National Accreditation Board for Testing and Calibration Laboratories

SCOPE OF ACCREDITATION

Laboratory Name : ELECTRONICS REGIONAL TEST LABORATORY (EAST), BLOCK DN 63, SECTOR V, SALT LAKE, KOLKATA, WEST BENGAL, 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 Voltage (100 MHz to 1 GHz)	Using RF MilliVoltmeter, Signal Generator with Amplifier by Comparison Method	10 mV to 7 V	3.5 %
2	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Active Energy 1Ph2W (50 Hz), 60 V to 240 V, 10 mA to 120 A, UPF to 0.5 PF (lead & Lag)	Using Three Phase Comparator by Comparison Method.	0.3 Wh to 28.8 kWh	0.014 % to 0.023 %
3	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Active Energy 3Ph3W/ 3Ph4W (50 Hz), 60 V to 240 V, 10 mA to 120 A, UPF – 0.5 PF (lead & Lag)	Using Three Phase Comparator by Comparison Method	0.9 Wh to 86.4 kWh	0.017 % to 0.023 %
4	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Active Power 3Ph3W/ 3Ph4W (50 Hz), 60 V to 240 V, 10 mA to 120 A , UPF – 0.5 PF (lead & Lag)	Using Three Phase Comparator by Comparison Method	0.9 W to 86.4 kW	0.015 % to 0.023 %
5	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Active Power 1Ph2W (50 Hz), 60 V to 240 V, 10 mA to 120 A , UPF – 0.5 PF (lead & Lag)	Using Three Phase Comparator by Comparison Method.	0.3 W to 28.8 kW	0.014 % to 0.023 %
6	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current (40 Hz to 1 kHz)	Using 8½ digit DMM by Direct/Comparison Method	1 mA to 20 A	0.02 % to 0.035 %

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7	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current at 50 Hz	Using Three phase comparator by Direct Method	0.01 A to 120 A	0.013 %
8	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current at 1 kHz	Using DMM With AC Shunt by V/R Method	10 µA to 1 A	0.05 % to 0.02 %
9	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current at 1 kHz	Using DMM by Direct Method	10 µA to 1 A	0.05 % to 0.02 %
10	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC High Voltage at 50 Hz	Using DMM & HV Probe By Direct Method	>1 kV to 28 kV	6 %
11	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Reactive Energy 1Ph2W (50 Hz), 60 V to 240 V,10 mA to 120 A, UPF – 0.5 PF (lead & Lag)	Using Three Phase Comparator by Comparison Method	0.3 VARh to 28.8 kVARh	0.018 % to 0.023 %
12	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Reactive Energy 3Ph3W/ 3Ph4W (50 Hz), 60 V to 240 V, 10 mA to 120 A, UPF – 0.5 PF (lead & Lag)	Using Three Phase Comparator by Comparison Method	0.9 VARh to 86.4 kVARh	0.014 % to 0.023 %

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13	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Reactive Power 1Ph2W (50Hz) 60 V to 240V, 10 mA to 120 A, UPF – 0.5 PF (lead & Lag)	Using Three Phase Comparator by Comparison Method	0.3 VAR to 28.8 kVAR	0.014 % to 0.023 %
14	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Reactive Power 3Ph3W/ 3Ph4W (50 Hz) (active and reactive) 60 V to 240 V, 10 mA to 120 A , UPF – 0.5 PF (lead & Lag)	Using Three Phase Comparator by Comparison Method	0.9 VAR to 86.4 kVAR	0.015 % to 0.023 %
15	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Resistance at 1 kHz	Using RLC Digibridge By Direct Method	1 ohm to 100 kohm	0.3 % to 0.1 %
16	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (1 MHz to 100 MHz)	Using RF Milli Voltmeter by Direct Method	10 mV to 10 V	3.3 %
17	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (1 MHz to 100 MHz)	Using Signal Generator with RF amplifier, RF Milli Voltmeter by Comparison Method	10 mV to 10 V	3.3 %
18	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (10 Hz to 40 Hz)	Using DMM, Calibrator, Thermal Voltage Converter by Direct/ Comparison Method	1 mV to 1000 V	0.5 % to 0.015 %

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19	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (10 kHz to 100 kHz)	Using DMM, Calibrator by Direct/ Comparison Method	1 mV to 1 V	0.43 % to 0.018 %
20	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (10 kHz to 100 kHz)	Using DMM, Calibrator, Thermal Voltage Converter by Direct/ Comparison Method:	1 V to 100 V	0.014 % to 0.02 %
21	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (100 kHz to 1 MHz)	Using Calibrator, DMM & AC Measurement Standard by Direct/Comparison Method	1 mV to 1 V	1.34 % to 0.1 %
22	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (40 Hz to 10 kHz)	Using DMM, Calibrator & Thermal Voltage Converter by Direct/ Comparison Method:	1 mV to 100 V	0.5 % to 0.014 %
23	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Capacitance at 1 kHz	Using RLC Digibridge By Direct Method	1 mF to 10 mF	1.2 % to 0.3 %
24	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Capacitance at 1 kHz	Using RLC Digibridge by Direct Method	1 pF to 1.0 mF	0.04 % to 1.2 %

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25	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Inductance at 1 kHz	Using RLC Digibridge by Direct Method	100 µH to 10 H	0.2 % to 0.06 %
26	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Phase Angle (50 Hz, 240 V, 5 A)	Using Three Phase Comparator by Comparison Method	0° to 180° (Lead & Lag)	0.006°
27	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Power Factor (50 Hz, 240 V, 5 A)	Using Three Phase Comparator by comparison Method	0.1 pF to 1 pF	0.01 %
28	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Active Energy 1Ph2W (50 Hz), 60 V to 240 V, 10 mA to 120 A, UPF – 0.5 PF (lead & Lag)	Using Three Phase Power/ Energy Test Bench (Three Phase Comparator with Source) by Direct Method	0.3 Wh to 28.8 kWh	0.017 % to 0.023 %
29	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Active Energy 3Ph4W/ 3Ph3W (50 Hz), 60 V to 240 V, 10 mA to 120 A, UPF – 0.5 PF (lead & Lag)	Using Three Phase Power/ Energy Test Bench (Three Phase Comparator with Source) by Direct Method	0.9 Wh to 86.4 kWh	0.014 % to 0.023 %
30	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Active Power 3Ph3W/ 3Ph4W (50 Hz), 60 V to 240 V, 10 mA to 120 A, UPF – 0.5 PF (lead & Lag)	Using Three Phase Power/ Energy Test Bench (Three Phase Comparator with Source) by Direct Method	0.9 W to 86.4 kW	0.017 % to 0.023 %

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31	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Active Power 1Ph2W (50 Hz), 60 V to 240 V, 10 mA to 120 A, UPF – 0.5 PF (lead & Lag)	Using Three Phase Power/ Energy Test Bench by Direct Method	0.3 W to 28.8 kW	0.014 % to 0.025 %
32	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current at 50 Hz	Using Multifunction Calibrator and Current Coil by Direct Method	20 A to 6000 A	0.55 %
33	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (10 Hz to 5 kHz)	Using Multifunction Calibrator by Direct Method	10 µA to 1 A	0.08 % to 0.05 %
34	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (45 Hz to 5 kHz)	Using Multifunction Calibrator by Direct Method	1 A to 20 A	0.05 % to 0.035 %
35	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current at 50Hz	Using Three phase comparator by Direct Method	10 mA to 100 A	0.013 %
36	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC High Voltage at 50 Hz	Using HV Source, HV Probe With DMM By Comparison Method	>1 kV to 28 kV	6 %
37	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Reactive Energy 1Ph2W (50 Hz), 60 V to 240 V, 10 mA to 120 A, UPF – 0.5 PF (lead & Lag)	Using Three Phase Power/ Energy Test Bench (Three Phase Comparator with Source) by Direct Method	0.3 VARh to 28.8 kVARh	0.02 % to 0.023 %

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38	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Reactive Energy 3Ph3W/ 3Ph4W (50 Hz), 60 V to 240V, 10 mA to 120 A, UPF – 0.5 PF (lead & Lag)	Using Three Phase Power/ Energy Test Bench (Three Phase Comparator with Source) by Direct Method	0.9 VARh to 86.4 kVARh	0.017 % to 0.023 %
39	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Reactive Power 1Ph2W (50 Hz), 60 V to 240 V, 10 mA to 120 A, UPF – 0.5 PF (lead & Lag)	Using Three Phase Power/ Energy Test Bench (Three Phase Comparator with Source) by Direct Method	0.3 VAR to 28.8 kVAR	0.014 % to 0.025 %
40	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Reactive Power 3Ph3W/ 3Ph4W (50 Hz), 60 V to 240 V, 10 mA to 120 A, UPF – 0.5 PF (lead & Lag)	Using Three Phase Power/ Energy Test Bench (Three Phase Comparator with Source) by Direct Method	0.9 VAR to 86.4 kVAR	0.014 % to 0.023 %
41	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Resistance at 1 kHz	Using AC/DC Resistance Standard by Direct Method	1 ohm, 10 ohm, 100 ohm, 1 kohm, 10 kohm	0.01 %
42	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (1 MHz to 1 GHz)	Using Calibrator, Signal Generator With Amplifier by Comparison Method	10 mV to 7 V	3.5 %
43	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (10 Hz to 45 Hz)	Using Multifunction Calibrator by Direct Method	1 mV to 1000 V	0.7 % to 0.025 %

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44	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (10 kHz to 50 kHz)	Using Multifunction Calibrator by Direct Method	1 V to 100 V	0.014 % to 0.02 %
45	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (10 kHz to 50 kHz)	Using Multifunction Calibrator by Direct Method	1 mV to 1 V	0.2 % to 0.014 %
46	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (45 Hz to 10 kHz)	Using Multifunction Calibrator by Direct Method	1 mV to 100 V	0.4 % to 0.01 %
47	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (45 Hz to 10 kHz)	Using Multifunction Calibrator by Direct Method	100 V to 1000 V	0.008 % to 0.02 %
48	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (50 kHz to 1 MHz)	Using Multifunction Calibrator by Direct Method	1 mV to 100 mV	0.05 % to 1.2 %
49	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (50 kHz to 1 MHz)	Using Multifunction Calibrator by Direct Method	100 mV to 10 V	0.25 % to 0.12 %
50	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance at 1 kHz	Using Standard Capacitor By Direct Method	1 µF, 10 µF, 100µF, 1mF, 10 mF	0.1 %

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51	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance at 1 kHz	Using Standard Capacitor By Direct Method	1 pF	0.01 %
52	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance at 1 kHz	Using Standard Capacitor By Direct Method	10 pF, 100 pF, 1000 pF	0.01 %
53	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance at 1 kHz	Using Decade Capacitor By Direct Method	100 pF to 1 µF	0.25 %
54	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance at 1 kHz	Using Multifunction Calibrator By Direct Method	190 pF to 300 nF	0.50 %
55	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Inductance at 1 kHz	Using Standard Inductor by Direct Method	1 mH, 10 mH, 100 mH, 1 H, 10 H	0.03 %
56	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Inductance at 1 kHz	Using Standard Inductor by Direct Method	100 µH	0.05 %
57	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Inductance at 1 kHz	Using Decade Inductor by Direct Method	100 µH to 10 H	0.30 %

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58	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using Current Shunt, Current Source & DMM by Direct/Comparison Method	1 mA to 20 A	0.002 % to 0.005 %
59	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using Current Shunt, Current Source & DMM by Direct/Comparison Method	10 µA to 1 mA	0.006 % to 0.002 %
60	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using Current Shunt, Current Source & DMM by Comparison (V/R) Method	20 A to 100 A	0.008 % to 0.05 %
61	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using Current Source , current shunt and Digital Multimeter by comparison (V/I) method	20 A to 800 A	0.5 %
62	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC High Voltage	Using HV probe and and Digital Multimeter by Direct method	1 kV to 40 kV	2.5 %
63	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance - 2 Wire	Using DMM, Standard High Resistance Meter by Substitution Method	1 Mohm to 20 Gohm	0.001 % to 0.20 %
64	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance @ 100 V - 2 Wire	Using High Resistance Meter & Standard Resistance by Substitution Method	20 Gohm to 1 Tohm	0.2 % to 2.5 %

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65	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance- 2 Wire & 4 Wire	Using DMM, Standard Resistance with Calibrator by Substitution Method	0.001 ohm to 1 Mohm	0.004 % to 0.001 %
66	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance- 4 Wire	Using DMM, Standard Resistance Calibrator by Substitution Method	0.0001 ohm to 0.001 ohm	0.03 % to 0.004 %
67	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage	Using DMM by Direct method	1 mV to 10 V	0.02 % to 0.0004 %
68	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage	Using DMM by Direct method	10 µV to 1 mV	2.2 % to 0.014 %
69	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage	Using DMM by Direct method	10 V to 1000 V	0.0004 % to 0.0005 %
70	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Multifunction Calibrator By Direct Method	1 A to 20 A	0.005 % to 0.01 %
71	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using 8.5 Digit DMM & DC Shunt By V/R Method	10 µA to 1 A	0.01 % to 0.005 %

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72	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Calibrator By Direct Method	10 µA to 1 A	0.01 % to 0.005 %
73	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Multifunction Calibrator & current coil By Direct Method	20 A to 1000 A	0.21 %
74	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC High Voltage	Using HIgh Voltage Source, HV Probe and Digital Multimeter by Comparison Method	>1 kV to 40 kV	2.5 %
75	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance (100 V to 1000 V) - 2 Wire	Using Decade Resistance Box By Direct Method	10 Mohm to 1 Tohm	0.003 % to 3 %
76	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance - 4 Wire	Using Standard Resistance By Direct Method	0.0001 ohm	0.05 %
77	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance - 4 Wire	Using Standard Resistance by direct method	0.001 ohm, 0.01 ohm, 0.1 ohm, 1 ohm, 10 ohm	0.02 % to 0.001 %
78	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance @ 100 V - 2 Wire	Using Standard Resistance By Direct Method	1 Gohm	0.03 %

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79	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance @ 100 V - 2 Wire	Using Standard Resistance By Direct Method	10 Gohm, 100 Gohm, 1 Tohm	0.5 %
80	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance at 100 V - 2 Wire	Using Decade Resistance Box By Direct Method	100 kohm to 1 Tohm	0.003 % to 5 %
81	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance at 2500 V - 2 Wire	Using Decade Resistance Box By Direct Method	100 Mohm to 500 Mohm	2 %
82	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance at 5000 V - 2 Wire	Using Decade Resistance Box By Direct Method	1 Gohm to 1 Tohm	2 %
83	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance- 2 Wire	Using Standard Resistance By Direct Method	100 Mohm	0.002 %
84	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance- 2 Wire & 4 Wire	Using Decade Resistance By Direct Method	0.01 ohm to 100 kohm	0.3 % to 0.004 %
85	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance- 2 Wire & 4 Wire	Using Standard Resistance by Direct Method	100 ohm, 1 kohm, 10 kohm 100 kohm, 1 Mohm, 10 Mohm	0.001 %

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86	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multifunction Calibrator By Direct Method	10 µV to 10 V	2 % to 0.0003 %
87	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using DC Reference Standard by direct method	1.018 V	0.0003%
88	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using DC Reference Standard by direct method	10 V	0.0003 %
89	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multifunction Calibrator By Direct Method	10 V to 1000 V	0.0003 % to 0.0004 %
90	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	Attenuation (50 MHz to 1 GHz)	Using RF Millivoltmeter by Direct Method	1 dB to 60 dB	0.17 dB
91	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	Bandwidth (100 Hz to 2 GHz)	Using Signal Generator & RF Power Meter by Comparison Method	3 dB	2.9 %

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92	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	RF Power (50 MHz to 2 GHz)	Using RF Level Meter, RF Signal Generator By Direct/ Comparison Method	1 mW to 40 mW	4 %
93	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	RF Power (50 MHz to 2 GHz)	Using RF Level Meter, RF Signal Generator By Direct/ Comparison Method	1 nW to 1 mW	6 %
94	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	RF Power sources and meters (50 MHz to 2 GHz)	Using RF Level Meter, RF Signal Generator By Direct/ Comparison Method	1 nW to 1 mW	6 %
95	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	RF Power sources and RF power meters (50 MHz to 1 GHz)	Using RF Level Meter, RF Signal Generator By Direct/ Comparison Method	40 mW to 80 W	4 %
96	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	RF Power sources and RF power meters (50 MHz to 2 GHz)	Using RF Level Meter, RF Signal Generator By Direct/ Comparison Method	1 mW to 40 mW	4 %
97	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	VSWR (50 MHz to 1 GHz)	Using SWR Bridge & RF Level Meter By Comparison Method	1.05 to 3	0.15

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98	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	Attenuation (50 MHz to 1 GHz)	Using RF Attenuator By Direct Method	1 dB to 60 dB	0.27 dB
99	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	VSWR (50 MHz to 2 GHz)	Using SWR Bridge & RF Level Meter By Comparison Method	1.05 to 3	0.15
100	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	B- Type Thermocouple	Using 8½ digit DMM by Direct method	600 °C to 1800 °C	0.30 °C
101	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	E- Type Thermocouple	Using 8½ digit DMM by Direct method	(-)250 °C to 1000 °C	0.20 °C
102	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	J- Type Thermocouple	Using 8½ digit DMM by Direct method	(-)210 °C to 1200 °C	0.20 °C
103	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	K- Type Thermocouple	Using 8½ digit DMM by Direct method	(-)200 °C to 1350 °C	0.20 °C
104	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	L Type Thermocouple	Using 8½ digit DMM by Direct method	(-)200 °C to 900 °C	0.20 °C

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105	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	N Type Thermocouple	Using 8½ digit DMM by Direct method	(-)200 °C to 1400 °C	0.20 °C
106	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	R- Type Thermocouple	Using 8½ digit DMM by Direct method	0 °C to 1750 °C	0.2 °C
107	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	RTD Type PT 100	Using 8½ digit DMM by Direct method	(-)200 °C to 800 °C	0.02 °C
108	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	S- Type Thermocouple	Using 8½ digit DMM by Direct method	0 °C to 1750 °C	0.2 °C
109	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	TC T- Type	Using 8.5 dgt DMM by Direct method	(-)250 °C to 400 °C	0.40 °C
110	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	U- Type Thermocouple	Using 8½ digit DMM by Direct method	(-)200 °C to 600 °C	0.25 °C
111	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	B-Type Thermocouple	Using Multiproduct Calibrator by Direct method	600 °C to 1800 °C	0.30 °C

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112	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	E- Type Thermocouple	Using Multiproduct Calibrator by Direct method	(-)250 °C to 1000 °C	0.20 °C
113	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	J- Type Thermocouple	Using Multiproduct Calibrator by Direct method	(-)210 °C to 1200 °C	0.20 °C
114	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	K- Type Thermocouple	Using Multiproduct Calibrator by Direct method	(-)200 °C to 1350 °C	0.20 °C
115	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	L- Type Thermocouple	Using Multiproduct Calibrator by Direct method	(-)200 °C to 900 °C	0.20 °C
116	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	N- Type Thermocouple	Using Multiproduct Calibrator by Direct method	(-)200 °C to 1400 °C	0.20
117	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	R- Type Thermocouple	Using Multiproduct Calibrator by Direct method	0 °C to 1750 °C	0.10 °C
118	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	RTD Type PT 100	Using Multiproduct Calibrator by Direct method	(-)200 °C to 800 °C	0.05 °C

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119	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	S- Type Thermocouple	Using Multiproduct Calibrator by Direct method	0 °C to 1750 °C	0.10 °C
120	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	T- Type Thermocouple	Using Multiproduct Calibrator by Direct method	(-)250 °C to 400 °C	0.40 °C
121	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	U- Type Thermocouple	Using Multiproduct Calibrator by Direct method	(-)200 °C to 600 °C	0.25 °C
122	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency	Using frequency Counter logged with GPS Controlled Rubidium frequency standard by Direct Method	10 Hz to 20 GHz	0.0005 % to 0.0000035 %
123	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Time	Using Signal Generator / Function Generator and Frequency Counter logged with GPS controlled Rb Frequency Standard in Comparison method	1 nS to 2000 S	0.0002 %
124	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Time	Using Frequency Counter logged with GPS controlled Rb Frequency Standard by Direct Method	1 nS to 2000 S	0.0002 %

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125	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency	Using Signal Generator logged with GPS Controlled Rubidium Frequency Standard by Direct Method.	10 Hz to 20 GHz	0.0005 % to 0.0000035 %
126	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Time	Using Calibrator, Function Generator, Signal Generator logged with GPS controlled Rb Frequency Standard by Direct Method	20 nS to 2000 S	0.0002 %
127	MECHANICAL-ACCELERATION AND SPEED	Tachometer (Contact Type)	Using Precision Tachometer & RPM Generator by Comparison method	100 rpm to 6000 rpm	0.84 %
128	MECHANICAL-ACCELERATION AND SPEED	Tachometer (Non Contact type)	Using Standard Tachometer and LED Stroboscope externally triggered with Function Generator (as source) by comparison method	100 rpm to 999.9 rpm	0.3 **%**
129	MECHANICAL-ACCELERATION AND SPEED	Tachometer (Non Contact type)	Using Standard Tachometer and LED Stroboscope externally triggered with Function Generator (as source) by comparison method	1000 rpm to 9999 rpm	0.1 %