National Accreditation Board for Testing and Calibration Laboratories

SCOPE OF ACCREDITATION

Laboratory Name :	MMA CALABS TECH LTD, 328, CHANDRALOK COMPLEX, HYDERABAD, TELANGANA, 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 Current (50Hz to 1kHz)	Using 6½ Digit Multimeter by Direct/Comparison Method	1 A to 10 A	0.18 % to 0.35 %
2	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current (50Hz to 1kHz)	Using 6½ Digit Multimeter by Direct/Comparison Method	100 mA to 1 A	0.38 % to 0.18 %
3	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current (50Hz to 1kHz)	Using 6½ Digit Multimeter by Direct/Comparison Method	30 µA to 100 mA	0.88 % to 0.38 %
4	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (1kHz to 100kHz)	Using 6½ Digit Multimeter by Direct Method	100 mV to 10 V	0.76 % to 0.77 %

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5	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (50Hz to 1kHz)	Using 6½ Digit Multimeter by Direct Method	10 mV to 1000 V	0.13%
6	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (1kHz to 5kHz)	Using Multifunction Calibrator by Direct Method	400 mA to 1 A	0.96 % to 0.79 %
7	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (50Hz to 1kHz)	Using Multifunction Calibrator by Direct Method	1 mA to 400 mA	0.1%
8	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (50Hz to 1kHz)	Using Multifunction Calibrator by Direct Method	100 µA to 3 mA	0.5%
9	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (50Hz to 1kHz)	Using Multifunction Calibrator by Direct Method	400 mA to 10 A	0.14%

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10	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (50Hz)	Using Multifunction Calibrator with current coil by Direct Method	10 A to 1000 A	1.16 % to 0.14 %
11	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Power 1-ø P.F: 0.2 lag, 50Hz,120V to 240V, 0.35A to 20A	Using Multifunction Calibrator by Direct Method	8.4 W to 0.96 kW	5.7 % to 1.24 %
12	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Power 1-ø P.F:0.5 lag,50Hz,120V to 240V, 0.35A to 20A	Using Multifunction Calibrator by Direct Method	21 W to 2.4 kW	2.92 % to 1.05 %
13	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Power 1-ø P.F:0.8 lead,50Hz,120V to 240V,0.35A to 20A	Using Multifunction Calibrator by Direct Method	34 W to 3.84 kW	1.97 % to 6.02 %
14	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Power 1-ø UPF,50Hz,120V to 240V,0.35A to 20A	Using Multifunction Calibrator by Direct Method	42 W to 4.8 kW	1.51 % to 0.62 %
15	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (10kHz to 450kHz)	Using Multifunction Calibrator by Direct Method	30 mV to 3 V	1.12 % to 0.25 %

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16	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (1kHz to 10kHz)	Using Multifunction Calibrator by Direct Method	3 mV to 300 V	0.31 % to 0.05 %
17	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (50Hz to 1kHz)	Using Multifunction Calibrator by Direct Method	3 mv to 1000 V	0.39 % to 0.04 %
18	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance (1kHz)	Using Multifunction Calibrator by Direct Method	1 µF to 100 µF	0.48 % to 0.67 %
19	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance (1kHz)	Using Multifunction Calibrator by Direct Method	1 nF to 1 µF	1.63 % to 0.48 %
20	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using 6½ Digit Multimeter by Direct Method	1 A to 10 A	0.08 % to 0.29 %
21	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using 6½ Digit Multimeter by Direct Method	1 mA to 1 A	0.062 % to 0.08 %

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22	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using 6½ Digit Multimeter by Direct Method	100 µA to 1 mA	0.09 % to 0.062 %
23	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using 6½ Digit Multimeter by Direct Method	1 Mohm to 100 Mohm	0.013 % to 0.91 %
24	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using 6½ Digit Multimeter by Direct Method	1 Ohm to 100 Ohm	0.35 % to 0.02 %
25	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using 6½ Digit Multimeter by Direct Method	100 Ohm to 1 Mohm	0.02 % to 0.013 %
26	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC voltage	Using 6½ Digit Multimeter by Direct Method	10 mV to 10 V	0.06 % to 0.003 %
27	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC voltage	Using 6½ Digit Multimeter by Direct Method	10 V to 100 V	0.003 % to 0.005 %

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28	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC voltage	Using 6½ Digit Multimeter by Direct Method	100 V to 1000 V	0.005 % to 0.006 %
29	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Multifunction Calibrator 1 by Direct Method	1 A to 10 A	0.09%
30	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Multifunction Calibrator 1 by Direct Method	1 mA to 400 mA	0.017 % to 0.08 %
31	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Multifunction Calibrator 2 by Direct Method	1 mA to 400 mA	0.4%
32	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Multifunction Calibrator 1 by Direct Method	10 µA to 329 µA	0.25 % to 0.1 %
33	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Multifunction Calibrator 1 with current coil by Direct method	10 A to 1000 A	0.3 % to 0.9 %

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34	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Multifunction Calibrator 1 by Direct Method	329 µA to 3 mA	0.1 % to 0.08 %
35	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Multifunction Calibrator 1 by Direct Method	400 mA to 1 A	0.08 % to 0.09 %
36	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using milli /micro ohm meter by Direct Method	0.0001 Ohm	1.42%
37	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using milli /micro Ohm meter calibrator by Direct Method	0.001 Ohm	0.4%
38	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using milli /micro Ohm meter by Direct Method	0.01 Ohm	0.76%
39	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Decade Resistance Box by Direct Method	0.01 Ohm to 0.5 Ohm	2.59 % to 0.8 %

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40	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Decade Resistance Box by Direct Method	0.5 Ohm to 100 kohm	0.8 % to 2.3 %
41	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Decade Resistance Box by Direct Method	1 Gohm to 1 Tohm	8 % to 8.45 %
42	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Decade Resistance Box by Direct Method	1 Tohm to 10 Tohm	8.45 % to 10 %
43	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Multifunction Calibrator 1 by Direct Method	10 Ohm to 100 Mohm	0.018 % to 0.07 %
44	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Decade Resistance Box by Direct Method	100 kohm to 100 Mohm	2.3%
45	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Decade Resistance Box by Direct Method	100 Mohm to 1 Gohm	2.3 % to 6.1 %

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46	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Multifunction Calibrator by Direct Method	2 Ohm to 10 Ohm	0.067 % to 0.018 %
47	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multifunction Calibrator 1 by Direct Method	10 mV to 10 V	0.019 % to 0.002 %
48	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multifunction Calibrator1 by Direct Method	10 V to 100 V	0.002 % to 0.004 %
49	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Multifunction Calibrator 1 by Direct Method	100 V to 1000 V	0.004 % to 0.023 %
50	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	Resistance	Using Multifunction Calibrator 2 by Direct Method	1 Ohm	1.29%
51	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	Resistance	Using Multifunction Calibrator 2 by Direct Method	100 Mohm to 190 Mohm	0.57 % to 1.14 %

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52	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	E Type Thermocouple	Using Multifunction Calibrator by Direct Method	-190 °C to 1000 °C	0.9°C
53	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	J Type Thermocouple	Using Multifunction Calibrator 1 by Direct Method	-190 °C to 1200 °C	0.8°C
54	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	K Type Thermocouple	Using Multifunction Calibrator 1 by Direct Method	-190 °C to 1350 °C	0.8°C
55	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	N Type Thermocouple	Using Multifunction Calibrator 1 by Direct Method	-190 °C to 1200 °C	0.9°C
56	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	R Type Thermocouple	Using Multi Function Calibrator by Direct Method	0 °C to 1300 °C	1.0°C
57	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	RTD (PT-100)	Using 6½ Digit Multimeter by Direct Method	-190 °C to 800 °C	0.7°C

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58	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	S Type Thermocouple	Using Multifunction Calibrator by Direct Method	0 °C to 1300 °C	1.0°C
59	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	E Type Thermocouple	Using Multifunction Calibrator 1 by Direct Method	-190 °C to 1000 °C	0.6°C
60	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	J Type Thermocouple	Using Multifunction Calibrator 1 by Direct Method	-190 °C to 1200 °C	0.8°C
61	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	K Type Thermocouple	Using Multifunction Calibrator by Direct Method	-190 °C to 1350 °C	0.5°C
62	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	N Type Thermocouple	Using Multifunction Calibrator by Direct Method	-190 °C to 1200 °C	0.9°C
63	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	R Type Thermocouple	Using Multifunction Calibrator by Direct Method	0 °C to 1300 °C	0.7°C

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64	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	RTD (PT-100)	Using Multifunction Calibrator 1 by Direct Method	-200 °C to 790 °C	0.3°C
65	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	S Type Thermocouple	Using Multifunction Calibrator 1 by Direct Method	0 °C to 1300 °C	0.7°C
66	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency	Using 6½ Digit Multimeter by Direct Method	50 Hz to 100 kHz	0.06%
67	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Time	Using Time Totaliser by Comparison Method	10 s to 30 s	11.25 % to 3.78 %
68	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Time	Using Time Totaliser by Comparison Method	30 s to 60 s	3.78 % to 1.9 %
69	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Time	Using Time Totaliser by Comparison Method	360 s to 7200 s	0.33 % to 0.061 %

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70	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Time	Using Time Totaliser by Comparison Method	60 s to 360 s	1.9 % to 0.33 %
71	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Time	Using Time Totaliser by Comparison Method	7200 s to 86400 s	0.061 % to 0.057 %
72	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency	Using Multifunction Calibrator 1 by Direct Method	50 Hz to 100 kHz	0.012 % to 0.006 %
73	MECHANICAL-ACCELERATION AND SPEED	RPM Tachometer (Contact Type)	Using Digital Tachometer and RPM Generator by Comparison method as per SANAS TR-45	10 rpm to 100 rpm	1.7rpm
74	MECHANICAL-ACCELERATION AND SPEED	RPM Tachometer (Contact Type)	Using Digital Tachometer and RPM Generator by Comparison method as per SANAS TR-45	100 rpm to 5000 rpm	3.7rpm
75	MECHANICAL-ACCELERATION AND SPEED	RPM Tachometer (Non-Contact Type)	Using Digital Tachometer and RPM Generator by Comparison method as per SANAS TR-45	10 rpm to 60 rpm	1rpm

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76	MECHANICAL-ACCELERATION AND SPEED	RPM Tachometer (Non-Contact Type)	Using Digital Tachometer and RPM Generator by Comparison method as per SANAS TR-45	1000 rpm to 90000 rpm	36rpm
77	MECHANICAL-ACCELERATION AND SPEED	RPM Tachometer (Non-Contact Type)	Using Digital Tachometer and RPM Generator by Comparison method as per SANAS TR-45	60 rpm to 1000 rpm	0.5rpm
78	MECHANICAL-ACOUSTICS	Sound Level Meter	Using Sound Calibrator as per SANAS TR 09-02	94 db and 114 dB @ 1kHz	0.6dB
79	MECHANICAL-PRESSURE INDICATING DEVICES	Hydraulic Pressure: Pressure Gauge (Analog/Digital) Pressure Gauges, sensor with Transducers/Transmitters with Indicators	Using Comparator and Digital Pressure Gauge, Multifunction Process Calibrator and 6½ Digital Multimeter by Comparison Method as per DKD-R-6-1	0 to 700 bar	0.4bar
80	MECHANICAL-PRESSURE INDICATING DEVICES	Pneumatic Pressure: Pressure Gauge (Analog/Digital) Pressure Gauges, Transducers/Transmitters with indicator	Using Comparator, Digital Pressure Gauge, Multifunction Process Calibrator and 6½ Digital Multimeter by Comparison method as per DKD-R-6-2	0 to 0.7 bar	0.031bar

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81	MECHANICAL-PRESSURE INDICATING DEVICES	Pneumatic Pressure: Pressure Gauge (Analog/Digital) Pressure Gauges, Transducers/Transmitters with indicators	Using Digital Pressure Calibrator, Multifunction Process Calibrator and 6½ Digital Multimeter by Comparison Method as per DKD-R-6-1	0 to 30 bar	0.12bar
82	MECHANICAL-PRESSURE INDICATING DEVICES	Vacuum: Vacuum Gauge (Analog/Digital) Transducers/Transmitters with indicator	Using Digital Pressure Calibrator, Multifunction Process Calibrator and 6½ Digital Multimeter by Comparison method as per DKD-R-6-2	-0.8 bar to 0 bar	0.006bar
83	THERMAL-SPECIFIC HEAT & HUMIDITY	Hygrometers, Humidity Sensors with indicators	Using Temperature & Humidity Sensor with Temperature & Humidity Generator by Comparison Method	10 °C to 45 °C @ 50%rh	0.91°C
84	THERMAL-SPECIFIC HEAT & HUMIDITY	Hygrometers, Humidity Sensors with indicators	Using Temperature & Humidity Sensor with Temperature & Humidity Generator by Comparison Method	25 %rh to 90 %rh @ 25°C	2.3%rh

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85	THERMAL-TEMPERATURE	IR Non-Contact Thermometer	Using IR Pyrometer & Black Body Source (Emissivity: 0.95) by Comparison Method	400 °C to 500 °C	2.39°C
86	THERMAL-TEMPERATURE	IR Non-Contact Thermometer	Using Standard IR thermometer and Blackbody Source (Emissivity 0.95) by Comparison Method.	50 °C to 400 °C	2.39°C
87	THERMAL-TEMPERATURE	IR Non-Contact Thermometer	Using IR Pyrometer & Black Body Source (Emissivity 0.99) by Comparison Method	500 °C to 1200 °C	5.29°C
88	THERMAL-TEMPERATURE	RTD/Thermocouple sensor with or without Indicator	Using Standard RTD sensor with 6½ Digital Multimeter, Dry baths by Comparison Method	-25 °C to 50 °C	0.59°C
89	THERMAL-TEMPERATURE	RTD/Thermocouple sensor with or without Indicator	Using Standard RTD sensor with 6½ Digital Multimeter, Dry baths by Comparison Method	50 °C to 400 °C	0.8°C
90	THERMAL-TEMPERATURE	Temperature sensor with Indicator of dry bath, Liquid bath (Single Position)	Using Standard RTD sensor with 6½ Digital Multimeter by Comparison Method	-25 °C to 50 °C	0.57°C

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91	THERMAL-TEMPERATURE	Temperature sensor with Indicator of Liquid Bath, Dry Bath (Single Position)	Using Standard RTD sensor with 6½ Digital Multi Meter by Comparison Method.	50 °C to 400 °C	0.8°C

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Site Facility					
1	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current (50Hz to 1kHz)	Using 6½ Digit Multimeter by Direct/Comparison Method	1 A to 10 A	0.18 % to 0.35 %
2	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current (50Hz to 1kHz)	Using 6½ Digit Multimeter by Direct/Comparison Method	100 mA to 1 A	0.38 % to 0.18 %
3	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current (50Hz to 1kHz)	Using 6½ Digit Multimeter by Direct/Comparison Method	30 µA to 100 mA	0.88 % to 0.38 %
4	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (1kHz to 100kHz)	Using 6½ Digit Multimeter by Direct Method	100 mV to 10 V	0.76 % to 0.77 %

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5	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage (50Hz to 1kHz)	Using 6½ Digit Multimeter by Direct Method	10 mV to 1000 V	0.13%
6	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (1kHz to 5kHz)	Using Multifunction Calibrator by Direct Method	400 mA to 1 A	0.96 % to 0.79 %
7	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (50Hz to 1kHz)	Using Multifunction Calibrator by Direct Method	1 mA to 400 mA	0.1%
8	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (50Hz to 1kHz)	Using Multifunction Calibrator by Direct Method	100 µA to 3 mA	0.5%
9	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (50Hz to 1kHz)	Using Multifunction Calibrator by Direct Method	400 mA to 10 A	0.14%

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10	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current (50Hz)	Using Multifunction Calibrator with current coil by Direct Method	10 A to 1000 A	1.16 % to 0.14 %
11	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Power 1-ø P.F: 0.2 lag, 50Hz,120V to 240V, 0.35A to 20A	Using Multifunction Calibrator by Direct Method	8.4 W to 0.96 kW	5.7 % to 1.24 %
12	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Power 1-ø P.F:0.5 lag,50Hz,120V to 240V, 0.35A to 20A	Using Multifunction Calibrator by Direct Method	21 W to 2.4 kW	2.92 % to 1.05 %
13	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Power 1-ø P.F:0.8 lead,50Hz,120V to 240V,0.35A to 20A	Using Multifunction Calibrator by Direct Method	34 W to 3.84 kW	1.97 % to 6.02 %
14	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Power 1-ø UPF,50Hz,120V to 240V,0.35A to 20A	Using Multifunction Calibrator by Direct Method	42 W to 4.8 kW	1.51 % to 0.62 %
15	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (10kHz to 450kHz)	Using Multifunction Calibrator by Direct Method	30 mV to 3 V	1.12 % to 0.25 %

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16	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (1kHz to 10kHz)	Using Multifunction Calibrator by Direct Method	3 mV to 300 V	0.31 % to 0.05 %
17	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage (50Hz to 1kHz)	Using Multifunction Calibrator by Direct Method	3 mv to 1000 V	0.39 % to 0.04 %
18	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance (1kHz)	Using Multifunction Calibrator by Direct Method	1 µF to 100 µF	0.48 % to 0.67 %
19	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance (1kHz)	Using Multifunction Calibrator by Direct Method	1 nF to 1 µF	1.63 % to 0.48 %
20	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using 6½ Digit Multimeter by Direct Method	1 Mohm to 100 Mohm	0.013 % to 0.91 %
21	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using 6½ Digit Multimeter by Direct Method	1 Ohm to 100 Ohm	0.35 % to 0.02 %

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22	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using 6½ Digit Multimeter by Direct Method	100 Ohm to 1 Mohm	0.02 % to 0.013 %
23	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC voltage	Using 6½ Digit Multimeter by Direct Method	10 mV to 10 V	0.06 % to 0.003 %
24	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC voltage	Using 6½ Digit Multimeter by Direct Method	10 V to 100 V	0.003 % to 0.005 %
25	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC voltage	Using 6½ Digit Multimeter by Direct Method	100 V to 1000 V	0.005 % to 0.006 %
26	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Multifunction Calibrator 1 by Direct Method	1 A to 10 A	0.09%
27	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Multifunction Calibrator 1 by Direct Method	1 mA to 400 mA	0.017 % to 0.08 %

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28	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Multifunction Calibrator 1 by Direct Method	10 µA to 329 µA	0.25 % to 0.1 %
29	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using milli /micro ohm meter by Direct Method	0.0001 Ohm	1.42%
30	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using milli /micro Ohm meter calibrator by Direct Method	0.001 Ohm	0.4%
31	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using milli /micro Ohm meter by Direct Method	0.01 Ohm	0.76%
32	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Decade Resistance Box by Direct Method	0.01 Ohm to 0.5 Ohm	2.59 % to 0.8 %
33	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Decade Resistance Box by Direct Method	0.5 Ohm to 100 kohm	0.8 % to 2.3 %

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34	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Decade Resistance Box by Direct Method	1 Gohm to 1 Tohm	8 % to 8.45 %
35	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Decade Resistance Box by Direct Method	1 Tohm to 10 Tohm	8.45 % to 10 %
36	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Multifunction Calibrator 1 by Direct Method	10 Ohm to 100 Mohm	0.018 % to 0.07 %
37	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Decade Resistance Box by Direct Method	100 kohm to 100 Mohm	2.3%
38	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Decade Resistance Box by Direct Method	100 Mohm to 1 Gohm	2.3 % to 6.1 %
39	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Multifunction Calibrator by Direct Method	2 Ohm to 10 Ohm	0.067 % to 0.018 %

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40	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	Resistance	Using Multifunction Calibrator 2 by Direct Method	1 Ohm	1.29%
41	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	Resistance	Using Multifunction Calibrator 2 by Direct Method	100 Mohm to 190 Mohm	0.57 % to 1.14 %
42	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	J Type Thermocouple	Using Process Calibrator by Direct Method	-190 °C to 1200 °C	1.41°C
43	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	K Type Thermocouple	Using Process Calibrator by Direct Method	-190 °C to 1350 °C	1.48°C
44	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	N Type Thermocouple	Using Process Calibrator by Direct Method	-190 °C to 1200 °C	1.94°C
45	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	N type Thermocouple	Using Process calibrator by Direct Method	-190 °C to 950 °C	1.94°C

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46	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	R Type Thermocouple	Using Process Calibrator by Direct Method	0 °C to 1300 °C	2.94°C
47	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	RTD (PT-100)	Using Process Calibrator by Direct Method	-200 °C to 790 °C	0.66°C
48	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	S Type Thermocouple	Using Process Calibrator by Direct Method	0 °C to 1300 °C	2.94°C
49	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	E Type Thermocouple	Using Process Calibrator by Direct Method	-190 °C to 950 °C	1.4°C
50	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	J Type Thermocouple	Using Process Calibrator by Direct Method	-190 °C to 1200 °C	1.42°C
51	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	K Type Thermocouple	Using Process Calibrator by Direct Method	-190 °C to 1350 °C	1.60°C

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52	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	N Type Thermocouple	Using Process Calibrator by Direct Method	-190 °C to 1200 °C	1.94°C
53	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	R Type Thermocouple	Using Process Calibrator by Direct Method	0 °C to 1300 °C	3.03°C
54	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	RTD (PT-100)	Using Process Calibrator by Direct Method	-200 °C to 790 °C	0.88°C
55	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	S Type Thermocouple	Using Process Calibrator by Direct Method	0 °C to 1300 °C	3.03°C
56	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency	Using 6½ Digit Multimeter by Direct Method	50 Hz to 100 kHz	0.06%

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57	MECHANICAL-PRESSURE INDICATING DEVICES	Pneumatic Pressure: Pressure Gauge (Analog/Digital) Pressure Gauges, Transducers/Transmitters with indicator	Using Comparator, Digital Pressure Gauge, Multifunction Process Calibrator and 6½ Digital Multimeter by Comparison method as per DKD-R-6-2	0 to 0.7 bar	0.031bar
58	THERMAL-TEMPERATURE	Temperature sensor with indicator of Ovens, Furnace, Freezers, Refrigerators (Single Position)	Using Standard RTD sensor with Indicator by Comparison Method	-25 °C to 300 °C	0.63°C
59	THERMAL-TEMPERATURE	Temperature sensor with Indicator of Liquid Bath, Dry Bath (Single Position)	Using Standard RTD sensor with Digital Multimeter (at specified location) by Comparison Method	-25 °C to 50 °C	0.61°C
60	THERMAL-TEMPERATURE	Temperature sensor with Indicator of Liquid Bath, Dry Bath (Single Position)	Using Standard RTD sensor with Digital Multimeter (at specified location) by Comparison Method	50 °C to 400 °C	0.8°C

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