



National Accreditation Board for
Testing and Calibration Laboratories

CERTIFICATE OF ACCREDITATION

C AND I CALIBRATIONS PVT. LTD.

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

**"General Requirements for the Competence of Testing &
Calibration Laboratories"**

for its facilities at

J-448, SITAPURA INDUSTRIAL AREA, JAIPUR, RAJASTHAN, INDIA

in the field of

CALIBRATION

Certificate Number: CC-2216

Issue Date: 15/11/2019

Valid Until: 14/11/2021*

*The validity is extended for one year up to 14.11.2022

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.

(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Identity : C AND I CALIBRATIONS PVT. LTD.

Signed for and on behalf of NABL



N. Venkateswaran
Chief Executive Officer



National Accreditation Board for Testing and Calibration Laboratories

SCOPE OF ACCREDITATION

Laboratory Name :

C AND I CALIBRATIONS PVT. LTD., J-448, SITAPURA INDUSTRIAL AREA, JAIPUR, RAJASTHAN, INDIA

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Validity

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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 Power / Energy, 1 phase & 3 phase Cos $\emptyset \pm 0.01$ to 0.1, 40Hz to 60Hz, 40V to 320V, >0.1 A to 120A (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM3003 / SY-3102 By Direct / Comparison Method	0.04 W to 9.6 kW	0.011% / PF (Related to Apparent Power)
2	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Apparent Power / Energy, 1 & 3 phase 40Hz to 60Hz, 40V to 320V, >10A to 120A (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003/SY 3102 by Direct/ Comparison Method	400VA to 115.2kVA	0.011%
3	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Reactive Power / Energy, 1 phase Sin $\emptyset \pm 0.10$ to 1 50Hz 40V to 320V, 100A to 1000A	Using 3 Phase Reference Standard COM 3003/SY 3102 With Turn Coil by Direct Method	400VAr to 960kVAr	0.15 % / PF to (Related to Apparent Pow



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4	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current, 40 Hz to 70 Hz (For Calibration of Current Sources, meters)	Using Com 3003 /MTS/ SY-3102 By Direct / Comparison Method	1 mA to 120 A	0.045% to 0.008%
5	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current, 50 Hz (For Calibration of Current Sources and AC Shunts)	Using Com 3003 /MTS / SY-3102 and Std. CT By Direct / Comparison Method	>120 A to 2000 A	0.06%
6	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current,10 Hz to 10 kHz (For Calibration of Current Sources and meters)	Using Fluke 8508A DMM , Agilent, Fluke Shunt 40B, 5790 A By Direct / comparion & V/I Method	10 µA to 20 A	285 ppm to 122 ppm
7	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current,50 Hz (For Calibration of Current Sources and measuring instruments)	Using Com3003/MTS/ SY-3102 and Std. CT By Direct / comparison Method	2000 A to 3200 A	0.10%



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8	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC High Voltage,50 Hz (For calibration of HV Sources, probes, Dividers)	Using EPD 33kV with Standard Capacitor,Standard VT, 6 ½ Digital Multimeter by Direct/ comparison Method	500 V to 33 kV	0.6 %
9	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC High Voltage,50 Hz(For calibration of HV Sources, Dividers and HV Probes)	Using HV Divider with DMM/KV Meter (Direct / Comparison Method)	>33 kV to 200 kV	3%
10	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Power ,320V-600 V, 0.5A - 20 A, PF ± 0.1 to 1 1 phase	Using Power meter Yokogawa WT 230 By Direct Method	16 W to 12 kW	0.16 to 0.23 % / PF to (Related to Apparent Pow
11	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Power / Energy 1 phase & 3 phase Active Cos Ø ± 0.10 to 1 , 40Hz to 60Hz, 40V to 320V 5mA (For Calibration of Power/Energy Calibrators, Energy Meters, Power Analysers)	Using 3 Phase Reference Standard COM 3003 / SY-3102 By Direct / Comparison Method	0.02 W to 4.8 W	0.023% / PF (Related to Apparent Power)



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12	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phase Active, Cos $\emptyset \pm 0.1$ to 1,40Hz to 60Hz ,40V to 320V , 1mA to 5mA (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard SY-3102 By Direct / comparison Method	0.004W to 4.8W	0.04 % / PF to (Related to Apparent Pow
13	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Power / Energy,1 phase & 3 phase Active, Cos $\emptyset \pm 0.10$ to 1,40Hz to 60Hz,40V to 320V, >5mA to 50mA (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003 / SY-3102 By Direct Method	0.02W to 48W	0.018 % / PF to (Related to Apparent Pow



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14	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phase Apparent, 40Hz to 60Hz, 40V to 320V, >50mA to 10A (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003 / SY-3102 By Direct / comparison Method	2VA to 9.6kVA	0.010%
15	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phase Apparent, 40Hz to 60Hz, 40V to 320V, >5mA to 50mA (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003 / SY-3102 By Direct/ Comparison Method	0.2VA to 48VA	0.018%



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16	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phaseActive, Cos Ø ± 0.10 to 1,40Hz to 60Hz,40V to 320V, >10A to 120A (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003 / SY-3102 By Direct /Comparison Method	40W to 115.2kW	0.011 % / PF to (Related to Apparent Powe
17	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phaseActive, Cos Ø ± 0.10 to 1,40Hz to 60Hz,40V to 320V, >50mA to 10A (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003 / SY-3102 By Direct / Comparison Method	0.2W to 9.6kW	0.010 % / PF to (Related to Apparent Pow



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18	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phase Apparent, 40Hz to 60Hz, 40V to 320V, >10A to 120A (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003 / SY-3102 By Direct/ Comparison Method	400VA to 115.2kVA	0.011%
19	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phase Apparent, 40Hz to 60Hz, 40V to 320V, 1mA to 5mA (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase reference Standard SY-3102 By Direct / Comparison Method	0.04VA to 4.8VA	0.04%
20	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phase Apparent, 40Hz to 60Hz, 40V to 320V, 5mA (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003 / SY-3102 By Direct / comparison Method	0.2VA to 4.8VA	0.023%



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21	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phase Reactive, Sin $\emptyset \pm 0.1$ to 1,40Hz to 60Hz, 40V to 320V 1mA to 5mA (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard SY-3102 By Direct/ Comparison Method	0.004VAr to 4.8VAr	0.04% % / PF to (Related to Apparent Pow
22	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phase Reactive, Sin $\emptyset \pm 0.10$ to 1,40Hz to 60Hz, 40V to 320V, >10A to 120A (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003 / SY-3102 by Direct / Comparison Method	40VAr to 115.2kVAr	0.011 % / PF to (Related to Apparent Pow



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23	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phase Reactive, Sin $\emptyset \pm 0.10$ to 1,40Hz to 60Hz, 40V to 320V, >50mA to 10A (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003 / SY-3102 by Direct / Comparison Method	0.2VAr to 9.6kVAr	0.010 % / PF to (Related to Apparent Pow
24	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phase Reactive, Sin $\emptyset \pm 0.10$ to 1,40Hz to 60Hz, 40V to 320V, >5mA to 50mA (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003 / SY-3102 by Direct / Comparison Method	0.02VAr to 48VAr	0.018 % / PF to (Related to Apparent Pow



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25	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phase Reactive, Sin $\emptyset \pm 0.10$ to 1,40Hz to 60Hz, 40V to 320V, 5mA (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003 / SY-3102 By Direct / Comparison Method	0.02VAR to 4.8VAR	0.023 % / PF to (Related to Apparent Pow
26	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase Active, Cos $\emptyset \pm 0.10$ to 1,50Hz , 40V to 320V, 100 A to 1000 A	Using 3 Phase Reference Standard COM 3003 / SY-3102 By Direct Method	400W to 960kW	0.15 % / PF to (Related to Apparent Pow
27	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Resistance, 1kHz (For calibration of Standard Resistors and LCR meters)	Using LCR Meter By Direct / Comparison Method	1 Ohm to 100 kOhm	400 ppm to 550 ppm
28	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Voltage 10 V to 480 V (Calibration of Voltage Sources and meters)	Using 3 Phase Ref. Standard COM 3003/ SY- 3102 By Direct / Comparison Method	40 Hz to 60 Hz	110 ppm to 70 ppm



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29	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage 1mV to 22mV(For calibration of Voltage Sources and meters)	Using AC Std. Fluke 5790A, 8508A DMM , HP ,Agilent By Direct / Comparison Method	10 Hz to 20 kHz	1700 ppm to 126 ppm
30	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage 1mV to 22mV(For calibration of Voltage Sources and meters)	Using AC Std. Fluke 5790, 8508A DMM , HP ,Agilent By Direct/ Comparison Method	100 KHz to 1 MHz	0.3% to 1.4%
31	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage 1mV to 22mV(For calibration of Voltage Sources and meters)	Using AC Std. Fluke 5790, 8508A DMM , HP ,Agilent By Direct/ Comparison Method	20 kHz to 100 kHz	0.012% to 0.3%
32	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage 22 mV to 22 V (for calibration of Voltage sources and meters)	Using AC Std. Fluke 5790, 8508A DMM , HP ,Agilent By Direct / Comparison Method	10 Hz to 10 kHz	165 ppm to 33 ppm



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33	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage 22 mV to 22 V (For calibration of Voltage Sources and meters)	Using AC Std. Fluke 5790, 8508A DMM , HP ,Agilent By Direct / comparison Method	10 kHz to 1 MHz	28 ppm to 3300 ppm
34	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage 22 V to 220 V(For calibration of Voltage Sources and meters)	Using AC Std. Fluke 5790, 8508A DMM , HP ,Agilent By Direct/ Comparison Method	10 Hz to 100 KHz	28 ppm to 100 ppm
35	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage 220 V to 1000 V(For calibration of Voltage Sources and meters)	Using AC Std. Fluke 5790, 8508A DMM , HP ,Agilent by Direct /Comparison Method	10 Hz to 10 kHz	40 ppm to 85 ppm
36	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Capacitance , 1kHz (for calibration of std capacitors, LCR meter)	Using LCR Meter, By Direct/ Comparison Method	1 pF to 1000 pF	0.12% to 0.04%



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37	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Capacitance , 1kHz(For calibration of capacitors and LCR meters)	Using LCR Meter, by Direct / Comparison Method	1000 pF to 100 μF	0.04% to 0.38%
38	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	CT-VT Comparator (AITTS), VT Mode Ratio error & Phase error, 50Hz	Using Standard Capacitor/Voltage Transformer with Automatic Instrument transformer test set (AITTS) By Comparison Method	63.5V to 110V	RE:0.01% & PE:0.5Min.
39	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	CT-VT Comparator (AITTS),CT Mode Ratio error & Phase error, 50Hz	Using Precision current transformer, Automatic Instrument transformer test set (AITTS) By Comparison Method	1 A to 5 A	RE:0.012% & PE:0.54 Min.
40	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Current Transformer Primary Injection method, Ratio error & Phase error, 50Hz,1A, 5A(Secondary)	Using Precision current transformer, Automatic Instrument transformer test set (AITTS) and High Current Source By Direct Method	1% to 120% of Rated 1A to 5A	RE:0.12% to 0.46%; PE: 6.2 to 17min



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41	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Current Transformer Primary Injection method, Ratio error & Phase error, 50Hz, 1A, 5A(Secondary)	Using Precision current transformer, Automatic Instrument transformer test set (AITTS) and High Current Source By Direct Method	1% to 120% of Rated 2000A to 3200 A	RE:0.056 % to 0.067%; PE: 3 to 5.64 min
42	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Current Transformer Primary Injection method, Ratio error & Phase error at 50Hz, 1A & 5A (Secondary)	Using Precision current transformer, Automatic Instrument transformer test set (AITTS) and High Current Source	1% to 120% of Rated 5 A to 2000 A	RE : 0.03%, PE : 2.5 Min.
43	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Harmonics in Current ,Fundamental Frequency 50 Hz 10 mA to 24 A (For calibrationof Harmonic analysers and generators)	Using 3 Phase Reference Standard COM 3003 / SY-3102 By Direct/ Comparison Method	1st order to 40th order	0.8%



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44	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Harmonics in Voltage ,Fundamental Frequency 50 Hz 40 V to 240 V (For calibrationof Harmonics analysers and generators)	Using 3 Phase reference Standard SY-3102 By Direct /Comparison Method	1 st order to 40 th order	0.4%
45	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Inductance , 1kHz (for calibration of Inductors and LCR meters)	Using LCR Meter By Direct / Comparison Method	100 µH to 1000µH	0.3% to 0.04%
46	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Inductance , 1kHz (For calibration of Inductors and LCR meters)	Using LCR Meter By Direct/ Comparison Method	1000 µH to 10 H	0.04% to 0.06%



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47	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Potential Transformer / Capacitor Voltage Transformer/Voltage Divider Primary Injection Method, Ratio error & Phase error, 50Hz, 110V/Root(3) Secondary (50V - 144V)	Using Standard Voltage Transformer 66kV with Automatic instrument transformer test set (AITTS),and High Voltage Source By Direct Method	120%to 80% of Rated 66 kV/Root(3) to 66 kV/Root(3)	RE:0.12% & PE:7 Min.
48	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Potential Transformer / Capacitor Voltage Transformer/Voltage Divider Primary Injection Method, Ratio error & Phase error, 50Hz, 63.5V/110V Secondary (50V - 144V)	Using EPD and Capacitor 33kV, Standard Voltage Transformer with Automatic instrument transformer test set (AITTS),and High Voltage Source By Direct Method	120% to 80% of Rated 3.3 kV/Root(3) to 33 kV/Root(3)	RE:0.07% & PE:3 Min.



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49	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Potential Transformer / Capacitor Voltage Transformer/Voltage Divider Primary Injection Method, Ratio error & Phase error, 50Hz, 63.5V/110V Secondary (50V - 144V)	Using Standard Voltage Transformer, EPD with capacitor 33kV with Automatic instrument transformer test set (AITTS),and High Voltage Source By Direct Method	120%to80% of Rated 110 V/Root(3) to 3.3 kV/Root(3)	RE:0.14% & PE:7 Min.
50	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Potential Transformer / Capacitor Voltage Transformer/Voltage Divider Primary Injection Method, Ratio error & Phase error, 50Hz, 63.5V/110V Secondary (50V - 144V)	Using Standard Voltage Transformer, EPD with capacitor 33kV with Automatic instrument transformer test set (AITTS),and High Voltage Source By Direct Method	120% to 80% of Rated 110 V to 3.3 kV	RE:0.14% & PE: 7Min.



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51	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Potential Transformer / Capacitor Voltage Transformer/Voltage Divider, Primary Injection Method, Ratio error & Phase error, 50Hz, 63.5V/110V Secondary (50V - 144V)	Using EPD and Capacitor 33kV, Standard Voltage Transformer with Automatic instrument transformer test set (AITTS),and High Voltage Source By Direct Method	120% to 80% of Rated 3.3 kV to 33 kV	RE:0.07% & PE:3Min.
52	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Power Factor 40 Hz to 70 Hz (For calibration of Phase shifters and PF meters)	Using 3 Phase Reference Standard COM 3003/SY3102 by Direct / Comparison Method	0.01 PF to 1 PF lead/lag	0.0005 PF
53	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Voltage Ratio	Using Fluke 8508A/Agilent/ HP By Direct Method	0.8 Turn to 2021 Turn	0.04% to 0.05%
54	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current 10 Hz to 10 kHz	Fluke 5720A MFC with Amplifier by Direct Method	10 µA to 20 A	0.11 % to 0.017 %



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55	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current 40 Hz to 70 Hz	Using Fluke 5720 /52120 Amplifier	1 mA to 100 A	0.045 % to 0.16 %
56	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current 50 Hz	MFC 9100 with Current Coil by Direct Method	120A to 1000 A	0.45 % to 0.45 %
57	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Power ,320V-600 V, 0.5A - 20 A, PF ± 0.1 to 1 1 phase	MFC Fluke 5080 A by Direct Method	16 W to 12 kW	0.16 % / PF to (Related to Apparent Pow
58	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 20 kHz to 1 MHz	Using MFC Fluke 5720A /9100/5080A By Direct Method	10 mV to 20 V	6500 ppm to 120 ppm
59	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 50 Hz to 1 kHz	Using MFC Fluke 5720A /9100/5080A By Direct Method	200 V to 1100 V	120 ppm to 65 ppm



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60	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 50 Hz to 20 KHz	Using MFC Fluke 5720A /9100/5080A By Direct Method	1 mV to 20 mV	4800 ppm to 300 ppm
61	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 50 Hz to 20 KHz	Using MFC Fluke 5720A /9100/5080A By Direct Method	20 mV to 200 mV	300 ppm to 120 ppm
62	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 50 Hz to 20 KHz	Using MFC Fluke 5720A /9100/5080A By Direct Method	200 mV to 200 V	120 ppm to 59 ppm
63	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance 1kHz	Using MFC 9100 by Direct Method	1000 pF to 100 µF	0.35 % to 0.7 %
64	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance 1kHz	Using MFC 9100 by Direct Method	500 pF to 1000 pF	0.35%



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65	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Inductance 1kHz	Using Decade Inductance box by Direct Method	100 µH to 1000 µH	0.3% to 0.04%
66	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Inductance 1kHz	Using Decade Inductance box by Direct Method	1000 µH to 10 H	0.04% to 0.06%
67	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Voltage Ratio	Amber make Ratio Standard by Direct Method	0.8 Turn to 2021 Turn	0.05% to 0.08%
68	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using Fluke 8508A DMM , osaw Resistor Fluke 40B By Direct Method	20 A to 100 A	0.05% to 0.5%
69	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current (For calibration of Current Sources, Meters, Shunts)	Using Fluke 8508A DMM , Agilent, Shunt Fluke 40B by Direct / Comparison by V/R Method	100 µA to 100 mA	20 ppm to 30 ppm



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70	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current (For calibration of Current Sources, Shunts and meters)	Using Fluke 8508A DMM , Agilent, Shunt Fluke 40B By Direct / Comparison I/R Method	1µA to 100 µA	460 ppm to 20 ppm
71	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current (For calibration of Current Sources, Shunts and metrs)	Using Fluke 8508A DMM , Agilent, Shunt Fluke 40B By Direct / comparison & V/I Method	100 mA to 20 A	30 ppm to 50 ppm
72	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current (For calibration of Current Sources, Meters)	Using PA meter Keithley 6485 by Direct / comparison Method Method	0.05 nA to 1 µA	3 % to 0.25 %
73	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Power ,1.5 V-1000 V ,0.1 A to 20 A	Using Fluke 8508A/5080A, Yokogawa & 6 ½ DMM By Direct / Comparison Method	0.15 W to 20 kW	0.011% to 0.055%
74	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using Std. Resistance By Direct / VI Method	0.001 ohm to 1 ohm	0.02%



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75	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using Fluke 5720 A and 8508 A by V/I Method	0.1mohm to 1 mohm	0.032%
76	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using Fluke 8508A DMM , 5720 A By Direct / VI Method	1 MOhm to 100 MOhm	11 ppm to 160 ppm
77	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using Fluke 8508A DMM , 5720 A By Direct / VI Method	1 Ohm to 1 MOhm	19 ppm to 11 ppm
78	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using Fluke 8508A DMM , 5720 A By Direct / VI Method	100 MOhm to 20 GOhm	160 ppm to 1800 ppm
79	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using pA Meter/ Fluke 5080A Direct by V / I Method	20 GOhm to 10 TOhm	1 % to 2 %



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80	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage (for calibration of HV Sources and Probes)	Using HV Probe with DMM & Source by Direct / Comparison Method	1 kV to 30kV	2.5 %
81	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage (For calibration of Sources and meters)	Using Fluke 8508A DMM , HP ,Agilent by Direct/ Comparison Method	1 mV to 10 V	200 ppm to 4 ppm
82	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage (for calibration of Sources and meters)	Using Fluke 8508A DMM , HP ,Agilent by Direct/ Comparison Method	10 V to 1000 V	4 ppm to 8 ppm
83	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Fluke 5720A /5080A by Direct Method	1 µA to 100 µA	0.61 % to 0.02 %
84	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Fluke 5720A /52120A by Direct Method	100 µA to 20 A	200ppm



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85	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Fluke 5720A with Amplifier /9100/ 5080A/52120A & Current Coil by Direct Method	100 A to 1000 A	0.45 %
86	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Fluke 5720A with Amplifier 52120A by Direct Method	20 A to 100 A	200 ppm to 360 ppm
87	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Power ,1.5 V-1000 V ,0.1 A to 20 A	Using Fluke MFC 5080A by Direct Method	0.15 W to 20 kW	0.011% to 0.055%
88	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Standard Resistance by Direct method	0.1mohm to 0.1mohm	0.012%
89	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Standard Resistance by Direct Method	1 mohm to 1 mohm	0.012%



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90	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Fluke 5720A/5080A / 9100 by Direct Method	1 MOhm to 100 MOhm	22 ppm to 120 ppm
91	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Fluke 5720A/5080A / 9100 by Direct Method	1 Ohm to 19 Ohm	125 ppm to 100 ppm
92	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Standard Resistance by Direct Method	10 mOhm to 10 mOhm	0.012%
93	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Standard Resistance by Direct Method	100 mOhm to 100 mOhm	0.012%
94	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using MFC 9100 by Direct Method	100 MOhm to 400 MOhm	65 ppm to 900 ppm



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95	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Fluke 5720A/5080 / 9100 by Direct Method	19 Ohm to 1 MOhm	100 ppm to 22 ppm
96	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using MFC Fluke 5720A By Direct Method	1 mV to 100 mV	470 ppm to 11 ppm
97	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using MFC Fluke 5720A /9100/5080A By Direct Method	10 V to 1100 V	4.72 ppm to 9.7 ppm
98	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using MFC Fluke 5720A /9100/5080A By Direct Method	100 mV to 10 V	11 ppm to 4.72 ppm
99	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	Insulation Resistance	Using Fluke 5080A MEG with 10 kV divider by Direct Method	10 kOhm to 18 GOhm	0.2% to 1.5%



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100	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	Insulation Resistance up to 10kV	Using Fluke 5080A MEG with 10 kV divider by Direct Method	10 GOhm to 10 TOhm	1.5% to 2.5%
101	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	RF Power,10MHz-3 GHz,(-60 dBm to +13 dBm)	Using R&S Meter By Direct / Comparison Method	1 μW to 20 mW (-60 dBm to +13 dB)	0.51 dB to 0.86 dB
102	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	RF Voltage ,10MHz-3GHz	Using R&S RF Voltmeter URV 55 By Direct Method	7 mV to 1 V	4.1%
103	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF Power 10 MHz to 1 GHz (-60dBm to +13 dBm)	Using HP Signal Generator by Direct Method	1 μW to 20 mW (-60 dBm to +13 dB)	0.48dB
104	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF Voltage 10 MHz to 1 GHz	Using Leveled Sine Generator and 9100 MFC By Direct Method	7mV to 1 V	1 % to 4.1%



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105	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temp. Simulation Process Calibrator/Recorder /Controller B Type Thermocouple	Using Fluke 8508 A by Direct Method	(-) 600°C to 1800 °C	0.03 °C
106	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temp. Simulation Process Calibrator/Recorder /Controller C Type Thermocouple	Using Fluke 8508 A by Direct Method	(-)400°C to 2320 °C	0.06 °C
107	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temp. Simulation Process Calibrator/Recorder /Controller E Type Thermocouple	Using Fluke 8508 A by Direct Method	(-)250°C to 1000 °C	0.023 °C
108	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temp. Simulation Process Calibrator/Recorder /Controller J Type Thermocouple	Using Fluke 8508 A by Direct Method	(-)200°C to 1200 °C	0.018 °C
109	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temp. Simulation Process Calibrator/Recorder /Controller K Type Thermocouple	Using Fluke 8508 A by Direct Method	(-)200°C to 1370 °C	0.014 °C



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110	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temp. Simulation Process Calibrator/Recorder /Controller L Type Thermocouple	Using Fluke 8508 A by Direct Method	(-)200°C to 1300 °C	0.02 °C
111	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temp. Simulation Process Calibrator/Recorder /Controller N Type Thermocouple	Using Fluke 8508 A by Direct Method	(-)200°C to 1300 °C	0.028 °C
112	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temp. Simulation Process Calibrator/Recorder /Controller R Type Thermocouple	Using Fluke 8508 A by Direct Method	(-)50°C to 1770 °C	0.03 °C
113	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temp. Simulation Process Calibrator/Recorder /Controller RTD/PRT Type Thermocouple	Using Fluke 8508 A by Direct Method	(-)200°C to 850 °C	0.017 °C
114	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temp. Simulation Process Calibrator/Recorder /Controller S Type Thermocouple	Using Fluke 8508 A /Agilent by Direct / Simulation Method	(-)50°C to 1770 °C	0.03 °C



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115	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temp. Simulation Process Calibrator/Recorder /Controller T Type Thermocouple	Using Fluke 8508 A /Agilent by Direct / Simulation Method	(-)200°C to 400 °C	0.018 °C
116	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature Simulation(Recorder /Controller) B Type Thermocouple	Using Fluke 5720/5080A/9100 by Direct Method	(-) 600°C to 1800 °C	0.06 °C
117	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature Simulation(Recorder /Controller) C Type Thermocouple	Using Fluke 5720/5080A/9100by Direct Method	(-)400°C to 2320 °C	0.03 °C
118	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature Simulation(Recorder /Controller) E Type Thermocouple	Using Fluke 5720/5080A/9100 by Direct Method	(-) 250°C to 1000 °C	0.08 °C
119	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature Simulation(Recorder /Controller) J Type Thermocouple	Using Fluke 5720/5080A/9100 by Direct Method	(-) 200°C to 1200 °C	0.011 °C



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120	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature Simulation(Recorder /Controller) K Type Thermocouple	Using Fluke 5720/5080A/9100 by Direct Method	(-)-200°C to 1370 °C	0.013 °C
121	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature Simulation(Recorder /Controller) L Type Thermocouple	Using Fluke 5720/5080A/9100 by Direct Method	(-)-200°C to 1300 °C	0.011 °C
122	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature Simulation(Recorder /Controller) N Type Thermocouple	Using Fluke 5720/5080A/9100 by Direct Method	(-)-200°C to 1300 °C	0.02 °C
123	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature Simulation(Recorder /Controller) R Type Thermocouple	Using Fluke 5720/5080A/9100 by Direct Method	(-)-50°C to 1770 °C	0.07 °C
124	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature Simulation(Recorder /Controller) RTD/PRT	Using Fluke 5720/5080A/9100/ by Direct Method	(-)-200°C to 850 °C	0.009 °C



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125	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature Simulation(Recorder /Controller) S Type Thermocouple	Using Fluke 5720/5080A/9100 by Direct / Method	(-)50°C to 1770 °C	0.07 °C
126	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature Simulation(Recorder /Controller) T Type Thermocouple	Using Fluke 5720/9100 by Direct Method	(-)200°C to 400 °C	0.02°C
127	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency (For calibration of Freq Sources and meters)	Using 3 Phase reference Standard COM 3003/MTS by Direct/ Comparison Method	40 Hz to 70 Hz	0.025 %
128	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency/period	Using Fluke 8508A DMM , Agilent /Freq. Counter/ 9100 By Direct / Comparison Method	1 Hz (1sec) to 3 GHz (0.33 n sec)	4 .1 ppm to 0.1 ppm
129	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Time Interval	Using Frequency Counter CNT90 by Comparison method	10 nsec. to 100000 sec.	0.11ppm to 6.02ppm



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130	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency/Period	Using MFC 9100 and HP Signal Generator by Direct Method	1 Hz to 1 GHz(1sec to 1nsec)	30 ppm to 5 ppm
131	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Time Interval	MFC 9100 by Direct Method	10 nsec. to 100000 sec.	26ppm
132	FLUID FLOW-FLOW MEASURING DEVICES	Cumulative Mass of Fluid (Medium:Water)	Using Mass Flow Meter by Comparison Method	100 kg to 10000kg	0.068 % rdg
133	FLUID FLOW-FLOW MEASURING DEVICES	Mass flow rate(Medium:Water)	Using Mass Flow Meter by Comparison Method	0.1kg/min to 833 kg/min	0.07 % of rdg
134	FLUID FLOW-FLOW MEASURING DEVICES	Quantity of Volume(Medium:Water)	Using Mass,Volume Flow Meter by Comparison Method	0.1 m ³ to 10 m ³	0.08% rdg
135	FLUID FLOW-FLOW MEASURING DEVICES	Volume Flow Rate (Medium:Water)	Using Mass Flow Meter by Comparison Method	0.06 m ³ /h to 50 m ³ /h	0.09 % rdg



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136	FLUID FLOW-FLOW MEASURING DEVICES	Volume Flow Rate (Medium:Water)	Using Electro Magnetic/Mass Flow meter by Comparison Method	1 m ³ /h to 50 m ³ /h	0.33%rdg
137	MECHANICAL-ACCELERATION AND SPEED	SPEED (Contact type) Tachometer	Using Tachometer	100 rpm to 6000 rpm	11 rpm
138	MECHANICAL-ACCELERATION AND SPEED	SPEED (Non-contact type) RPM indicators, Centrifuges	Using Tachometer	100 rpm to 6000 rpm	5 rpm
139	MECHANICAL-ACCELERATION AND SPEED	SPEED (Non-contact type) Tachometer	Using Tachometer	6000 rpm to 60000 rpm	26 rpm
140	MECHANICAL-ACOUSTICS	Sound Level Meter	Using Sound Level Calibrator	94 dB & 114dB at 1KHz	0.4 dB
141	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Angle Bevel Protector/ Combination Set / Clinometers,LC: 5 min	Using Angle Gauges	0 ° to 180 °	4min
142	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Caliper (Digital, Vernier) L.C.- 0.01 mm	Using Gauge Block Set & Caliper Checker	0 mm to 1000 mm	31.8µm



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143	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Caliper (Digital/ Vernier) L.C.- 0.01 mm	Using Gauge Block Set & Caliper Checker	0 mm to 600 mm	10.6µm
144	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Coating Thickness Gauges	Using Foils Set by comparison method	10 µm to 935 µm	2.0 µm
145	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Bore Gauge (Transmission Movement only) ,L.C. 0.01 mm	Using Gauge Block Set / Digital Gauge Sylvac	Upto 1.8 mm	3.5µm
146	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Gauge ,L.C. 0.001 mm	Using Gauge Block Set / Digital Gauge Sylvac	0 mm to 25 mm	0.9 µm



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147	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External Micrometer, L.C. 0.001 mm	Using Gauge Block Set	0 mm to 100 mm	1.4µm
148	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External Micrometer, L.C. 0.01 mm	Using Gauge Block Set & caliper checker With Gauge block accessories set	0 mm to 200 mm	7.0µm
149	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External Micrometer, L.C. 0.01 mm	Using Gauge Block Set & caliper checker With Gauge block accessories set	200 mm to 600 mm	10.0µm
150	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External Micrometer, L.C. 0.01 mm	Using Gauge Block Set & caliper checker With Gauge block accessories set	600 mm to 1000 mm	15.0µm



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151	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Feeler Gauge	Using Digital Micrometer	0.01 mm to 1.0 mm	1.5µm
152	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Height Gauge L.C. 0.01 mm	Using Gauge Block Set & Caliper Checker	0 mm to 1000 mm	11.0µm
153	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Height Gauge ,L.C. 0.01 mm	Using Gauge Block Set & Caliper Checker	0 mm to 300 mm	9 µm
154	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Internal Micrometer, L.C. 0.001 mm	Using Gauge Block Set & Gauge block accessories	5 mm to 30 mm	1.2µm



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155	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Internal Micrometer, L.C. 0.01 mm	Using Gauge Block Set & Gauge block accessories:	5 mm to 1000 mm	15.0µm
156	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Sprit Level , LC: 0.02 mm/Meter	Using Sine bar & Slip Gauge Set	0 mm to 200 mm	16µm/meter
157	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Std. Foils Set	Using Digital Plunger Dial Gauge L.C. 0.1µm	10 µm to 2000 µm	1.3µm
158	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Steel Scale / Measuring Tape	Using Digital Scale Calibration System by comparison method	0 m to 10 m	0.25mm



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159	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Thickness Gauge (Dial/ Digital)	Using Gauge Block Set	0.1 mm to 25 mm	7.0µm
160	MECHANICAL-PRESSURE BALANCE OR DEAD WEIGHT TESTER	Deadweight Testers	Using Dead Weight Tester By Cross Float Principle Comparison method based on Euramet eg-3	6 bar to 60 bar	0.013 % rdg
161	MECHANICAL-PRESSURE BALANCE OR DEAD WEIGHT TESTER	Deadweight Testers	Using Dead Weight Tester By Cross Float Principle Comparison method based on Euramet eg-3	60 bar to 1200 bar	0.013 % rdg
162	MECHANICAL-PRESSURE INDICATING DEVICES	Barometers	Using Precision Digital Gauges	300 mbar to 1200 mbar	0.052% of rdg
163	MECHANICAL-PRESSURE INDICATING DEVICES	Digital/Analog Pressure Gauges, Pressure Transmitters	Using Precision Digital Gauges By Comparison Method	0 bar to 700 bar	0.034% rdg



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164	MECHANICAL-PRESSURE INDICATING DEVICES	Digital/Analog Pressure Gauges,Transmitters	Using Precision Digital Gauges	0 bar to 2 bar	0.082% rdg
165	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure Calibrator, Analog & Digital Pressure Gauges, Pressure Transducers,Transmitters	Using Dead Weight Tester,Digital Pressure Calibrator,DMM based on DKD R 6-1	6 bar to 1200 bar	0.012% rdg
166	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure Gauges, Absolute gauge	Using Precision Digital Gauge	0 bar to 2 bar Abs	0.069% rdg
167	MECHANICAL-PRESSURE INDICATING DEVICES	Vacuum Gauges, Transducers,Transmitter	Using Precision Digital Gauges	(-) 0.93 bar to 0 bar	0.07% rdg
168	MECHANICAL-VOLUME	Micro Pipettes	Using Electronic weighing Balance with readability of 0.01 mg. Procedure based on ISO 8655 Part 6.	10 µl to 1000 µl	0.16 µl



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169	MECHANICAL-VOLUME	VOLUME Pipettes / Burettes / Measuring Flask & Cylinders	Electronic weighing Balance with readability of 80 g (0.01 mg), 220 g (0.1 mg) & 6100 g (10 mg). Procedure as per ISO 4787.	1 ml to 50 ml	0.26 µl
170	MECHANICAL-VOLUME	VOLUME ipettes / Burettes / Measuring Flask & Cylinders	Electronic weighing Balance with readability of 80 g (0.01 mg), 220 g (0.1 mg) & 6100 g (10 mg). Procedure as per ISO 4787.	50 ml to 150 ml	0.30 µl
171	MECHANICAL-VOLUME	VOLUME Pipettes / Burettes / Measuring Flask & Cylinders	Electronic weighing Balance with readability of 80 g (0.01 mg), 220 g (0.1 mg) & 6100 g (10 mg). Procedure as per ISO 4787.	150 ml to 5 l	0.065 ml
172	MECHANICAL-WEIGHTS	Weights (Class of Weights E2, F1,F2,M1,M2,M3)	Using Standard Weights E1/E2 Balance ,Readability 0.01 mg	500 mg	0.01 mg
173	MECHANICAL-WEIGHTS	Weights (Class of Weights F1,F2,M1,M2,M3)	Using Standard Weights E1/E2 Balance ,Readability 0.01 mg	1 g	0.018 mg



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174	MECHANICAL-WEIGHTS	Weights (Class of Weights F1,F2,M1,M2,M3)	Using Standard Weights E1/E2 Balance ,Readability 0.01mg	1 mg	0.008 mg
175	MECHANICAL-WEIGHTS	Weights (Class of Weights F1,F2,M1,M2,M3)	Using Standard Weights E1/E2 Balance ,Readability 0.01 mg	10 g	0.065 mg
176	MECHANICAL-WEIGHTS	Weights (Class of Weights F1,F2,M1,M2,M3)	Using Standard Weights E1/E2 Balance ,Readability 0.01mg	10 mg	0.008 mg
177	MECHANICAL-WEIGHTS	Weights (Class of Weights F1,F2,M1,M2,M3)	Using Weights E2 Balance ,Readability 0.1mg	100 g	0.16 mg
178	MECHANICAL-WEIGHTS	Weights (Class of Weights F1,F2,M1,M2,M3)	Using Standard Weights E1/E2 Balance ,Readability 0.01 mg	100 mg	0.008 mg
179	MECHANICAL-WEIGHTS	Weights (Class of Weights F1,F2,M1,M2,M3)	Using Weights F1 Balance Readability 10 mg	1000 g	6.5 mg
180	MECHANICAL-WEIGHTS	Weights (Class of Weights F1,F2,M1,M2,M3)	Using Weights F1/F2/M1 Balance Readability 1g	10000 g	0.50 g



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181	MECHANICAL-WEIGHTS	Weights (Class of Weights F1,F2,M1,M2,M3)	Using Standard Weights E1/E2 Balance ,Readability 0.01 mg	2 g	0.018 mg
182	MECHANICAL-WEIGHTS	Weights (Class of Weights F1,F2,M1,M2,M3)	Using Standard Weights E1/E2 Balance ,Readability 0.01mg	2 mg	0.008 mg
183	MECHANICAL-WEIGHTS	Weights (Class of Weights F1,F2,M1,M2,M3)	Using Standard Weights E1/E2 Balance ,Readability 0.01 mg	20 g	0.065 mg
184	MECHANICAL-WEIGHTS	Weights (Class of Weights F1,F2,M1,M2,M3)	Using Standard Weights E1/E2 Balance ,Readability 0.01 mg	20 mg	0.008 mg
185	MECHANICAL-WEIGHTS	Weights (Class of Weights F1,F2,M1,M2,M3)	Using Weights E2 Balance ,Readability 0.1mg	200 g	0.16 mg
186	MECHANICAL-WEIGHTS	Weights (Class of Weights F1,F2,M1,M2,M3)	Using Standard Weights E1/E2 Balance ,Readability 0.01 mg	200 mg	0.008 mg
187	MECHANICAL-WEIGHTS	Weights (Class of Weights F1,F2,M1,M2,M3)	Using Weights F1 Balance Readability 10 mg	2000 g	6.5 mg



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188	MECHANICAL-WEIGHTS	Weights (Class of Weights F1,F2,M1,M2,M3)	Using Weights F1/F2/M1 Balance Readability 1g	20000 g	0.50 g
189	MECHANICAL-WEIGHTS	Weights (Class of Weights F1,F2,M1,M2,M3)	Using Standard Weights E1/E2 Balance ,Readability 0.01 mg	5 g	0.018 mg
190	MECHANICAL-WEIGHTS	Weights (Class of Weights F1,F2,M1,M2,M3)	Using Standard Weights E1/E2 Balance ,Readability 0.01mg	5 mg	0.008 mg
191	MECHANICAL-WEIGHTS	Weights (Class of Weights F1,F2,M1,M2,M3)	Using Standard Weights E1/E2 Balance ,Readability 0.01 mg	50 g	0.065 mg
192	MECHANICAL-WEIGHTS	Weights (Class of Weights F1,F2,M1,M2,M3)	Using Standard Weights E1/E2 Balance ,Readability 0.01 mg	50 mg	0.008 mg
193	MECHANICAL-WEIGHTS	Weights (Class of Weights F1,F2,M1,M2,M3)	Using Weights F1 Balance ,Readability 10 mg	500 g	6.5 mg
194	MECHANICAL-WEIGHTS	Weights (Class of Weights F1,F2,M1,M2,M3)	Using Weights F1 Balance Readability 10 mg	5000 g	10 mg



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Laboratory Name :	C AND I CALIBRATIONS PVT. LTD., J-448, SITAPURA INDUSTRIAL AREA, JAIPUR, RAJASTHAN, INDIA		
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)(±)
195	THERMAL-SPECIFIC HEAT & HUMIDITY	Humidity Sensor With Indicator/Controller, Thermo Hygrometer	Using Standard Humidity Indicator with sensor and humidity Chamber / Generator By Comparison Method	20 % RH to 90 % RH @ 25°C	0.8% RH
196	THERMAL-SPECIFIC HEAT & HUMIDITY	Humidity Sensor With Indicator/Controller, Thermo Hygrometer	Using Standard PRT PT-100 sensor with Indicator Chamber / Generator By Comparison Method	20 °C to 50 °C @50%RH	0.45 °C
197	THERMAL-TEMPERATURE	Pyrometer, Black Body Source ,IR Thermometer.	Using Std. Non Contact Pyrometer & Black body Source(Emissivity:0.95) By Comparison Method	50 °C to 500 °C	2.86 °C
198	THERMAL-TEMPERATURE	Pyrometer, Black Body Source, IR Thermometer	Using Std. Non Contact Pyrometer & Black body Source(Emissivity:0.95) By Comparison Method	500 °C to 1200 °C	3.9 °C
199	THERMAL-TEMPERATURE	RTD sensor, Thermocouple with or without Indicator, glass thermometer (up to 250°C), Analog Temp Gauge.	Using Liquid Bath, Dry Block Calibrator, PRT with Indicator, DMM, by Comparison Method	0°C to 650 °C	0.13 °C



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200	THERMAL-TEMPERATURE	RTD sensor, Thermocouple with or without Indicator, Glass Thermometer, Analog Temp Gauge	Using Liquid Bath, PRT with Indicator ,DMM by Comparison Method	(-) 35 °C to 0 °C	0.13 °C
201	THERMAL-TEMPERATURE	RTD, Thermocouple Sensors with or without Indicator, Analog Temp Gauge.	Using S Type Thermocouple with Indicator,DMM and Dry block calibrator by comparison method.	500 °C to 1000 °C	1.91 °C
202	THERMAL-TEMPERATURE	Thermocouple with or without Indicator.	Using S Type Thermocouple with Indicator,DMM , dry well Temperature bath by comparison method.	1000 °C to 1200 °C	2.04 °C



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Site Facility					
1	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Active Power / Energy, 1 phase & 3 phase Cos $\phi \pm 0.01$ to 0.1, 40Hz to 60Hz, 40V to 320V, >0.1 A to 120A (For Calibration of Power/Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM3003 / SY-3102 By Direct / Comparison Method	0.04 W to 9.6 kW	0.011% / PF (Related to Apparent Power)
2	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Apparent Power / Energy, 1 & 3 phase 40Hz to 60Hz, 40V to 320V, >10A to 120A (For Calibration of Power/Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003/SY 3102 by Direct/ Comparison Method	400VA to 115.2kVA	0.011%
3	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Reactive Power / Energy, 1 phase Sin $\phi \pm 0.10$ to 1 50Hz 40V to 320V, 100A to 1000A	Using 3 Phase Reference Standard COM 3003/SY 3102 With Turn Coil by Direct Method	400VAr to 960kVAr	0.15 % / PF to (Related to Apparent Pow



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4	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current, 40 Hz to 70 Hz (For Calibration of Current Sources, meters)	Using Com 3003 /MTS/ SY-3102 By Direct / Comparison Method	1 mA to 120 A	0.045% to 0.008%
5	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current, 50 Hz (For Calibration of Current Sources and AC Shunts)	Using Com 3003 /MTS / SY-3102 and Std. CT By Direct / Comparison Method	>120 A to 2000 A	0.06%
6	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current,10 Hz to 10 kHz (For Calibration of Current Sources and meters)	Using Fluke 8508A DMM , Agilent, Fluke Shunt 40B, 5790 A By Direct / comparion & V/I Method	10 µA to 20 A	285 ppm to 122 ppm
7	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current,50 Hz (For Calibration of Current Sources and measuring instruments)	Using Com3003/MTS/ SY-3102 and Std. CT By Direct / comparison Method	2000 A to 3200 A	0.10%



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8	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC High Voltage,50 Hz (For calibration of HV Sources, probes, Dividers)	Using EPD 33kV with Standard Capacitor,Standard VT, 6 ½ Digital Multimeter by Direct/ comparison Method	500 V to 33 kV	0.6 %
9	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC High Voltage,50 Hz(For calibration of HV Sources, Dividers and HV Probes)	Using HV Divider with DMM/KV Meter (Direct / Comparison Method)	>33 kV to 200 kV	3%
10	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Power ,320V-600 V, 0.5A - 20 A, PF ± 0.1 to 1 1 phase	Using Power meter Yokogawa WT 230 By Direct Method	16 W to 12 kW	0.16 to 0.23 % / PF to (Related to Apparent Pow
11	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Power / Energy 1 phase & 3 phase Active Cos Ø ± 0.10 to 1 , 40Hz to 60Hz, 40V to 320V 5mA (For Calibration of Power/Energy Calibrators, Energy Meters, Power Analysers)	Using 3 Phase Reference Standard COM 3003 / SY-3102 By Direct / Comparison Method	0.02 W to 4.8 W	0.023% / PF (Related to Apparent Power)



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12	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phase Active, Cos $\emptyset \pm 0.1$ to 1,40Hz to 60Hz ,40V to 320V , 1mA to 5mA (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard SY-3102 By Direct / comparison Method	0.004W to 4.8W	0.04 % / PF to (Related to Apparent Pow
13	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Power / Energy,1 phase & 3 phase Active, Cos $\emptyset \pm 0.10$ to 1,40Hz to 60Hz,40V to 320V, >5mA to 50mA (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003 / SY-3102 By Direct Method	0.02W to 48W	0.018 % / PF to (Related to Apparent Pow



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14	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phase Apparent, 40Hz to 60Hz, 40V to 320V, >50mA to 10A (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003 / SY-3102 By Direct / comparison Method	2VA to 9.6kVA	0.010%
15	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phase Apparent, 40Hz to 60Hz, 40V to 320V, >5mA to 50mA (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003 / SY-3102 By Direct/ Comparison Method	0.2VA to 48VA	0.018%



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16	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phaseActive, Cos Ø ± 0.10 to 1, 40Hz to 60Hz, 40V to 320V, >10A to 120A (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003 / SY-3102 By Direct /Comparison Method	40W to 115.2kW	0.011 % / PF to (Related to Apparent Powe
17	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phaseActive, Cos Ø ± 0.10 to 1, 40Hz to 60Hz, 40V to 320V, >50mA to 10A (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003 / SY-3102 By Direct / Comparison Method	0.2W to 9.6kW	0.010 % / PF to (Related to Apparent Pow



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18	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phase Apparent, 40Hz to 60Hz, 40V to 320V, >10A to 120A (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003 / SY-3102 By Direct/ Comparison Method	400VA to 115.2kVA	0.011%
19	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phase Apparent, 40Hz to 60Hz, 40V to 320V, 1mA to 5mA (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase reference Standard SY-3102 By Direct / Comparison Method	0.04VA to 4.8VA	0.04%
20	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phase Apparent, 40Hz to 60Hz, 40V to 320V, 5mA (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003 / SY-3102 By Direct / comparison Method	0.2VA to 4.8VA	0.023%



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21	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phase Reactive, Sin $\emptyset \pm 0.1$ to 1, 40Hz to 60Hz, 40V to 320V 1mA to 5mA (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard SY-3102 By Direct/ Comparison Method	0.004VAr to 4.8VAr	0.04% % / PF to (Related to Apparent Pow
22	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phase Reactive, Sin $\emptyset \pm 0.10$ to 1, 40Hz to 60Hz, 40V to 320V, >10A to 120A (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003 / SY-3102 by Direct / Comparison Method	40VAr to 115.2kVAr	0.011 % / PF to (Related to Apparent Pow



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23	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phase Reactive, Sin $\emptyset \pm 0.10$ to 1, 40Hz to 60Hz, 40V to 320V, >50mA to 10A (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003 / SY-3102 by Direct / Comparison Method	0.2VAr to 9.6kVAr	0.010 % / PF to (Related to Apparent Pow
24	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phase Reactive, Sin $\emptyset \pm 0.10$ to 1, 40Hz to 60Hz, 40V to 320V, >5mA to 50mA (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003 / SY-3102 by Direct / Comparison Method	0.02VAr to 48VAr	0.018 % / PF to (Related to Apparent Pow



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25	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase & 3 phase Reactive, Sin $\emptyset \pm 0.10$ to 1,40Hz to 60Hz, 40V to 320V, 5mA (For Calibration of Power/ Energy Calibrators, Power Analysers, Energy Standards)	Using 3 Phase Reference Standard COM 3003 / SY-3102 By Direct / Comparison Method	0.02VAR to 4.8VAR	0.023 % / PF to (Related to Apparent Pow
26	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Power / Energy, 1 phase Active, Cos $\emptyset \pm 0.10$ to 1,50Hz , 40V to 320V, 100 A to 1000 A	Using 3 Phase Reference Standard COM 3003 / SY-3102 By Direct Method	400W to 960kW	0.15 % / PF to (Related to Apparent Pow
27	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Resistance, 1kHz (For calibration of Standard Resistors and LCR meters)	Using LCR Meter By Direct / Comparison Method	1 Ohm to 100 kOhm	400 ppm to 550 ppm
28	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	AC Voltage 10 V to 480 V (Calibration of Voltage Sources and meters)	Using 3 Phase Ref. Standard COM 3003/ SY- 3102 By Direct / Comparison Method	40 Hz to 60 Hz	110 ppm to 70 ppm



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29	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage 1mV to 22mV(For calibration of Voltage Sources and meters)	Using AC Std. Fluke 5790A, 8508A DMM , HP ,Agilent By Direct / Comparison Method	10 Hz to 20 kHz	1700 ppm to 126 ppm
30	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage 1mV to 22mV(For calibration of Voltage Sources and meters)	Using AC Std. Fluke 5790, 8508A DMM , HP ,Agilent By Direct/ Comparison Method	100 KHz to 1 MHz	0.3% to 1.4%
31	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage 1mV to 22mV(For calibration of Voltage Sources and meters)	Using AC Std. Fluke 5790, 8508A DMM , HP ,Agilent By Direct/ Comparison Method	20 kHz to 100 kHz	0.012% to 0.3%
32	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage 22 mV to 22 V (for calibration of Voltage sources and meters)	Using AC Std. Fluke 5790, 8508A DMM , HP ,Agilent By Direct / Comparison Method	10 Hz to 10 kHz	165 ppm to 33 ppm



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33	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage 22 mV to 22 V (For calibration of Voltage Sources and meters)	Using AC Std. Fluke 5790, 8508A DMM , HP ,Agilent By Direct / comparison Method	10 kHz to 1 MHz	28 ppm to 3300 ppm
34	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage 22 V to 220 V(For calibration of Voltage Sources and meters)	Using AC Std. Fluke 5790, 8508A DMM , HP ,Agilent By Direct/ Comparison Method	10 Hz to 100 KHz	28 ppm to 100 ppm
35	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage 220 V to 1000 V(For calibration of Voltage Sources and meters)	Using AC Std. Fluke 5790, 8508A DMM , HP ,Agilent by Direct /Comparison Method	10 Hz to 10 kHz	40 ppm to 85 ppm
36	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Capacitance , 1kHz (for calibration of std capacitors, LCR meter)	Using LCR Meter, By Direct/ Comparison Method	1 pF to 1000 pF	0.12% to 0.04%



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37	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Capacitance , 1kHz(For calibration of capacitors and LCR meters)	Using LCR Meter, by Direct / Comparison Method	1000 pF to 100 μF	0.04% to 0.38%
38	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	CT-VT Comparator (AITTS), VT Mode Ratio error & Phase error, 50Hz	Using Standard Capacitor/Voltage Transformer with Automatic Instrument transformer test set (AITTS) By Comparison Method	63.5V to 110V	RE:0.01% & PE:0.5Min.
39	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	CT-VT Comparator (AITTS),CT Mode Ratio error & Phase error, 50Hz	Using Precision current transformer, Automatic Instrument transformer test set (AITTS) By Comparison Method	1 A to 5 A	RE:0.012% & PE:0.54 Min.
40	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Current Transformer Primary Injection method, Ratio error & Phase error, 50Hz,1A, 5A(Secondary)	Using Precision current transformer, Automatic Instrument transformer test set (AITTS) and High Current Source By Direct Method	1% to 120% of Rated 1A to 5A	RE:0.12% to 0.46%; PE: 6.2 to 17min



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41	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	Current Transformer Primary Injection method, Ratio error & Phase error, 50Hz, 1A, 5A(Secondary)	Using Precision current transformer, Automatic Instrument transformer test set (AITTS) and High Current Source By Direct Method	1% to 120% of Rated 2000A to 3200 A	RE:0.056 % to 0.067%; PE: 3 to 5.64 min
42	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	Current Transformer Primary Injection method, Ratio error & Phase error at 50Hz, 1A & 5A (Secondary)	Using Precision current transformer, Automatic Instrument transformer test set (AITTS) and High Current Source	1% to 120% of Rated 5 A to 2000 A	RE : 0.03%, PE : 2.5 Min.
43	ELECTRO-TECHNICAL- Alternating Current (< 1 GHz) (Measure)	Harmonics in Current ,Fundamental Frequency 50 Hz 10 mA to 24 A (For calibrationof Harmonic analysers and generators)	Using 3 Phase Reference Standard COM 3003 / SY-3102 By Direct/ Comparison Method	1st order to 40th order	0.8%



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44	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Harmonics in Voltage ,Fundamental Frequency 50 Hz 40 V to 240 V (For calibrationof Harmonics analysers and generators)	Using 3 Phase reference Standard SY-3102 By Direct /Comparison Method	1 st order to 40 th order	0.4%
45	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Inductance , 1kHz (for calibration of Inductors and LCR meters)	Using LCR Meter By Direct / Comparison Method	100 µH to 1000µH	0.3% to 0.04%
46	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Inductance , 1kHz (For calibration of Inductors and LCR meters)	Using LCR Meter By Direct/ Comparison Method	1000 µH to 10 H	0.04% to 0.06%



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47	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Potential Transformer / Capacitor Voltage Transformer/Voltage Divider Primary Injection Method, Ratio error & Phase error, 50Hz, 110V/Root(3) Secondary (50V - 144V)	Using Standard Voltage Transformer 66kV with Automatic instrument transformer test set (AITTS),and High Voltage Source By Direct Method	120%to 80% of Rated 66 kV/Root(3) to 66 kV/Root(3)	RE:0.12% & PE:7 Min.
48	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Potential Transformer / Capacitor Voltage Transformer/Voltage Divider Primary Injection Method, Ratio error & Phase error, 50Hz, 63.5V/110V Secondary (50V - 144V)	Using EPD and Capacitor 33kV, Standard Voltage Transformer with Automatic instrument transformer test set (AITTS),and High Voltage Source By Direct Method	120% to 80% of Rated 3.3 kV/Root(3) to 33 kV/Root(3)	RE:0.07% & PE:3 Min.



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49	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Potential Transformer / Capacitor Voltage Transformer/Voltage Divider Primary Injection Method, Ratio error & Phase error, 50Hz, 63.5V/110V Secondary (50V - 144V)	Using Standard Voltage Transformer, EPD with capacitor 33kV with Automatic instrument transformer test set (AITTS),and High Voltage Source By Direct Method	120%to80% of Rated 110 V/Root(3) to 3.3 kV/Root(3)	RE:0.14% & PE:7 Min.
50	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Potential Transformer / Capacitor Voltage Transformer/Voltage Divider Primary Injection Method, Ratio error & Phase error, 50Hz, 63.5V/110V Secondary (50V - 144V)	Using Standard Voltage Transformer, EPD with capacitor 33kV with Automatic instrument transformer test set (AITTS),and High Voltage Source By Direct Method	120% to 80% of Rated 110 V to 3.3 kV	RE:0.14% & PE: 7Min.



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51	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Potential Transformer / Capacitor Voltage Transformer/Voltage Divider, Primary Injection Method, Ratio error & Phase error, 50Hz, 63.5V/110V Secondary (50V - 144V)	Using EPD and Capacitor 33kV, Standard Voltage Transformer with Automatic instrument transformer test set (AITTS),and High Voltage Source By Direct Method	120% to 80% of Rated 3.3 kV to 33 kV	RE:0.07% & PE:3Min.
52	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Power Factor 40 Hz to 70 Hz (For calibration of Phase shifters and PF meters)	Using 3 Phase Reference Standard COM 3003/SY3102 by Direct / Comparison Method	0.01 PF to 1 PF lead/lag	0.0005 PF
53	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Voltage Ratio	Using Fluke 8508A/Agilent/ HP By Direct Method	0.8 Turn to 2021 Turn	0.04% to 0.05%
54	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current 10 Hz to 10 kHz	Fluke 5720A MFC with Amplifier by Direct Method	10 µA to 20 A	0.11 % to 0.017 %



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55	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current 40 Hz to 70 Hz	Using Fluke 5720 /52120 Amplifier	1 mA to 100 A	0.045 % to 0.16 %
56	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current 50 Hz	MFC 9100 with Current Coil by Direct Method	120A to 1000 A	0.45 % to 0.45 %
57	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Power ,320V-600 V, 0.5A - 20 A, PF ± 0.1 to 1 1 phase	MFC Fluke 5080 A by Direct Method	16 W to 12 kW	0.16 % / PF to (Related to Apparent Pow
58	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 20 kHz to 1 MHz	Using MFC Fluke 5720A /9100/5080A By Direct Method	10 mV to 20 V	6500 ppm to 120 ppm
59	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 50 Hz to 1 kHz	Using MFC Fluke 5720A /9100/5080A By Direct Method	200 V to 1100 V	120 ppm to 65 ppm



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60	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 50 Hz to 20 KHz	Using MFC Fluke 5720A /9100/5080A By Direct Method	1 mV to 20 mV	4800 ppm to 300 ppm
61	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 50 Hz to 20 KHz	Using MFC Fluke 5720A /9100/5080A By Direct Method	20 mV to 200 mV	300 ppm to 120 ppm
62	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 50 Hz to 20 KHz	Using MFC Fluke 5720A /9100/5080A By Direct Method	200 mV to 200 V	120 ppm to 59 ppm
63	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance 1kHz	Using MFC 9100 by Direct Method	1000 pF to 100 µF	0.35 % to 0.7 %
64	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance 1kHz	Using MFC 9100 by Direct Method	500 pF to 1000 pF	0.35%



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65	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Inductance 1kHz	Using Decade Inductance box by Direct Method	100 µH to 1000 µH	0.3% to 0.04%
66	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Inductance 1kHz	Using Decade Inductance box by Direct Method	1000 µH to 10 H	0.04% to 0.06%
67	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Voltage Ratio	Amber make Ratio Standard by Direct Method	0.8 Turn to 2021 Turn	0.05% to 0.08%
68	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current	Using Fluke 8508A DMM , osaw Resistor Fluke 40B By Direct Method	20 A to 100 A	0.05% to 0.5%
69	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current (For calibration of Current Sources, Meters, Shunts)	Using Fluke 8508A DMM , Agilent, Shunt Fluke 40B by Direct / Comparison by V/R Method	100 µA to 100 mA	20 ppm to 30 ppm



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70	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current (For calibration of Current Sources, Shunts and meters)	Using Fluke 8508A DMM , Agilent, Shunt Fluke 40B By Direct / Comparison I/R Method	1µA to 100 µA	460 ppm to 20 ppm
71	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current (For calibration of Current Sources, Shunts and metrs)	Using Fluke 8508A DMM , Agilent, Shunt Fluke 40B By Direct / comparison & V/I Method	100 mA to 20 A	30 ppm to 50 ppm
72	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current (For calibration of Current Sources, Meters)	Using PA meter Keithley 6485 by Direct / comparison Method Method	0.05 nA to 1 µA	3 % to 0.25 %
73	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Power ,1.5 V-1000 V ,0.1 A to 20 A	Using Fluke 8508A/5080A, Yokogawa & 6 ½ DMM By Direct / Comparison Method	0.15 W to 20 kW	0.011% to 0.055%
74	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using Std. Resistance By Direct / VI Method	0.001 ohm to 1 ohm	0.02%



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75	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using Fluke 5720 A and 8508 A by V/I Method	0.1mohm to 1 mohm	0.032%
76	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using Fluke 8508A DMM , 5720 A By Direct / VI Method	1 MOhm to 100 MOhm	11 ppm to 160 ppm
77	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using Fluke 8508A DMM , 5720 A By Direct / VI Method	1 Ohm to 1 MOhm	19 ppm to 11 ppm
78	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using Fluke 8508A DMM , 5720 A By Direct / VI Method	100 MOhm to 20 GOhm	160 ppm to 1800 ppm
79	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using pA Meter/ Fluke 5080A Direct by V / I Method	20 GOhm to 10 TOhm	1 % to 2 %



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80	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage (for calibration of HV Sources and Probes)	Using HV Probe with DMM & Source by Direct / Comparison Method	1 kV to 30kV	2.5 %
81	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage (For calibration of Sources and meters)	Using Fluke 8508A DMM , HP ,Agilent by Direct/ Comparison Method	1 mV to 10 V	200 ppm to 4 ppm
82	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage (for calibration of Sources and meters)	Using Fluke 8508A DMM , HP ,Agilent by Direct/ Comparison Method	10 V to 1000 V	4 ppm to 8 ppm
83	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Fluke 5720A /5080A by Direct Method	1 µA to 100 µA	0.61 % to 0.02 %
84	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Fluke 5720A /52120A by Direct Method	100 µA to 20 A	200ppm



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85	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Fluke 5720A with Amplifier /9100/ 5080A/52120A & Current Coil by Direct Method	100 A to 1000 A	0.45 %
86	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using Fluke 5720A with Amplifier 52120A by Direct Method	20 A to 100 A	200 ppm to 360 ppm
87	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Power ,1.5 V-1000 V ,0.1 A to 20 A	Using Fluke MFC 5080A by Direct Method	0.15 W to 20 kW	0.011% to 0.055%
88	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Standard Resistance by Direct method	0.1mohm to 0.1mohm	0.012%
89	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Standard Resistance by Direct Method	1 mohm to 1 mohm	0.012%



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90	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Fluke 5720A/5080A / 9100 by Direct Method	1 MOhm to 100 MOhm	22 ppm to 120 ppm
91	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Fluke 5720A/5080A / 9100 by Direct Method	1 Ohm to 19 Ohm	125 ppm to 100 ppm
92	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Standard Resistance by Direct Method	10 mOhm to 10 mOhm	0.012%
93	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Standard Resistance by Direct Method	100 mOhm to 100 mOhm	0.012%
94	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using MFC 9100 by Direct Method	100 MOhm to 400 MOhm	65 ppm to 900 ppm



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95	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using Fluke 5720A/5080 / 9100 by Direct Method	19 Ohm to 1 MOhm	100 ppm to 22 ppm
96	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using MFC Fluke 5720A By Direct Method	1 mV to 100 mV	470 ppm to 11 ppm
97	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using MFC Fluke 5720A /9100/5080A By Direct Method	10 V to 1100 V	4.72 ppm to 9.7 ppm
98	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using MFC Fluke 5720A /9100/5080A By Direct Method	100 mV to 10 V	11 ppm to 4.72 ppm
99	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	Insulation Resistance	Using Fluke 5080A MEG with 10 kV divider by Direct Method	10 kOhm to 18 GOhm	0.2% to 1.5%



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100	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	Insulation Resistance up to 10kV	Using Fluke 5080A MEG with 10 kV divider by Direct Method	10 GOhm to 10 TOhm	1.5% to 2.5%
101	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	RF Power,10MHz-3 GHz,(-60 dBm to +13 dBm)	Using R&S Meter By Direct / Comparison Method	1 μW to 20 mW (-60 dBm to +13 dB)	0.51 dB to 0.86 dB
102	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	RF Voltage ,10MHz-3GHz	Using R&S RF Voltmeter URV 55 By Direct Method	7 mV to 1 V	4.1%
103	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF Power 10 MHz to 1 GHz (-60dBm to +13 dBm)	Using HP Signal Generator by Direct Method	1 μW to 20 mW (-60 dBm to +13 dB)	0.48dB
104	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF Voltage 10 MHz to 1 GHz	Using Leveled Sine Generator and 9100 MFC By Direct Method	7mV to 1 V	1 % to 4.1%



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105	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temp. Simulation Process Calibrator/Recorder /Controller B Type Thermocouple	Using Fluke 8508 A by Direct Method	(-) 600°C to 1800 °C	0.03 °C
106	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temp. Simulation Process Calibrator/Recorder /Controller C Type Thermocouple	Using Fluke 8508 A by Direct Method	(-)400°C to 2320 °C	0.06 °C
107	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temp. Simulation Process Calibrator/Recorder /Controller E Type Thermocouple	Using Fluke 8508 A by Direct Method	(-)250°C to 1000 °C	0.023 °C
108	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temp. Simulation Process Calibrator/Recorder /Controller J Type Thermocouple	Using Fluke 8508 A by Direct Method	(-)200°C to 1200 °C	0.018 °C
109	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temp. Simulation Process Calibrator/Recorder /Controller K Type Thermocouple	Using Fluke 8508 A by Direct Method	(-)200°C to 1370 °C	0.014 °C



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110	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temp. Simulation Process Calibrator/Recorder /Controller L Type Thermocouple	Using Fluke 8508 A by Direct Method	(-)200°C to 1300 °C	0.02 °C
111	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temp. Simulation Process Calibrator/Recorder /Controller N Type Thermocouple	Using Fluke 8508 A by Direct Method	(-)200°C to 1300 °C	0.028 °C
112	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temp. Simulation Process Calibrator/Recorder /Controller R Type Thermocouple	Using Fluke 8508 A by Direct Method	(-)50°C to 1770 °C	0.03 °C
113	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temp. Simulation Process Calibrator/Recorder /Controller RTD/PRT Type Thermocouple	Using Fluke 8508 A by Direct Method	(-)200°C to 850 °C	0.017 °C
114	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temp. Simulation Process Calibrator/Recorder /Controller S Type Thermocouple	Using Fluke 8508 A /Agilent by Direct / Simulation Method	(-)50°C to 1770 °C	0.03 °C



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115	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temp. Simulation Process Calibrator/Recorder /Controller T Type Thermocouple	Using Fluke 8508 A /Agilent by Direct / Simulation Method	(-)200°C to 400 °C	0.018 °C
116	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature Simulation(Recorder /Controller) B Type Thermocouple	Using Fluke 5720/5080A/9100 by Direct Method	(-) 600°C to 1800 °C	0.06 °C
117	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature Simulation(Recorder /Controller) C Type Thermocouple	Using Fluke 5720/5080A/9100by Direct Method	(-)400°C to 2320 °C	0.03 °C
118	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature Simulation(Recorder /Controller) E Type Thermocouple	Using Fluke 5720/5080A/9100 by Direct Method	(-) 250°C to 1000 °C	0.08 °C
119	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature Simulation(Recorder /Controller) J Type Thermocouple	Using Fluke 5720/5080A/9100 by Direct Method	(-) 200°C to 1200 °C	0.011 °C



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120	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature Simulation(Recorder /Controller) K Type Thermocouple	Using Fluke 5720/5080A/9100 by Direct Method	(-)-200°C to 1370 °C	0.013 °C
121	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature Simulation(Recorder /Controller) L Type Thermocouple	Using Fluke 5720/5080A/9100 by Direct Method	(-)-200°C to 1300 °C	0.011 °C
122	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature Simulation(Recorder /Controller) N Type Thermocouple	Using Fluke 5720/5080A/9100 by Direct Method	(-)-200°C to 1300 °C	0.02 °C
123	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature Simulation(Recorder /Controller) R Type Thermocouple	Using Fluke 5720/5080A/9100 by Direct Method	(-)-50°C to 1770 °C	0.07 °C
124	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature Simulation(Recorder /Controller) RTD/PRT	Using Fluke 5720/5080A/9100/ by Direct Method	(-)-200°C to 850 °C	0.009 °C



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125	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature Simulation(Recorder /Controller) S Type Thermocouple	Using Fluke 5720/5080A/9100 by Direct / Method	(-)50°C to 1770 °C	0.07 °C
126	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature Simulation(Recorder /Controller) T Type Thermocouple	Using Fluke 5720/9100 by Direct Method	(-)200°C to 400 °C	0.02°C
127	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency (For calibration of Freq Sources and meters)	Using 3 Phase reference Standard COM 3003/MTS by Direct/ Comparison Method	40 Hz to 70 Hz	0.025 %
128	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency/period	Using Fluke 8508A DMM , Agilent /Freq. Counter/ 9100 By Direct / Comparison Method	1 Hz (1sec) to 3 GHz (0.33 n sec)	4 .1 ppm to 0.1 ppm
129	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Time Interval	Using Frequency Counter CNT90 by Comparison method	10 nsec. to 100000 sec.	0.11ppm to 6.02ppm



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130	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency/Period	Using MFC 9100 and HP Signal Generator by Direct Method	1 Hz to 1 GHz(1sec to 1nsec)	30 ppm to 5 ppm
131	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Time Interval	MFC 9100 by Direct Method	10 nsec. to 100000 sec.	26ppm
132	FLUID FLOW-FLOW MEASURING DEVICES	Cumulative Mass of Fluid (Medium:Water)	Using Mass Flow Meter by Comparison Method	100 kg to 10000kg	0.068 % rdg
133	FLUID FLOW-FLOW MEASURING DEVICES	Mass flow rate(Medium:Water)	Using Mass Flow Meter by Comparison Method	0.1kg/min to 833 kg/min	0.07 % of rdg
134	FLUID FLOW-FLOW MEASURING DEVICES	Quantity of Volume(Medium:Water)	Using Mass,Volume Flow Meter by Comparison Method	0.1 m ³ to 10 m ³	0.08% rdg
135	FLUID FLOW-FLOW MEASURING DEVICES	Volume Flow Rate (Medium:Water)	Using Mass Flow Meter by Comparison Method	0.06 m ³ /h to 50 m ³ /h	0.09 % rdg



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136	FLUID FLOW-FLOW MEASURING DEVICES	Volume Flow Rate (Medium:Water)	Using Ultrasonic Flow meter by Comparison Method	1 m ³ /h to 70 m ³ /h	1 % rdg
137	FLUID FLOW-FLOW MEASURING DEVICES	Volume Flow Rate (Medium:Water)	Using UltraSonic Flow Meter by Comparison Method	70 m ³ /h to 2300 m ³ /h	1% of rdg
138	MECHANICAL-ACCELERATION AND SPEED	SPEED (Non-contact type) RPM indicators, Centrifuges	Using Tachometer	100 rpm to 6000 rpm	5 rpm
139	MECHANICAL-PRESSURE INDICATING DEVICES	Barometers	Using Precision Digital Gauges	300 mbar to 1200 mbar	0.052% of rdg
140	MECHANICAL-PRESSURE INDICATING DEVICES	Digital/Analog Pressure Gauges, Pressure Transmitters	Using Precision Digital Gauges By Comparison Method	0 bar to 700 bar	0.034% rdg
141	MECHANICAL-PRESSURE INDICATING DEVICES	Digital/Analog Pressure Gauges,Transmitters	Using Precision Digital Gauges	0 bar to 2 bar	0.082% rdg
142	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure Gauges, Absolute gauge	Using Precision Digital Gauge	0 bar to 2 bar Abs	0.069% rdg



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143	MECHANICAL-PRESSURE INDICATING DEVICES	Vacuum Gauges, Transducers, Transmitter	Using Precision Digital Gauges	(-) 0.93 bar to 0 bar	0.07% rdg
144	MECHANICAL-WEIGHING SCALE AND BALANCE	Balance (Class I - Class IV), Readability: 0.01 mg	Using Standard Weights E1/E2 /F1/F2/M1	Up to 220 g	0.13mg
145	MECHANICAL-WEIGHING SCALE AND BALANCE	Balance (Class I - Class IV), Readability: 10mg	Using Standard Weights E1/E2 /F1/F2/M1	Up to 38 kg	0.71 g
146	MECHANICAL-WEIGHING SCALE AND BALANCE	Balance (Class I - Class IV), Readability: 1g	Using Standard Weights E1/E2 /F1/F2/M1	Upto 100kg	2.4 g
147	MECHANICAL-WEIGHING SCALE AND BALANCE	Balance (Class I - Class IV), Readability: 1mg	Using Standard Weights E1/E2 /F1/F2/M1	Up to 8 kg	0.01 g
148	THERMAL-SPECIFIC HEAT & HUMIDITY	Humidity Sensor With Indicator/Controller, Thermo Hygrometer	Using Standard Humidity Indicator with sensor and humidity Chamber / Generator By Comparison Method	20 % RH to 90 % RH @ 25°C	0.8% RH



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149	THERMAL-SPECIFIC HEAT & HUMIDITY	Humidity Sensor With Indicator/Controller, Thermo Hygrometer	Using Standard PRT PT-100 sensor with Indicator Chamber / Generator By Comparison Method	20 °C to 50 °C @50%RH	0.45 °C
150	THERMAL-TEMPERATURE	Indicator of bath / furnace	Using S type Thermocouple with Indicator by comparison method at single specified location	1200 °C to 1600 °C	4.6 °C
151	THERMAL-TEMPERATURE	Indicator of deepfreeze/bath/oven.	Using SSPRT with Indicator, DMM, by Comparison Method	(-) 80 °C to 200 °C	0.14 °C
152	THERMAL-TEMPERATURE	Oven, Furnace, Temp.Bath/Deep Freezer (Thermal Mapping)	Using Multi Channel Data Logger with RTD & N Type Thermocouple (minimum nine locations) by mapping method.	(-)35°C to 400 °C	0.7 °C
153	THERMAL-TEMPERATURE	Oven, Furnace, Temp.Bath/Deep Freezer (Thermal Mapping)	Using Multi Channel Data Logger with RTD & N Type Thermocouple (minimum nine locations) by mapping method.	400°C to 1200 °C	3.0 °C



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154	THERMAL-TEMPERATURE	Pyrometer, Black Body Source ,IR Thermometer.	Using Std. Non Contact Pyrometer & Black body Source(Emissivity:0.95) By Comparison Method	50 °C to 500 °C	2.86 °C
155	THERMAL-TEMPERATURE	Pyrometer, Black Body Source, IR Thermometer	Using Std. Non Contact Pyrometer & Black body Source(Emissivity:0.95) By Comparison Method	500 °C to 1200 °C	3.9 °C
156	THERMAL-TEMPERATURE	RTD sensor /Thermocouple with OR without Indicator, Analog Temp Gauge Indicator of bath/oven.	Using Liquid Bath, Dry Block Calibrator SSPRT with Indicator, DMM, by Comparison Method	200°C to 650 °C	0.13°C
157	THERMAL-TEMPERATURE	RTD, Thermocouple Sensors with or without Indicator, Analog Temp Gauge,Indicator of temperature oven/bath/furnace.	Using S Type Thermocouple with Indicator, DMM, Dry block calibrator by comparison method.	500 °C to 1000 °C	1.91 °C



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158	THERMAL-TEMPERATURE	Thermocouple Sensors with or without Indicator, Analog Temp Gauge,Indicator of temperature bath/furnace	Using S Type Thermocouple with Indicator / DMM , Dry block calibrator by comparison method.	1000 °C to 1200 °C	2.04 °C

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