

Scope of Accreditation for the Testing Laboratory (Center)

Testing Center of the All-Russia Electrotechnical Institute (TC VEI),
Affiliated Branch of the Federal State Unitary Enterprise “Russian Federal Nuclear Center –
Zababakhin All-Russia Research Institute of Technical Physics”, RA.RU.21HH33

Testing Laboratory (Testing Center) Name

111250, Moscow, Krasnokazarmennaya Street 12, Blds. 3, 7

Business Address

No.	Documents establishing rules and techniques of research (testing) and measurements	Equipment	OKPD ¹ 2 code	TN VED EAEU ² code	Defined parameter	Range
1	2	3	4	5	6	7
111250, Moscow, Krasnokazarmennaya Street, 12, Blds. 3, 7						
1	GOST ³ 1516.2 §§ 4.1-4.5, Sections 5, 6, §§7.1-7.5, 7.7 Section 8	AC electrical equipment and electrical installations of up to 3 kV and higher	27	8504 8535 8546	Electric strength of insulation Pulse test voltage at lightning pulses Pulse test voltage at switching pulses Power-frequency AC test voltage Power-frequency AC test voltage in insulation resistance to thermal breakdown tests Electric strength under DC voltage	passed / failed; 3 to 2400 kV 3 to 1850 kV 1 to 1050 kV 1 to 500 kV 2 to 70 kV
2	GOST 1516.2 §7.6				Radio-frequency interference level	passed / failed; up to 100 dB

¹ Russian Classification of Products by Economic Activity Type

² Eurasian Economic Union’s Commodity Nomenclature of Foreign Economic Activity

³ State Standard

1	2	3	4	5	6	7
					Power-frequency AC test voltage in RF interference measurement tests	1 to 500 kV
3	GOST 1516.3 §§ 4.3, 4.4, 4.5.4, 4.5.5, 4.14, 8.1.4, 8.2.2, 8.3, 8.4.2, 8.4.5, 13.5, 13.6	AC electrical equipment and electrical installations of up to 3 kV and higher	27	8504 8535 8546	Electric strength of insulation Power-frequency AC test voltage when testing control circuits and auxiliary circuits	passed / failed; 0 to 3 kV
4	GOST 17512 Sections 2 – 4	AC electrical equipment and electrical installations of up to 1 to 750 kV	27	8504 8535 8546	Voltage Pulse test voltage at lightning pulses Pulse test voltage at switching pulses Power-frequency AC test voltage	3 to 2400 kV 3 to 1850 kV 1 to 1050 kV
5	GOST R 55194 §§ 7.7, 7.8	AC electrical equipment and electrical installations of up to 1 to 750 kV	27	8504 8535 8546	Electric strength of insulation	passed / failed;
					Power-frequency AC test voltage	1 to 1050 kV
					Power-frequency AC test voltage in RF interference measurement tests	1 to 500 kV
6	GOST R 51097 §§5.2 – 5.5	Insulator strings and line accessories	27	8546	Electric strength of insulation Power-frequency AC test voltage	passed / failed; 1 to 500 kV
					Radio-frequency interference level	up to 100 dB
7	GOST 8024 §2.3	AC apparatuses and electrical devices of up to 1000 V and higher	27	8535 8546	Temperature measurement by thermometer method	–40 to +100 °C
8	GOST 8024 §2.6				Determining main circuit resistance of a device	1 μΩ to 199.9 Ω
9	Operation manual RAPM.411218.002RE Megaohmmeters E6-32, E6-31, and E6-31/1	AC and DC apparatuses and electrical devices of up to 1000 V and higher	27	8504 8535 8546	Insulation resistance	0 to 1000 GΩ
10	GOST R 52726 § 8.2	AC circuit breakers and grounding devices of up to	27.12.10.120	8535 30	Correct operation of device mechanisms in compliance with technical specifications	passed / failed

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11	GOST R 52726 § 8.7	1 kV and higher and relevant drives			Operability in conditions of ice formation	passed / failed
12	GOST R 52726 § 8.13				Electric strength of insulation Power-frequency AC test voltage	passed / failed; 1 to 500 kV
					Radio-frequency interference level	up to 100 dB
13	GOST R 52565 §§ 9.2.2 – 9.2.6	AC switches of up to 3 to 750 kV	27.12.10.110	8535	Mechanical operability	passed / failed;
					Closing and opening times; Contact pressures; Voltage of control circuits; Electrical resistance Current consumption of control solenoids	0.2 ms to 6.5 s; 0 to 5 kN; 0 to 1000 V 1 $\mu\Omega$ to 199.9 Ω ; 0 to 100 A
					Test force	0 to 10 kN
14	GOST R 52565 § 9.6				Switching capacity	passed / failed;
					Power-frequency AC test voltage Switching test current	up to 42 kV; up to 63 kA
15	GOST 17717 § 7.5	AC load-break switches of up to 3 to 10 kV	27.12.10.110	8535	Short-time withstand current	passed / failed;
					Testing parameters: – short-time electrodynamic current; – short-time thermal current, 3 sec.; – short-time thermal current, 1 sec.	up to 200 kA; up to 51 kA; up to 100 kA
16	GOST 2933, Section 10	Electrical low-voltage apparatuses	27.12	853620	Mechanical and electrical endurance	passed / failed;
					Number of cycles Switching test current	up to 10 million; up to 25 kA
17	GOST R 50345 § 9.7.1	AC automated switches for overcurrent protection for household and similar purposes	27.12.22	853620	Weather resistance	passed / failed;
					Ambient humidity	10 to 98 %
18	GOST R 50345 § 9.7.2				Insulation resistance of the main circuit	passed / failed; 0 to 1000 G Ω
19	GOST 1983 § 9.3	Voltage transformers	27.11.42	8504 31 8504 32	Insulation resistance of coils	0 to 1000 G Ω
20	GOST 1983 § 9.6;				Group of coil connections;	compliant / noncompliant;

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	GOST 8.216 § 10.2, 10.3				voltage error and angle error Range of measured error Test voltage	from 0.2% 0 to 250 kV
21	GOST 1983 § 9.13				Resistance to climatic and mechanical external effects Testing parameters: – ambient air temperature; – ambient air humidity; – applied force	passed / failed; –60 °C to +150 °C; 10 to 98 %; 0 to 10 kN
22	GOST 7746 § 9.3; GOST 8.217 § 9.2	Current transformers	27.11.42	8504 31 8504 32	Insulation resistance of coils	passed / failed; 0 to 1000 GΩ
23	GOST 7746 § 9.5; GOST 8.217 §§ 9.3, 9.4, 9.5				Polarity of coils, current and angle errors Range of measured error Test current	compliant / noncompliant; from 0.1% 0 to 5000 A
24	GOST 7746 § 9.6				Accuracy limit factor and instrument safety factor Test current	compliant / noncompliant 0 to 100 kA
25	GOST 7746 § 9.10				Short-time withstand current Test parameters: – short-time electrodynamic current; – short-time thermal current, 3 sec.; – short-time thermal current, 1 sec.	passed / failed; to 200 kA; to 51 kA; to 100 kA
26	GOST 7746 § 9.13				Resistance to climatic and mechanical external effects Values of testing parameters: – ambient air temperature; – ambient air humidity; – applied force	passed / failed; –60 °C to +150 °C; 10 to 98 %; 0 to 10 kN
27	GOST IEC 60044-1 § 7.2				Current transformers	27.11.42

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28	GOST IEC 60044-1 §§7.3 – 7.5, 8.2.1, 8.2.2, 8.4, 9.1				Test current Temperature Electric strength of insulation Pulse test voltage under lightning pulses Pulse test voltage at switching pulses Power-frequency AC test voltage Power-frequency AC test voltage in RF interference measurement tests Radio-frequency interference level Power-frequency AC test voltage in partial discharge factor measurement tests Partial discharge factor	50 to 5000 A 0 to 300 °C passed / failed; 3 to 2400 kV 3 to 1850 kV 1 to 1050 kV 1 to 500 kV to 100 dB 1 to 350 kV 1 pC to 100 nC
29	GOST IEC 60044-1 § 9.2				Electric capacity Dielectric dissipation factor	20 pF to 1 µF; 0.01 to 100 %
30	GOST IEC 60044-1 § 9.3				Mechanical strength Test force	passed / failed 0 to 10 kN
31	GOST R 55187 §§9.5, 9.8 – 9.10, 9.12, 9.13	Insulated bushings of rated voltages above 1000 V AC	27.90.12.110	8535 90	Electric strength of insulation Pulse test voltage at lightning pulses Pulse test voltage at switching pulses Power-frequency AC test voltage Power-frequency AC test voltage in RF interference measurement tests Radio-frequency interference level Power-frequency AC test voltage in partial discharge factor measurement tests	passed / failed; 3 to 2400 kV 3 to 1850 kV 1 to 1050 kV 1 to 500 kV to 100 dB 1 to 350 kV

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					Partial discharge factor	1 pC to 100 nC
					Power-frequency AC test voltage in measuring terminal tests	0 to 5 kV
32	GOST R 55187 § 9.6				Resistance of conducting circuit	1 $\mu\Omega$ to 199.9 Ω
33	GOST R 55187 § 9.17				Excessive temperature rise in rated current-induced heating tests	passed / failed
					Test current	50 to 5000 A
34	GOST R 52034 § 7.2.2	Ceramic supporting insulators of up to 1000 V and higher	27.90.12.110	8546 20	Single-impact resistance	passed / failed
35	GOST 26093 § 2.1.3, 2.1.6, 2.2.1.4	Ceramic insulators	27.90.12.110	8546 20	Power-frequency breakdown voltage	passed / failed
					Power-frequency AC test voltage	0 to 350 kV
36	GOST 26093 § 2.1.7, 2.2.1.8				Resistance to continuous flow of sparks	passed / failed
37	GOST 26093 §§ 4.2.1, 4.3.1				Thermal shock resistance	passed / failed;
					Test temperature of water	+15 °C to +95 °C
38	GOST 26093 § 1.7, §§ 3.1.2, 3.1.3, 3.2.1-3.2.1.4, 3.2.2.1				Mechanical strength	passed / failed;
					Test mechanical bending force	0 to 500 kN
					Test mechanical torque	0 to 50 kN·m
39	GOST R 52082 § 8.1.9, 8.1.11	Outdoor support polymer insulators of 6 to 220 kV	27.90.12.110	8546	Electric strength of insulation	passed / failed;
					Power-frequency AC test voltage	1 to 900 kV
					Power-frequency AC test voltage when determining breakdown voltage	1 to 350 kV
40	GOST R 52082 § 8.4, Appendix M				Arc resistance	passed / failed;
					Test current	0.5 to 6 kA
	GOST R 52082 §§ 8.5.4 – 8.5.12				Mechanical strength	passed / failed;

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					Test mechanical bending force	0 to 500 kN
					Test mechanical torque	0 to 50 kN·m
					Test temperature	-60 °C to +85 °C
					Inflection	0 to 250 mm
					Twist angle	0 to 20 grad
41	GOST R 52082 § 8.6.4				Resistance to water penetration	passed / failed
42	GOST R 52082 § 8.8				Size Mass	0 to 8000 mm 0 to 500 kg
43	GOST R 52082 § 8.9.6				Dye penetration resistance	passed / failed
44	GOST R 55189 § 8.1.1, 8.1.5, 8.1.11, 8.1.12	Line rod polymer suspended insulators, interphase spacers	27.90.12.110	8546	Electric strength of insulation	passed / failed;
					Power-frequency AC test voltage	1 to 900 kV
					Steepness of pulse edge	to 2000 kV /μs
					Temperature of protective coating surface	0 to 300 °C
45	GOST R 55189 §§ 8.4.1- 8.4.8				Mechanical strength	passed / failed;
					Mechanical tensile test force	0 to 500 kN
46	GOST R 55189 § 8.6				Size Mass	0 to 500 kg; 0 to 15000 mm
47	GOST R 55189 § 8.7.7				Resistance to water diffusion into insulation core	passed / failed
48	GOST R 55189 § 8.7.9				Partial discharge extinction voltage	passed / failed;
					Power-frequency AC test voltage Partial discharge factor	1 to 350 kV; 1 pC to 100 nC
49	GOST 28856 §§ 5.1.1.4,	Line rod polymer	27.90.12.110	8546	Electric strength of insulation	passed / failed;

1	2	3	4	5	6	7
	5.1.2, 5.1.3.1, 5.1.3.2, 5.1.3.6	suspended insulators, interphase spacers			Pulse test voltage at lightning pulses	3 to 2400 kV
					Pulse test voltage at switching pulses	3 to 1850 kV
					Power-frequency AC test voltage	1 to 1050 kV
					Steepness of pulse edge	to 2000 kV / μ s
50	GOST 28856 §§ 5.1.1.5, 5.1.2.1, 5.1.3.7-5.1.3.9				Tracking and erosion resistance	passed / failed;
					Power-frequency AC test voltage	10 to 80 kV
51	GOST 28856 §§ 5.2.2, 5.2.3				Mechanical strength	passed / failed;
					Mechanical tensile test force	0 to 500 kN
52	GOST 28856 § 5.4				Mass Size	0 to 5000 kg; 0 to 15000 mm
53	GOST 30284 § 7.5	Insulators for railway overhead trolley lines	27.90.12.110	8546 90	Mechanical strength	passed / failed;
					Mechanical tensile test force	0 to 500 kN
54	GOST 34205 §§ 7.6-7.8	Sectional strain insulators for railway overhead trolley lines	27.90.12.110	853590	Mechanical strength	passed / failed;
	GOST 34205 § 7.10				Mechanical tensile test force	0 to 500 kN
					Resistance to water penetration	passed / failed
55	GOST 6490 § 7.3.1	Line suspended cap and pin insulators	27.90.12.110	8546 10 8546 20	Quality of surface of insulating parts	passed / failed;
56	GOST 6490 § 7.3.2				Mass Size	0 to 5000 kg; 0 to 15000 mm
57	GOST 6490 § 7.3.6				Thermal stability Water temperature	passed / failed; +15 °C to +95 °C
58	GOST 6490 § 7.4.2, 7.4.7				Electric strength of insulation	passed / failed;
		Power-frequency AC test voltage	1 to 350 kV			
		Steepness of pulse edge	to 2500 kV / μ s			

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59	GOST 6490 § 7.5.1, 7.5.4				Mechanical strength	passed / failed;	
					Mechanical tensile test force	0 to 500 kN	
60	GOST 6490 § 7.5.5				Thermomechanical strength	passed / failed	
					Mechanical tensile test force	up to 200 kN	
61	GOST 1232 § 8.5	Line pin porcelain and glass insulators	27.90.12.110	8546 10 8546 20	Mass	to 40 kg;	
					Size	up to 8000 mm	
62	GOST 1232 § 8.6				Thermal stability	passed / failed +15 °C to +95 °C	
63	GOST 1232 § 8.8, 8.9, 8.11				Mechanical strength	passed / failed;	
					Mechanical tensile test force	0 to 500 kN	
					Mechanical bending test force	0 to 500 kN	
64	GOST 1232 § 8.10				Thermomechanical strength	passed / failed;	
		Mechanical tensile test force	up to 100 kN at insulator height up to 1.0 m				
65	GOST 1232 § 8.14	Electric strength of insulation	passed / failed;				
		Power-frequency AC test voltage	1 to 350 kV				
66	GOST R 51155 §§ 5.2.1-5.2.4, 5.2.6, 5.2.7	Line accessories	27.90.12	8546	Mechanical strength	passed / failed;	
					Mechanical tensile test force	0 to 500 kN	
68					GOST R 51155 §§5.3.4 – 5.3.6	Electric contact resistance, wire section resistance	1 μΩ to 199.9 Ω
69						GOST R 51155 § 5.3.8	Electric contact resistance, wire section resistance
70					GOST R 51155 § 5.4		

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					Voltage Power Test current	0 to 1000 V; 0 to 10 kW; 50 to 5000 A
71	GOST R 51155 § 5.8				Electric strength of insulation Power-frequency AC test voltage Radio-frequency interference level	compliant / noncompliant; 0 to 500 kV; up to 100 dB
72	GOST R 55025 § 8.2.1	Power cables with plastic insulation of rated voltage of 6 to 35 kV inclusive	27.32.14	854460	Design	compliant / noncompliant; 0 to 8000 mm
73	GOST R 55025 § 8.3.3				Structural dimensions	
					Specific bulk electric insulation resistance	
					Electric insulation resistance Geometrical dimensions of a specimen	0 to 1000 GΩ; 0 to 8000 mm
74	GOST R 55025 §§8.3.6, 8.3.7, 8.3.8, 8.3.9				Electric strength of insulation:	passed / failed;
					Power-frequency AC test voltage	1 to 500 kV;
					Pulse test voltage	3 to 2400 kV
					Power-frequency AC test voltage in partial discharge measurement tests	1 to 350 kV;
					Partial discharge factor	1 pC to 100 nC
					Dielectric dissipation factor	0.01 to 100 %
75	GOST 31996 § 8.2.1	Power cables with plastic insulation of rated voltage of 0.66 and 1 to 3 kV	27.32.13; 27.32.14	854460	Design	compliant / noncompliant;
76	GOST 31996 § 8.3.3				Structural dimensions	0 to 8000 mm
					Electric insulation resistance Geometrical dimensions	0 to 1000 GΩ 0 to 8000 mm
77	GOST 18410 § 4.2.1	Power cables with impregnated paper insulation	27.32.14	854460	Structural components	compliant / noncompliant t
78	GOST 18410 § 4.4.1				Cable resistance to coiling	passed / failed

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79	GOST 2990 § 4.1, 4.2	Cables, wires and cords	27.32.1	854460	Electric strength of insulation: Power-frequency AC test voltage Pulse test voltage	passed / failed; 1 to 500 kV; 3 to 2400 kV
80	GOST R 53354 §§ 3.3, 3.4, Sections 4, 5	Cables and accessories	27.3	854460	Electric strength of insulation Pulse test voltage	passed / failed; 3 to 2400 kV
81	GOST 3345 Sections 2, 3, 4	Cables, wires and cords	27.32.1	854460	Electric insulation resistance	0 to 1000 GΩ
82	GOST 7229 Sections 4, 5	Cables, wires and cords	27.32.1	854460	Electrical resistance of conducting lines and conductors	1 μΩ to 199.9 Ω
83	GOST 12179 Sections 3, 4	Cables and wires	27.32.1	854460	Dielectric dissipation factor	0.01 to 100 %
84	GOST 13781.0 § 6.12	Box joints for power cables with voltage up to 35 kV inclusive			Electric strength of insulation: Power-frequency AC test voltage DC test voltage	passed / failed 0 to 500 kV; 0 to 70 kV
85	GOST 13781.0 §§ 6.16 – 6.18		27.33.14	8535 90	Weather resistance	passed / failed
					Ambient air temperature	–60 °C to +150 °C
					Ambient air humidity	10 to 98 %
86	GOST 1282 § 5.3	Power-factor correction capacitors	27.90.5	8532 10	Airtightness	passed / failed
87	GOST 1282 § 5.4				Electric capacity	20 pF to 1 μF
88	GOST 1282 § 5.6				Electric strength of insulation: Power-frequency AC test voltage	passed / failed; 0 to 350 kV
89	GOST 1282 § 5.8				Heat resistance Power-frequency AC test voltage	passed / failed; 1 to 100 kV

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90	GOST 15581 § 5.2	Coupling and power takeoff capacitors for power lines	27.90.5	8532 10	Airtightness	passed / failed
91	GOST 15581 §§ 5.3, 5.12				Electric capacity	20 pF to 1 µF
92	GOST 15581 §§ 5.4, 5.14, 5.15				Electric strength of insulation	passed / failed;
					Power-frequency AC test voltage	1 to 900 kV
					Pulse test voltage	3 to 2400 kV
93	GOST 15581 § 5.6				Dissipation factor	0.01 to 100 %
94	GOST 15581 § 5.7				Geometrical dimensions Exterior	0 to 15000 mm compliant / noncompliant
95	GOST 15581 § 5.16				Mass	up to 500 kg
96	GOST 15581 § 5.17				Resonance frequency of characteristic oscillations of capacitors	compliant / noncompliant
					Frequency	20 Hz to 200 kHz
97	GOST 15581 §§ 5.18-5.22	Weather resistance	passed / failed;			
		Power-frequency AC test voltage in heat resistance measurement tests	1 to 100 kV			
		Ambient air humidity	10 to 98 %			
		Ambient air temperature	-60 °C to +85 °C			
		Power-frequency AC test voltage when determining resistance to frost effect with subsequent melting	1 to 500 kV			
98	GOST 15581 § 5.23	Mechanical strength at wind pressure and horizontal tension of line cords	passed / failed; 0 to 10 kN			
99	GOST 14694 §§ 1.1, 1.5	Packaged switchgears in metal casing	27.12.32	8537 20	Compliance with design drawings and availability of the set of engineering documents	compliant / noncompliant
100	GOST 14694 § 3				Heat test Testing current	passed / failed; 50 to 5000 A

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101	GOST 14694 §§5.1, 5.2				Electric strength of insulation Power-frequency AC test voltage Pulse test voltage	passed / failed; 1 to 1050 kV 0 to 200 kV 3 to 500 kV
102	GOST 14694 Section 7				Electrodynamic and thermal resistance to short-circuit currents: – short-time electrodynamic current; – short-time thermal current, 3 sec.; – short-time thermal current, 1 sec.	passed / failed; up to 200 kA; up to 51 kA; up to 100 kA
103	GOST 14694 Section 10				Interchangeability of draw-out components of the same type	passed / failed;
104	GOST 14694 Section 13				Service transformer standby current breaking capacity	passed / failed
105	GOST R 55190 § 6.3.2	Packaged switchgears in metal casing	27.12.32	8537 20	Contact resistance of auxiliary circuits	exceeding / within range
106	GOST R 55190 § 6.4.2				Heat test for auxiliary equipment and control facilities	exceeding / within range
107	GOST R 55190 § 6.5				Electrodynamic and thermal resistance to short-circuit currents: – short-time electrodynamic current; – short-time thermal current, 3 sec.; – short-time thermal current, 1 sec.	passed / failed; up to 200 kA; up to 51 kA; up to 100 kA
108	GOST R 55190 § 6.9.6				Electric strength of insulation auxiliary circuits Power-frequency AC test voltage	passed / failed; 1 to 3 kV
109	GOST R 55190 § 6.12				Operability of switching devices, detachable parts, and interlocks	passed / failed
110	GOST R 51321.1 § 8.3.4	Low-voltage packaged switch and distribution units	27.12.3	8537	Insulation resistance	passed / failed; 0 to 1000 GΩ
111	GOST 6815 § 6.2	AC main and distribution bus ducts	27.12.40	853590	Mechanical strength	passed / failed

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112	GOST 6581 §п 1.4, 1.5 Section 4	Insulating liquid materials	19.20	2710	Breakdown voltage at frequency 50 Hz	0 to 80 kV
113	GOST 12.2.024-87 Section 2	Noise power transformers	27.11.4	8504 21	Compensated sound power level	30 to 137 dB
114	GOST 20493 §§8.1, 8.2	Voltage meters	27.90.1	8535	Fault check, completeness check, packaging inspection, marking inspection, corrosion protection availability check, insulating surface condition inspection, stopper ring availability check, accompanying documents availability check, verification of compliance with design drawings	compliant / noncompliant
115	GOST 20493 §§ 8.9.2, 8.10.3				Indication voltage	compliant / noncompliant
116	GOST 20493 §§ 8.9.2				Indicator operability	operable / faulty
117	GOST 20493 §§ 8.4, 8.5, 8.9.5, 8.10.5, 8.10.6				Electric strength of insulation at alternating voltage	passed / failed; 0 to 900 kV
118	GOST 20493 § 8.10.8, 8.10.9				Bending strength	passed / failed; 0 to 500 kN
119	GOST 20493 § 8.8				Electric insulation resistance of the charging unit	3 kΩ to 1000 GΩ
120	GOST 20493 § 8.6				Weather resistance Ambient air temperature	passed / failed; -60 °C to +85 °C
121	IEC 60137 §§8.2 – 8.7, 9.5, 9.6				Insulated bushings of rated voltages above 1000 V AC	
		Pulse test voltage at switching pulses	0 to 1675 kV			
		Power-frequency AC test voltage	0 to 900 kV			
		Power-frequency AC test voltage in long-term exposure and radio-frequency interference measurement tests	1 to 350 kV			
		Power-frequency AC test voltage in resistance to	1 to 500 kV			

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					thermal breakdown and radio-frequency interference level tests	
					Power-frequency AC test voltage in measuring terminal tests	0 to 5 kV
					Partial discharge factor	1 pC to 100 nC
					Radio-frequency interference level	to 100 dB
122	IEC 60137 § 8.8				Temperature in current-induced heating tests Test current	0 to 300 °C; 50 to 5000 A
123	IEC 60137 § 8.9				Short-time withstand current: – short-time electrodynamic current; – short-time thermal current, 3 sec.; – short-time thermal current, 1 sec.	passed / failed; up to 200 kA; up to 200 kA; to 51 kA; to 100 kA
124	IEC 60137 § 8.10				Mechanical strength under cantilever load	passed / failed; 0 to 10 kN
125	IEC 60137 § 8.14				Exterior Size Mass	compliant / noncompliant; 0 to 15000 mm; 0 to 5000 kg
126	IEC 60137 § 9.2				Major insulation capacity Dielectric dissipation factor	20 pF to 1 µF; 0.01 to 100 %
127	IEC 60076-1 § 11.3	Power transformers	27.11.4	8504 21	Transformation ratio and coil connection groups	0.8 to 20000
128	IEC 60076-1 § 11.2				DC resistance of coils	$2 \cdot 10^{-4}$ to $2 \cdot 10^5$
129	IEC 60076-1 § 11.4				Short-circuit losses. Short-circuit voltage	0 to 40 kW 0 to 100 %
130	IEC 60076-1 § 11.5				Losses and standby current	0 to 40 kW; 0 to 100 %
131	IEC 60076-1 § 11.6				Zero phase-sequence resistances	0.1 µΩ to 100 kΩ
132	IEC 60076-2 Section 7	Power transformers	27.11.4	8504 21	Temperature in current-induced heating tests	0 to 300 °C
133	IEC 60076-3	Power transformers and	27.11.4	8504 21	Electric strength of insulation Pulse test voltage at lightning pulses	passed / failed; 3 to 2400 kV

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	Sections 10, 12-14	reactors			Pulse test voltage eat switching pulses	10 to 1675 kV
					Power-frequency AC test voltage	0 to 425 kV
					Partial discharge factor	1 pC to 100 nC
134	IEC 60076-5 Section 4	Power transformers	27.11.4	8504 21	Short circuit resistance and resistance to shock currents up to 10 kA	passed / failed
135	IEC 60076-11 § 27	Dry-type transformers	27.11.4	8504 21	Environmental resistance: Test parameters: – temperature – relative humidity	passed / failed –60 °C to +85 °C; 10 to 98%
136	IEC 61869-1 ed.1 §§ 7.2.1.1	Instrument transformers	27.11.42	8504 31 8504 32	Geometrical dimensions Mass Condition of protective coatings Surface condition of external insulated parts Correctness of filled table Correctness of marking and branding Completeness	0 to 15000 mm 0 to 5000 kg normal/defective normal/defective correct/incorrect correct/incorrect compliant / noncompliant
137	IEC 61869-1 ed.1 §§7.4.5				Cantilever load	passed / failed; up to 50 kN
138	IEC 61869-1 ed.1 §§7.2.3.1- 7.2.3.3, 7.2.4, 7.3.1-7.3.4, 7.4.1, 7.4.2				Electric strength of insulation	passed / failed
					Power-frequency AC test voltage	0 to 900 kV
					Lightning pulse test voltage	10 to 2400 kV
					Switching pulse test voltage	10 to 1675 kV
					Power-frequency AC test voltage in partial discharge measurement tests	0 to 425 kV
					Power-frequency AC test voltage when testing internal and intersection insulation of secondary coils	0 to 3 kV
					Partial discharge factor	1 pC to 100 nC

1	2	3	4	5	6	7
139	IEC 61869-1 ed.1 §§7.3.6				Group of coil connections	compliant / noncompliant
140	IEC 61869-1 ed.1 §§7.4.3				Major insulation capacity	20 pF to 1 µF;
141	IEC 61869-1 ed.1 §§7.2.2				Dielectric dissipation factor of major insulation	0.01 to 100 %
142	IEC 61869-1 ed.1 §§7.2.7.1				Heating temperature at maximum capacity	0 to 300 °C
142	IEC 61869-1 ed.1 §§7.2.7.1				Restricted access to hazardous parts of equipment	passed / failed;
142	IEC 61869-1 ed.1 §§7.2.7.1				first characteristic figure	1,2,3,4
142	IEC 61869-1 ed.1 §§7.2.7.1				second characteristic figure	3,4,5
143	IEC 61869-2 ed.1 §§7.2.3, 7.3.1	Electromagnetic current transformers	27.11.42	8504 31 8504 32	Electric strength of insulation	passed / failed;
143	IEC 61869-2 ed.1 §§7.2.3, 7.3.1	Electromagnetic current transformers	27.11.42	8504 31 8504 32	Power-frequency AC test voltage	0 to 900 kV
143	IEC 61869-2 ed.1 §§7.2.3, 7.3.1	Electromagnetic current transformers	27.11.42	8504 31 8504 32	Lightning pulse test voltage	10 to 2400 kV
143	IEC 61869-2 ed.1 §§7.2.3, 7.3.1	Electromagnetic current transformers	27.11.42	8504 31 8504 32	Switching pulse test voltage	10 to 1675 kV
144	IEC 61869-2 ed.1 §§7.4.3	Electromagnetic current transformers	27.11.42	8504 31 8504 32	Capacity	20 pF to 1 µF;
144	IEC 61869-2 ed.1 §§7.4.3	Electromagnetic current transformers	27.11.42	8504 31 8504 32	Dissipation factor	0.01 to 100 %
145	IEC 61869-2 ed.1 §§7.2.6, 7.3.5	Electromagnetic current transformers	27.11.42	8504 31 8504 32	Current and angle errors	0.1%
146	IEC 61869-2 ed.1 §§7.3.203	Electromagnetic current transformers	27.11.42	8504 31 8504 32	Magnetization current of secondary coils	compliant / noncompliant
147	IEC 61869-2 ed.1 §§7.2.2	Electromagnetic current transformers	27.11.42	8504 31 8504 32	Temperature in current –induced heating tests	0 to 300 °C;
147	IEC 61869-2 ed.1 §§7.2.2	Electromagnetic current transformers	27.11.42	8504 31 8504 32	Test current	50 to 5000 A
148	IEC 61869-2 ed.1 §§7.2.201	Electromagnetic current transformers	27.11.42	8504 31 8504 32	Short-time withstand current:	passed / failed
148	IEC 61869-2 ed.1 §§7.2.201	Electromagnetic current transformers	27.11.42	8504 31 8504 32	– short-time electrodynamic current;	to 200 kA;
148	IEC 61869-2 ed.1 §§7.2.201	Electromagnetic current transformers	27.11.42	8504 31 8504 32	– short-time thermal current, 3 sec.;	to 51 kA;
148	IEC 61869-2 ed.1 §§7.2.201	Electromagnetic current transformers	27.11.42	8504 31 8504 32	– short-time thermal current, 1 sec.	to 100 kA
149	IEC 61869-3 ed.1 §§7.2.3.1-7.2.3.3, §7.3.1, 7.3.2	Electromagnetic voltage transformers	27.11.42	8504 31 8504 32	Electric strength of insulation	passed / failed;
149	IEC 61869-3 ed.1 §§7.2.3.1-7.2.3.3, §7.3.1, 7.3.2	Electromagnetic voltage transformers	27.11.42	8504 31 8504 32	Power-frequency AC test voltage	0 to 900 kV

1	2	3	4	5	6	7
					Lightning pulse test voltage	0 to 2400 kV
					Switching pulse test voltage	0 to 1675 kV
					Partial discharge factor	1 pC to 100 nC
150	IEC 61869-3 ed.1 §§7.2.6, 7.3.5				Group of coil connections;	compliant / noncompliant;
					Voltage error and angle error	0.2%
151	IEC 61869-3 ed.1 §7.2.2				Temperature in current-induced heating tests	passed / failed
					Load power	0 to 1200 VA
152	IEC 61869-3 ed.1 §7.2.301				Resistance to short-circuit currents in secondary coils	passed / failed
153	IEC 61869-3 ed.1 §7.4.3				Major insulation capacity Dielectric dissipation factor of major insulation	20 pF to 1 μF; 0.01 to 100 %

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