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检测
TESTING
CNAS L1020



实验室名称：国家电器产品质量监督检验中心

Lab Name: China National Center for Quality Supervision
and Test of Electrical Apparatus Products

No 20M1380-S

检验（试验）报告 Test Report

委托单位：Nanjing Fiberglass Research & Design Institute Co., Ltd.
Client:

产品名称：On-Load Tap-Changing Furnace Transformer
Name of Product:

产品型号：HSPZ-7000/22.9
Product Type:

检验类别：Commission test
Test Category:

本实验室对出具的检验（试验）结果负责，未经实验室书面同意，
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Client	Nanjing Fiberglass Research & Design Institute Co., Ltd.	Test category	Commission test
Manufacturer	JIANGSU XIN TEBIAN SCIENCE & TECHNOLOGY CO., LTD.	Date of sample receiving	Sep. 5, 2020
Name of sample	On-Load Tap-Changing Furnace Transformer	Type of sample	HSSPZ-7000/22.9
Address of manufacturer	NO.55,TANGSHI WEST STREET,YANGSHI TOWN, ZHANGJIAGANG CITY	Original number or date of production	1912017
Date of test	From Sep. 12, 2020 to Sep. 17, 2020	Number of sample	1 set
Test items	Routine test Induced AC withstand voltage test and induced AC withstand voltage test with partial discharge measurement Measurement of no-load loss and current at 90% and 110% of rated voltage Determination of sound levels Lightning impulse test Measurement of the power taken by the fan and generator	Test standards	IEC 60076-1:2011 IEC 60076-3:2013 IEC 60076-10:2016 Commission requirements
Test conclusion	The test results of routine test, induced AC withstand voltage test and induced AC withstand voltage test with partial discharge measurement, measurement of no-load loss and current at 90% and 110% of rated voltage, determination of sound levels, lightning impulse test, measurement of the power taken by the fan and generator of on-load tap-changing furnace transformer (type: HSSPZ-7000/22.9) are in accordance with test standards and commission requirements. The sample has passed the above tests. Signing and issuing date: Note: the conclusion is valid only for the inspected and tested sample.		
Remarks	/		

Compiled by:

Proofread by:

Checked by:

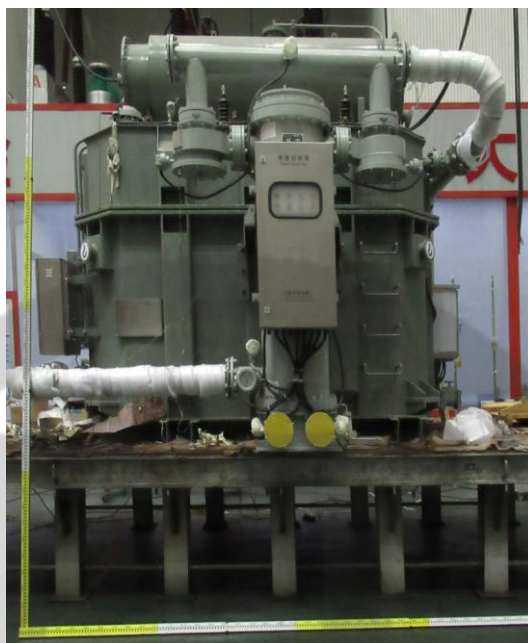
Approved by:

Test Report	China National Center for Quality Supervision and Test of Electrical Apparatus Products	№: 20M1380-S Total 24 Page 02						
1. Sample parameters Rated power: 7000kVA Rated voltage: 22900/ (100-402) V Rated current:176.5/ (10069-34435) A Rated frequency:60Hz Number of phases: 3 Connection symbol: Yd11 Cooling method:OFWF Class of insulation and heat-resistant: / <table><tr><td>Insulation level: HV</td><td>Um/LI/LIC/AC</td><td>24/125/138/55kV</td></tr><tr><td>LV</td><td>U_m /AC</td><td>≤1.1/8kV</td></tr></table> 2. Test standards IEC 60076-1:2011 Power transformers – Part 1: General IEC 60076-3:2013 Power transformers – Part 3: Insulation levels, dielectric tests and external clearances in air IEC 60076-10:2016 Power transformers – Part 10: Determination of sound levels 3.Sample description The on-load tap-changing furnace transformer is for outdoor use. External photos of the sample have been attached.			Insulation level: HV	Um/LI/LIC/AC	24/125/138/55kV	LV	U _m /AC	≤1.1/8kV
Insulation level: HV	Um/LI/LIC/AC	24/125/138/55kV						
LV	U _m /AC	≤1.1/8kV						

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Photos of the sample



中国·江苏新特变科技股份有限公司 有载调压电炉变压器									
CHINA NEW TEBIAN SCI. & TECH. CO., LTD. ON-LOAD TAP-CHANGING URANCE TRANSFORMER									
主要技术参数 (Main Technical Parameters)									
序号	名称	单位	数值	备注	序号	名称	单位	数值	备注
1	额定容量	kVA	20000		11	额定电压	kV	10	
2	额定功率	kW	17500		12	额定电流	A	1000	
3	额定电压	kV	10		13	额定功率因数		0.85	
4	额定功率因数		0.85		14	额定效率	%	98.5	
5	额定效率	%	98.5		15	额定损耗	kW	1.5	
6	额定损耗	kW	1.5		16	额定温升	K	65	
7	额定温升	K	65		17	额定噪音	dB	65	
8	额定噪音	dB	65		18	额定重量	kg	10000	
9	额定重量	kg	10000		19	额定尺寸	mm	10000	
10	额定尺寸	mm	10000		20	额定寿命	h	10000	
主要性能指标 (Main Performance Indicators)									
1	额定容量	kVA	20000		11	额定电压	kV	10	
2	额定功率	kW	17500		12	额定电流	A	1000	
3	额定电压	kV	10		13	额定功率因数		0.85	
4	额定功率因数		0.85		14	额定效率	%	98.5	
5	额定效率	%	98.5		15	额定损耗	kW	1.5	
6	额定损耗	kW	1.5		16	额定温升	K	65	
7	额定温升	K	65		17	额定噪音	dB	65	
8	额定噪音	dB	65		18	额定重量	kg	10000	
9	额定重量	kg	10000		19	额定尺寸	mm	10000	
10	额定尺寸	mm	10000		20	额定寿命	h	10000	

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Summary of test results							
No	Test items	Specified value		Measured value		Conc- clusion	
		Standards (commission requirements)					
1	Check of core and frame insulation for liquid-immersed transformers with core or frame insulation (routine test)	Providing value of insulation resistance (GΩ)		See 4.1		/	
2	Measurement of voltage ratio and check of phase displacement (routine test)	Voltage ratio tolerance of principal tapping: obtaining the lower of the following values between ±1.0% of declared ratio and ±1/10 of the actual percentage impedance Connection symbol: Yd11		0.03%~0.58% Yd11		PASS	
3	Measurement of winding resistance (routine test)	Providing value of winding		See 4.3		/	
4	Separate-source AC withstand voltage test (routine test)	HV:55kV LV:8kV	60s 60s	55.0kV 8.0kV	60s 60s	PASS	
5	Induced AC withstand voltage test and induced AC withstand voltage test with partial discharge measurement (routine test,commission test)	Three-phase applied voltage				PASS	
		0.4Ur/√3 (kV)		5.3			
		Discharge magnitude≤50pC		A:<25;B:<30;C:<25			
		1.2Ur/√3 (kV)		15.9			
		Duration (min): 1		1			
		Discharge magnitude≤100pC		A:<75;B:<85;C:<80			
		1.58Ur/√3 (kV)		20.9			
		Duration (min): 5		5			
		Discharge magnitude≤250pC		A:<220;B:<225;C:<215			
		2.0Ur/√3 (kV)		36			
		Duration (min): 0.6		0.6			
		1.58Ur/√3 (kV)		20.9			
Duration (min): 60		60					
Discharge magnitude≤250pC		A:<225;B:<230;C:<220					
1.2Ur/√3 (kV)		15.9					
Duration (min): 1		1					
Discharge magnitude≤100pC		A:<80;B:<85;C:<75					
0.4Ur/√3 (kV)		5.3					
Discharge magnitude≤50pC		A:<30;B:<30;C:<25					
Frequency (Hz): >50		200					

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No	Test items	Specified value		Measured value	Concl- usion
		Standards (commission requirements)			
6	Measurement of no-load loss and current (routine test)	I ₀ (%): P ₀ (kW):	measured measured	1.24 23.472	/
7	Measurement of no-load loss and current at 90% and 110% of rated voltage (type test)	I ₀ (%): P ₀ (kW):	measured measured	90% 110% 0.74 2.67 17.702 33.870	/
8	Measurement of short-circuit impedance and load loss (routine test)	t: 75℃ Z(%): P _k (kW): P _{total} (kW):	 measured measured measured	See 4.8	/
9	Tests on on-load tap-changers (routine test)	According to IEC60076-1:2011		Meet the requirements	PASS
10	Leak testing with pressure for liquid-immersed transformers (routine test)	Body: Applied pressure (kPa): 30 Duration (h): 24 No oil leakage or damage		30.0 24 No oil leakage or damage	PASS
		On-load tap-changer tank: Applied pressure (kPa): 30 Duration (h): 24 No oil leakage or damage		30.0 24 No oil leakage or damage	
11	Determination of sound levels (type test)	Sound pressure level L _{PA} dB (A): measured Sound power level L _{WA} dB(A): measured		69 86	/
12	Lightning impulse test (type test)	Full wave (kV): 125 ±3%		124.71~126.89	PASS
13	Measurement of the power taken by the fan and generator (type test)	Providing measured value		See 4.13	/
Blank below					

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4. Test items and results		
4. 1 Check of core and frame insulation for liquid-immersed transformers with core or frame insulation (routine test) Test date: Sep. 12, 2020 Relative humidity: 61%; Oil temperature: 27.8°C		
Measured parts	Measured insulation resistance (GΩ)	
Core—earth	8.07	
Frame—earth	8.82	
		

Test Report		China National Center for Quality Supervision and Test of Electrical Apparatus Products				№: 20M1380-S Total 24 Page 07		
4. 2 Measurement of voltage ratio and check of phase displacement (routine test)								Test date: Sep. 12, 2020
HV winding		LV winding		Transformer ratio by calculation	Measured voltage ratio tolerance (%)			Connection symbol
Tapping position	Voltage (kV)	Tapping position	Voltage (kV)		AB/ab	BC/bc	CA/ca	
/	22.9	1	0.100	229.00	0.17	0.17	0.17	Yd11
		2	0.118	194.07	0.41	0.39	0.40	
		3	0.136	168.38	0.56	0.55	0.58	
		4	0.153	149.67	0.04	0.03	0.05	
		5	0.171	133.92	0.20	0.19	0.21	
		6	0.189	121.16	0.34	0.33	0.35	
		7	0.207	110.63	0.45	0.43	0.45	
		8	0.224	102.23	0.09	0.07	0.08	
		9	0.242	94.628	0.22	0.20	0.22	
		10	0.260	88.077	0.32	0.31	0.32	
		11	0.277	82.671	0.04	0.04	0.05	
		12	0.295	77.627	0.15	0.13	0.15	
		13	0.313	73.163	0.23	0.21	0.23	
		14	0.331	69.184	0.31	0.30	0.31	
		15	0.348	65.805	0.10	0.08	0.10	
		16	0.366	62.568	0.16	0.15	0.16	
		17	0.384	59.635	0.18	0.14	0.18	
		18	0.402	56.965	0.24	0.22	0.24	

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4. 3 Measurement of winding resistance (routine test) Test date: Sep. 12, 2020 Oil temperature: 27.8℃					
Winding	Tapping position	Measured value (Ω)			
HV	/	A~B	B~C	C~A	
		0.2166	0.2167	0.2170	
MV	/	At~Bt	Bt~Ct	Ct~At	
	1	0.15236	0.15131	0.15181	
	2	0.13608	0.13503	0.13548	
	3	0.11936	0.11837	0.11891	
	4	0.10274	0.10166	0.10219	
	5	0.08561	0.08457	0.08518	
	6	0.06854	0.06741	0.06798	
	7	0.05116	0.05005	0.05069	
	8	0.03342	0.03227	0.03282	
	9	0.01563	0.014531	0.015132	
	10	0.014192	0.013217	0.013657	
	11	0.03057	0.02953	0.02989	
	12	0.04678	0.04581	0.04620	
	13	0.06359	0.06258	0.06291	
	14	0.08045	0.07949	0.07990	
	15	0.09770	0.09667	0.09703	
	16	0.11535	0.11433	0.11480	
	17	0.13329	0.13225	0.13266	
	18	0.15162	0.15062	0.15109	
		/	Am~Bm	Bm~Cm	Cm~Am
			0.13461	0.13481	0.13475
LV	/	a~x	b~y	c~z	
		0.0688×10 ⁻³	0.0683×10 ⁻³	0.0695×10 ⁻³	

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4. 4 Separate-source AC withstand voltage test (routine test) Test date: Sep. 13, 2020 Relative humidity: 63%; Ambient temperature: 27.9℃; Oil temperature: 28.3℃; Air pressure: 101kPa					
Parts of applied voltage	Test voltage (kV)		Test duration (s)		Result
HV—LV and earth	55.0		60		PASS
LV —HV and earth	8.0		60		
4. 5 Induced AC withstand voltage test and induced AC withstand voltage test with partial discharge measurement (routine test, commission test) Test date: Sep. 13, 2020 Relative humidity: 63%; Ambient temperature: 27.9℃; Oil temperature: 28.3℃; Air pressure: 101kPa Tapping position is 18, Frequency is 200Hz.					
Applied voltage		Duration (min)	Partial discharge magnitude (pC)		
Multiple	Phase to earth voltage (kV)		A	B	C
$0.4U_r/\sqrt{3}$	5.3	/	<25	<30	<25
$1.2U_r/\sqrt{3}$	15.9	1	<75	<85	<80
$1.58U_r/\sqrt{3}$	20.9	5	<220	<225	<215
$2.0U_r/\sqrt{3}$	26.4	0.6	/	/	/
$1.58U_r/\sqrt{3}$	20.9	5	<215	<230	<210
		10	<220	<225	<215
		15	<220	<225	<215
		20	<210	<220	<220
		25	<215	<220	<220
		30	<215	<225	<220
		35	<220	<225	<215
		40	<225	<220	<210
		45	<220	<215	<220
		50	<220	<220	<215
		55	<215	<225	<220
		60	<220	<225	<220
$1.2U_r/\sqrt{3}$	15.9	1	<80	<85	<75
$0.4U_r/\sqrt{3}$	5.3	/	<30	<30	<25
Remarks: $U_r=22.9\text{kV}$.					

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4.6 Measurement of no-load loss and current (routine test)				Test date: Sep. 14, 2020		
Voltage multiple	Applied voltage (kV)		No-load current		No-load loss (kW)	
	Average value	r.m.s. value	(A)	(%)	Measured value	Corrected value
90%Ur	20.652	20.605	1.31	0.74	17.661	17.702
100%Ur	22.905	22.835	2.18	1.24	23.401	23.472
110%Ur	25.232	25.069	4.71	2.67	33.653	33.870
Remarks: at 100%Ur, the difference between r.m.s. voltmeter reading and average voltmeter reading is within 3%. 4.7 Measurement of no-load loss and current at 90% and 110% of rated voltage (type test) See 4.6.						

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4. 8 Measurement of short-circuit impedance and load loss (routine test)						Test date: Sep. 17, 2020 Oil temperature: 27.2℃		
Winding	Tapping position	Applied current I		Measured voltage (kV)	Short-circuit impedance (for each phase)		Load loss (kW)	Total loss (kW)
		(A)	I/I _r (%)		HV impedance (Ω)	(%)	Corrected value	Corrected value
					t=75℃ I=I _r	t=75℃ I=I _r	t=75℃ I=I _r	t=75℃ I=I _r
HV LV	1	90.31	60.24	4.363	27.92	31.66	157.624	181.096
	2	91.35	51.76	3.224	20.40	27.23	157.923	181.395
	3	91.74	51.98	2.491	15.69	20.95	120.170	143.642
	4	90.52	51.29	1.971	12.59	16.80	95.271	118.743
	5	91.57	51.88	1.655	10.44	13.94	77.856	101.328
	6	91.85	52.04	1.419	8.93	11.92	65.270	88.742
	7	93.18	52.80	1.262	7.83	10.45	55.988	79.460
	8	108.92	61.72	1.322	7.01	9.36	48.906	72.378
	9	92.07	52.17	1.022	6.41	8.56	43.469	66.941
	10	93.15	52.78	0.939	5.83	7.78	39.454	62.926
	11	91.66	51.94	0.834	5.26	7.02	36.627	60.099
	12	94.68	53.65	0.7889	4.82	6.43	34.262	57.734
	13	91.94	52.09	0.7104	4.46	5.96	32.378	55.850
	14	102.36	58.00	0.7423	4.19	5.59	30.610	54.082
	15	97.05	54.99	0.6675	3.98	5.31	29.254	52.726
	16	93.03	52.71	0.6127	3.81	5.08	28.030	51.502
	17	98.20	55.64	0.6247	3.68	4.91	27.076	50.548
	18	96.36	54.60	0.5967	3.58	4.78	26.127	49.599
4.9 Tests on on-load tap-changers (routine test)						Test date: Sep. 17, 2020		
Operation tests:								
a. with the transformer de-energized, eight complete cycles of operation (a cycle of operation goes from one end of the tapping range to the other, and back again);								
b. with the transformer de-energized, and with the auxiliary voltage reduced to 85 % of its rated value, one complete cycle of operation;								
c. with the transformer energized at rated voltage and frequency at no load, one complete cycle of operation;								
d. with one winding short-circuited and, as far as practicable, rated current in the tapped winding, 10 cycles of tap-change operations across the range of two steps on each side from where a coarse or reversing changeover selector operates, or otherwise from the middle tapping (the tapchanger will pass 20 times through the changeover position).								
Test result: PASS								

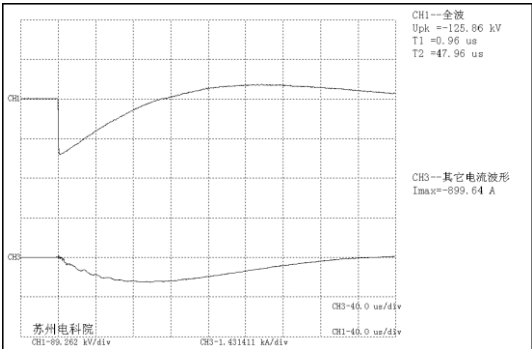
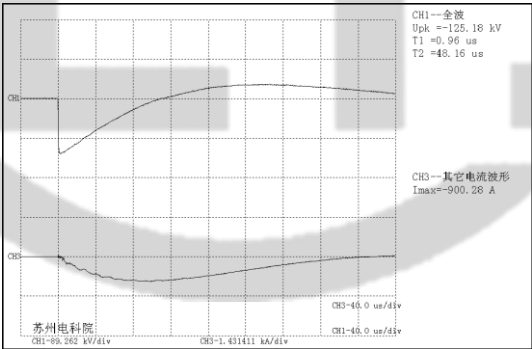
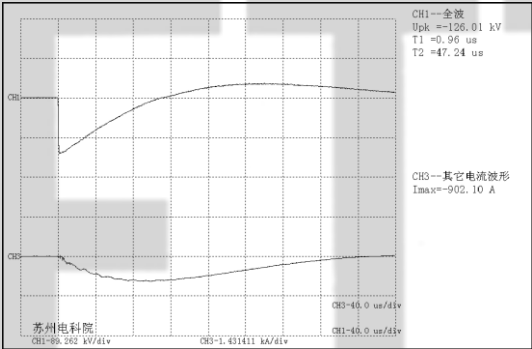
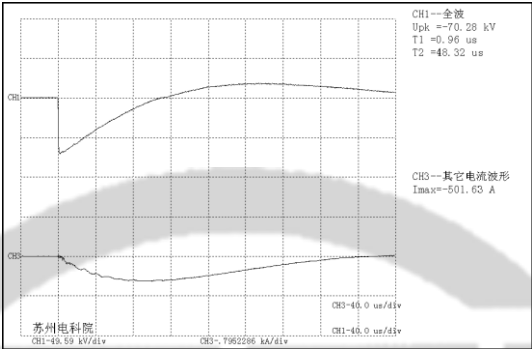
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4. 10 Leak testing with pressure for liquid-immersed transformers (routine test) Test date: from Sep. 14, 2020 to Sep. 15, 2020					
Test method	Parts of applied voltage	Applied pressure (kPa)	Duration (h)	Residual pressure (kPa)	Result
Static pressure method	Body	30.0	24	30.0	No oil leakage or damage
	On-load tap-changer tank	30.0	24	30.0	No oil leakage or damage
Remarks: the product is a general structure tank. 					

Test Report	China National Center for Quality Supervision and Test of Electrical Apparatus Products				№: 20M1380-S Total 24 Page 13																										
4. 11 Determination of sound levels (type test) Test date: Sep. 14, 2020 4. 11. 1 Measurement of sound pressure level and calculation of sound power level The transformer is rated excitation; the prescribed contour shall be spaced 0.3m away from the principal radiating surface, the distance between measured points is 0.94m, the number of measured points is 18, the height of measured point is 1.20m. Test environment <table border="1"> <tr> <th>The total area of the surface of the test room $S_v (m^2)$</th> <th>The average acoustic absorption coefficient α</th> <th>The amount of acoustic absorption A (m^2)</th> <th>Distance from the principal radiating surface (m)</th> <th>The area of the measurement surface S (m^2)</th> <th>Environmental correction K (dB)</th> </tr> <tr> <td>24650</td> <td>0.15</td> <td>3697.5</td> <td>0.3</td> <td>50.7</td> <td>0.2</td> </tr> </table> Measured values (dB) <table border="1"> <tr> <th rowspan="2">Status of cooling device</th> <th colspan="2">Average of background noise</th> <th rowspan="2">Average noise value of transformer $\overline{L_{pA0}}$</th> <th>A weighted sound pressure level $\overline{L_{pA}} = 10 \lg(10^{0.1 \overline{L_{pA0}}} - 10^{0.1 \overline{L_{bgA}}}) - K$</th> <th>A weighted sound power level $\overline{L_{WA}} = \overline{L_{pA}} + 10 \lg(S/S_0)$</th> </tr> <tr> <th>Before the test</th> <th>After the test</th> </tr> <tr> <td>/</td> <td>37.0</td> <td>37.4</td> <td>69.3</td> <td>69</td> <td>86</td> </tr> </table> Remarks: $\overline{L_{pA0}}$: the uncorrected average A-weighted sound pressure level; $\overline{L_{pA0}} = 10 \lg(\frac{1}{N} \sum_{i=1}^N 10^{0.1 L_{pAi}})$ $\overline{L_{bgA}}$: the lower of the two calculated average A weighted background noise pressure level.						The total area of the surface of the test room $S_v (m^2)$	The average acoustic absorption coefficient α	The amount of acoustic absorption A (m^2)	Distance from the principal radiating surface (m)	The area of the measurement surface S (m^2)	Environmental correction K (dB)	24650	0.15	3697.5	0.3	50.7	0.2	Status of cooling device	Average of background noise		Average noise value of transformer $\overline{L_{pA0}}$	A weighted sound pressure level $\overline{L_{pA}} = 10 \lg(10^{0.1 \overline{L_{pA0}}} - 10^{0.1 \overline{L_{bgA}}}) - K$	A weighted sound power level $\overline{L_{WA}} = \overline{L_{pA}} + 10 \lg(S/S_0)$	Before the test	After the test	/	37.0	37.4	69.3	69	86
The total area of the surface of the test room $S_v (m^2)$	The average acoustic absorption coefficient α	The amount of acoustic absorption A (m^2)	Distance from the principal radiating surface (m)	The area of the measurement surface S (m^2)	Environmental correction K (dB)																										
24650	0.15	3697.5	0.3	50.7	0.2																										
Status of cooling device	Average of background noise		Average noise value of transformer $\overline{L_{pA0}}$	A weighted sound pressure level $\overline{L_{pA}} = 10 \lg(10^{0.1 \overline{L_{pA0}}} - 10^{0.1 \overline{L_{bgA}}}) - K$	A weighted sound power level $\overline{L_{WA}} = \overline{L_{pA}} + 10 \lg(S/S_0)$																										
	Before the test	After the test																													
/	37.0	37.4	69.3	69	86																										

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4. 12 Lightning impulse test (type test) Test date: Sep. 12, 2020 Atmospheric conditions of test: Relative humidity: 61%; Ambient temperature: 28.2℃; Oil temperature: 27.8℃; Air pressure: 101kPa. Test items and voltage <table border="1" style="width: 100%;"> <tr> <th rowspan="2">Withstand terminals</th> <th colspan="2">Rated withstand voltage (kV)</th> <th rowspan="2">Tapping position</th> </tr> <tr> <th>Lightning full wave</th> <th>Lightning full wave</th> </tr> <tr> <td>A, B, C</td> <td>125</td> <td>/</td> <td>/</td> </tr> </table> Test sequence: Line terminal: One negative reduced level full impulse; Three negative rated level full impulse. Test records: T1: wave front time; T2: time to half peak value; Upk: peak voltage For waveform diagram, see P_{15~17}. Voltage ranges of oscillograms are as below: <table border="1" style="width: 100%;"> <tr> <th>Full wave (kV)</th> <th>Chopped wave (kV)</th> </tr> <tr> <td>124.71~126.89</td> <td>/</td> </tr> </table>				Withstand terminals	Rated withstand voltage (kV)		Tapping position	Lightning full wave	Lightning full wave	A, B, C	125	/	/	Full wave (kV)	Chopped wave (kV)	124.71~126.89	/
Withstand terminals	Rated withstand voltage (kV)		Tapping position														
	Lightning full wave	Lightning full wave															
A, B, C	125	/	/														
Full wave (kV)	Chopped wave (kV)																
124.71~126.89	/																

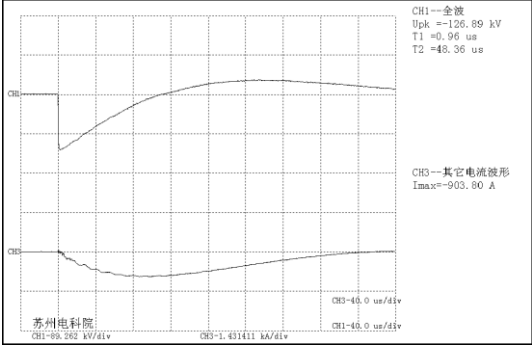
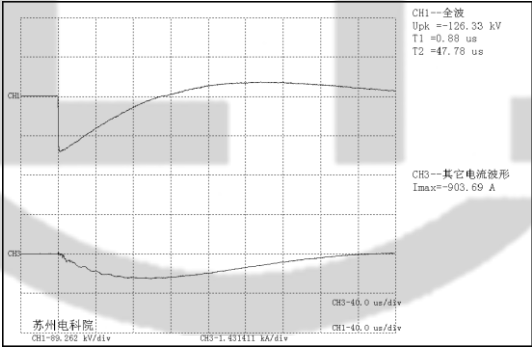
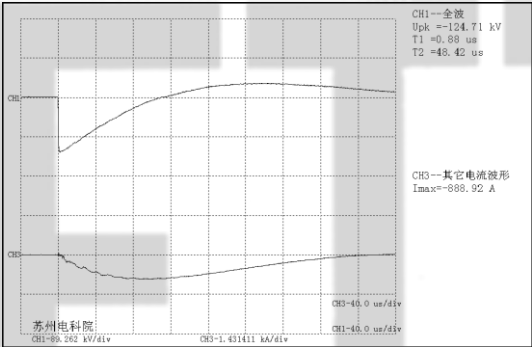
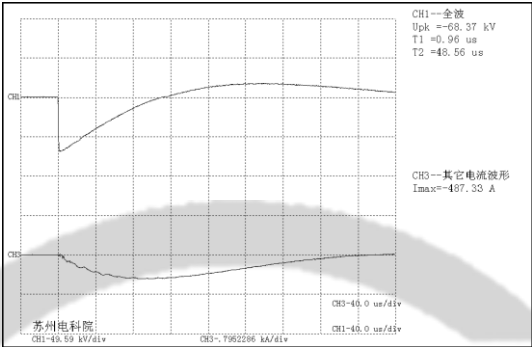
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Tested terminal: A Test polarity: negative Channel 1: voltage wave Channel 2: current wave



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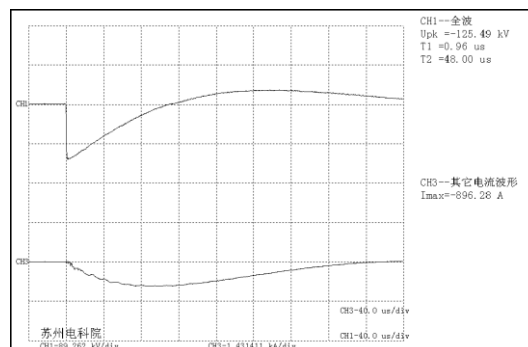
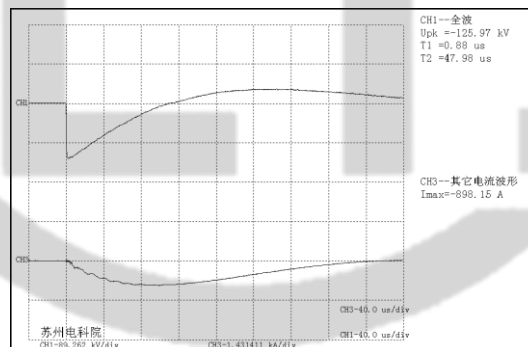
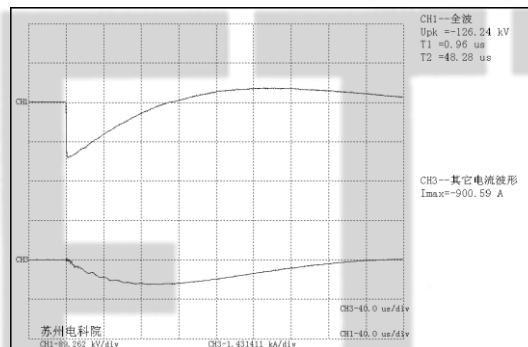
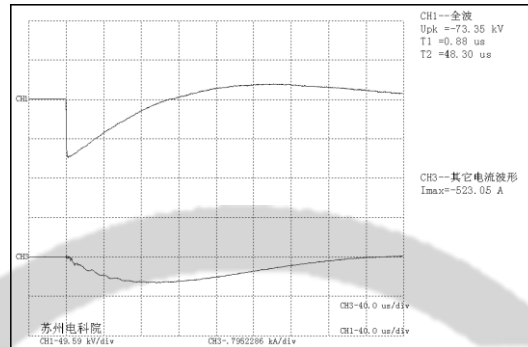
Tested terminal: B Test polarity: negative Channel 1: voltage wave Channel 2: current wave



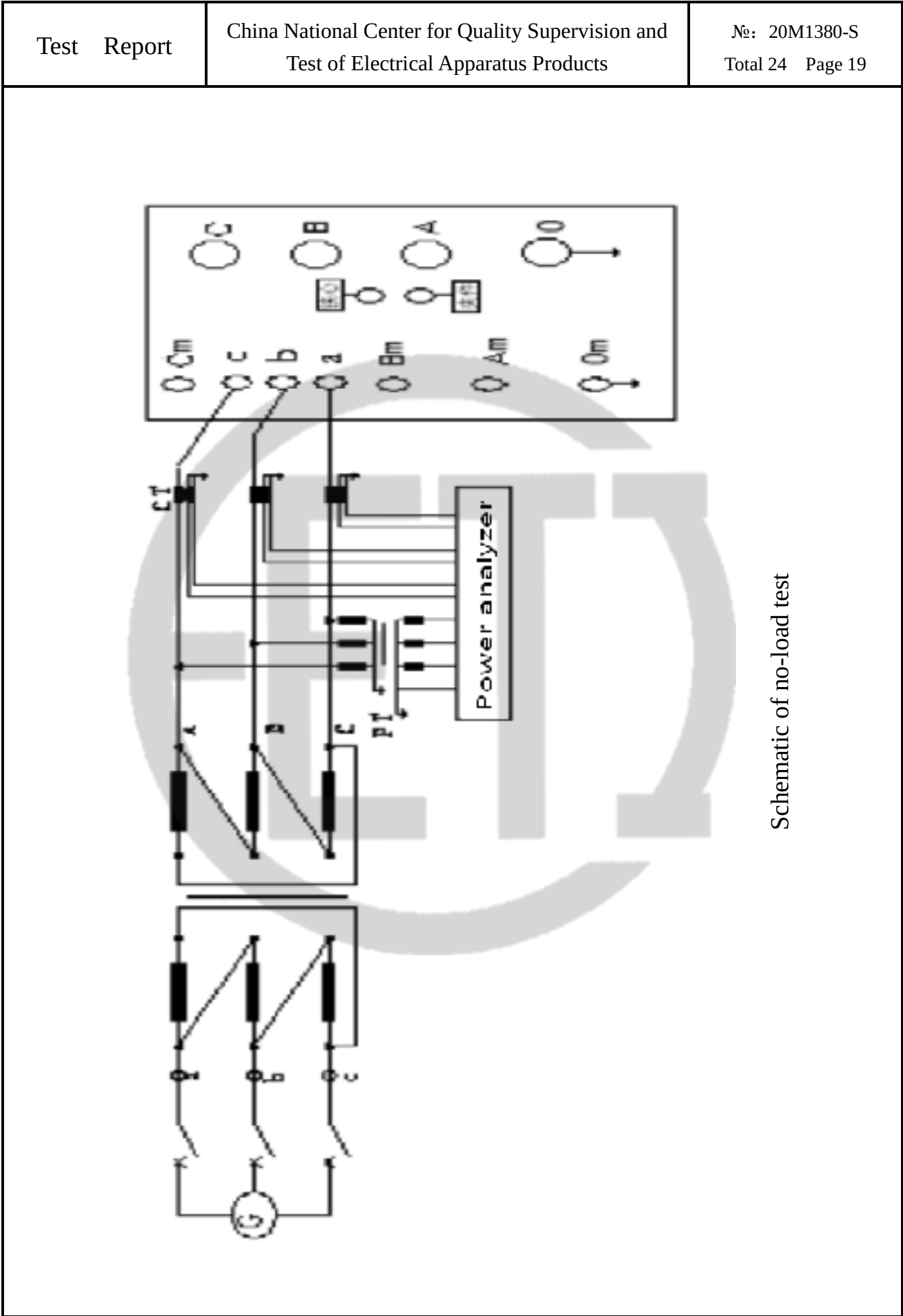
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Tested terminal: C Test polarity: negative Channel 1: voltage wave Channel 2: current wave

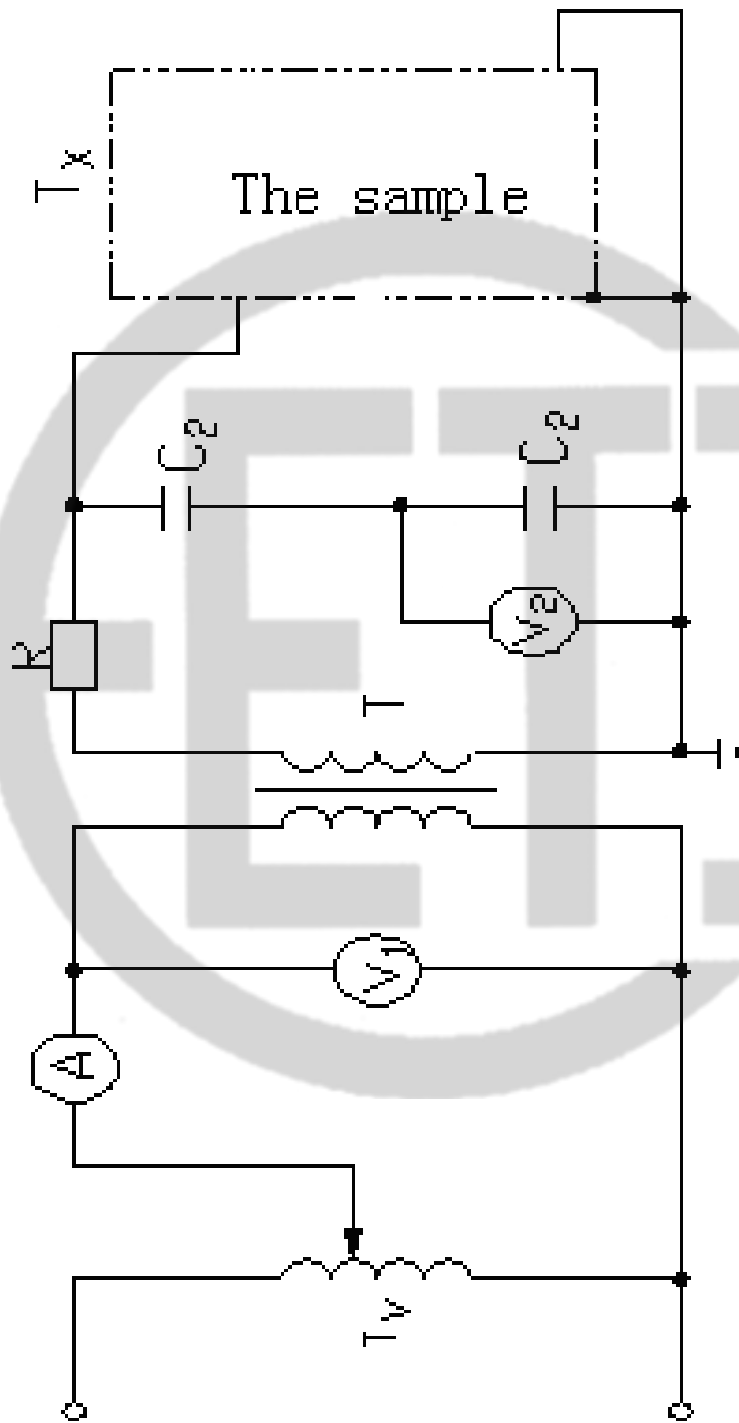


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4. 13 Measurement of the power taken by the fan and generator (type test) Test date: Sep. 12, 2020			
Number of cooling equipmennt	Voltage(kV)	Current(A)	Power(kW)
2061201	0.3802	14.5	5.734
2061202	0.3801	13.9	5.735
			



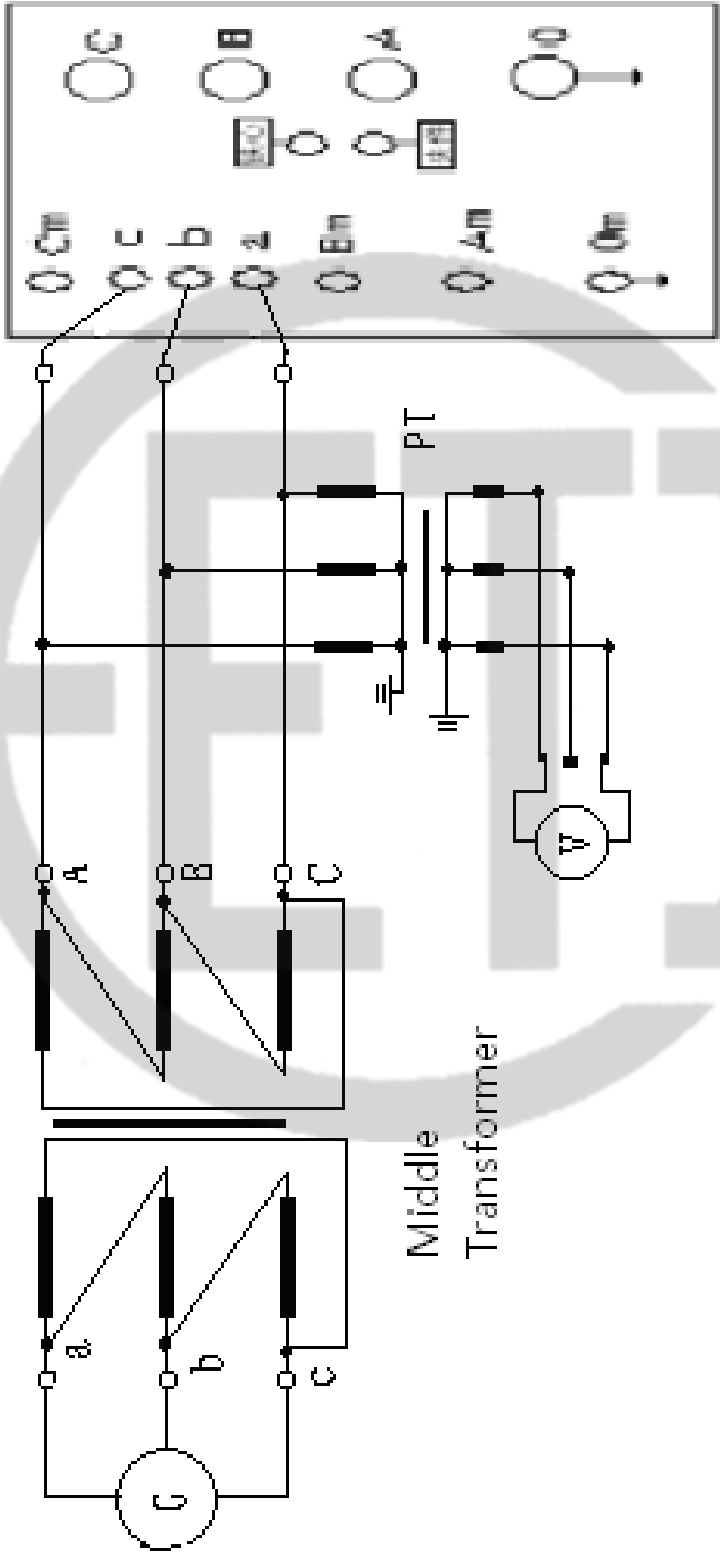


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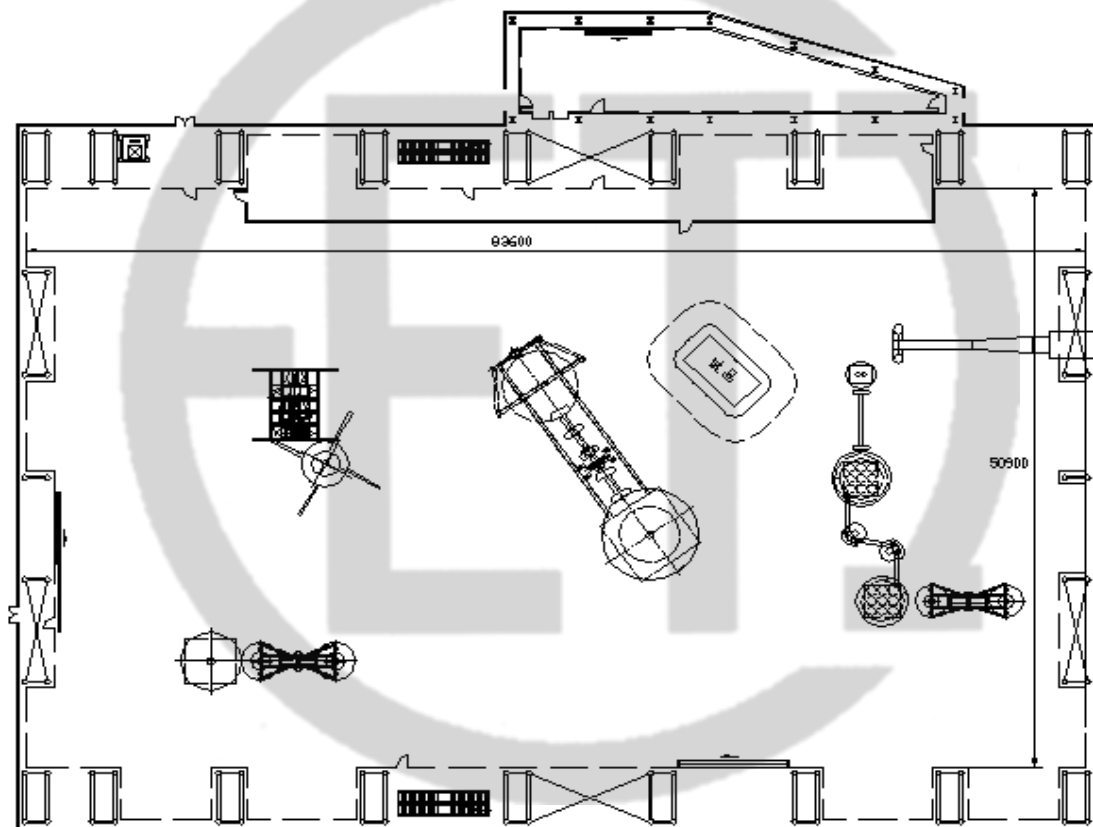
Schematic of separate-source AC withstand voltage test

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Schematic of induced AC withstand voltage test and induced AC withstand voltage test with partial discharge measurement

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Instruments used in the tests					
No	Test items	Name & type of instrument	Number & validity		Accuracy level
1	Check of core and frame insulation for liquid-immersed transformers with core or frame insulation	Digital mega-ohm meter F1550C	ER17-013	2021-04-25	/
2	Measurement of voltage ratio and check of phase displacement	Transformer ratio tester BC6638	RI15-032	2021-04-06	/
3	Measurement of winding resistance	DC resistance tester JYR(50C)	ER16-019	2021-01-05	0.2%±0.2μ Ω
4	Measurement of short-circuit impedance and load loss	Transformer power loss test system TMS580-200-4000	749-1573	2021-02-15	/
5	Measurement of no-load loss and current				
6	Measurement of no-load loss and current at 90% and 110% of rated voltage				
7	Tests on on-load tap-changers				
8	Separate-source AC withstand voltage test	Power frequency partial discharge-free test power supply 2400kV/8000kVA	745-076	2021-04-28	/
9	Induced AC withstand voltage test and induced AC withstand voltage test with partial discharge measurement	Transformer power loss test system TMS580-200-4000	749-1573	2021-02-15	/
		Partial discharge detector DDX 9121b	745-077	2021-02-09	/
10	Lightning impulse test	Complete test equipment for impulse voltage generator 1500kV/270kJ	750-028	2020-10-24	/
		Weakly damped capacitor voltage divider RZF-1500	750-028-2	2020-10-24	/
11	Leak testing with pressure for liquid-immersed transformers	Intelligent pressure transmitter SY-PGD101-2.5MPa-GH	FP87-039	2021-03-01	/
12	Determination of sound levels	Transformer power loss test system TMS580-200-4000	749-1573	2021-02-15	/
		Precision sound level meter HS5661A	SP01-008	2021-04-22	/
		Sound level calibrator HS6021	SP01-007	2021-03-22	/
		Steel tape	LS05-042	2020-11-04	/
13	Measurement of the power taken by the fan and generator	Harmonic analyzer CA8335	EP21-003	2021-04-23	/
The remainder of this page is intentionally left blank.					

DECLARATION

- 1.The report is invalid without special seal for testing and page combining seal on the report;
2. The report is invalid if altered;
3. The report is invalid without signatures of persons for drawing up,
proof-reading, reviewing and approval;
4. The report is valid only for the inspected and tested samples.

NOTICE

1. In case there is any objection to this report, please raise it to the laboratory within fifteen days starting from the date of receiving the report, Thank you for your cooperation.
2. In case there is no objection, please take back the samples within one month starting from the date of receiving the report, when the manufacturer is going to take back the samples, certificate for sample taking and along with the written approval for the report should be brought in presence, only then the samples could be taken back. On time due, the samples will be in the laboratory's own disposal.

The test report is in total 24 pages including 8 figures and 1 photo

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