



National Accreditation Board for Testing and Calibration Laboratories

SCOPE OF ACCREDITATION

Laboratory Name :

ELECTRICAL RESEARCH AND DEVELOPMENT ASSOCIATION, CBIP CENTRE OF EXCELLENCE, GROUND FLOOR, GURGAON, HARYANA, INDIA

Accreditation Standard

ISO/IEC 17025:2017

Certificate Number

CC-4374

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Validity

22/04/2025 to 21/04/2029

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S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrument	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
Permanent Facility					
1	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage @ 50 Hz	Using 6½ Digit Multimeter by Direct Method	10 mV to 750 V	0.41 % to 0.24 %
2	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Active Energy @ 45 Hz - 55 Hz (1Ph2W, 40 V - 300 V, 0.01 A - 120 A, 0.25 Lag to UPF to 0.25 lead)	Using Energy Reference Meter & Source by Comparison Method	0.1 Wh to 36 kWh	0.1 % to 0.027 %
3	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Active Energy @ 45 Hz - 55 Hz (1Ph2W, 40 V - 300 V, 0.01 A - 120 A, 0.25 Lag to UPF to 0.25 Lead)	Using Energy Reference Meter by Direct Method	0.1 Wh to 36 kWh	0.09 % to 0.027 %
4	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Active Energy @ 45 Hz - 55 Hz (3Ph4W, 3Ph3W, 40 V - 300 V, 0.01 A - 120 A, 0.25 Lag to UPF to 0.25 Lead)	Using Energy Reference Meter & Source by Comparison Method	0.3 Wh to 108 kWh	0.1 % to 0.027 %



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5	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Active Energy @ 45 Hz - 55 Hz (3Ph4W, 3Ph3W, 40 V - 300 V, 0.01 A - 120 A, 0.25 Lag to UPF to 0.25 Lead)	Using Energy Reference Meter by Direct Method	0.3 Wh to 108 kWh	0.09 % to 0.027 %
6	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Active Power @ 50 Hz (1Ph2W, 30 V - 525 V, 50 mA - 80 A, 0.01 Lag - UPF - 0.01 Lead)	Using Power Meter by Direct Method	0.015 W to 42 kW	0.99 % to 0.022 %
7	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Active Power @ 50 Hz (1Ph2W, 30 V - 525 V, 50 mA - 80 A, 0.01 Lag - UPF - 0.01 Lead)	Using Power Meter & Source by Comparison Method	0.015 W to 42 kW	1 % to 0.023 %
8	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Active Power @ 50 Hz (3Ph4W, 3Ph3W, 30 V - 525 V, 50 mA - 80 A, 0.01 Lag - UPF - 0.01 Lead)	Using Power Meter by Direct Method	0.045 W to 126 kW	0.99 % to 0.022 %
9	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Active Power @ 50 Hz (3Ph4W, 3Ph3W, 30 V - 525 V, 50 mA - 80 A, 0.01 Lag - UPF - 0.01 Lead)	Using Power Meter & Source by Comparison Method	0.045 W to 126 kW	1 % to 0.023 %



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10	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Apparent Power @ 50 Hz (1P2W, 30 V - 525 V, 50 mA - 80 A, 0.01 Lag / Lead to UPF)	Using Power Meter by Direct Method	0.015 VA to 42 kVA	1 % to 0.03 %
11	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz	Using 6½ Digit Multimeter by Direct Method	0.1 A to 3 A	0.23 % to 0.22 %
12	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz	Using 6½ Digit Multimeter & Calibrator by Comparison Method	0.1 A to 3 A	0.29 % to 0.26 %
13	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz	Using Power Meter by Direct Method	10 mA to 20 mA	0.051 % to 0.025 %
14	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz	Using Power Meter & Source by Comparison Method	10 mA to 20 mA	0.052 % to 0.026 %



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15	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz	Using CT and AITTS by Direct Method	2.5 A to 3200 A	0.2 %
16	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz	Using CT, AITTS & Current Source by Comparison Method	2.5 A to 3200 A	0.2 %
17	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz	Using Power Meter by Direct Method	20 mA to 120 A	0.022 %
18	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz	Using Power Meter & Source by Comparison Method	20 mA to 120 A	0.022 % to 0.023 %
19	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC High Voltage @ 50 Hz	Using AC/DC High Voltage Divider with kV Meter by Direct Method	1 kV to 100 kV	1.79 %



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20	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC High Voltage @ 50 Hz	Using AC/DC High Voltage Divider with kV Meter & HV Source by Comparison Method	1 kV to 100 kV	1.82 %
21	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Reactive Energy @ 45 Hz - 55 Hz (1P2W, 40 V - 300 V, 0.01 A - 120 A, 0.25 Lag - UPF - 0.25 Lead)	Using Energy Reference Meter by Direct Method	0.1 VARh to 36 kVARh	0.11 % to 0.027 %
22	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Reactive Energy @ 45 Hz - 55 Hz (1P2W, 40 V - 300 V, 0.01 A - 120 A, 0.25 Lag - UPF - 0.25 Lead)	Using Energy Reference Meter & Source by Comparison Method	0.1 VARh to 36 kVARh	0.11 % to 0.027 %
23	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Reactive Energy @ 45 Hz - 55 Hz (3P4W, 3P3W, 40 V - 300 V, 0.01 A - 120 A, 0.25 Lag - UPF - 0.25 Lead)	Using Energy Reference Meter & Source by Comparison Method	0.3 VARh to 108 kVARh	0.11 % to 0.027 %
24	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Reactive Energy @ 45 Hz - 55 Hz (3P4W, 3P3W, 40 V - 300 V, 0.01 A - 120 A, 0.25 Lag - UPF - 0.25 Lead)	Using Energy Reference Meter by Direct Method	0.3 VARh to 108 kVARh	0.11 % to 0.027 %



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25	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Reactive Power @ 50 Hz (1P2W) (30 V - 525 V, 50 mA - 20 A, 0.01 Lag / Lead to 0.8 Lag)	Using Power Meter & Source by Comparison Method	0.015 VAR to 6.3 kVAR	0.94 % to 0.022 %
26	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Reactive Power @ 50 Hz (1P2W, 30 V - 525 V, 50 mA - 20 A, 0.01 Lag to 0.01 Lead)	Using Power Meter by Direct Method	0.015 VAR to 10.5 kVAR	0.95 % to 0.023 %
27	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Reactive Power @ 50 Hz (3P4W, 3P3W, 30 V - 525 V, 50 mA - 20 A, 0.01 Lag / Lead to 0.8 Lag)	Using Power Meter & Source by Comparison Method	0.045 VAR to 18.9 kVAR	0.94 % to 0.022 %
28	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Reactive Power @ 50 Hz (3P4W, 3P3W, 30 V - 525 V, 50 mA - 20 A, 0.01 Lag to 0.01 Lead)	Using Power Meter by Direct Method	0.045 VAR to 31.5 kVAR	0.95 % to 0.023 %
29	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage @ 50 Hz	Using 6½ Digit Multimeter & Multi Product Calibrator by Comparison Method	10 mV to 750 V	0.42 % to 0.25 %



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30	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage @ 50 Hz	Using Power Meter by Direct Method	30 V to 525 V	0.022 %
31	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage @ 50 Hz	Using Power Meter & Source by Comparison Method	30 V to 525 V	0.023 %
32	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Power Factor @ 50 Hz (30 V to 525 V) (0.01 A to 80 A)	Using Power Meter by Direct Method	0.01 Lag/Lead to 1 PF	0.022 % to 1.33 %
33	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Power Factor @ 50 Hz (30 V to 525 V) (0.01 A to 80 A)	Using Power Meter & Source by Comparison Method	0.01 Lag/Lead to 1 PF	0.023 % to 1.33 %
34	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current @ 50 Hz	Using Electrical Power Calibrator by Direct Method	0.01 A to 20 A	0.07 % to 0.024 %



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35	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Source)	AC Current @ 50 Hz	Using Electrical Power Calibrator by Direct Method	20 A to 80 A	0.024 % to 0.028 %
36	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Source)	AC Voltage @ 50 Hz	Using Electrical Power Calibrator by Direct Method	30 V to 480 V	0.024 %
37	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Source)	AC Active Power @ 50 Hz (1Ph2W) (30 V - 480 V, 50 mA - 80 A, 0.01 Lag - UPF - 0.01 Lead)	Using Electrical Power Calibrator by Direct Method	0.015 W to 38.4 kW	1.5 % to 0.042 %
38	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Source)	AC Apparent Power @ 50 Hz (1P2W) (30 V - 480 V, 50 mA - 80 A, 0.01 Lag/Lead - UPF)	Using Electrical Power Calibrator by Direct Method	0.015 VA to 38.4 kVA	1.5 % to 0.042 %
39	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Source)	AC Current @ 50 Hz	Using Calibrator by Direct Method	100 µA to 20 A	0.3 % to 0.17 %
40	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Source)	AC Current @ 50 Hz	Using Calibrator with Current Coil by Direct Method	20 A to 1000 A	0.17 % to 0.6 %



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41	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Source)	AC Reactive Power @ 50 Hz (1Ph2W) (30 V - 480 V, 50 mA - 20 A, 0.01 Lag to 0.01 Lead)	Using Electrical Power Calibrator by Direct Method	0.015 VAR to 9.6 kVAR	1.51 % to 0.043 %
42	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Source)	AC Voltage @ 50 Hz	Using Calibrator by Direct Method	10 mV to 1000 V	0.13 % to 0.04 %
43	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Source)	Power Factor @ 50 Hz (30 V to 480 V, 0.01 A to 80 A)	Using Electrical Power Calibrator by Direct Method	0.01 Lag/Lead to 1 UPF	1.71 % to 0.04 %
44	ELECTRO-TECHNICAL- DIRECT CURRENT (Measure)	DC Current	Using 6½ Digit Multimeter & Calibrator by Comparison Method	1 mA to 3 mA	0.07 % to 0.09 %
45	ELECTRO-TECHNICAL- DIRECT CURRENT (Measure)	DC Current	Using 6½ Digit Multimeter by Direct Method	1 mA to 3 A	0.035 % to 0.05 %
46	ELECTRO-TECHNICAL- DIRECT CURRENT (Measure)	DC Voltage	Using 6.5 Digit Multi Meter by Direct Method	10 mV to 1000 V	0.07 % to 0.003 %



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47	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage	Using 6.5 Digit Multimeter & Calibrator by Comparison Method	10 mV to 1000 V	0.071 % to 0.0032 %
48	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	Resistance (2 Wire)	Using 6½ Digit Multimeter by Direct Method	10 Mohm to 100 Mohm	0.05 % to 0.094 %
49	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	Resistance (2 Wire)	Using 6½ Digit Multimeter by Direct Method	10 Ohm to 10 Mohm	0.094 % to 0.05 %
50	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Calibrator by Direct Method	10 µA to 20 A	0.1 % to 0.02 %
51	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Calibrator with Current Coil by Direct Method	20 A to 1000 A	0.02 % to 0.23 %
52	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Calibrator by Direct Method	10 mV to 1000 V	0.01 % to 0.0025 %



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53	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	Resistance (2 Wire)	Using Calibrator by Direct Method	100 Ohm to 1000 Mohm	0.01 % to 1.79 %
54	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	Resistance (4 Wire)	Using Calibrator by Direct Method	1 Ohm to 100 Ohm	0.12 % to 0.01 %
55	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	CTPT Test Set (CT Mode) - Phase Error @ 1 A & 5 A	Using Automatic Instrument Transformer Test Set (AITTS) by Comparison Method	1 % to 120 %	0.75 minute
56	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	CTPT Test Set (CT Mode) - Ratio Error @ 1 A & 5 A	Using Automatic Instrument Transformer Test Set (AITTS) by Comparison Method	1 % to 120 %	0.015 %
57	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	CTPT Test Set (PT Mode) - Phase Error @ 110 V - 110 V/v3	Using Automatic Instrument Transformer Test Set (AITTS) by Comparison Method	80 % to 120 %	0.39 minute
58	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	CTPT Test Set (PT Mode) - Ratio Error @ 110 V-110 V/v3	Using Automatic Instrument Transformer Test Set (AITTS) by Comparison Method	80 % to 120 %	0.011 %



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59	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	CTPT Test Set - Phase Error @ 2.5 A to 3200 A	Using Standard CT and Automatic Instrument Transformer Test Set (AITTS) by Comparison Method	1 % to 20 %	1.44 minute
60	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	CTPT Test Set - Phase Error @ 2.5 A to 3200 A	Using Standard CT and Automatic Instrument Transformer Test Set (AITTS) by Comparison Method	20 % to 120 %	1.44 minute to 1.17 minute
61	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	CTPT Test Set - Ratio Error @ 2.5 A to 3200 A	Using Standard CT and Automatic Instrument Transformer Test Set (AITTS) by Comparison Method	1 % to 20 %	0.028 % to 0.024 %
62	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	CTPT Test Set - Ratio Error @ 2.5 A to 3200 A	Using Standard CT and Automatic Instrument Transformer Test Set (AITTS) by Comparison Method	20 % to 120 %	0.024 % to 0.023 %
63	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Current Harmonics (1 A - 10 A) @ 50 Hz	Using Power Analyzer By Direct Method	1st order to 41st order	0.37 %



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64	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Current Harmonics (1 A - 10 A) @ 50 Hz	Using Power Analyzer & Electrical Power Standard By Comparison Method	1st order to 41st order	0.37 %
65	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Turn Ratio Meter	Using Standard PTs by Direct Method	2 Turn to 300 Turn	0.08 % to 0.068 %
66	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Voltage Harmonics (100 V - 500 V) @ 50 Hz	Using Power Analyzer & Electrical Power Standard By Comparison Method	1st order to 41st order	0.37 %
67	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Voltage Harmonics (100 V - 500 V) @ 50 Hz	Using Power Analyzer By Direct Method	1st order to 41st order	0.37 %
68	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Voltage Transformer - Phase Error (Upto 33 kV/110 V & 33 kV/v3/110 V/v3)	Using Standard PTs and Automatic Instrument Transformer Test Set (AITTS) by Comparison Method	80 % to 120 %	1.7 minute



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69	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Voltage Transformer - Ratio Error (Upto 33 kV/110 V & 33 kV/v3/110 V/v3)	Using Standard PTs and Automatic Instrument Transformer Test Set (AITTS) by Comparison Method	80 % to 120 %	0.04 %
70	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Current Harmonics (1 A - 10 A) @ 50 Hz	Using Electrical Power Standard by Direct Method	1st order to 41st order	0.37%
71	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Current Harmonics (1st order to 41st order)	Using Electrical Power Standard By Direct Method	1 A to 10 A	0.11 %
72	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Impulse Measuring System (For Lightning Impulse) - Lightning Impulse	Using Haefley Impulse Calibrator by Direct Method	80 Vp (0.84 μ s) to 1600 Vp (60 μ s)	Front Time : 1.18 %, Tail Time : 3.27 % to 3.34 %
73	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Voltage Harmonics (100 V - 500 V) @ 50 Hz	Using Electrical Power Standard by Direct Method	1st order to 41st order	0.37 %



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74	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Voltage Harmonics (1st order to 41st order)	Using Electrical Power Standard By Direct Method	100 V to 500 V	0.11 %
75	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	RTD (Pt 100)	Using 6½ Digit Multimeter by Direct Method	(-) 200 °C to 800 °C	0.53 °C
76	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Thermocouple - J Type	Using Multi Product Calibrator by Direct Method	(-) 200 °C to 1200 °C	0.34 °C
77	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Thermocouple - K Type	Using Multi Product Calibrator by Direct Method	(-) 200 °C to 1300 °C	0.5 °C
78	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Thermocouple - N Type	Using Multi Product Calibrator by Direct Method	(-) 200 °C to 1300 °C	0.51 °C
79	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Thermocouple - R Type	Using Multi Product Calibrator by Direct Method	5 °C to 1300 °C	0.7 °C



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80	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Thermocouple - S Type	Using Multi Product Calibrator by Direct Method	5 °C to 1300 °C	0.7 °C
81	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Thermocouple - T Type	Using Multi Product Calibrator by Direct Method	(-) 200 °C to 400 °C	0.73 °C
82	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	RTD (Pt 100)	Using Multi Product Calibrator by Direct Method	(-) 200 °C to 800 °C	0.27 °C
83	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Thermocouple - J Type	Using Multi Product Calibrator by Direct Method	(-) 100 °C to 1200 °C	0.34 °C
84	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Thermocouple - K Type	Using Multi Product Calibrator by Direct Method	(-) 100 °C to 1300 °C	0.5 °C
85	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Thermocouple - N Type	Using Multi Product Calibrator by Direct Method	(-) 100 °C to 1300 °C	0.51 °C



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86	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Thermocouple - R Type	Using Multi Product Calibrator by Direct Method	5 °C to 1300 °C	0.7 °C
87	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Thermocouple - S Type	Using Multi Product Calibrator by Direct Method	5 °C to 1300 °C	0.7 °C
88	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Thermocouple - T Type	Using Multi Product Calibrator by Direct Method	(-) 100 °C to 400 °C	0.74 °C
89	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency	Using 6½ Digital Multimeter & Multi Product Calibrator by Comparison Method	20 Hz to 300 kHz	0.013 % to 0.002 %
90	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency	Using 6½ Digital Multimeter by Direct Method	20 Hz to 300 kHz	0.013 % to 0.002 %
91	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Time	Using digital Time Interval Meter by Comparison Method	10 s to 86400 s	1.41 % to 0.055 %



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92	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency	Using Multi Product Calibrator by Direct Method	10 Hz to 1 MHz	0.009 % to 0.007 %



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Site Facility					
1	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage @ 50 Hz	Using 6½ Digit Multimeter by Direct Method	10 mV to 750 V	0.41 % to 0.24 %
2	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Active Energy @ 45 Hz - 55 Hz (1Ph2W, 40 V - 300 V, 0.01 A - 120 A, 0.25 Lag to UPF to 0.25 lead)	Using Energy Reference Meter & Source by Comparison Method	0.1 Wh to 36 kWh	0.1 % to 0.027 %
3	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Active Energy @ 45 Hz - 55 Hz (1Ph2W, 40 V - 300 V, 0.01 A - 120 A, 0.25 Lag to UPF to 0.25 Lead)	Using Energy Reference Meter by Direct Method	0.1 Wh to 36 kWh	0.09 % to 0.027 %
4	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Active Energy @ 45 Hz - 55 Hz (3Ph4W, 3Ph3W, 40 V - 300 V, 0.01 A - 120 A, 0.25 Lag to UPF to 0.25 Lead)	Using Energy Reference Meter & Source by Comparison Method	0.3 Wh to 108 kWh	0.1 % to 0.027 %



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5	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Active Energy @ 45 Hz - 55 Hz (3Ph4W, 3Ph3W, 40 V - 300 V, 0.01 A - 120 A, 0.25 Lag to UPF to 0.25 Lead)	Using Energy Reference Meter by Direct Method	0.3 Wh to 108 kWh	0.09 % to 0.027 %
6	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Active Power @ 50 Hz (1Ph2W, 30 V - 525 V, 50 mA - 80 A, 0.01 Lag - UPF - 0.01 Lead)	Using Power Meter by Direct Method	0.015 W to 42 kW	0.99 % to 0.022 %
7	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Active Power @ 50 Hz (1Ph2W, 30 V - 525 V, 50 mA - 80 A, 0.01 Lag - UPF - 0.01 Lead)	Using Power Meter & Source by Comparison Method	0.015 W to 42 kW	1 % to 0.023 %
8	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Active Power @ 50 Hz (3Ph4W, 3Ph3W, 30 V - 525 V, 50 mA - 80 A, 0.01 Lag - UPF - 0.01 Lead)	Using Power Meter by Direct Method	0.045 W to 126 kW	0.99 % to 0.022 %
9	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Active Power @ 50 Hz (3Ph4W, 3Ph3W, 30 V - 525 V, 50 mA - 80 A, 0.01 Lag - UPF - 0.01 Lead)	Using Power Meter & Source by Comparison Method	0.045 W to 126 kW	1 % to 0.023 %



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10	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Apparent Power @ 50 Hz (1P2W, 30 V - 525 V, 50 mA - 80 A, 0.01 Lag / Lead to UPF)	Using Power Meter by Direct Method	0.015 VA to 42 kVA	1 % to 0.03 %
11	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz	Using 6½ Digit Multimeter by Direct Method	0.1 A to 3 A	0.23 % to 0.22 %
12	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz	Using 6½ Digit Multimeter & Calibrator by Comparison Method	0.1 A to 3 A	0.29 % to 0.26 %
13	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz	Using Power Meter by Direct Method	10 mA to 20 mA	0.051 % to 0.025 %
14	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz	Using Power Meter & Source by Comparison Method	10 mA to 20 mA	0.052 % to 0.026 %



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15	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz	Using CT and AITTS by Direct Method	2.5 A to 3200 A	0.2 %
16	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz	Using CT, AITTS & Current Source by Comparison Method	2.5 A to 3200 A	0.2 %
17	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz	Using Power Meter by Direct Method	20 mA to 120 A	0.022 %
18	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current @ 50 Hz	Using Power Meter & Source by Comparison Method	20 mA to 120 A	0.022 % to 0.023 %
19	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC High Voltage @ 50 Hz	Using AC/DC High Voltage Divider with kV Meter by Direct Method	1 kV to 100 kV	1.79 %



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20	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC High Voltage @ 50 Hz	Using AC/DC High Voltage Divider with kV Meter & HV Source by Comparison Method	1 kV to 100 kV	1.82 %
21	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Reactive Energy @ 45 Hz - 55 Hz (1P2W, 40 V - 300 V, 0.01 A - 120 A, 0.25 Lag - UPF - 0.25 Lead)	Using Energy Reference Meter by Direct Method	0.1 VARh to 36 kVARh	0.11 % to 0.027 %
22	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Reactive Energy @ 45 Hz - 55 Hz (1P2W, 40 V - 300 V, 0.01 A - 120 A, 0.25 Lag - UPF - 0.25 Lead)	Using Energy Reference Meter & Source by Comparison Method	0.1 VARh to 36 kVARh	0.11 % to 0.027 %
23	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Reactive Energy @ 45 Hz - 55 Hz (3P4W, 3P3W, 40 V - 300 V, 0.01 A - 120 A, 0.25 Lag - UPF - 0.25 Lead)	Using Energy Reference Meter & Source by Comparison Method	0.3 VARh to 108 kVARh	0.11 % to 0.027 %
24	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Reactive Energy @ 45 Hz - 55 Hz (3P4W, 3P3W, 40 V - 300 V, 0.01 A - 120 A, 0.25 Lag - UPF - 0.25 Lead)	Using Energy Reference Meter by Direct Method	0.3 VARh to 108 kVARh	0.11 % to 0.027 %



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25	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Reactive Power @ 50 Hz (1P2W) (30 V - 525 V, 50 mA - 20 A, 0.01 Lag / Lead to 0.8 Lag)	Using Power Meter & Source by Comparison Method	0.015 VAR to 6.3 kVAR	0.94 % to 0.022 %
26	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Reactive Power @ 50 Hz (1P2W, 30 V - 525 V, 50 mA - 20 A, 0.01 Lag to 0.01 Lead)	Using Power Meter by Direct Method	0.015 VAR to 10.5 kVAR	0.95 % to 0.023 %
27	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Reactive Power @ 50 Hz (3P4W, 3P3W, 30 V - 525 V, 50 mA - 20 A, 0.01 Lag / Lead to 0.8 Lag)	Using Power Meter & Source by Comparison Method	0.045 VAR to 18.9 kVAR	0.94 % to 0.022 %
28	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Reactive Power @ 50 Hz (3P4W, 3P3W, 30 V - 525 V, 50 mA - 20 A, 0.01 Lag to 0.01 Lead)	Using Power Meter by Direct Method	0.045 VAR to 31.5 kVAR	0.95 % to 0.023 %
29	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Voltage @ 50 Hz	Using 6½ Digit Multimeter & Multi Product Calibrator by Comparison Method	10 mV to 750 V	0.42 % to 0.25 %



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30	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage @ 50 Hz	Using Power Meter by Direct Method	30 V to 525 V	0.022 %
31	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage @ 50 Hz	Using Power Meter & Source by Comparison Method	30 V to 525 V	0.023 %
32	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Power Factor @ 50 Hz (30 V to 525 V) (0.01 A to 80 A)	Using Power Meter by Direct Method	0.01 Lag/Lead to 1 PF	0.022 % to 1.33 %
33	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Power Factor @ 50 Hz (30 V to 525 V) (0.01 A to 80 A)	Using Power Meter & Source by Comparison Method	0.01 Lag/Lead to 1 PF	0.023 % to 1.33 %
34	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current @ 50 Hz	Using Electrical Power Calibrator by Direct Method	0.01 A to 20 A	0.07 % to 0.024 %



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35	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Source)	AC Current @ 50 Hz	Using Electrical Power Calibrator by Direct Method	20 A to 80 A	0.024 % to 0.028 %
36	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Source)	AC Voltage @ 50 Hz	Using Electrical Power Calibrator by Direct Method	30 V to 480 V	0.024 %
37	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Source)	AC Active Power @ 50 Hz (1Ph2W) (30 V - 480 V, 50 mA - 80 A, 0.01 Lag - UPF - 0.01 Lead)	Using Electrical Power Calibrator by Direct Method	0.015 W to 38.4 kW	1.5 % to 0.042 %
38	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Source)	AC Apparent Power @ 50 Hz (1P2W) (30 V - 480 V, 50 mA - 80 A, 0.01 Lag/Lead - UPF)	Using Electrical Power Calibrator by Direct Method	0.015 VA to 38.4 kVA	1.5 % to 0.042 %
39	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Source)	AC Current @ 50 Hz	Using Calibrator by Direct Method	100 µA to 20 A	0.3 % to 0.17 %
40	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Source)	AC Current @ 50 Hz	Using Calibrator with Current Coil by Direct Method	20 A to 1000 A	0.17 % to 0.6 %



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41	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Source)	AC Reactive Power @ 50 Hz (1Ph2W) (30 V - 480 V, 50 mA - 20 A, 0.01 Lag to 0.01 Lead)	Using Electrical Power Calibrator by Direct Method	0.015 VAR to 9.6 kVAR	1.51 % to 0.043 %
42	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Source)	AC Voltage @ 50 Hz	Using Calibrator by Direct Method	10 mV to 1000 V	0.13 % to 0.04 %
43	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Source)	Power Factor @ 50 Hz (30 V to 480 V, 0.01 A to 80 A)	Using Electrical Power Calibrator by Direct Method	0.01 Lag/Lead to 1 UPF	1.71 % to 0.04 %
44	ELECTRO-TECHNICAL- DIRECT CURRENT (Measure)	DC Current	Using 6½ Digit Multimeter & Calibrator by Comparison Method	1 mA to 3 mA	0.07 % to 0.09 %
45	ELECTRO-TECHNICAL- DIRECT CURRENT (Measure)	DC Current	Using 6½ Digit Multimeter by Direct Method	1 mA to 3 A	0.035 % to 0.05 %
46	ELECTRO-TECHNICAL- DIRECT CURRENT (Measure)	DC High Voltage	Using AC/DC High Voltage Divider with kV Meter by Direct Method	1 kV to 60 kV	1.58 %



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47	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage	Using 6.5 Digit Multi Meter by Direct Method	10 mV to 1000 V	0.07 % to 0.003 %
48	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage	Using 6.5 Digit Multimeter & Calibrator by Comparison Method	10 mV to 1000 V	0.071 % to 0.0032 %
49	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	Resistance (2 Wire)	Using 6½ Digit Multimeter by Direct Method	10 Mohm to 100 Mohm	0.05 % to 0.094 %
50	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	Resistance (2 Wire)	Using 6½ Digit Multimeter by Direct Method	10 Ohm to 10 Mohm	0.094 % to 0.05 %
51	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Calibrator by Direct Method	10 µA to 20 A	0.1 % to 0.02 %
52	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Calibrator with Current Coil by Direct Method	20 A to 1000 A	0.02 % to 0.23 %



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53	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Calibrator by Direct Method	10 mV to 1000 V	0.01 % to 0.0025 %
54	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	Resistance (2 Wire)	Using Calibrator by Direct Method	100 Ohm to 1000 Mohm	0.01 % to 1.79 %
55	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	Resistance (4 Wire)	Using Calibrator by Direct Method	1 Ohm to 100 Ohm	0.12 % to 0.01 %
56	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	CTPT Test Set (CT Mode) - Phase Error @ 1 A & 5 A	Using Automatic Instrument Transformer Test Set (AITTS) by Comparison Method	1 % to 120 %	0.75 minute
57	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	CTPT Test Set (CT Mode) - Ratio Error @ 1 A & 5 A	Using Automatic Instrument Transformer Test Set (AITTS) by Comparison Method	1 % to 120 %	0.015 %
58	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	CTPT Test Set (PT Mode) - Phase Error @ 110 V - 110 V/v3	Using Automatic Instrument Transformer Test Set (AITTS) by Comparison Method	80 % to 120 %	0.39 minute



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S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrument	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(\pm)
59	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	CTPT Test Set (PT Mode) - Ratio Error @ 110 V-110 V/v3	Using Automatic Instrument Transformer Test Set (AITTS) by Comparison Method	80 % to 120 %	0.011 %
60	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	CTPT Test Set - Phase Error @ 2.5 A to 3200 A	Using Standard CT and Automatic Instrument Transformer Test Set (AITTS) by Comparison Method	1 % to 20 %	1.44 minute
61	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	CTPT Test Set - Phase Error @ 2.5 A to 3200 A	Using Standard CT and Automatic Instrument Transformer Test Set (AITTS) by Comparison Method	20 % to 120 %	1.44 minute to 1.17 minute
62	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	CTPT Test Set - Ratio Error @ 2.5 A to 3200 A	Using Standard CT and Automatic Instrument Transformer Test Set (AITTS) by Comparison Method	1 % to 20 %	0.028 % to 0.024 %
63	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	CTPT Test Set - Ratio Error @ 2.5 A to 3200 A	Using Standard CT and Automatic Instrument Transformer Test Set (AITTS) by Comparison Method	20 % to 120 %	0.024 % to 0.023 %



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64	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Current Harmonics (1 A - 10 A) @ 50 Hz	Using Power Analyzer By Direct Method	1st order to 41st order	0.37 %
65	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Current Harmonics (1 A - 10 A) @ 50 Hz	Using Power Analyzer & Electrical Power Standard By Comparison Method	1st order to 41st order	0.37 %
66	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Impulse Voltage Divider Ratio	Using 0-300 kVp High Voltage Divider and Oscilloscope by Comparison Method and Parallel Firing Method	30 kVp to 300 kVp	2.3 %
67	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Turn Ratio Meter	Using Standard PTs by Direct Method	2 Turn to 300 Turn	0.08 % to 0.068 %
68	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Voltage Harmonics (100 V - 500 V) @ 50 Hz	Using Power Analyzer & Electrical Power Standard By Comparison Method	1st order to 41st order	0.37 %



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69	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Voltage Harmonics (100 V - 500 V) @ 50 Hz	Using Power Analyzer By Direct Method	1st order to 41st order	0.37 %
70	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Voltage Transformer - Phase Error (Upto 33 kV/110 V & 33 kV/v3/110 V/v3)	Using Standard PTs and Automatic Instrument Transformer Test Set (AITTS) by Comparison Method	80 % to 120 %	1.7 minute
71	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Voltage Transformer - Ratio Error (Upto 33 kV/110 V & 33 kV/v3/110 V/v3)	Using Standard PTs and Automatic Instrument Transformer Test Set (AITTS) by Comparison Method	80 % to 120 %	0.04 %
72	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Current Harmonics (1 A - 10 A) @ 50 Hz	Using Electrical Power Standard by Direct Method	1st order to 41st order	0.37%
73	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Current Harmonics (1st order to 41st order)	Using Electrical Power Standard By Direct Method	1 A to 10 A	0.11 %



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74	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Impulse Measuring System (For Chopping Impulse) - Chopping Impulse	Using Reference Calibrator by Direct Method	400 Vp (0.5 μ s) to 1250 Vp (0.5 μ s)	1.76 % to 3.5 %
75	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Impulse Measuring System (For Lightning Impulse) - Lightning Impulse	Using Haefley Impulse Calibrator by Direct Method	80 Vp (0.84 μ s) to 1600 Vp (60 μ s)	Front Time : 1.18 %, Tail Time : 3.27 % to 3.34 %
76	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Impulse Measuring System (For Switching Impulse) - Switching Impulse	Using Reference Impulse Calibrator by Direct Method	80 Vp (20 μ s) to 1600 Vp (4000 μ s)	Front Time : 1.61 %, Tail Time : 3.11 % to 3.49 %
77	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Impulse Voltage Divider Ratio	Using Reference Impulse Calibrator & Digital Oscilloscope by Comparison and Pulse Injection Method	800 Vp to 1600 Vp	1.79 %
78	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Voltage Harmonics (100 V - 500 V) @ 50 Hz	Using Electrical Power Standard by Direct Method	1st order to 41st order	0.37 %



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79	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Voltage Harmonics (1st order to 41st order)	Using Electrical Power Standard By Direct Method	100 V to 500 V	0.11 %
80	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	RTD (Pt 100)	Using 6½ Digit Multimeter by Direct Method	(-) 200 °C to 800 °C	0.53 °C
81	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Thermocouple - J Type	Using Multi Product Calibrator by Direct Method	(-) 200 °C to 1200 °C	0.34 °C
82	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Thermocouple - K Type	Using Multi Product Calibrator by Direct Method	(-) 200 °C to 1300 °C	0.5 °C
83	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Thermocouple - N Type	Using Multi Product Calibrator by Direct Method	(-) 200 °C to 1300 °C	0.51 °C
84	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Thermocouple - R Type	Using Multi Product Calibrator by Direct Method	5 °C to 1300 °C	0.7 °C



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85	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Thermocouple - S Type	Using Multi Product Calibrator by Direct Method	5 °C to 1300 °C	0.7 °C
86	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Thermocouple - T Type	Using Multi Product Calibrator by Direct Method	(-) 200 °C to 400 °C	0.73 °C
87	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	RTD (Pt 100)	Using Multi Product Calibrator by Direct Method	(-) 200 °C to 800 °C	0.27 °C
88	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Thermocouple - J Type	Using Multi Product Calibrator by Direct Method	(-) 100 °C to 1200 °C	0.34 °C
89	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Thermocouple - K Type	Using Multi Product Calibrator by Direct Method	(-) 100 °C to 1300 °C	0.5 °C
90	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Thermocouple - N Type	Using Multi Product Calibrator by Direct Method	(-) 100 °C to 1300 °C	0.51 °C



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91	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Thermocouple - R Type	Using Multi Product Calibrator by Direct Method	5 °C to 1300 °C	0.7 °C
92	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Thermocouple - S Type	Using Multi Product Calibrator by Direct Method	5 °C to 1300 °C	0.7 °C
93	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Thermocouple - T Type	Using Multi Product Calibrator by Direct Method	(-) 100 °C to 400 °C	0.74 °C
94	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency	Using 6½ Digital Multimeter & Multi Product Calibrator by Comparison Method	20 Hz to 300 kHz	0.013 % to 0.002 %
95	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency	Using 6½ Digital Multimeter by Direct Method	20 Hz to 300 kHz	0.013 % to 0.002 %
96	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Time	Using digital Time Interval Meter by Comparison Method	10 s to 86400 s	1.41 % to 0.055 %



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97	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency	Using Multi Product Calibrator by Direct Method	10 Hz to 1 MHz	0.009 % to 0.007 %

* CMCs represent expanded uncertainties expressed at approximately the 95% level of confidence, using a coverage factor of $k = 2$.