National Accreditation Board for Testing and Calibration Laboratories

SCOPE OF ACCREDITATION

Laboratory Name : ELECTRONICS TEST AND DEVELOPMENT CENTRE, TARAMANI LINK ROAD, DR. VSI ESTATE, PART II, THIRUVANMIYUR, CHENNAI, TAMIL NADU, INDIA

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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 Active Energy (1 Phase, 50 Hz, 60 V to 240 V, 10 mA to 100 A, 0.5 PF to UPF)	Using Test Bench with Three Phase Comparator, Three Phase Reference Meter (300 s) By Direct Method	0.3 Wh to 24 kWh	0.014 % to 0.026 %
2	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Active Energy (3 Phase, 50 Hz, 60 V to 240 V, 10 mA to 100 A, 0.5 PF to UPF)	Using Test Bench with Three Phase Comparator, Three Phase Reference Meter By Direct Method	0.9 Wh to 72 kWh	0.014 % to 0.026 %
3	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Active Power (1 Phase, 50 Hz, 60 V to 240 V, 10 mA to 100 A, 0.5 PF to UPF)	Using Test Bench with Three Phase Comparator, Three Phase Reference Meter By Direct Method	0.3 W to 24 kW	0.025 %
4	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Active Power (3 Phase, 50 Hz, 60 V to 240 V, 10 mA to 100 A, 0.5 PF to UPF)	Using Test Bench with Three Phase Comparator, Three Phase Reference Meter By Direct Method	0.9 W to 72 kW	0.025 %

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5	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current (1 kHz to 5 kHz)	Using 8½ Digit Reference Multimeter By Direct Method	1 A to 10 A	0.016 % to 0.14 %
6	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current (1 kHz to 5 kHz)	Using 8½ Digit Reference Multimeter By Direct Method	10 A to 19.9 A	0.14 % to 0.31 %
7	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current (1 kHz to 5 kHz)	Using 8½ Digit Reference Multimeter By Direct Method	100 µA to 1 A	0.03 % to 0.016 %
8	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current (40 Hz to 1 kHz)	Using 8½ Digit Reference Multimeter By Direct method	1 A to 10 A	0.013 % to 0.012 %
9	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current (40 Hz to 1 kHz)	Using 8½ Digit Reference Multimeter By Direct method:	10 A to 19.9 A	0.012 % to 0.019 %

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10	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current (40 Hz to 1 kHz)	Using 8½ Digit Reference Multimeter By Direct method	100 µA to 1 A	0.19 % to 0.013 %
11	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current (5 kHz to 10 kHz)	Using 8½ Digit Reference Multimeter By Direct method	1 A to 10 A	0.11 % to 0.48 %
12	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current (5 kHz to 10 kHz)	Using 8½ Digit Reference Multimeter By Direct method	10 mA to 1 A	0.059 % to 0.11 %
13	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current (50 Hz to 5 kHz)	Using Digital Multimeter by Direct Method	100 µA to 10 A	0.17 % to 0.47 %
14	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current (at 50 Hz)	Using Three Phase Comparator By Direct method	50 mA to 100 A	0.02 %

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15	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Reactive Energy (1 Phase, 50 Hz, 60 V to 240 V, 10 mA to 100 A, 0.5 PF to ZPF)	Using Test Bench with Three Phase Comparator, Three Phase Reference Meter By Direct Method	0.3 Varh to 24 kVarh	0.014 % to 0.026 %
16	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Reactive Energy (3 Phase, 50 Hz, 60 V to 240 V, 10 mA to 100 A, 0.5 PF to ZPF)	Using Test Bench with Three Phase Comparator, Three Phase Reference Meter By Direct Method	0.9 VArh to 72 kVArh	0.014 % to 0.026 %
17	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Reactive Power (1 Phase, 50 Hz, 60 V to 240 V, 10 mA to 100 A, 0.5 PF to ZPF)	Using Test Bench with Three Phase Comparator, Three Phase Reference Meter By Direct Method	0.3 Var to 24 kVar	0.025 %
18	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Reactive Power (3 Phase, 50 Hz, 60 V to 240 V, 10 mA to 100 A, 0.5 PF to ZPF)	Using Test Bench with Three Phase Comparator, Three Phase Reference Meter By Direct Method	0.9 VAr to 72 kVAr	0.025 %
19	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Resistance at 1 kHz	Using Digital LCR Meter by Direct method	1000 m ohm to 100 k ohm	0.05 % to 0.06 %

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20	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (1 kHz to 10 kHz)	Using AC measurement Standard By Direct Method	1 mV to 10 mV	0.26 % to 0.058 %
21	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (1 kHz to 10 kHz)	Using 8½ Digit Reference Multimeter By Direct Method	1 V to 100 V	0.0043 % to 0.0055 %
22	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (1 kHz to 10 kHz)	Using 8½ Digit Reference Multimeter By Direct Method	10 mV to 100 mV	0.058 % to 0.0084 %
23	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (1 kHz to 10 kHz)	Using 8½ Digit Reference Multimeter By Direct Method	100 mV to 1 V	0.0084 % to 0.0043 %
24	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (1 kHz to 10 kHz)	Using 8½ Digit Reference Multimeter By Direct Method	100 V to 1000 V	0.0055 % to 0.0075 %

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25	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (10 Hz to 40 Hz)	Using AC measurement Standard By Direct Method	1 mV to 10 mV	0.63 % to 0.047 %
26	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (10 Hz to 40 Hz)	Using AC measurement Standard By Direct Method	1 V to 100 V	0.028 % to 0.030 %
27	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (10 Hz to 40 Hz)	Using AC measurement Standard By Direct Method	10 mV to 100 mV	0.047 % to 0.030 %
28	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (10 Hz to 40 Hz)	Using AC measurement Standard By Direct Method	100 mV to 1 V	0.030 % to 0.028 %
29	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (10 kHz to 30 kHz)	Using 8½ Digit Reference Multimeter By Direct Method	1 mV to 10 mV	0.3 % to 0.058 %

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30	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (10 kHz to 30 kHz)	Using 8½ Digit Reference Multimeter By Direct Method	1 V to 100 V	0.026 % to 0.011 %
31	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (10 kHz to 30 kHz)	Using 8½ Digit Reference Multimeter By Direct Method	10 mV to 100 mV	0.058 % to 0.024 %
32	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (10 kHz to 30 kHz)	Using 8½ Digit Reference Multimeter By Direct Method	100 mV to 1 V	0.024 % to 0.026 %
33	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (10 kHz to 30 kHz)	Using AC measurement Standard By Direct Method	100 V to 1000 V	0.011 % to 0.020 %
34	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (100 kHz to 1 MHz)	Usign 8½ Digit Reference Multimeter By Direct Method	1 V to 10 V	3.5 %

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35	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (30 kHz to 100 kHz)	Using AC measurement Standard By Direct Method	1 mV to 10 mV	0.35 % to 0.065 %
36	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (30 kHz to 100 kHz)	Using AC measurement Standard By Direct Method	1 V to 100 V	0.010 % to 0.078 %
37	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (30 kHz to 100 kHz)	Using Digital Multimeter, AC measurement Standard By Direct Method	1 V to 750 V	0.010 % to 0.078 %
38	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (30 kHz to 100 kHz)	Using AC measurement Standard By Direct Method	10 mV to 100 mV	0.065 % to 0.030 %
39	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (30 kHz to 100 kHz)	Using AC measurement Standard By Direct Method	100 mV to 1 V	0.030 % to 0.010 %

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40	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (40 Hz to 1 kHz)	Using 8½ Digit Reference Multimeter By Direct Method	1 mV to 10 mV	0.26 % to 0.029 %
41	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (40 Hz to 1 kHz)	Using 8½ Digit Reference Multimeter By Direct Method	1 V to 100 V	0.0041 % to 0.0044 %
42	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (40 Hz to 1 kHz)	Using 8½ Digit Reference Multimeter By Direct Method	10 mV to 100 mV	0.029 % to 0.0078 %
43	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (40 Hz to 1 kHz)	Using 8½ Digit Reference Multimeter By Direct Method	100 mV to 1 V	0.0078 % to 0.0041 %
44	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (40 Hz to 1 kHz)	Using 8½ Digit Reference Multimeter By Direct Method	100 V to 1000 V	0.0044 % to 0.012 %

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45	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (50 Hz to 100 kHz)	Using Digital Multimeter by Direct Method	1 mV to 750 V	2.5 % to 0.2 %
46	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage at 50 Hz	Using High Voltage Probe With Digital Multimeter By Direct Method	1 kV to 10 kV	5.92 %
47	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Capacitance at 1 kHz	Digital Multimeter by Direct Method	1 nF to 100 µF	1.16 % to 0.7 %
48	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Capacitance at 1 kHz	Using Digital LCR Meter by Direct method	1 pF to 1000 µF	0.12 % to 0.15 %
49	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Inductance at 1 kHz	Using Digital LCR Meter by Direct Method	100 µH to 10 H	0.13 % to 0.12 %

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50	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Phase Angle (Power Factor) 50 Hz, 240V/1A	Using 3 Phase Power Analyzer, Three Phase Comparator By Direct Method	0.2 PF to 1 PF	0.0006 PF
51	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (1 kHz to 5 kHz)	Using Multiproduct Calibrator by Direct method	1 A to 20 A	0.09 % to 3.50 %
52	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (1 kHz to 5 kHz)	Using Multiproduct Calibrator by Direct method	10 mA to 1 A	0.046 % to 0.090 %
53	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (10 Hz to 1 kHz)	Using Multiproduct Calibrator by Direct method	1 A to 10 A	0.05 % to 0.13 %
54	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (10 Hz to 1 kHz)	Using Multiproduct Calibrator by Direct method	1 mA to 10 mA	0.025 %

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55	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (10 Hz to 1 kHz)	Using Multiproduct Calibrator by Direct method	10 mA to 1 A	0.025 % to 0.05 %
56	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (10 Hz to 1 kHz)	Using Multiproduct Calibrator by Direct method	100 µA to 1 mA	0.031 % to 0.025 %
57	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (40 Hz to 1 kHz)	Using Multiproduct Calibrator by Direct method	10 A to 20 A	0.17 % to 0.20 %
58	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current at 50 Hz	Using Multiproduct Calibrator with Current Coil By Direct method	20 A to 200 A	0.60 %
59	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current at 50 Hz	Using Multiproduct Calibrator with Current Coil By Direct method	200 A to 1000 A	2.73 %
60	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current at 50 Hz	Using Three Phase Comparator By Direct method	50 mA to 100 A	0.025 %

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61	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Resistance @ 1 kHz	Using Standard Reference Resistor By Direct method	1 kohm	0.0066 %
62	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Resistance @ 1 kHz	Using Standard Reference Resistor By Direct method	10 kohm	0.0066 %
63	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Resistance @ 1 kHz	Using Standard Reference Resistor By Direct method	10 ohm	0.0071 %
64	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Resistance @ 1 kHz	Using Standard Reference Resistor By Direct method	100 ohm	0.0066 %
65	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (1 kHz to 10 kHz)	Using Multiproduct Calibrator by Direct method	1 mV to 10 mV	0.65 % to 0.075 %
66	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (1 kHz to 10 kHz)	Using Multiproduct Calibrator by Direct method	1 V to 100 V	0.0070 % to 0.0091 %

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67	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (1 kHz to 10 kHz)	Using Multiproduct Calibrator by Direct method	10 mV to 100 mV	0.075 % to 0.020 %
68	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (1 kHz to 10 kHz)	Using Multiproduct Calibrator by Direct method	100 mV to 1 V	0.020 % to 0.0070 %
69	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (1 kHz to 10 kHz)	Using Multiproduct Calibrator by Direct method	100 V to 1000 V	0.0091 % to 0.020 %
70	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (10 Hz to 40 Hz)	Using Multiproduct Calibrator by Direct method	1 mV to 10 mV	0.65 % to 0.080 %
71	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (10 Hz to 40 Hz)	Using Multiproduct Calibrator by Direct method	1 V to 100 V	0.015 %
72	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (10 Hz to 40 Hz)	Using Multiproduct Calibrator by Direct method	10 mV to 100 mV	0.080 % to 0.030 %

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73	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (10 Hz to 40 Hz)	Using Multiproduct Calibrator by Direct method	100 mV to 1 V	0.030 % to 0.015 %
74	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (10 Hz to 40 Hz)	Using Multiproduct Calibrator by Direct method	100 V to 1000 V	0.015 % to 0.022 %
75	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (10 kHz to 20 kHz)	Using Multiproduct Calibrator by Direct method	500 V to 1000 V	0.028 % to 0.027 %
76	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (10 kHz to 30 kHz)	Using Multiproduct Calibrator by Direct method	1 V to 100 V	0.0085 % to 0.014 %
77	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (10 kHz to 30 kHz)	Using Multiproduct Calibrator by Direct method	10 mV to 100 mV	0.078 % to 0.021 %
78	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (10 kHz to 30 kHz)	Using Multiproduct Calibrator by Direct method	100 mV to 1 V	0.021 % to 0.0085 %

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79	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (10 kHz to 30 kHz)	Using Multiproduct Calibrator by Direct method	100 V to 500 V	0.014 % to 0.028 %
80	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (10 kHz to 50 kHz)	Using Multiproduct Calibrator by Direct method	100 mV to 100 V	0.59 % to 0.23 %
81	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (100 kHz to 1 MHz)	Using Multiproduct Calibrator by Direct method	1 mV to 10 mV	1.68 % to 1.10 %
82	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (100 kHz to 1 MHz)	Using Multiproduct Calibrator by Direct method	10 mV to 100 mV	1.10 % to 0.39 %
83	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (100 kHz to 1 MHz)	Using Multiproduct Calibrator by Direct method	100 mV to 10 V	0.39 % to 0.27 %
84	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (30 kHz to 100 kHz)	Using Multiproduct Calibrator by Direct method	1 mV to 10 mV	0.71 % to 0.11 %

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85	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (30 kHz to 100 kHz)	Using Multiproduct Calibrator by Direct method	1 V to 100 V	0.020 %
86	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (30 kHz to 100 kHz)	Using Multiproduct Calibrator by Direct method	10 mV to 100 mV	0.11 % to 0.050 %
87	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (30 kHz to 100 kHz)	Using Multiproduct Calibrator by Direct method	100 mV to 1 V	0.050 % to 0.020 %
88	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (40 Hz to 1 kHz)	Using Multiproduct Calibrator by Direct method	1 mV to 10 mV	0.65 % to 0.075 %
89	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (40 Hz to 1 kHz)	Using Multiproduct Calibrator by Direct method	1 V to 100 V	0.0070 % to 0.0080 %
90	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (40 Hz to 1 kHz)	Using Multiproduct Calibrator by Direct method	10 mV to 100 mV	0.075 % to 0.020 %

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91	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (40 Hz to 1 kHz)	Using Multiproduct Calibrator by Direct method	100 mV to 1 V	0.020 % to 0.0070 %
92	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (40 Hz to 1 kHz)	Using Multiproduct Calibrator by Direct method	100 V to 1000 V	0.0080 % to 0.023 %
93	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance @ 1 kHz	Using Standard Capacitor By Direct Method	100 µF	0.4 %
94	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance @ 1 kHz	Using High Frequency Standard Capacitor By Direct Method	1 µF	0.06 %
95	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance @ 1 kHz	Using High Frequency Standard Capacitor By Direct method	1 pF	0.18 %
96	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance @ 1 kHz	Using Standard Capacitor By Direct Method	10 µF	0.2 %

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97	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance @ 1 kHz	Using High Frequency Standard Capacitor By Direct Method	10 nF	0.060 %
98	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance @ 1 kHz	Using High Frequency Standard Capacitor By Direct method	10 pF	0.18 %
99	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance @ 1 kHz	Using High Frequency Standard Capacitor By Direct Method	100 nF	0.060 %
100	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance @ 1 kHz	Using High Frequency Standard Capacitor By Direct method	100 pF	0.18 %
101	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance @ 1 kHz	Using Standard Capacitor By Direct Method	1000 µF	0.8 %
102	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance @ 1 kHz	Using High Frequency Standard Capacitor By Direct Method	1000 pF	0.18 %

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103	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Inductance @ 1 kHz	Using Inductance Standard By Direct Method	1 H	0.191 %
104	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Inductance @ 1 kHz	Using Inductance Standard By Direct method	1 mH	0.071 %
105	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Inductance @ 1 kHz	Using Inductance Standard By Direct Method	10 H	0.052 %
106	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Inductance @ 1 kHz	Using Inductance Standard By Direct Method	10 mH	0.066 %
107	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Inductance @ 1 kHz	Using Inductance Standard By Direct Method	100 mH	0.060 %
108	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Power Factor @50 Hz, 240 V, 1 A	Using Multiproduct Calibrator By Direct Method	0.2 PF to 1 PF	0.025 %

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109	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using 8½ Digit Reference Multimeter By Direct Method	1 A to 10 A	0.025 % to 0.054 %
110	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using 8½ Digit Reference Multimeter By Direct Method	10 µA to 100 µA	0.0029 % to 0.0023 %
111	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using 8½ Digit Reference Multimeter By Direct Method	10 A to 20 A	0.054 %
112	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using 6½ Digit Digital Multimeter By Direct Method	100 µA to 1 A	2.4 % to 0.21 %
113	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using 8½ Digit Reference Multimeter By Direct Method	100 µA to 100 mA	0.0023 % to 0.0072 %
114	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using 8½ Digit Reference Multimeter By Direct Method	100 mA to 1 A	0.0072 % to 0.025 %

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115	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using 8½ Digit Reference Multimeter (2 Wire) By Direct Method	1 Gohm to 10 Gohm	0.21 % to 0.22 %
116	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using 8½ Digit Reference Multimeter (4 Wire) By V/I Method	1 mohm to 1 ohm	0.037 % to 0.0021 %
117	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using 8½ Digit Reference Multimeter (4 Wire) By Direct Method	1 Mohm to 10 Mohm	0.0016 % to 0.0028 %
118	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using 8½ Digit Reference Multimeter (4 Wire) By Direct Method	1 ohm to 10 ohm	0.0021 % to 0.0012 %
119	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using 8½ Digit Reference Multimeter (4 Wire) By Direct Method	10 Mohm to 100 Mohm	0.0028 % to 0.020 %
120	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using 8½ Digit Reference Multimeter (4 Wire) By Direct Method	10 ohm to 100 ohm	0.0012 % to 0.0011 %

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121	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using 8½ Digit Reference Multimeter (2 Wire) By Direct Method	100 Mohm to 1 Gohm	0.020 % to 0.21 %
122	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using 8½ Digit Reference Multimeter (4 Wire/ 2 Wire) By Direct Method	100 ohm to 1 Mohm	0.0011 % to 0.0016 %
123	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage	Using Digital Multimeter by Direct method	0.1 mV to 100 mV	3.5 % to 0.009 %
124	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage	Using 8½ Digit Reference Multimeter By Direct Method	1 mV to 100 mV	0.065 % to 0.00076 %
125	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage	Using 8½ Digit Reference Multimeter By Direct Method	1 V to 1000 V	0.00058 % to 0.0064 %
126	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage	Using 8½ Digit Reference Multimeter By Direct Method	10 µV to 100 µV	1.17 % to 0.64 %

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127	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage	Using 8½ Digit Reference Multimeter By Direct Method	100 µ**V** to 1 mV	0.64 % to 0.065 %
128	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage	Using 8½ Digit Reference Multimeter By Direct Method	100 mV to 1 V	0.00076 % to 0.00058 %
129	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage	Using Digital Multimeter by Direct Method	100 mV to 1000 V	0.009 % to 0.0054 %
130	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Multifunction Calibrator By Direct Method	1 A to 10 A	0.014 % to 0.064 %
131	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Multifunction Calibrator By Direct Method	1 mA to 100 mA	0.006 %
132	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Multifunction Calibrator By Direct Method	10 µA to 100 µA	0.045 % to 0.015 %

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133	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Multiproduct Calibrator By Direct Method	10 A to 20 A	0.060 % to 0.11 %
134	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Multifunction Calibrator By Direct Method	100 µA to 1 mA	0.015 % to 0.006 %
135	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Multifunction Calibrator By Direct Method	100 mA to 1 A	0.006 % to 0.014 %
136	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Multiproduct Calibrator with Current Coil By Direct method	20 A to 1000 A	0.11 % to 1.25 %
137	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Precision DC Current Shunt (4 Wire) By Direct Method	0.333 mohm	0.24 %
138	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Standard Resistor By Direct Method	1 Gohm	0.058 %

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139	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Standard Reference Resistor (4 Wire) By Direct Method	1 kohm	0.0013 %
140	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Multifunction Calibrator (4 Wire) By Direct Method	1 Mohm	0.0031 %
141	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Precision DC Current Shunt (4 Wire) By Direct Method	1 mohm	0.10 %
142	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Multifunction Electrical Tester Calibrator (4 Wire / 2 Wire) By Direct Method	1 Mohm to 400 Mohm	0.0082 % to 1.88 %
143	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Standard Reference Resistor (4 Wire) By Direct Method	1 ohm	0.0013 %
144	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Multiproduct Calibrator (4 Wire) By Direct Method	1 ohm to 10 ohm	5.9 % to 0.7 %

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145	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Standard Reference Resistor (4 Wire) By Direct Method	10 kohm	0.0013 %
146	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Multifunction Calibrator (4 Wire) By Direct Method	10 Mohm	0.0060 %
147	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Precision DC Current Shunt (4 Wire) By Direct Method	10 mohm	0.071 %
148	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Standard Reference Resistor (4 Wire) By Direct Method	10 ohm	0.0014 %
149	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Multiproduct Calibrator, 4 Wire / 2 Wire By Direct Method	10 ohm to 400 Mohm	0.7 % to 0.38 %
150	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Multifunction Calibrator (4 Wire) By Direct Method	100 k ohm	0.0012 %

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151	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Multi Function Electrical Tester Calibrator by Direct method	100 kohm to 1 Mohm	0.0036 % to 0.0082 %
152	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Multifunction Calibrator (4 Wire) By Direct Method	100 Mohm	0.0086 %
153	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Precision DC Current Shunt (4 Wire) By Direct Method	100 mohm	0.013 %
154	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Standard Reference Resistor (4 Wire) By Direct Method	100 ohm	0.0013 %
155	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Multiproduct Calibrator (4 Wire) By Direct Method	100 ohm to 100 kohm	0.005 % to 0.0036 %
156	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using High Precision Decade Resistance Box by Direct method	100 ohm to 100 Mohm	0.015 % to 0.05 %

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157	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using High Resistance Decade Box (2 Wire) By Direct Method	400 Mohm to 10 Gohm	0.38 % to 1.16 %
158	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance (upto 5 kV)	Using High Resistance Decade Box (2 Wire) By Direct Method	10 Gohm to 100 Gohm	1.16 %
159	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multifunction Calibrator By Direct Method	- 10 mV to - 1 mV	0.0066 % to 0.066 %
160	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multifunction Calibrator By Direct Method	-1 mV to -100 µV	0.06 % to 0.58 %
161	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multifunction Calibrator By Direct Method	1 mV to 10 mV	0.060 % to 0.0066 %
162	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multiproduct Calibrator By Direct Method	1 mV to 1000 V	0.06 % to 0.0093 %

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163	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multifunction Calibrator By Direct Method	1 V to 1000 V	0.00075 % to 0.00093 %
164	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multifunction Calibrator By Direct Method	10 µV to 100 µV	5.82 % to 0.60 %
165	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multifunction Calibrator By Direct Method	-10 µV to -100 µV	0.60 % to 5.8 %
166	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multifunction Calibrator By Direct Method	10 mV to 100 mV	0.0066 % to 0.0015 %
167	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multifunction Calibrator By Direct Method	100 µV to 1 mV	0.60 % to 0.060 %
168	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multifunction Calibrator By Direct Method	-100 mV to -10 mV	0.0015 % to 0.0066 %

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169	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multifunction Calibrator By Direct Method	100 mV to 1 V	0.0015 % to 0.00075 %
170	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	Resistance	Using High Value Decade Meg ohm Box by Direct method	1 Mohm to 10 T ohm	0.035 % to 5 %
171	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Impulse Voltage (1 kV to 10 kV- Pulse Width)	Using Oscilloscope With High Voltage Probe By Direct Method	40 µs to 60 µs	6 %
172	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Impulse Voltage (1 kV to 10 kV- Rise Time)	Using Oscilloscope With High Voltage Probe By Direct Method	0.84 µs to 1.56 µs	6.1 %
173	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Impulse Voltage (1 kV to 10 kV- Voltage)	Using Oscilloscope With High Voltage Probe By Direct Method	0.9 kV to 10.1 kV	6 %
174	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Oscilloscope (AC Voltage) @ 1 kHz	Using Multiproduct Calibrator By Direct Method	10 mV to 130 V	0.60 % to 0.06 %

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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)(±)
175	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Oscilloscope (Bandwidth)	Using Multiproduct Calibrator By Direct Method	1 MHz to 600 MHz	4 %
176	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Oscilloscope (DC Voltage)	Using Multiproduct Calibrator By Direct Method	10 mV DC to 130 V DC	0.5 % to 0.05 %
177	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Oscilloscope (Time Co-efficient)	Using Multiproduct Calibrator By Direct Method	10 ns to 5 s	0.0005 % to 0.58 %
178	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	B Type Thermocouple	Using 8½ Digit Reference Multimeter, Standard Thermometer By Simulation Method	400 °C to 1800 °C	0.77 °C
179	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	E Type Thermocouple	Using 8½ Digit Reference Multimeter, Standard Thermometer By Simulation Method	-200 °C to 1000 °C	0.09 °C

SCOPE OF ACCREDITATION

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180	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	J Type Thermocouple	Using 8½ Digit Reference Multimeter, Standard Thermometer By Simulation Method	-200 °C to 1200 °C	0.12 °C
181	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	K Type Thermocouple	Using 8½ Digit Reference Multimeter, Standard Thermometer By Simulation Method	-200 °C to 1350 °C	0.18 °C
182	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	N Type Thermocouple	Using 8½ Digit Reference Multimeter, Standard Thermometer By Simulation Method	-200 °C to 1250 °C	0.073 °C
183	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	R Type Thermocouple	Using 8½ Digit Reference Multimeter, Standard Thermometer By Simulation Method	2 °C to 1750 °C	0.47 °C
184	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	RTD	Using Digital Multimeter by Direct Method	-100 °C to 800 °C	0.08 °C

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185	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	RTD-PT 100	Using 8½ Digit Reference Multimeter, Standard Thermometer By Simulation Method	-199 °C to 800 °C	0.065 °C
186	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	S Type Thermocouple	Using 8½ Digit Reference Multimeter, Standard Thermometer By Simulation Method	20 °C to 1750 °C	0.59 °C
187	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	T Thermocouple	Using 8½ Digit Reference Multimeter, Standard Thermometer By Simulation Method	-200 °C to 400 °C	0.13 °C
188	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	B Type Thermocouple	Using Multiproduct Calibrator By Direct Method	400 °C to 1800 °C	0.5 °C
189	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	E Type Thermocouple	Using Multiproduct Calibrator By Direct Method	-200 °C to 1000 °C	0.02 °C

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190	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	J Type Thermocouple	Using Multiproduct Calibrator By Direct Method	-200 °C to 1000 °C	0.02 °C
191	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	K Type Thermocouple	Using Multifunction Calibrator By Direct Method	-200 °C to 1350 °C	0.23 °C
192	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	N Type Thermocouple	Using Multifunction Calibrator By Direct Method	-200 °C to 1300 °C	0.02 °C
193	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	R Type Thermocouple	Using Multifunction Calibrator By Direct Method	0 to 1800 °C	0.4 °C
194	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	RTD-PT 1000	Using Multiproduct Calibrator By Direct Method	-199 °C to 800 °C	0.02 °C
195	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	S Type Thermocouple	Using Multifunction Calibrator By Direct Method	0 °C to 1750 °C	0.03 °C

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196	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	T Type Thermocouple	Using Multiproduct Calibrator By Direct Method	-200 °C to 400 °C	0.2 °C
197	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency	Using Universal Counter By Direct Method	1 kHz to 1 MHz	0.00000086 %
198	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency	Using Universal Counter By Direct Method	1 MHz to 10 MHz	0.00000086 % to 0.000000043 %
199	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency	Using Universal Counter By Direct Method	10 Hz to 1 kHz	0.000065 % to 0.00000086 %
200	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency	Using Digital Multimeter by Direct Method	10 Hz to 300 kHz	0.03 % to 0.008 %
201	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency	Using Frequency Calibrator By Direct Method	10 MHz to 3 GHz	0.000000043 % to 0.000000042 %

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202	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Timer, Time interval meters	Using Universal Counter By Direct Method	1 s to 5400 s	0.0012 %
203	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency	Using Single Channel Arbitrary / Function Generator By Direct Method	1 Hz to 10 kHz	0.0029 % to 0.000076 %
204	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency	Using Single Channel Arbitrary / Function Generator By Direct Method	10 Hz to 2 MHz	0.007 % to 0.003 %
205	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency	Using Single Channel Arbitrary / Function Generator By Direct Method	10 kHz to 3 GHz	1 ppm to 1.2 ppm
206	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency	Using Function Generator by Direct method	10 kHz to 400 MHz	0.000076 %
207	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency	Using Single Channel Arbitrary / Function Generator By Direct Method	2 MHz to 10 MHz	0.003 %

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208	THERMAL-TEMPERATURE	Liquid in Glass Thermometer	Using SSPRT Pt-100, RTD (Pt-100), Low Temperature Bath by Comparison Method	-40 °C to 40 °C	0.07 °C
209	THERMAL-TEMPERATURE	Temperature Sensors (RTD, T/Cs) with or without Indicator and Controller, Temperature gauge	Using SSPRT, PT 100 with DMM/Thermometer Readout and Portable dry block calibrators by Comparison Method	40 °C to 200 °C	0.41 °C
210	THERMAL-TEMPERATURE	Temperature Sensors (RTD, T/Cs) with or without Indicator and Controller, Temperature gauge	Using SSPRT, PT 100 with DMM/Thermometer Readout, Zero calibrator Dry well by Comparison Method	0.01 °C	0.06 °C
211	THERMAL-TEMPERATURE	Temperature Sensors (RTD, T/Cs) with or without Indicator and Controller, Temperature gauge	Using SSPRT, PT100 with DMM/Thermometer Readout and Liquid Bath by Comparison Method	-40 °C to 40 °C	0.06 °C

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212	THERMAL-TEMPERATURE	Temperature Sensors (RTD,T/Cs) with or without Indicator and Controller, Temperature gauge	Using SSPRT, PT 100 with DMM/Thermometer Readout and Portable dry block calibrators by Comparison Method	200 °C to 660 °C	0.76 °C
213	THERMAL-TEMPERATURE	Temperature Sensors (T/Cs) with or without Indicator and Controller	Using S-Type Thermocouple with DMM/Thermometer Readout and Portable dry block calibrators by Comparison method	600 °C to 1000 °C	3.56 °C

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Site Facility					
1	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current (50 Hz to 5 kHz)	Using Digital Multimeter by Direct Method	100 µA to 10 A	0.17 % to 0.47 %
2	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current (at 50 Hz)	Using 6½ Digit Digital Multimeter By Direct method	1 A to 3 A	0.21 % to 0.24 %
3	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current (at 50 Hz)	Using 6½ Digit Digital Multimeter By Direct Method	10 µA to 1 A	4.2 % to 0.21 %
4	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current (at 50 Hz)	Using 6½ Digit Digital Multimeter with Current Shunt By V/I method	3 A to 20 A	0.24 % to 0.67 %

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5	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (1 kHz to 30 kHz)	Using 6½ Digit Digital Multimeter By Direct Method	10 mV to 100 V	0.70 % to 0.2 %
6	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (50 Hz to 1 kHz)	Using 6½ Digit Digital Multimeter By Direct Method	1 mV to 750 V	0.66 % to 0.10 %
7	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (50 Hz to 100 kHz)	Using Digital Multimeter by Direct Method	1 mV to 750 V	2.5 % to 0.2 %
8	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage at 50 Hz	Using High Voltage Probe With Digital Multimeter By Direct Method	1 kV to 10 kV	6.5 %
9	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Capacitance at 1 kHz	Digital Multimeter by Direct Method	1 nF to 100 μF	1.16 % to 0.7 %

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10	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (1 kHz to 5 kHz)	Using Multiproduct Calibrator by Direct method	1 A to 20 A	0.70 % to 3.5 %
11	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (1 kHz to 5 kHz)	Using Multiproduct Calibrator by Direct method	10 mA to 1 A	0.33 % to 0.70 %
12	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (50 Hz to 1 kHz)	Using Multiproduct Calibrator by Direct method	1 A to 20 A	0.20 % to 0.30 %
13	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (50 Hz to 1 kHz)	Using Multiproduct Calibrator by Direct method	100 µA to 1 A	0.60 % to 0.20 %
14	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current at 50 Hz	Using Multiproduct Calibrator with Current Coil By Direct method	20 A to 1000 A	2.73 %
15	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (1 kHz to 10 kHz)	Using Multiproduct Calibrator by Direct method	30 mV to 300 V	0.59 % to 0.11 %

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16	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (10 kHz to 50 kHz)	Using Multiproduct Calibrator by Direct method	100 mV to 100 V	0.59 % to 0.23 %
17	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (50 Hz to 1 kHz)	Using Multiproduct Calibrator by Direct method	100 V to 1000 V	0.078 %
18	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (50 Hz to 10 kHz)	Using Multiproduct Calibrator by Direct method	30 mV to 100 V	0.42 % to 0.078 %
19	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance 1 kHz	Using Standard Capacitor By Direct Method	1 nF to 100 µF	0.15 % to 0.50 %
20	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using 6½ Digit Digital Multimeter By Direct Method	>1 A to 3 A	0.21 % to 0.24 %
21	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using 6½ Digit Reference Multimeter By Direct Method	100 µA to 10 A	0.06 % to 0.35 %

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22	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using 6½ Digit Digital Multimeter with Current Shunt By V/I Method	3 A to 20 A	0.24 % to 0.37 %
23	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using 6½ Digit Digital Multimeter (4 Wire) By Direct Method	1 ohm to 10 M ohm	0.41 % to 0.026 %
24	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using 6½ Digit Digital Multimeter (4 Wire) By Direct Method	10 M ohm to 1 G ohm	0.026 % to 3 %
25	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage	Using High Voltage Probe with DMM By Direct Method	>1 kV to 10 kV	2.5 %
26	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage	Using Digital Multimeter by Direct method	0.1 mV to 100 mV	3.5 % to 0.009 %
27	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage	Using 6½ Digit Digital Multimeter By Direct Method	10 mV to 1000 V	0.019 % to 0.0064 %

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28	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage	Using Digital Multimeter by Direct Method	100 mV to 1000 V	0.009 % to 0.0054 %
29	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Multifunction Calibrator By Direct Method	1 A to 10 A	0.025 % to 0.092 %
30	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Multiproduct Calibrator By Direct Method	10 µA to 1 A	0.3 % to 0.025 %
31	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Multifunction Calibrator By Direct Method	10 A to 20 A	0.092 % to 0.11 %
32	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Multiproduct Calibrator With Current Coil By Direct Method	20 A to 1000 A	1.2 %
33	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Multiproduct Calibrator, 4 Wire / 2 Wire By Direct Method	10 ohm to 400 Mohm	0.7 % to 0.38 %

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34	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multiproduct Calibrator By Direct Method	1 mV to 1000 V	0.06 % to 0.0093 %
35	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	B Type Thermocouple	Standard Thermometer By Simulation Method	400 °C to 1800 °C	0.80 °C
36	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	E Type Thermocouple	Using Standard Thermometer By Simulation Method	-200 °C to 1000 °C	0.25 °C
37	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	J Type Thermocouple	Using Standard Thermometer By Simulation Method	-200 °C to 1200 °C	0.25 °C
38	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	K Type Thermocouple	Using Standard Thermometer By Simulation Method	-200 °C to 1350 °C	0.25 °C
39	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	N Type Thermocouple	Using Standard Thermometer By Simulation Method	-200 °C to 1250 °C	0.25 °C

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40	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	R Type Thermocouple	Using Standard Thermometer By Simulation Method	20 °C to 1800 °C	0.61 °C
41	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	RTD	Using Digital Multimeter by Direct Method	-100 °C to 800 °C	0.08 °C
42	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	RTD-PT 100	Using 8½ Digit Reference Multimeter, Standard Thermometer By Simulation Method	-199 °C to 800 °C	0.065 °C
43	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	S Type Thermocouple	Standard Thermometer By Simulation Method	2 °C to 1800 °C	0.61 °C
44	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	T Type Thermocouple	Using Standard Thermometer By Simulation Method	-200 °C to 400 °C	0.17 °C

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45	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	B Type Thermocouple	Using Multiproduct Calibrator By Direct Method	400 °C to 1800 °C	0.5 °C
46	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	J Type Thermocouple	Using Multiproduct Calibrator By Direct Method	-200 °C to 1000 °C	0.02 °C
47	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	K Type Thermocouple	Using Multifunction Calibrator By Direct Method	-200 °C to 1350 °C	0.23 °C
48	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	N Type Thermocouple	Using Multifunction Calibrator By Direct Method	-200 °C to 1300 °C	0.02 °C
49	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	R Type Thermocouple	Using Multifunction Calibrator By Direct Method	0 to 1800 °C	0.4 °C
50	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	RTD-PT 1000	Using Multiproduct Calibrator By Direct Method	-199 °C to 800 °C	0.02 °C

SCOPE OF ACCREDITATION

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Accreditation Standard ISO/IEC 17025:2017

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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)(±)
51	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	S Type Thermocouple	Using Multifunction Calibrator By Direct Method	0 to 1750 °C	0.4 °C
52	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	T Type Thermocouple	Using Multiproduct Calibrator By Direct Method	-200 °C to 400 °C	0.2 °C
53	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency	Universal Counter By Direct Method	10 Hz to 1 GHz	0.000027 % to 0.000023 %
54	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency	Using Digital Multimeter by Direct Method	10 Hz to 300 kHz	0.03 % to 0.008 %
55	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency	Using Single Channel Arbitrary / Function Generator By Direct Method	10 Hz to 2 MHz	0.007 % to 0.003 %
56	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency	Using Single Channel Arbitrary / Function Generator By Direct Method	2 MHz to 10 MHz	0.003 %

SCOPE OF ACCREDITATION

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