341 pF &amp; tan δ = 0,38%      N SN. 300649 C1 = 452 pF &amp; tan δ = 0,39%</p>																				
<p><i>*Pengujian dilakukan pada saat cuaca mendung</i></p>																				
<p><b>Acceptance Criteria : Tan δ ≤ 0.5 % at 20°C (Conform to SPLN T3.007-2 : 2016)</b></p>																				
11-12 Maret 2024																				
 Argianka S Putra PT. PLN (Persero) UPP JBT 3			Witnessed by,  M Ngapan Hadi PT. PLN (Persero) PUSMANPRO UPMK 1			Checked by,  Yopi Sopyan PT. Elsewedy Electric Indonesia			Tested by,  Gilang Maulana Sidik PT. Sandika Kurnia Permata											

Exciting Current Test				DOC. NO. : FW-QLT-TB0201		
				Rev : 0	Page 1 of 1	
Serial No	: 3011230065			Location	: GI 150 KV KTT DATA CENTER	
Customer	: PT PLN (Persero)			Type	: ORF 60/275	
60		MVA	150/22 KV	KV	50 Hz	
Y <sub>N</sub> yn0+d1		CONNECTION	3 PHASE			
Instrument : Tangen Delta Test Set Brand : OMICRON Type : CPC 100 + CPTD Serial No. : TD083A + QD790W						
Tapping Pos	PHASE 1U - 1N		PHASE 1V - 1N		PHASE 1W - 1N	
	I Out [mA]	Watt	I Out [mA]	Watt	I Out [mA]	Watt
1	20,676	183,772	14,310	132,666	20,871	183,652
9	23,284	254,361	23,390	183,813	33,002	254,771
17	38,716	299,650	27,091	214,866	40,253	305,662
<p>Exciting Current</p> <p>mA</p> <p>1 9 17</p> <p>Tap changer position</p> <p>A B C</p>						
<b>Acceptance Criteria :</b> <ul style="list-style-type: none"> <li>- No exceeding of excitation current and no failed during testing</li> <li>- The excitation current on the outside legs should be within 15 % deviation of each other and the excitation current for the center leg should not more than outside leg</li> </ul>						
Witnessed by,			Checked by,		11-12 Maret 2024	
<p>Argianka S Putra</p> <p>PT. PLN (Persero) UPP JBT 3</p>			<p>M Ngapan Hadi</p> <p>PT. PLN (Persero) PUSMANPRO UPMK 1</p>		<p>Yopi Sopyan</p> <p>PT. Elsewedy Electric Indonesia</p>	
<p>Gilang Maulana Sidik</p> <p>PT. Sandika Kurnia Permata</p>						

<b>Motor Fans Current Measurement</b>		<b>DOC. NO. : FW-QLT-TB0201</b>																				
		Rev : 0	Page 1 of 1																			
Serial No	: 3011230065	Location	: GI 150 KV KTT DATA CENTER																			
Customer	: PT PLN (Persero)	Type	: ORF 60/275																			
		STANDARD																				
		IEC 60076-1:2011																				
60	MVA	150/22 KV	KV																			
50	Hz	YNyn0+d1	CONNECTION																			
3	PHASE																					
<table> <tr> <td>Instrument</td> <td>: Current Tester</td> </tr> <tr> <td>Brand</td> <td>: VIP DIGITAL CLAMP</td> </tr> <tr> <td>Type</td> <td>: VIP 3092</td> </tr> <tr> <td>Serial No.</td> <td>: 2200799</td> </tr> </table>				Instrument	: Current Tester	Brand	: VIP DIGITAL CLAMP	Type	: VIP 3092	Serial No.	: 2200799											
Instrument	: Current Tester																					
Brand	: VIP DIGITAL CLAMP																					
Type	: VIP 3092																					
Serial No.	: 2200799																					
Input Voltage ( 380 VAC )																						
<table border="1"> <thead> <tr> <th rowspan="2">Fans Number</th> <th colspan="3">Current</th> </tr> <tr> <th>R</th> <th>S</th> <th>T</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1.37</td> <td>1.36</td> <td>1.38</td> </tr> <tr> <td>2</td> <td>1.52</td> <td>1.47</td> <td>1.40</td> </tr> <tr> <td>3</td> <td>1.76</td> <td>1.78</td> <td>1.76</td> </tr> </tbody> </table>				Fans Number	Current			R	S	T	1	1.37	1.36	1.38	2	1.52	1.47	1.40	3	1.76	1.78	1.76
Fans Number	Current																					
	R	S	T																			
1	1.37	1.36	1.38																			
2	1.52	1.47	1.40																			
3	1.76	1.78	1.76																			
11-12 Maret 2024																						
Witnessed by		Checked by,																				
 <u>Argianka S Putra</u> PT. PLN (Persero) UPP JBT 3		 <u>M Ngapan Hadi</u> PT. PLN (Persero) PUSMANPRO UPMK 1																				
		 <u>Yopi Sopyan</u> PT. Elsewedy Electric Indonesia																				
		 <u>Gilang Maulana Sidik</u> PT. Sandika Kurnia Permata																				

<b>Setting Temperature</b>		<b>DOC. NO. : FW-QLT-TB0201</b>	
		<b>Rev : 0</b> <b>Page 1 of 1</b>	
Serial No	: 3011230065	Location	: GI 150 KV KTT DATA CENTER
Customer	: PT PLN (Persero)	Type	: ORF 60/275
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px 10px; margin-right: 10px;">60</div> <div style="border: 1px solid black; padding: 2px 10px; margin-right: 10px;">MVA</div> <div style="border: 1px solid black; padding: 2px 10px; margin-right: 10px;">150/22 KV</div> <div style="border: 1px solid black; padding: 2px 10px; margin-right: 10px;">KV</div> <div style="border: 1px solid black; padding: 2px 10px; margin-right: 10px;">50</div> <div style="border: 1px solid black; padding: 2px 10px; margin-right: 10px;">Hz</div> <div style="border: 1px solid black; padding: 2px 10px; margin-right: 10px;">YNyn0+d1</div> <div style="border: 1px solid black; padding: 2px 10px; margin-right: 10px;">CONNECTION</div> <div style="border: 1px solid black; padding: 2px 10px; margin-right: 10px;">3</div> <div style="border: 1px solid black; padding: 2px 10px;">PHASE</div> </div>		<b>STANDARD</b> IEC 60076-1:2011	
<b>OIL TEMPERATURE INDICATOR</b> <p>1 Alarm : 90 °C          2 Trip : 105 °C</p> <p><b>WINDING TEMPERATURE INDICATOR HV</b></p> <p>1 Stop Cooling : 68 °C          2 Start Cooling : 80 °C          3 Alarm : 105 °C          4 Trip : 120 °C</p> <p><b>WINDING TEMPERATURE INDICATOR LV</b></p> <p>1 Stop Cooling : 67 °C          2 Start Cooling : 80 °C          3 Alarm : 105 °C          4 Trip : 120 °C</p>			
<i>Acceptance Criteria : Refer factory setting on schematic diagram unless otherwise by special customer requisition</i>			
11-12 Maret 2024			
Witnessed by  Argianka S Putra PT. PLN (Persero) UPP JBT 3		Checked by,  M Ngapan Hadi PT. PLN (Persero) PUSMANPRO UPMK 1	
 Yopri Sopyan PT. Elsewedy Electric Indonesia		 Gilang Maulana Sidik PT. Sandika Kurnia Permata	

Calibration of Temperature Indicator				DOC. NO. : FW-QLT-TB0201		
				Rev : 0	Page 1 of 1	
Serial No	: 3011230065			Location	GI 150 KV KTT DATA CENTER	
Customer	: PT PLN (Persero)			Type	ORF 60/275	
60		MVA	150/22 kV	50	Hz	YNyn0+d1
						CONNECTION
						3
						PHASE
Temperature Reference	Oil Temperature Indicator	mA	HV Winding Temperature Indicator	mA	LV Winding Temperature Indicator	mA
120	120	16.80	119	16.60	119	16.65
110	109	16.12	109	15.35	108	15.45
100	99	14.85	98	14.13	99	14.60
90	90	13.77	89	13.25	89	13.30
80	80	12.87	78	12.17	79	12.74
70	70	11.81	68	11.21	70	11.86
60	60	10.63	58	10.02	60	10.55
50	50	9.42	49	9.04	50	9.55
40	40	8.21	40	8.01	40	8.35
Acceptance Criteria : Maximum Deviation Value is 5 °						
11-12 Maret 2024						
Witnessed by			Checked by,			Tested by,
 <u>Argianka S Putra</u> PT. PLN (Persero) UPP JBT 3			 <u>M Ngapan Hadi</u> PT. PLN (Persero) PUSMANPRO UPMK 1			 <u>Yopi Sopyan</u> PT. Elsewedy Electric Indonesia
 <u>Gilang Maulana Sidik</u> PT. Sandika Kurnia Permata						

<b>Functional Test on Control and Accessories (From Local)</b>				<b>DOC. NO. : FW-QLT-TB0201</b>																									
				Rev : 0	Page 1 of 3																								
Serial No	: 3011230065			Location	GI 150 KV KTT DATA CENTER																								
Customer	: PT PLN (Persero)			Type	STANDARD IEC 60076-1:2011																								
60		MVA	150/22 kV	50	Hz																								
				YNyn0+d1	CONNECTION																								
				3	PHASE																								
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Instrument</td> <td colspan="5">: Multi Meter</td> </tr> <tr> <td>Brand</td> <td colspan="5">: SANWA</td> </tr> <tr> <td>Type</td> <td colspan="5">: TD80a</td> </tr> <tr> <td>Serial No.</td> <td colspan="5">: 17075703307</td> </tr> </table>						Instrument	: Multi Meter					Brand	: SANWA					Type	: TD80a					Serial No.	: 17075703307				
Instrument	: Multi Meter																												
Brand	: SANWA																												
Type	: TD80a																												
Serial No.	: 17075703307																												
No	Description		Terminal Block	Contact Status	Status	Remark																							
1	Oil Level Indicator Main Tank		X14	1 - 2	NO	OK	Low Level Alarm																						
	Analog Output 4-20 mA			3 - 4	NO	OK	High Level Alarm																						
				9 - 10	-																								
2	Oil Level Indicator OLTC		X14	11 - 12	NO	OK	Low Level Alarm																						
	Analog Output 4-20 mA			13 - 14	NO	OK	High Level Alarm																						
				17 - 18	-																								
3	Buchholz Relay Main Tank		X14	19 - 20	NO	OK	Alarm																						
				21 - 22	NO	OK	Trip																						
4	Oil Temperature Indicator		X14	23 - 27	NO	OK	Alarm Set 90 °C																						
	Analog Output 4 - 20 mA			28 - 35	NO	OK	Trip Set 105 °C																						
				X17	91 - 92	-																							
5	Winding Temperature Indicator ( HV )		X14	38 - 39	NO	OK	Stop Cooling at 67 °C																						
				40 - 41	NO	OK	Start Cooling at 80 °C																						
				42 - 43	NO	OK	Alarm Set 105 °C																						
				44 - 45	NO	OK	Trip Set 120°C																						
	Analog Output 4 - 20 mA		X17	93 - 94	-																								
6	Winding Temperature Indicator ( LV )		X14	38A - 39A	NO	OK	Stop Cooling at 66 °C																						
				57 - 58	NO	OK	Start Cooling at 80 °C																						
				62 - 63	NO	OK	Alarm Set 105 °C																						
				64 - 65	NO	OK	Trip Set 120°C																						
	Analog Output 4 - 20 mA		X17	95 - 96	-																								
7	Pressure Relief Device OLTC		X14	103 - 104	NO	OK	Trip 1																						
				105 - 106	NO	OK	Trip 2																						
8	Pressure Relief Device Main Tank		X14	107 - 108	NO	OK	Trip 1																						
				109 - 110	NO	OK	Trip 2																						
9	Protective Relay OLTC		X14	101 - 102	NO	OK	Trip																						
10	Ampere Meter WTI HV		-	-	-	OK	A22																						
11	Ampere Meter WTI LV		-	-	-	OK	A23																						
<b>Acceptance Criteria : Continuity, Connection and Functional are OK</b>																													
11-12 Maret 2024																													
Witnessed by			Checked by,			Tested by,																							
 <u>Argianka S Putra</u> PT. PLN (Persero) UPP JBT 3			 <u>M Ngapan Hadi</u> PT. PLN (Persero) PUSMANPRO UPMK 1			 <u>Yopi Sonyan</u> PT. Elsewedy Electric Indonesia																							
						 <u>Gilang Maulana Sidik</u> PT. Sandika Kurnia Permata																							

Functional Test on Control and Accessories (From Local)					DOC. NO. : FW-QLT-TB0201																													
					Rev : 0	Page 2 of 3																												
Serial No	Location : GI 150 KV KTT DATA CENTER				STANDARD																													
Customer	Type : ORF 60/275				IEC 60076-1:2011																													
60	MVA	150/22 kV	KV	50 Hz	YNyn0+d1 CONNECTION	3 PHASE																												
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Instrument	: Multi Meter																																	
Brand	: SANWA																																	
Type	: TD80a																																	
Serial No.	: 17075703307																																	
No	Description	Terminal Block		Contact Status	Remark																													
12	Lamp and Heater	-	-	-	OK	F7																												
13	Socket Inlet	-	-	-	OK	F8																												
14	OLTC Control Mode	X17	7 8 9	-	OK	C / Local / Remote																												
15	Tap Changer Inprogress	X17	15 - 16	-	OK																													
16	Tap Changer Incomplete	X17	20 - 22	C/NC/NO	OK	C/NC/NO																												
17	Tap Position Indicator Signal	X17	39 - 40	-	OK	4 - 20 mA ( Tap 1 -17 )																												
		X17	48 up to 67	NO	OK	N/O Contact Range																												
		X17	68 up to 74	NO	OK	BCD Signal																												
18	Motor Drive Trip (Q1)	X17	13 - 14	NO	OK	Q1																												
19	End Position Switch 17	X17	30 - 32	NO	OK	-																												
20	End Position Switch 1	X17	33 - 35	NO	OK	-																												
21	Emergency Stop	X17	11 - 12	NO	OK	-																												
22	OLTC Control Mode in Remote Operation	X17	7 8 9	-		Raise/Lower/Com																												
23	Cooling Fans MPS Failure	X17	102 - 106	NC	OK	Q4, Q5, Q6																												
24	Cooling Fans Standby in Service	X17	101 - 112	NO	OK	-																												
25	Cooling Fans Duty in Service	X17	101 - 105	NO	OK	-																												
26	AC Supply Failure	X17	103 - 107	NC	OK	F3, F6, F7, F8, F9, F10, F12																												
27	DC Supply Failure	X17	104 - 108	NC	OK	F21, F22																												
28	Operate Cooling System Auto Remote	X17	109 - 110	NO	OK	Auto																												
29	Operate Cooling System Manual Remote	X17	109 - 111	NC	OK	Manual																												
30	Isolation Switch Supply 400/230 VAC	X17	116 - 117	NO	OK	-																												
31	Isolation Switch Supply 110 VDC	X17	118 - 119	NO	OK	-																												
32	Function Switch Cooling Fans Local / Remote	-	- - -	-	OK	-																												
33	Function Switch Cooling Fans Manual / Auto	-	- - -	-	OK	-																												
34	Operate Cooling Fans Auto Local	-	- - -	-	OK	WTI HV, WTI LV																												
35	Operate Cooling Fans Manual Local	-	- - -	-	OK	Auto / Manual / S8 /S7																												
36	Manual Operation OLTC by Handcrack	-	- - -	-	OK	-																												
37	Check Interlock System of OLTC in Handcrack Mode	-	- - -	-	OK	-																												
38	Dehydrating Breather Maintank ( F9 )	X14	91 - 92	-	OK	Error																												
			93 - 94	NC	OK	Heating																												
			94 - 95	NO	OK	Heating																												
39	Dehydrating Breather OLTC ( F10 )	X14	96 - 97	-	OK	Error																												
			98 - 99	NC	OK	Heating																												
			99 - 100	NO	OK	Heating																												
<p><b>Acceptance Criteria : Continuity, Connection and Functional are OK</b></p>																																		
11-12 Maret 2024																																		
Witnessed by			Checked by,			Tested by,																												
 <u>Argianka S Putra</u> PT. PLN (Persero) UPP JBT 3			 <u>M Ngapan Hadi</u> PT. PLN (Persero) PUSMANPRO UPMK 1			 <u>Yopi Sopyan</u> PT. Elsewedy Electric Indonesia																												
						 <u>Gilang Maulaha Sidik</u> PT. Sandika Kurnia Permata																												

<b>Ouput Transducer, BCD &amp; N/O Contact Range</b>		<b>DOC. NO. : FW-QLT-TB0201</b>
Serial No	: 3011230065	Rev : 0 Page 1 of 1
Customer	: PT PLN (Persero)	Location : GI 150 KV KTT DATA CENTER STANDARD
		Type : ORF 60/275 IEC 60076-1:2011

60 MVA 150/22 kV KV 50 Hz YNyn0+d1 CONNECTION 3 PHASE

Instrument : Multi Meter  
Brand : SANWA  
Serial No. : 17075703307

Tap Position	mA Output	BCD	Contact Range
1	4.12	OK	OK
2	5.10	OK	OK
3	6.13	OK	OK
4	7.15	OK	OK
5	8.11	OK	OK
6	9.14	OK	OK
7	10.09	OK	OK
8	11.14	OK	OK
9	12.12	OK	OK
10	13.16	OK	OK
11	14.12	OK	OK
12	15.16	OK	OK
13	16.13	OK	OK
14	17.16	OK	OK
15	18.14	OK	OK
16	19.17	OK	OK
17	20.14	OK	OK

11-12 Maret 2024

Witnessed by,

Argianka S Putra

PT. PLN (Persero) UPP JBT 3

M Ngapan Hadi

PT. PLN (Persero) PUSMANPRO  
UPMK 1

Checked by,

Yopi Sopyan

PT. Elsewedy Electric Indonesia

Tested by,

Gilang Maulana Sidik

PT. Sandika Kurnia Permata

<b>Visual Check of Transformer</b>				DOC. NO. : FW-QLT-TB0201																																																																																
				Rev : 0																																																																																
				Page 1 of 1																																																																																
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# IMS SITE TEST

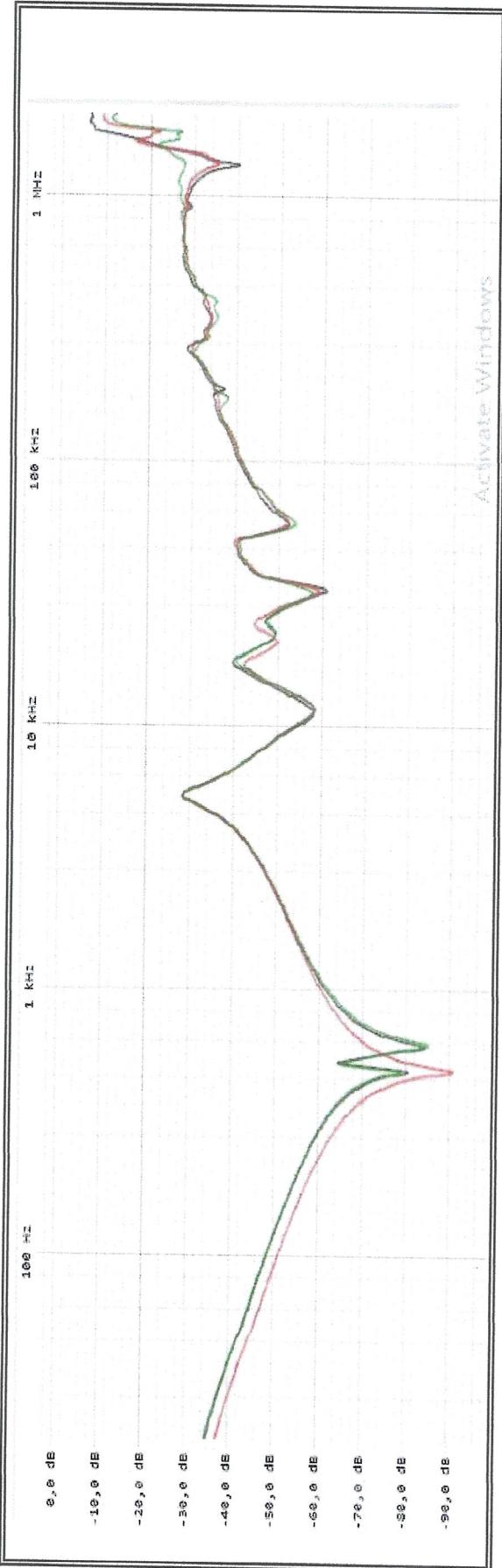
## Sweep Frequency Response Analysis Test

Subtitle

DOC.NO FW.ASS.010

Date issue  
11-12 Maret 2024  
Version  
1  
Revision  
0  
Page 01 of 06

PT PLN (Persero) 60 MVA, 150/22 KV KV,  
3011230065 YNyn0+d1 (Tap 1) HV SIDE  
LV Open TV SHORT UNGROUND



U - N

V - N

W - N

Witnessed by :

Argianka S Putra

M Ngapan Hadi

PT. PLN (Persero) UPP JBT 3 PT. PLN (Persero) PUSMANPRO UPMK 1

Checked by,

PT. Elsewedy Electric Indonesia  
PT. Sandita Kurnia Permata

11-12 Maret 2024  
Tested by,

PT. Sandita Kurnia Permata

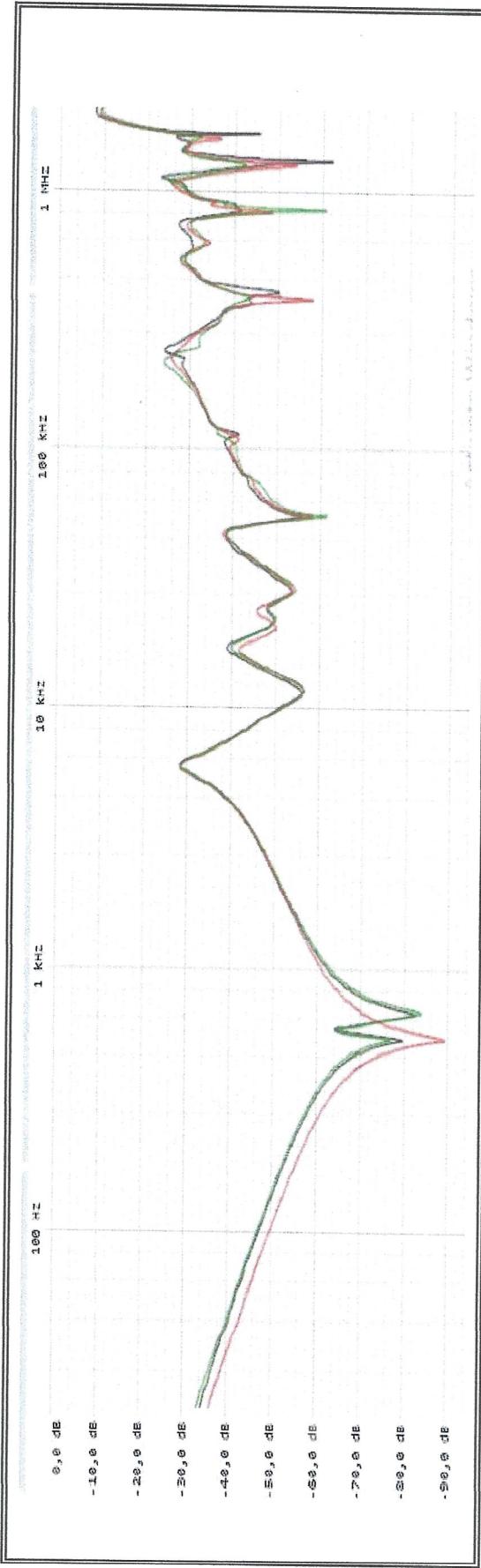
**Sweep Frequency Response Analysis Test**

Subtitle

DOC.NO FW.ASS.010

Date issue	11-12 Maret 2024
Version	1
Revision	0
Page 02 of 06	

**PT PLN (Persero) 60 MVA, 150/22 kV HV SIDE  
3011230065 YNyn0+d1 (Tap 9) LV Open TV SHORT UNGROUND**



**U - N** **V - N** **W - N**

Witnessed by :

Argianka S Putra  
PT. PLN (Persero) UPP JBT 3

**U - N** **V - N** **W - N**

Checked by,

Yopi Sopandi  
PT. PLN (Persero) PUSMANPRO UPMK 1

11-12 Maret 2024  
Tested by,

Gilang Maulana Sidik  
PT. Sandika Kurnia Permata

**Sweep Frequency Response Analysis Test**

Subtitle

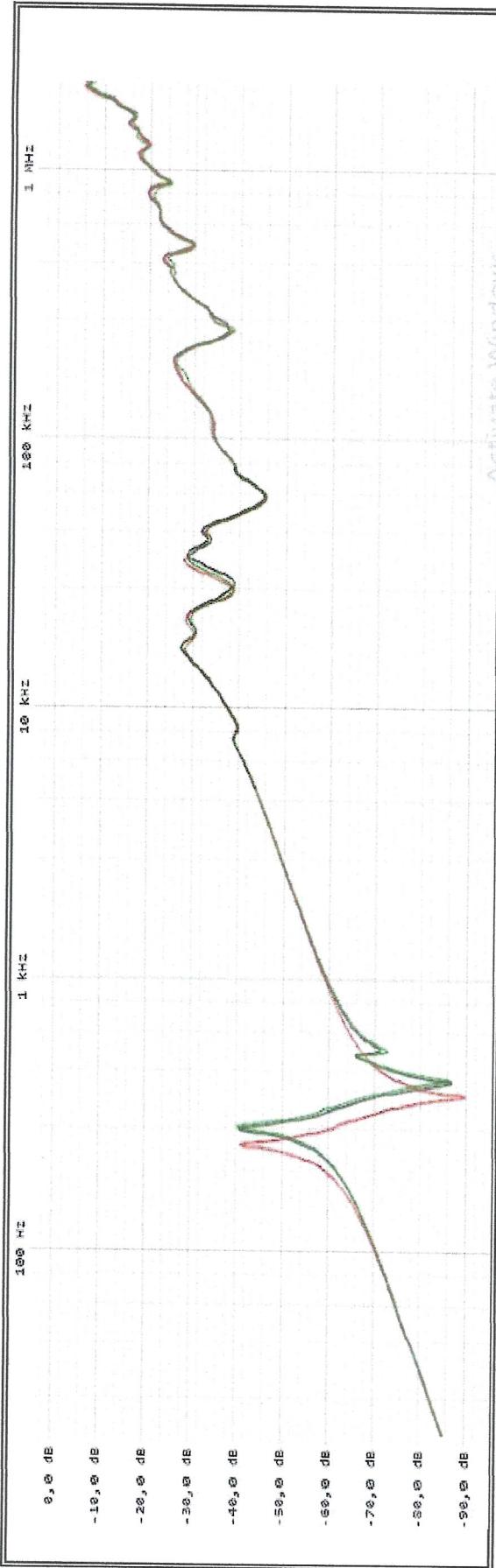
**IMS SITE TEST**

DOC.NO FW.ASS.010

Date issue	11-12 Maret 2024
Version	1
Revision	0

Page 03 of 06

**PT PLN (Persero) 60 MVA, 150/22 kV HV, HV TO LV SIDE  
30112300065 YNyN0+d1 (Tap 1) TV SHORT UNGROUND**



**W - w**

**V - v**

**U - u**

Witnessed by :

Argianka S Putra

PT. PLN (Persero) UPP JBT 3

Checked by,

Yopi Sopyan

PT. Elsewedy Electric Indonesia

11-12 Maret 2024  
Tested by,

Gilang Maulana Sidik

PT. Sandika Kurnia Permata

**Sweep Frequency Response Analysis Test**

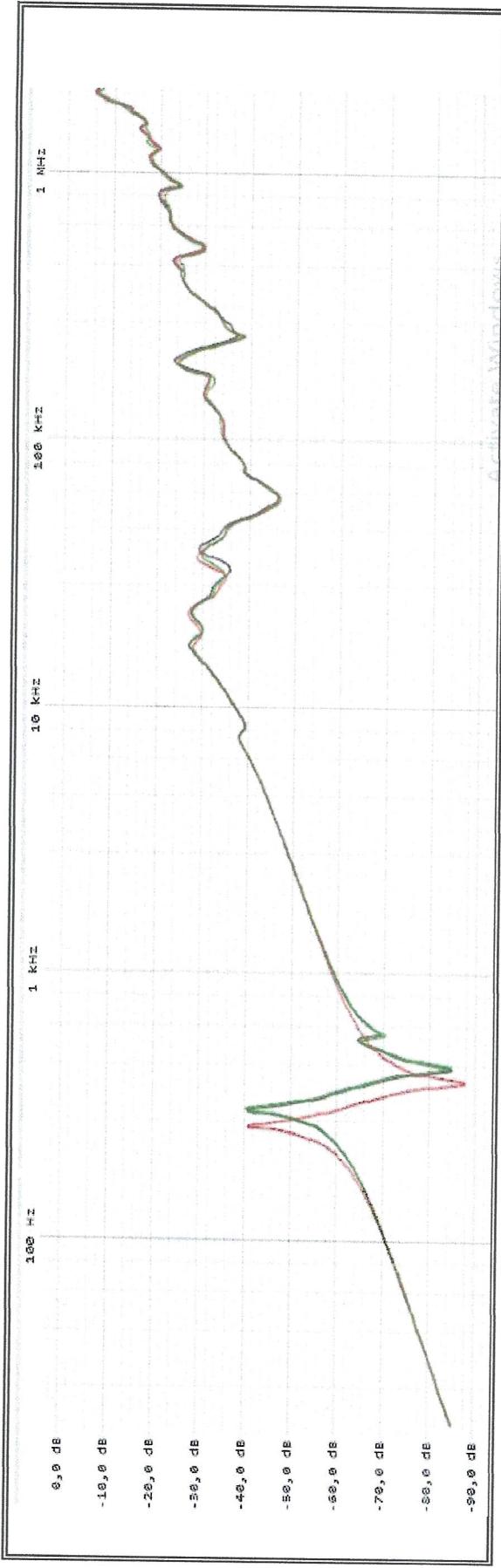
Subtitle

DOC.NO FW.ASS.010

Date issue 11-12 Maret 2024  
Version 1 Revision 0

Page 04 of 06

**PT PLN (Persero) 60 MVA, 150/22 kV HV TO LV SIDE  
30112300065 YNyn0+d1 (Tap 9) TV SHORT UNGROUND**



Witnessed by :

Argianka S Putra

PT. PLN (Persero) UPP JBT 3

**W - w**

**V - v**

**U - u**

11-12 Maret 2024  
Tested by,

Yopi Sopyan  
PT. Elsewedy Electric Indonesia

Gilang Maulana Sidik  
PT. Sandika Kurnia Permata

# IMS SITE TEST

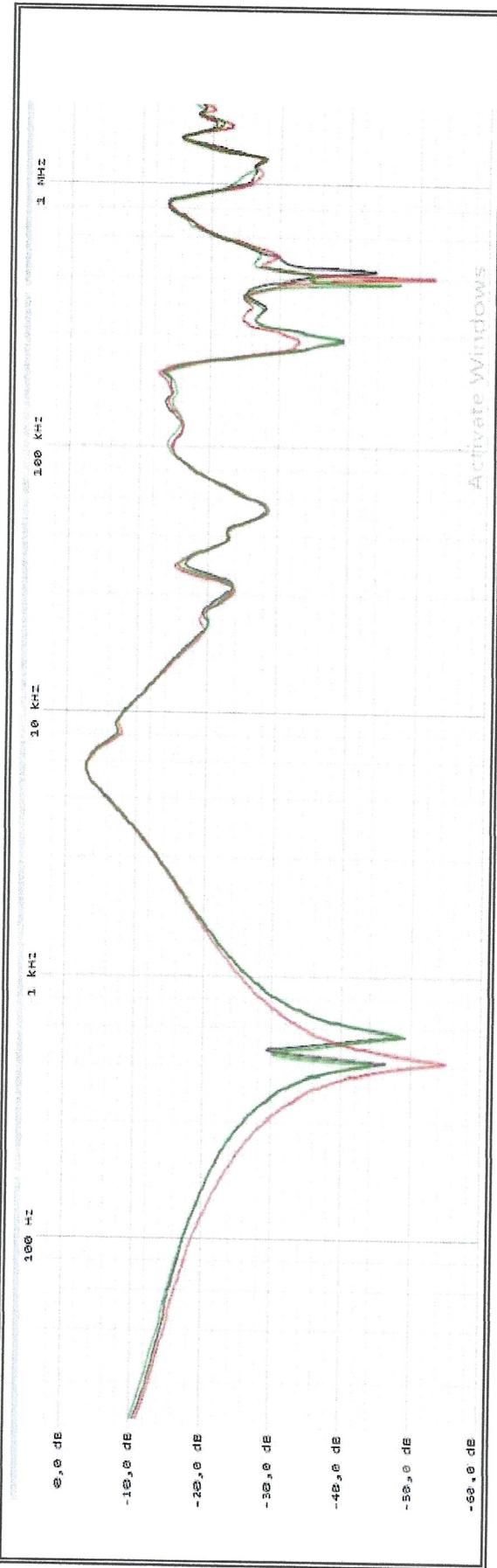
## Sweep Frequency Response Analysis Test

Subtitle

DOC.NO FW.ASS.010

Date issue	11-12 Maret 2024
Version	1
Revision	0
Page 05 of 06	

PT PLN (Persero) 60 MVA, 150/22 KV KV,  
30112300065 YNyn0+dd1 (Tap 1) HV OPEN LV SIDE  
TV SHORT UNGROUND



U - n

W - n

V - n

Witnessed by :

Argianka S Putra  
PT. PLN (Persero) UPP JBT 3

W - n

11-12 Maret 2024  
Tested by,

Yopi Sopyan  
PT. PLN (Persero) PUSMANPRO UPMK 1

Gilang Maulana Sidik  
PT. Sandika Kurnia Permata

# IMS SITE TEST

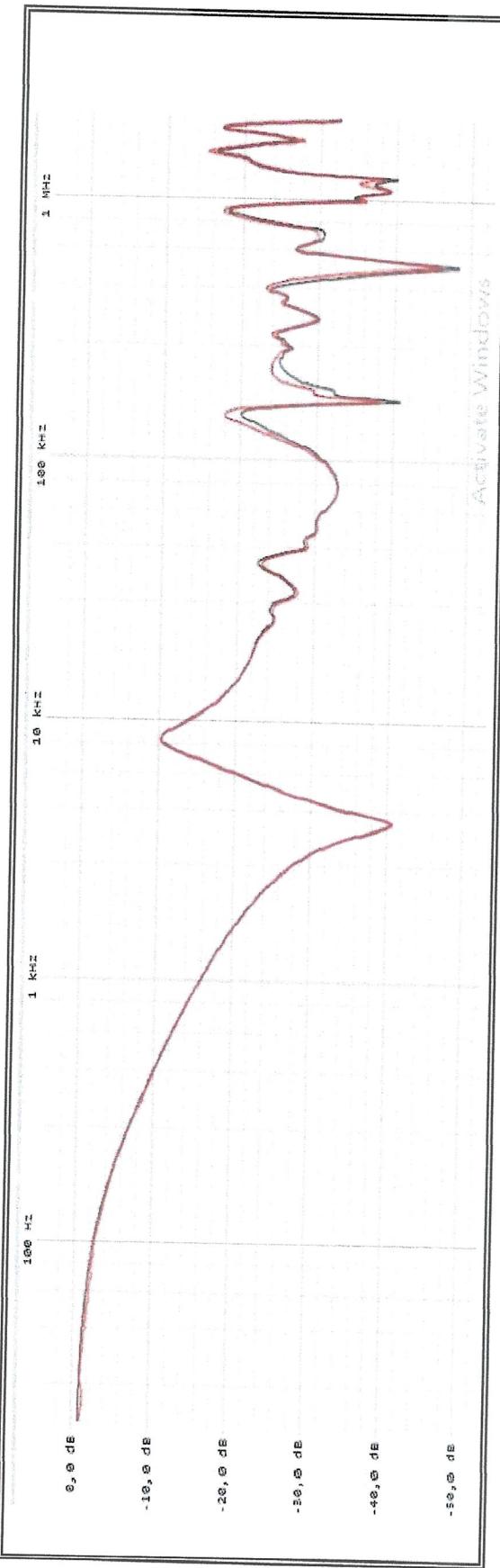
## Sweep Frequency Response Analysis Test

Subtitle

DOC.NO FW.ASS.010

Date issue	11-12 Maret 2024
Version	1
Revision	0
Page	06 of 06

PT PLN (Persero) 60 MVA, 150/22 kV, TV SIDE  
3011230065 YNy<sub>0</sub>+d1 (Tap 1) HV OPEN LV OPEN



Tva - TVb

Witnessed by :

Argianka S Putra

TVb - TVa

Checked by,

M Ngapan Hadi

11-12 Maret 2024  
Tested by,

Gilang Maulana Sidik

PT. Elsewedy Electric Indonesia

PT. PLN (Persero) PIUSMANPRO UPMK 1

PT. Sandika Kurnia Permata

**ATTACHMENT**

**DOC. NO. : FW-QLT-TB0201**

Rev : 0

Page 1 of 1

Serial No	: 3011230065	Location	: GI 150 KV KTT DATA CENTER	STANDARD
Customer	: PT PLN (Persero)	Type	: ORF 60/275	IEC 60076-1:2011
60	MVA	150/22 KV	50 Hz	Y <sub>n</sub> yn0+d1 CONNECTION 3 PHASE



11-12 Maret 2024

Witnessed by

Argianka S Putra  
PT. PLN (Persero) UPP JBT 3

M Ngapan Hadi  
PT. PLN (Persero)  
PUSMANPRO UPMK 1

Checked by,

Yopi Sopyan  
PT. Elsewedy Electric Indonesia

Tested by,

Gilang Maulana Sidik  
PT. Sandika Kurnia Permata

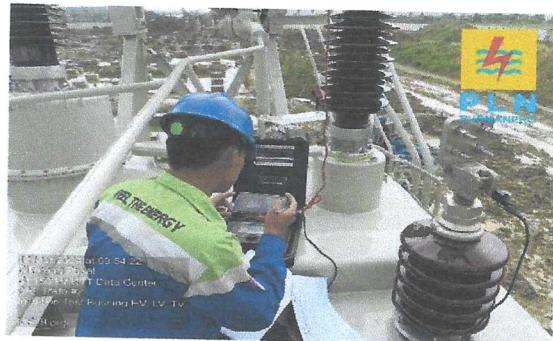
**ATTACHMENT**

**DOC. NO. : FW-QLT-TB0201**

Rev : 0

Page 1 of 1

Serial No	: 3011230065	Location	: GI 150 KV KTT DATA CENTER	STANDARD
Customer	: PT PLN (Persero)	Type	: ORF 60/275	IEC 60076-1:2011
60	MVA	150/22 KV	50 Hz	Y <sub>n</sub> n0+d1 CONNECTION 3 PHASE



11-12 Maret 2024

Witnessed by

Argianka S Putra  
PT. PLN (Persero) UPP JBT 3

Checked by,

M Ngapan Hadi  
PT. PLN (Persero)  
PUSMANPRO UPMK 1

Tested by,

Yopi Sopyan  
PT. Elsewedy Electric Indonesia

Gilang Maulana Sidik  
PT. Sandika Kurnia Permata