National Accreditation Board for Testing and Calibration Laboratories

(A Constituent Board of Quality Council of India)

NABL / C-0018 20.01.2022

Abhijit Dasgupta
ELECTRONICS REGIONAL TEST LABORATORY (EAST)
BLOCK: DN,SECTOR-V, SALT LAKE CITY
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Subject: **Renewal of accreditation**

Dear Sir,

NABL pleased to inform you the renewal of accreditationin accordance with ISO/IEC 17025: 2017 for the disciplines of Electro-technical,Mechanical, Optical and Thermal (*except and **including as mentioned below) calibrationas per the scope recommended by assessment team. However, the laboratory isrequired to address the following within 10 days:

- Mention the readout device where transmitter is used inPressure scope.
- Mention the range of Power and Energy inElectrotechnical scope.
- Segregate the range -80Â°C to 250Â°C based on the type ofbath used (Liquid Bath/Dry Block) in SL. No. 161 of Thermal scope.
- Review the DUCfor temperature range 250Â°C to 550Â°C at SL No. 159 in Thermal scope.
- Segregate the range for Inductance and Capacitance inElectro-technical scope.
- Review the Emissivity of Black body source in Thermalscope
- Review the master used for IR Thermometer calibrationrange 600Â°C to 1200Â°C in Thermal scope.

**NABL decided to include the revised range related topressure scope as per available Metrological Traceability. (Ref NC No. 9)

- Range 0 to 40 bar with CMC 0.021 bar.
- Range 0 to -0.9 bar with CMC 0.0042 bar

*Lab to submit the Â segregating Â range 50Â°C to 1200Â°C based on the referencestandard and bath used at SL No. 156 of Thermal scope. All personnel proposedby the laboratory to report, review and authorize the results are accepted.

All personnel proposed by the laboratory to report,review and authorize the results is accepted.

The accreditation certificate no.CC- 2008 with issue dates21/01/2022 and valid till 20/01/2024 Certificate is under preparation stage andcertificate will be issued to you as soon as possible.

You shall refer & follow NABL133 for using of NABLSymbol. You must fulfill all the terms and conditions as mentioned in NABL131.You are required to satisfactorily compliance to NABL requirements formaintaining accreditation.

You have to submit the desktop surveillance applicationfor continuation of accreditation two months prior to the expiry of firs yearof accreditation . Treat this letter as reminder for desktop surveillance ofaccreditation

Yours Sincerely,
Abhinav Thakur
abhinav@nabl.qcin.org

National Accreditation Board for Testing and Calibration Laboratories

CERTIFICATE OF ACCREDITATION

ELECTRONICS REGIONAL TEST LABORATORY (EAST)

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

BLOCK: DN,SECTOR-V, SALT LAKE CITY, KOLKATA, WEST BENGAL, INDIA

in the field of

CALIBRATION

Certificate Number: CC-2008

Issue Date: 21/01/2019 **Valid Until:** 20/01/2021*

***The validity is extended for one year up to 20.01.2022**

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 : ELECTRONICS REGIONAL TEST LABORATORY (EAST)

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 : ELECTRONICS REGIONAL TEST LABORATORY (EAST), BLOCK: DN, SECTOR-V, SALT LAKE CITY, KOLKATA, WEST BENGAL, 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)(±)
Permanent Facility					
1	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current at 10 Hz – 5 kHz	Using DMM 8508A, AC/DC Standard Resistance, Fluke 5790A, Zera COM 3003 by Direct/Comparison Method	1 A to 20 A	0.016 % to 0.035 %
2	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current at 10 Hz – 5 kHz	Using DMM 8508A, AC/DC Standard Resistance, Fluke 5790A Zera COM 3003 by Direct/Comparison Method	10 µA to 1 A	0.05% to 0.016%
3	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current at 50 Hz	Using Zera COM-3003 by Direct Method	0.01 A to 120 A	0.013%
4	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC High Voltage at 50 Hz	Using DMM & 80K40 HV Probe By Direct/ Comparison Method	>1 kV to 28 kV	6%

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5	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Power & Energy 1Ph & 3Ph (50Hz) (active and reactive) (0.03W-86.4kW)\ (0.03VAR to 86.4kVAR) , UPF – 0.5 PF (lead & Lag)	Using Three Phase Comparator, Make: Zera, Model: COM 3003 By Direct / Comparison Method	60 V to 240V ,10 mA to 120A to UPF to 0.5 (lead & lag)	0.012% to 0.023%
6	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Resistance at 1kHz	Using Digibridge 1689, Quadtech, USA By Direct/ Comparison Method	1 Ohm to 100 Kilo Ohm	0.3 to 0.1%
7	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage at 10 Hz –40 Hz	Using IVD, FLK 8508A, TVC HOLT, AC Meas Std FLK5790A By Direct/ Comparison Method	1 mV to 1000 V	0.5% to 0.025%
8	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage at 100kHz-1MHz	Using IVD, FLK 8508A, TVC HOLT, AC Meas Std FLK5790A By Direct/ Comparison Method	1 mV to 1 V	1.34% to 0.1%

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9	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage at 10kHz-100kHz	Using IVD, FLK 8508A, TVC HOLT, AC Meas Std FLK5790A By Direct/ Comparison Method	1 V to 100 V	0.014% to 0.016%
10	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage at 10kHz-100kHz	Using IVD, FLK 8508A, TVC HOLT, AC Meas Std FLK5790A By Direct/ Comparison Method	1 mV to 1 V	0.43% to 0.014 %
11	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage at 40Hz – 10kHz	Using IVD, FLK 8508A, TVC HOLT, AC Meas Std FLK5790A By Direct/ Comparison Method	1 mV to 1000 V	0.5% to 0.012 %
12	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage 10Hz – 40Hz	Using Calibrator Wavetek4808 & IVD FLK 5790A HOLT TVC by Direct/Comparison Method	1 mV to 1000 V	0.5% to 0.025%

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13	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Capacitance at 1 kHz	Using Capacitance Measuring Assembly GR 1620 AP, Digibridge 1689, Quadtech USA Direct/Comparison	1 pF to 1.0 mF	0.04 % to 1.2%
14	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Capacitance at 1 kHz	Using Capacitance Measuring Assembly GR 1620 AP, Digibridge 1689, Quadtech USA Direct/Comparison	1.0 mF to 10 mF	1.2% to 0.3 %
15	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	High Frequency AC Voltage 100MHz -1 GHz	Using URV-5 R&S by Direct/Comparison Method	10 mV to 7 V	3.5%
16	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	High Frequency AC Voltage 1 MHz -100 MHz	Using URV-5 R&S by Direct/Comparison Method	10 mV to 10 V	3.3%

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17	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Inductance at 1 kHz	Using Digibridge 1689, Quadtech, USA STD "L",GR1482 Series by Direct/Comparison Method	100 µH to 10 H	0.2 % to 0.06 %
18	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Power Factor/Phase Angle 50Hz At 240V ,5A	Using Three Phase Comparator, Make: Zera, Model: COM 3003 by Direct/comparison Method	+/- 0.1 – 1.0 (lag & lead) to 0°to 180° (Lead & Lag)	0.01%
19	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current 10 Hz - 5 KHz	Using Calibrator FLK-5520A,5080A, Wavetek 4808, 8508A, FLK 5790 & Shunt by Direct/ Comparison Method	1 A to 20 A	0.05% to 0.035 %
20	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current 10 Hz - 5 KHz	Using Calibrator FLK-5520A,5080A, Wavetek 4808, 8508A, FLK 5790 & Shunt by Direct/ Comparison Method	10 µA to 1 A	0.08% to 0.05 %

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21	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current At 50Hz	Using Zera COM3003 by Direct Method	10 mA to 100 A	0.013%
22	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current by using current coil At 50 Hz	Using Calibrator and Current Coil By Direct Method	20 A to 1000 A	0.55 %
23	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Power & Energy 1Ph & 3Ph (50Hz) (active and reactive) (0.03W-86.4kW)\ (0.03VAR to 86.4kVAR) , UPF – 0.5 PF (lead & Lag)	Using Three Phase Comparator, Make: Zera, Model: COM 3003 By Direct / Comparison Method	60 V to 240V ,10 mA to 120A to UPF to 0.5 (lead & lag)	0.012% to 0.023%
24	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Resistance at 1 kHz	Using Tinsley 5685A & 5685B by Direct / Comparison Method	1 Ohm to 10 Kilo Ohm	0.007%
25	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 10 Hz – 45 Hz	Using Calibrator Wavetek4808 & IVD FLK 5790A HOLT TVC by Direct/Comparison Method	1 mV to 1000 V	0.7% to 0.025%

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26	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 10 kHz – 50 kHz	Using Calibrator Wavetek4808 & IVD FLK 5790A HOLT TVC by Direct/Comparison Method	1 mV to 1 V	0.2% to 0.014%
27	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 10kHz-50kHz	Using Calibrator Wavetek4808 & IVD FLK 5790A HOLT TVC by Direct/Comparison Method	1 V to 100 V	0.014% to 0.02%
28	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 45Hz – 10kHz	Using Calibrator Wavetek4808 & IVD FLK 5790A HOLT TVC by Direct/Comparison Method	1 mV to 100 V	0.4% to 0.008 %
29	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 45Hz – 10kHz	Using Calibrator Wavetek4808 & IVD FLK 5790A HOLT TVC by Direct/Comparison Method	100 V to 1000 V	0.008% to 0.02%

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30	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 50kHz -1MHz	Using Calibrator Wavetek 4808 & IVD FLK 5790A HOLT TVC by Direct/Comparison Method	1 mV to 100 mV	0.05 % to 1.2 %
31	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 50kHz -1MHz	Using Calibrator Wavetek4808 & IVD FLK 5790A HOLT TVC by Direct/Comparison Method	100 mV to 10 V	0.25 % to 0.12 %
32	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance 1 kHz	Using STD “C”, GR 1404 Series & 1409 Series By Direct / Comparison Method	1.0 mF to 10 mF	0.05% to 0.38 %
33	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance 1 kHz	Using STD “C”, GR 1404 Series & 1409 Series By Direct / Comparison Method	10 pF to 1000 pF	0.003% to 0.015%
34	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance 1 kHz	Using STD “C”, GR 1404 Series & 1409 Series By Direct / Comparison Method	1000 pF to 1 mF	0.015% to 0.05 %

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35	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance 1 kHz – 1 MHz	Using HP 16380A Series By Direct /Comparison Method	1 pF to 1000 pF	0.12 % to 0.3 %
36	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	High Frequency AC Voltage 1 MHz -1 GHz	Using Calibrator Wavetek 4808, RF Voltmeter with Insertion Unit, Signal Generator & RF Amplr., AR100W 1000MHz, RF Attenuator by Direct / Comparison Method	10 mV to 7 V	3.5%
37	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Inductance 1 kHz	Using STD “L”, GR 1482 Series By Direct / Comparison Method	100 mH to 10 H	0.03% to 0.09%
38	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Inductance 1 kHz	Using STD “L”, GR 1482 Series By Direct / Comparison Method	100 µH to 100 mH	0.1% to 0.03%

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39	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current :	Using Current Shunt & Standard Resistance, Agilent Current Source 875A& FLK DMM 8508A by Direct/Comparison Method	1 mA to 20 A	0.002% to 0.005 %
40	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current :	Using Current Shunt & Standard Resistance, Agilent Current Source 875A& FLK DMM 8508A by Direct/Comparison Method	10 µA to 1 mA	0.006% to 0.002 %
41	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current : 20A - 850A	Using Current Shunt & Standard Resistance, Agilent Current Source 875A& FLK DMM 8508A by Direct/Comparison Method	20 A to 850 A	0.005% to 0.05 %
42	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC High Voltage :	Using 80K40 HV probe by Direct/Comparison method	>1 kV to 40 kV	2.5 %

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43	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance :	Using DMM FLK8508A, Standard Resistance Set, High Resistance Meter Agilent 4339 by Direct/Comparison Method	0.0001 Ohm to 0.001 Ohm	0.03% to 0.004 %
44	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance :	Using DMM FLK8508A, Standard Resistance Set, High Resistance Meter Agilent 4339 by Direct/Comparison Method	0.001 Ohm to 1 Mega Ohm	0.004% to 0.001 %
45	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance :	Using DMM FLK8508A, Standard Resistance Set, High Resistance Meter Agilent 4339 by Direct/Comparison Method	1 Mega Ohm to 20 Giga Ohm	0.001% to 0.20 %
46	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance :	Using DMM FLK8508A, Standard Resistance Set, High Resistance Meter Agilent 4339 by Direct/Comparison Method	20 Giga Ohm to 1 Tera Ohm	0.2% to 2.5 %

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47	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage :	Using DC Reference Standard 7004 , Null Detector , Kelvin Verley Divider, FLK Multimeter 8508A by Direct/ Comparison method	1 mV to 10 V	0.014% to 0.0004 %
48	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage :	Using DC Reference Standard 7004 , Null Detector , Kelvin Verley Divider, FLK Multimeter 8508A by Direct/ Comparison method	10 V to 1000 V	0.0004% to 0.0005 %
49	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage :	Using DC Reference Standard 7004 , Null Detector , Kelvin Verley Divider, FLK Multimeter 8508A by Direct/ Comparison method	10 µV to 1 mV	2% to 0.014 %
50	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using FLK 5520A, 5080A, Wavetek 4808, STD"R", DMM-FLK8508A, Agilent 6680A, STD Shunt, By Direct / Comparison Method	1 A to 20 A	0.005% to 0.009%

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51	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using FLK 5520A, 5080A, Wavetek 4808, STD"R", DMM-FLK8508A, Agilent 6680A, STD Shunt, By Direct / Comparison Method	10 µA to 1 A	0.01% to 0.005 %
52	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current : 20 A - 850A	Using Calibrator With Current Coil By Direct Method	20 A to 850 A	0.009 % to 0.06%
53	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current with Current Coil	Using Calibrator With Current Coil By Direct Method	20 A to 1000 A	0.53%
54	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using STD “R”, L&N, Tinsley DMM FLK 8508A, Agilent High Resistance Meter By Direct / Comparison Method	0.0001 Ohm to 100 Kilo Ohm	0.04% to 0.001 %
55	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using STD “R”, L&N, Tinsley DMM FLK 8508A, Agilent High Resistance Meter By Direct / Comparison Method	10 Mega Ohm to 1 Tera Ohm	0.003% to 2%

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56	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using STD “R”, L&N, Tinsley DMM FLK 8508A, Agilent High Resistance Meter By Direct / Comparison Method	100 Kilo Ohm to 10 Mega Ohm	0.001% to 0.003%
57	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Wavetek 4808, DMM-FLK 8508A, DC Voltage Ref STD 7004N, FLK DC Cal System-Null Detector FLK 845AR, Kelvin Verley Divider FLK 720A By Direct / Comparison Method	10 µV to 10 V	2 % to 0.0003 %
58	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Wavetek 4808, DMM-FLK 8508A, DC Voltage Ref STD 7004N, FLK DC Cal System-Null Detector FLK 845AR, Kelvin Verley Divider FLK 720A By Direct / Comparison Method	10 V to 1000 V	0.0003% to 0.0004%

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59	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	Attenuation 50MHz–1GHz	Using RF Level Meter, URV-5,R & S (for Variable Attenuator Calibration, 1dB – 60dB) by Direct/Comparison Method	1 dB to 10 dB	0.15dB
60	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	Attenuation 50MHz–1GHz	Using RF Level Meter, URV-5,R & S (for Variable Attenuator Calibration, 1dB – 60dB) by Direct/Comparison Method	10 dB to 60 dB	0.17dB
61	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	RF Power 50MHz – 2GHz	Using RF mV Meter – URV-5, R&S Power Sensors, RF Attenuator , RF Amplifier By Direct/ Comparison Method	1 mW to 40 mW	4%
62	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	RF Power 50MHz – 2GHz	Using RF mV Meter – URV-5, R&S Power Sensors, RF Attenuator , RF Amplifier By Direct/ Comparison Method	1 nW to 1 mW	6%

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63	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	RF Power 50MHz to 1GHz	Using RF mV Meter – URV-5, R&S Power Sensors, RF Attenuator , RF Amplifier By Direct/ Comparison Method	40 mW to 90 W	4%
64	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	VSWR : 50MHz-2GHz	Using SWR Bridge R & S, ZRB2 , RF Level Meter, URV-5, By Return Loss Method	1.05 to 3	0.15 to 0.3 in VSWR
65	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	Attenuation 50MHz - 1GHz	Using R & S RF Milli Voltmeter URV-5 ,Level Meter with Sensor, HP Power Meter, RF Step Attenuator, RSP By Power Ratio Method	1 dB to 10 dB	0.2 dB
66	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	Attenuation 50MHz - 1GHz	Using R & S RF Milli Voltmeter URV-5 ,Level Meter with Sensor, HP Power Meter, RF Step Attenuator, RSP By Power Ratio Method	10 dB to 60 dB	0.2dB

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67	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF Power 30MHz-2GHz	Using RF mV Meter R & S, RF Attenuator, Amplifier Research RF Amplifier 100W1000B & Signal Gen by Direct / Comparison Method	1 mW to 40 mW	4%
68	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF Power 30MHz-2GHz	Using RF mV Meter R & S, RF Attenuator, Amplifier Research RF Amplifier 100W1000B & Signal Gen by Direct / Comparison Method	1 nW to 1 mW	6%
69	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF Power 50MHz–1GHz	Using RF mV Meter R & S, RF Attenuator, Amplifier Research RF Amplifier 100W1000B & Signal Gen by Direct / Comparison Method	40 mW to 90 W	4%

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70	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency	Using frequency Counter Pendulum CNT90 by Direct / Comparison Method	10 Hz to 100 kHz	5X10-4 to 5X10-6
71	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency	Using frequency Counter Pendulum CNT90 by Direct / Comparison Method	100 kHz to 6 GHz	5X10-8
72	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Time Interval / Time Period	Using Freq. Counter Pendulam CNT-90 by Direct/Comparison Method	20 nsec to 2000 sec	0.0002%
73	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency	Using Pendulam CNT-90, Func Gen Agilent 33250A, Signal Generator, Keysight, E8257D by Direct / Comparison Method	10 Hz to 100 kHz	5X10-4 to 5X10-6
74	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency	Using Pendulam CNT-90, Func Gen Agilent 33250A, Signal Generator, Keysight, E8257D by Direct / Comparison Method	100 kHz to 6 GHz	5X10-8

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75	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Time Interval/Time Period	Using Agilent Func. Gen. Freq. Counter Pendulam CNT-90 by Direct / Comparison Method	20 nsec to 2000 sec	0.0002%
76	MECHANICAL-ACCELERATION AND SPEED	Rotational Speed Calibration of Tachometer Contact Type	Using Precision Tachometer & Using RPM Generator By Comparison method	100 rpm to 6000 rpm	0.26% of reading
77	MECHANICAL-ACOUSTICS	Sound Pressure Level: Sound Level Calibrator and Sound Level Meter @1kHz	Using Precision Integrating Sound Level Meter, 2230 of B &K Using Sound Level Calibrator 4231 of B & K	94 & 114 dB(A)	0.34 dB
78	MECHANICAL-DENSITY AND VISCOSITY	Calibration of Hydrometers	Using Liquid with Different Densities & Standard Hydrometer As per IS 3104	0.6000 g/ml to 1.2000 g/ml	0.0008 g/ml
79	MECHANICAL-DENSITY AND VISCOSITY	Viscometer Constant	Using Certified Viscosity Ref. Standard & Temp. Bath As per ASTM 445, 446 & ISO 3105	0.0008 cSt/s to 0.5 cSt/s	0.23 %

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80	MECHANICAL-DENSITY AND VISCOSITY	Viscometer Constant	Using Certified Viscosity Ref. Standard & Temp. Bath As per ASTM 445, 446 & ISO 3105	0.5 cSt/s to 20 cSt/s	0.50 %
81	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Bevel Protractor L.C.: 5 min	Using Angle Gauge Set By comparison method	0 to 360 °	1 Min
82	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Bore Gauge L.C.: 0.01 mm	Using Dial Calibration Tester By Comparison Method	0 to 2 mm	6.3µm
83	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Depth Micrometer L.C.: 0.01 mm	Using Gauge Block Set/ Surface Plate By Comparison Method	0 to 300 mm	10µm
84	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Thickness Gauge L.C.: 0.01 mm	Using Gauge Block Set By comparison method	0 to 10 mm	6.0µm

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85	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External Micrometer Resolution 0.001 mm	Using Slip Gauge Block Set/Long Gauge Block Set By Comparison Method	0 to 25 mm	1.8µm
86	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External Micrometer Resolution 0.001 mm	Using Slip Gauge Block Set/Long Gauge Block Set By Comparison Method	100 mm to 150 mm	3.0µm
87	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External Micrometer Resolution 0.001 mm	Using Slip Gauge Block Set/Long Gauge Block Set By Comparison Method	150 mm to 300 mm	5.0µm
88	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External Micrometer Resolution 0.001 mm	Using Slip Gauge Block Set/Long Gauge Block Set By Comparison Method	25 mm to 50 mm	2.0µm

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89	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External Micrometer Resolution 0.001 mm	Using Slip Gauge Block Set/Long Gauge Block Set By Comparison Method	300 mm to 400 mm	6.0µm
90	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External Micrometer Resolution 0.001 mm	Using Slip Gauge Block Set/Long Gauge Block Set By Comparison Method	50 mm to 75 mm	2.5µm
91	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External Micrometer Resolution 0.001 mm	Using Slip Gauge Block Set/Long Gauge Block Set By Comparison Method	75 mm to 100 mm	2.8µm
92	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Feeler Gauge	Using Electronic comparator with stand By comparison method	0 to 1 mm	2.8µm

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93	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Height Gauge : Dial / Digital / Analog Resolution 0.01 mm	Using Long Gauge Block Set/Surface Plate By comparison method	0 to 1000 mm	15µm
94	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Internal Micrometer Resolution 0.001 mm	Using Gauge Block Set/ Gauge Block Accessories, Long Gauge Block Set By Comparison Method	50 mm to 500 mm	6.1µm
95	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Lever Dial Resolution 0.01 mm	Using Dial Calibration Tester By comparison method	0 to 2 mm	3µm
96	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Measuring Scale Resolution 1 mm	Using Scale & Tape Calibrator By comparison method	0 to 2000 mm	220 sqrt of (L) µm, where L in m

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97	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Measuring Tape Resolution 1 mm	Using Scale & Tape Calibrator By comparison method	0 to 10 m	220 sqrt of (L) µm ,where L in m
98	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Micrometer Setting Standard / Length Bar	Using Long Gauge Block Set/Electronic Probe with DRO By Comparison Method	25 mm to 600 mm	8.0µm
99	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Pie Tape	Using Scale & Tape Calibrator By comparison method	0 to 1200 mm	220 sqrt of (L) µm, where L in m
100	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Plain Plug Gauge	Using Gauge Block Set/ Electronic Comparator By comparison method	Up to 100 mm	3.0µm

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101	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Plunger Dial Resolution 0.01 mm	Using Dial Calibration Tester By Comparison method	0 to 25 mm	8.3µm
102	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Profile Projector L.C.: 1’	Using Gauge Block Set/Angle Gauge By Comparison Method	0 to 360 º	54 Sec
103	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Profile Projector Resolution 0.001 mm	Using Gauge Block Set/Angle Gauge By Comparison Method	0 to 100 mm	6.6µm
104	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Radius Gauge set	Using Profile Projector By comparison method	R.4 mm to R25 mm	6.0µm

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105	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Sine Bar	Using Gauge Block Set/Angle Gauge, Dial Gauge By Comparison Method	Up to 500 mm	3.0 arc Sec
106	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Spirit Level Sensitivity 0.01 mm/m	Using Sine Bar & Gauge Block Set With fixture By comparison method	0 ± 0.100 mm	5.0 µm/m
107	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Test Seives	Using Profile Projector By comparison method	0.032 mm to 0.075 mm	2.0µm
108	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Test Seives	Using Profile Projector By comparison method	0.075 mm to 25 mm	6.0µm

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109	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Vernier Caliper : Dial/Digital/Analog L.C.: 0.01 mm L.C.: 0.01 mm	Using Gauge Block Set/Accessory Set By Comparison Method	0 to 300 mm	13.5µm
110	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Vernier Caliper :Dial/Digital/Analog L.C.: 0.01 mm L.C.: 0.01 mm	Using Gauge Block Set/Accessory Set By Comparison Method	300 mm to 1000 mm	25.0µm
111	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Wire Gauge	Using Profile Projector By comparison method	Up to 10 mm	6.0µm
112	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Gauge Block	Using Gauge Block Calibration Tester & Gauge Block Set K Grade By comparison Method	10 mm to 25 mm	0.30µm
113	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Gauge Block	Using Gauge Block Calibration Tester & Gauge Block Set K Grade By comparison Method	25 mm to 50 mm	0.45µm

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114	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Gauge Block	Using Gauge Block Calibration Tester & Gauge Block Set K Grade By comparison Method	50 mm to 100 mm	0.60µm
115	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	Gauge Block	Using Gauge Block Calibration Tester & Gauge Block Set K Grade By comparison Method	Up to 10 mm	0.25µm
116	MECHANICAL-PRESSURE BALANCE OR DEAD WEIGHT TESTER	Pressure (Pneumatic) Calibration of Precision Calibrator	Using Low Pressure Dead Weight Tester & Digital Pressure Calibrator as per DKD R-6-1	0.2 bar to 10 bar	0.003 bar
117	MECHANICAL-PRESSURE BALANCE OR DEAD WEIGHT TESTER	Pressure (Vacuum) Calibration of Pressure Gauges , Pressure Transmitter	Using Low pressure Dead Weight Tester & Digital Pressure Calibrator as per DKD R-6-1	0 to (-)980 mbar(g)	0.0007bar
118	MECHANICAL-PRESSURE INDICATING DEVICES	Precision Gauges, Precision Transmitter	Using Digital Pressure Calibrator as per DKD R-6-1	0 to 20 bar	0.013 bar

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119	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure (Absolute) Calibration of Absolute Gauges, Barometer, Absolute Pressure Transmitters	Using Digital Pressure Calibrator as per DKD R-6-1	1000 mbar(a) to 2600 mbar (a)	0.05 % of reading
120	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure (Absolute) Calibration of Absolute Gauges, Barometer, Absolute Pressure Transmitters	Using Digital Pressure Calibrator as per DKD R-6-1	30 mbar(a) to 1000 mbar(a)	0.07% of reading
121	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure (Hydraulic) Calibration of Precision Pressure Gauges, Pressure Transmitters	Using Digital Pressure Calibrator as per DKD R-6-1	0 to 700 bar	0.16 bar
122	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure (Vacuum) Calibration of Pressure Gauges , Pressure Transmitter	Using Low pressure Dead Weight Tester & Digital Pressure Calibrator as per DKD R-6-1	0 to (-) 980 mbar (g)	0.0007 bar
123	MECHANICAL-TORQUE MEASURING DEVICES	Torque Wrench / Screw Drivers : Type 1,Class A,B,C,D,E & Type II ,Class A,B,D,E	Using Torque Tranducer & Digital Indicator As per IS/ISO 6789	101 Nm to 1000 Nm	0.85% of reading

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124	MECHANICAL-TORQUE MEASURING DEVICES	Torque Wrench / Screw Drivers : Type 1,Class A,B,C,D,E & Type II ,Class A,B,D,E	Using Torque Tranducer & Digital Indicator As per IS/ISO 6789	11 Nm to 100 Nm	1.70 % of reading
125	MECHANICAL-TORQUE MEASURING DEVICES	Torque Wrench/Screw Drivers Type 1,Class A,B,C,D,E & Type II ,Class A,B,D,E	Using Torque Tranducer & Digital Indicator As per IS/ISO 6789	0 to 10 Nm	1.75% of reading
126	MECHANICAL-VOLUME	Measuring Cylinder & Flask	Using Standard Weights of Class E2, Precision Balance (d=0.01 mg) & Distilled water of known density as per ISO 8655-6 & ISO 4787	0.1 ml to 100 ml	0.02 ml
127	MECHANICAL-VOLUME	Measuring Cylinder & Flask	Using Standard Weights of Class E2, Precision Balance (d= 0.01 mg) & Distilled water of known density as per ISO 8655-6 & ISO 4787	0.1 ml to 25 ml	0.01 ml

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128	MECHANICAL-VOLUME	Measuring Cylinder & Flask	Using Standard Weights of Class E2, Precision Balance (d=1.0 mg) & Distilled water of known density as per ISO 8655-6 & ISO 4787	100 ml to 1000 ml	0.03 ml
129	MECHANICAL-VOLUME	Micro-pipette	Using Standard Weights of Class E2, Precision Balance (d= 0.01 mg) & Distilled water of known density as per ISO 8655-6 & ISO 4787	10 µl to 1000 µl	1.66 µl
130	MECHANICAL-VOLUME	Pipette / Burette	Using Standard Weights of Class E2, Precision Balance (d= 0.01 mg) & Distilled water of known density as per ISO 8655-6 & ISO 4787	1 ml to 50 ml	10.0 µl

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131	MECHANICAL-WEIGHTS	Calibration of Weights of Class F1 and coarser	Using Weights of Accuracy Class E2 and Electronic Balance with readability d=1 mg As per OIML R-14-1 (2004)	1 kg	1.0 mg
132	MECHANICAL-WEIGHTS	Calibration of Weights of Class F1 and coarser	Using Weights of Accuracy Class E2 and Electronic Balance with readability d=0.01 mg As per OIML R-14-1 (2004)	100 g	0.06 mg
133	MECHANICAL-WEIGHTS	Calibration of Weights of Class F1 and coarser	Using Weights of Accuracy Class E2 and Electronic Balance with readability d=0.01 mg As per OIML R-14-1 (2004)	1 g	0.03 mg
134	MECHANICAL-WEIGHTS	Calibration of Weights of Class F1 and coarser	Using Weights of Accuracy Class E2 and Electronic Balance with readability d=1 mg As per OIML R-14-1 (2004)	2 kg	5.8 mg

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135	MECHANICAL-WEIGHTS	Calibration of Weights of Class F1 and coarser	Using Weights of Accuracy Class E2 and Electronic Balance with readability d=0.01 mg As per OIML R-14-1 (2004)	20 g	0.06 mg
136	MECHANICAL-WEIGHTS	Calibration of Weights of Class F1 and coarser	Using Weights of Accuracy Class E2 and Electronic Balance with readability d=0.01 mg As per OIML R-14-1 (2004)	5 mg	0.01 mg
137	MECHANICAL-WEIGHTS	Calibration of Weights of Class F1 and coarser	Using Weights of Accuracy Class E2 and Electronic Balance with readability d=1 mg As per OIML R-14-1 (2004)	500 g	1.0 mg
138	MECHANICAL-WEIGHTS	Calibration of Weights of Class F1 and coarser	Using Weights of Accuracy Class E2 and Electronic Balance with readability d=0.01 mg As per OIML R-14-1 (2004)	1 mg	0.01 mg

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139	MECHANICAL-WEIGHTS	Calibration of Weights of Class F1 and coarser	Using Weights of Accuracy Class E2 and Electronic Balance with readability d=0.01 mg As per OIML R-14-1 (2004)	10 g	0.05 mg
140	MECHANICAL-WEIGHTS	Calibration of Weights of Class F1 and coarser	Using Weights of Accuracy Class E2 and Electronic Balance with readability d=10 mg As per OIML R-14-1 (2004)	10 kg	58 mg
141	MECHANICAL-WEIGHTS	Calibration of Weights of Class F1 and coarser	Using Weights of Accuracy Class E2 and Electronic Balance with readability d=0.01 mg As per OIML R-14-1 (2004)	10 mg	0.01 mg
142	MECHANICAL-WEIGHTS	Calibration of Weights of Class F1 and coarser	Using Weights of Accuracy Class E2 and Electronic Balance with readability d=0.01 mg As per OIML R-14-1 (2004)	100 mg	0.01 mg

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143	MECHANICAL-WEIGHTS	Calibration of Weights of Class F1 and coarser	Using Weights of Accuracy Class E2 and Electronic Balance with readability d=0.01 mg As per OIML R-14-1 (2004)	2 mg	0.01 mg
144	MECHANICAL-WEIGHTS	Calibration of Weights of Class F1 and coarser	Using Weights of Accuracy Class E2 and Electronic Balance with readability d=0.01 mg As per OIML R-14-1 (2004)	20 mg	0.01 mg
145	MECHANICAL-WEIGHTS	Calibration of Weights of Class F1 and coarser	Using Weights of Accuracy Class E2 and Electronic Balance with readability d=0.01 mg As per OIML R-14-1 (2004)	200 g	0.12 mg
146	MECHANICAL-WEIGHTS	Calibration of Weights of Class F1 and coarser	Using Weights of Accuracy Class E2 and Electronic Balance with readability d=10 mg As per OIML R-14-1 (2004)	5 kg	58 mg

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147	MECHANICAL-WEIGHTS	Calibration of Weights of Class F1 and coarser	Using Weights of Accuracy Class E2 and Electronic Balance with readability d=0.01 mg As per OIML R-14-1 (2004)	200 mg	0.01 mg
148	MECHANICAL-WEIGHTS	Calibration of Weights of Class F1 and coarser	Using Weights of Accuracy Class E2 and Electronic Balance with readability d=0.01 mg As per OIML R-14-1 (2004)	5 g	0.04 mg
149	MECHANICAL-WEIGHTS	Calibration of Weights of Class F1 and coarser	Using Weights of Accuracy Class E2 and Electronic Balance with readability d=0.01 mg As per OIML R-14-1 (2004)	50 mg	0.01 mg
150	MECHANICAL-WEIGHTS	Calibration of Weights of Class F1 and coarser	Using Weights of Accuracy Class E2 and Electronic Balance with readability d=0.01 mg As per OIML R-14-1 (2004)	500 mg	0.01 mg

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151	MECHANICAL-WEIGHTS	Calibration of Weights of Class F1 and coarser	Using Weights of Accuracy Class E2 and Electronic Balance with readability d=0.01 mg As per OIML R-14-1 (2004)	2 g	0.04 mg
152	MECHANICAL-WEIGHTS	Calibration of Weights of Class F1 and coarser	Using Weights of Accuracy Class E2 and Electronic Balance with readability d=0.01 mg As per OIML R-14-1 (2004)	50 g	0.06mg
153	OPTICAL-OPTICAL	Optical Wavelength	Using Optical Spectrum Analyzer by direct method.	400 nm to 1750 nm	0.9 nm
154	OPTICAL-OPTICAL	Optical Length	Using Fibre Spool by direct method.	0 to 50 Km	0.003 % of Rdg.
155	OPTICAL-OPTICAL	Colour Temperature	Using Colorimeter & Standard Lamp by direct method and using x,y colour coordinate by indirect method.	Up to 10,000 K	At 1000K :23K to At 10000:150K
156	OPTICAL-OPTICAL	Illuminance	Using TH Lamp with Photometer by Comparison Method	10 lux to 10000 lux	At 10 lux:1 lux to At 10000 lux: 300 lux

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157	OPTICAL-OPTICAL	Luminous Flux (lumen)	Using Lumen Meter with Integrating Sphere, Standard CFL & LED by Direct Method	Upto 1500 lm	3.5% of Rdg.
158	OPTICAL-OPTICAL	Optical Attenuation	Using Optical Source, Lightwave Multimeter with sensor by direct method	0 to 60 dB	0.30 dB
159	OPTICAL-OPTICAL	Optical Power	Using Optical Source, Optical Attenuator and Lightwave Multimeter with Sensor by comparison method	10 dBm to - 60 dBm	0.32dBm
160	OPTICAL-OPTICAL	x,y Colour coordinate	Using Chroma Meter, Standard CFL & LED by Direct Method	x,y :0 to 1	0.005, 0.005
161	THERMAL-SPECIFIC HEAT & HUMIDITY	Relative Humidity : RH Sensor, RH Indicator & Digital Hygrometer	Using Standard RH Meter Humidity Source (Chamber) RTD & Data Logger By Comparison Method	35 %RH to 95% RH	2.5 % RH

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162	THERMAL-TEMPERATURE	Non -Contact Temperature : IR Thermometer, Optical Pyrometer, Radiation Thermometer	Using Black Body Radiation Source, IR Thermometer, Std. R Type T/C with Meter By Comparison Method	600 °C to 1300 °C	3.7 °C
163	THERMAL-TEMPERATURE	Temperature : Glass Thermometer, Indicator, Temp. Gauge, T/C & RTD, Digital Temp. Meter, Dry & Wet Bulb Thermometer, Dry Well, Sensors & Controller	Using Liquid Baths, Dry Block Calibrator, SPRT, Std. PRT, Digital Indicator (Black Stack), Tube Furnace, Std. 'R' Type T/C by Comparison Method	1200 ℃ to 1300 ℃	3.0℃
164	THERMAL-TEMPERATURE	Temperature : Glass Thermometer, Indicator, Temp. Gauge, T/C & RTD, Digital Temp. Meter, Dry & Wet Bulb Thermometer, Dry Well, Sensors & Controller	Using Liquid Baths, Dry Block Calibrator, SPRT, Std. PRT, Digital Indicator (Black Stack), Tube Furnace, Std. 'R' Type T/C by Comparison Method	-80 °C to 250 °C	0.08 °C

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165	THERMAL-TEMPERATURE	Temperature : Glass Thermometer, Indicator, Temp. Gauge, T/C & RTD, Digital Temp. Meter, Dry & Wet Bulb Thermometer, Dry Well, Sensors & Controller	Using Liquid Baths, Dry Block Calibrator, SPRT, Std. PRT, Digital Indicator (Black Stack), Tube Furnace, Std. 'R' Type T/C by Comparison Method	550 **℃** to 1200 **℃**	2.0**℃**
166	THERMAL-TEMPERATURE	Temperature : Glass Thermometer, Indicator, Temp. Gauge, T/C & RTD, Digital Temp. Meter, Dry & Wet Bulb Thermometer, Dry Well, Sensors & Controller	Using Liquid Baths, Dry Block Calibrator, SPRT, Std. PRT, Digital Indicator (Black Stack), Tube Furnace, Std. 'R' Type T/C by Comparison Method	250 °C to 550 **℃**	0.12**℃**

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Site Facility					
1	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current at 10 Hz – 5 kHz	Using DMM 8508A, AC/DC Standard Resistance, Fluke 5790A, Zera COM 3003 by Direct/Comparison Method	1 A to 20 A	0.016 % to 0.035 %
2	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current at 10 Hz – 5 kHz	Using DMM 8508A, AC/DC Standard Resistance, Fluke 5790A Zera COM 3003 by Direct/Comparison Method	10 µA to 1 A	0.05% to 0.016%
3	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Current at 50 Hz	Using Zera COM-3003 by Direct Method	0.01 A to 120 A	0.013%
4	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC High Voltage at 50 Hz	Using DMM & 80K40 HV Probe By Direct/ Comparison Method	>1 kV to 28 kV	6%

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5	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Power & Energy 1Ph & 3Ph (50Hz) (active and reactive) (0.03W-86.4kW)\ (0.03VAR to 86.4kVAR) , UPF – 0.5 PF (lead & Lag)	Using Three Phase Comparator, Make: Zera, Model: COM 3003 By Direct / Comparison Method	60 V to 240V ,10 mA to 120A to UPF to 0.5 (lead & lag)	0.012% to 0.023%
6	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Resistance at 1kHz	Using Digibridge 1689, Quadtech, USA By Direct/ Comparison Method	1 Ohm to 100 Kilo Ohm	0.3 to 0.1%
7	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage at 10 Hz –40 Hz	Using IVD, FLK 8508A, TVC HOLT, AC Meas Std FLK5790A By Direct/ Comparison Method	1 mV to 1000 V	0.5% to 0.025%
8	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage at 100kHz-1MHz	Using IVD, FLK 8508A, TVC HOLT, AC Meas Std FLK5790A By Direct/ Comparison Method	1 mV to 1 V	1.34% to 0.1%

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9	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage at 10kHz-100kHz	Using IVD, FLK 8508A, TVC HOLT, AC Meas Std FLK5790A By Direct/ Comparison Method	1 V to 100 V	0.014% to 0.016%
10	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage at 10kHz-100kHz	Using IVD, FLK 8508A, TVC HOLT, AC Meas Std FLK5790A By Direct/ Comparison Method	1 mV to 1 V	0.43% to 0.014 %
11	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage at 40Hz – 10kHz	Using IVD, FLK 8508A, TVC HOLT, AC Meas Std FLK5790A By Direct/ Comparison Method	1 mV to 1000 V	0.5% to 0.012 %
12	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	AC Voltage 10Hz – 40Hz	Using Calibrator Wavetek4808 & IVD FLK 5790A HOLT TVC by Direct/Comparison Method	1 mV to 1000 V	0.5% to 0.025%

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13	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Capacitance at 1 kHz	Using Capacitance Measuring Assembly GR 1620 AP, Digibridge 1689, Quadtech USA Direct/Comparison	1 pF to 1.0 mF	0.04 % to 1.2%
14	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Capacitance at 1 kHz	Using Capacitance Measuring Assembly GR 1620 AP, Digibridge 1689, Quadtech USA Direct/Comparison	1.0 mF to 10 mF	1.2% to 0.3 %
15	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	High Frequency AC Voltage 100MHz -1 GHz	Using URV-5 R&S by Direct/Comparison Method	10 mV to 7 V	3.5%
16	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	High Frequency AC Voltage 1 MHz -100 MHz	Using URV-5 R&S by Direct/Comparison Method	10 mV to 10 V	3.3%

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17	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Inductance at 1 kHz	Using Digibridge 1689, Quadtech, USA STD "L",GR1482 Series by Direct/Comparison Method	100 µH to 10 H	0.2 % to 0.06 %
18	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Measure)	Power Factor/Phase Angle 50Hz At 240V ,5A	Using Three Phase Comparator, Make: Zera, Model: COM 3003 by Direct/comparison Method	+/- 0.1 – 1.0 (lag & lead) to 0°to 180° (Lead & Lag)	0.01%
19	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current 10 Hz - 5 KHz	Using Calibrator FLK-5520A,5080A, Wavetek 4808, 8508A, FLK 5790 & Shunt by Direct/ Comparison Method	1 A to 20 A	0.05% to 0.035 %
20	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current 10 Hz - 5 KHz	Using Calibrator FLK-5520A,5080A, Wavetek 4808, 8508A, FLK 5790 & Shunt by Direct/ Comparison Method	10 µA to 1 A	0.08% to 0.05 %

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21	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current At 50Hz	Using Zera COM3003 by Direct Method	10 mA to 100 A	0.013%
22	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Current by using current coil At 50 Hz	Using Calibrator and Current Coil By Direct Method	20 A to 1000 A	0.55 %
23	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Power & Energy 1Ph & 3Ph (50Hz) (active and reactive) (0.03W-86.4kW)\ (0.03VAR to 86.4kVAR) , UPF – 0.5 PF (lead & Lag)	Using Three Phase Comparator, Make: Zera, Model: COM 3003 By Direct / Comparison Method	60 V to 240V ,10 mA to 120A to UPF to 0.5 (lead & lag)	0.012% to 0.023%
24	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Resistance at 1 kHz	Using Tinsley 5685A & 5685B by Direct / Comparison Method	1 Ohm to 10 Kilo Ohm	0.007%
25	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 10 Hz – 45 Hz	Using Calibrator Wavetek4808 & IVD FLK 5790A HOLT TVC by Direct/Comparison Method	1 mV to 1000 V	0.7% to 0.025%

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26	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 10 kHz – 50 kHz	Using Calibrator Wavetek4808 & IVD FLK 5790A HOLT TVC by Direct/Comparison Method	1 mV to 1 V	0.2% to 0.014%
27	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 10kHz-50kHz	Using Calibrator Wavetek4808 & IVD FLK 5790A HOLT TVC by Direct/Comparison Method	1 V to 100 V	0.014% to 0.02%
28	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 45Hz – 10kHz	Using Calibrator Wavetek4808 & IVD FLK 5790A HOLT TVC by Direct/Comparison Method	1 mV to 100 V	0.4% to 0.008 %
29	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 45Hz – 10kHz	Using Calibrator Wavetek4808 & IVD FLK 5790A HOLT TVC by Direct/Comparison Method	100 V to 1000 V	0.008% to 0.02%

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30	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 50kHz -1MHz	Using Calibrator Wavetek 4808 & IVD FLK 5790A HOLT TVC by Direct/Comparison Method	1 mV to 100 mV	0.05 % to 1.2 %
31	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	AC Voltage 50kHz -1MHz	Using Calibrator Wavetek4808 & IVD FLK 5790A HOLT TVC by Direct/Comparison Method	100 mV to 10 V	0.25 % to 0.12 %
32	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance 1 kHz	Using STD “C”, GR 1404 Series & 1409 Series By Direct / Comparison Method	1.0 mF to 10 mF	0.05% to 0.38 %
33	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance 1 kHz	Using STD “C”, GR 1404 Series & 1409 Series By Direct / Comparison Method	10 pF to 1000 pF	0.003% to 0.015%
34	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance 1 kHz	Using STD “C”, GR 1404 Series & 1409 Series By Direct / Comparison Method	1000 pF to 1 mF	0.015% to 0.05 %

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35	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Capacitance 1 kHz – 1 MHz	Using HP 16380A Series By Direct /Comparison Method	1 pF to 1000 pF	0.12 % to 0.3 %
36	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	High Frequency AC Voltage 1 MHz -1 GHz	Using Calibrator Wavetek 4808, RF Voltmeter with Insertion Unit, Signal Generator & RF Amplr., AR100W 1000MHz, RF Attenuator by Direct / Comparison Method	10 mV to 7 V	3.5%
37	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Inductance 1 kHz	Using STD “L”, GR 1482 Series By Direct / Comparison Method	100 mH to 10 H	0.03% to 0.09%
38	ELECTRO-TECHNICAL-Alternating Current (< 1 GHz) (Source)	Inductance 1 kHz	Using STD “L”, GR 1482 Series By Direct / Comparison Method	100 µH to 100 mH	0.1% to 0.03%

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39	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current :	Using Current Shunt & Standard Resistance, Agilent Current Source 875A& FLK DMM 8508A by Direct/Comparison Method	1 mA to 20 A	0.002% to 0.005 %
40	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current :	Using Current Shunt & Standard Resistance, Agilent Current Source 875A& FLK DMM 8508A by Direct/Comparison Method	10 µA to 1 mA	0.006% to 0.002 %
41	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Current : 20A - 850A	Using Current Shunt & Standard Resistance, Agilent Current Source 875A& FLK DMM 8508A by Direct/Comparison Method	20 A to 850 A	0.005% to 0.05 %
42	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC High Voltage :	Using 80K40 HV probe by Direct/Comparison method	>1 kV to 40 kV	2.5 %

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43	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance :	Using DMM FLK8508A, Standard Resistance Set, High Resistance Meter Agilent 4339 by Direct/Comparison Method	0.0001 Ohm to 0.001 Ohm	0.03% to 0.004 %
44	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance :	Using DMM FLK8508A, Standard Resistance Set, High Resistance Meter Agilent 4339 by Direct/Comparison Method	0.001 Ohm to 1 Mega Ohm	0.004% to 0.001 %
45	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance :	Using DMM FLK8508A, Standard Resistance Set, High Resistance Meter Agilent 4339 by Direct/Comparison Method	1 Mega Ohm to 20 Giga Ohm	0.001% to 0.20 %
46	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance :	Using DMM FLK8508A, Standard Resistance Set, High Resistance Meter Agilent 4339 by Direct/Comparison Method	20 Giga Ohm to 1 Tera Ohm	0.2% to 2.5 %

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47	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage :	Using DC Reference Standard 7004 , Null Detector , Kelvin Verley Divider, FLK Multimeter 8508A by Direct/ Comparison method	1 mV to 10 V	0.014% to 0.0004 %
48	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage :	Using DC Reference Standard 7004 , Null Detector , Kelvin Verley Divider, FLK Multimeter 8508A by Direct/ Comparison method	10 V to 1000 V	0.0004% to 0.0005 %
49	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Voltage :	Using DC Reference Standard 7004 , Null Detector , Kelvin Verley Divider, FLK Multimeter 8508A by Direct/ Comparison method	10 µV to 1 mV	2% to 0.014 %
50	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using FLK 5520A, 5080A, Wavetek 4808, STD"R", DMM-FLK8508A, Agilent 6680A, STD Shunt, By Direct / Comparison Method	1 A to 20 A	0.005% to 0.009%

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51	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using FLK 5520A, 5080A, Wavetek 4808, STD"R", DMM-FLK8508A, Agilent 6680A, STD Shunt, By Direct / Comparison Method	10 µA to 1 A	0.01% to 0.005 %
52	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current : 20 A - 850A	Using Calibrator With Current Coil By Direct Method	20 A to 850 A	0.009 % to 0.06%
53	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current with Current Coil	Using Calibrator With Current Coil By Direct Method	20 A to 1000 A	0.53%
54	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using STD “R”, L&N, Tinsley DMM FLK 8508A, Agilent High Resistance Meter By Direct / Comparison Method	0.0001 Ohm to 100 Kilo Ohm	0.04% to 0.001 %
55	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using STD “R”, L&N, Tinsley DMM FLK 8508A, Agilent High Resistance Meter By Direct / Comparison Method	10 Mega Ohm to 1 Tera Ohm	0.003% to 2%

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56	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using STD “R”, L&N, Tinsley DMM FLK 8508A, Agilent High Resistance Meter By Direct / Comparison Method	100 Kilo Ohm to 10 Mega Ohm	0.001% to 0.003%
57	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Wavetek 4808, DMM-FLK 8508A, DC Voltage Ref STD 7004N, FLK DC Cal System-Null Detector FLK 845AR, Kelvin Verley Divider FLK 720A By Direct / Comparison Method	10 µV to 10 V	2 % to 0.0003 %
58	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Voltage	Using Wavetek 4808, DMM-FLK 8508A, DC Voltage Ref STD 7004N, FLK DC Cal System-Null Detector FLK 845AR, Kelvin Verley Divider FLK 720A By Direct / Comparison Method	10 V to 1000 V	0.0003% to 0.0004%

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59	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	Attenuation 50MHz–1GHz	Using RF Level Meter, URV-5,R & S (for Variable Attenuator Calibration, 1dB – 60dB) by Direct/Comparison Method	1 dB to 10 dB	0.15dB
60	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	Attenuation 50MHz–1GHz	Using RF Level Meter, URV-5,R & S (for Variable Attenuator Calibration, 1dB – 60dB) by Direct/Comparison Method	10 dB to 60 dB	0.17dB
61	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	RF Power 50MHz – 2GHz	Using RF mV Meter – URV-5, R&S Power Sensors, RF Attenuator , RF Amplifier By Direct/ Comparison Method	1 mW to 40 mW	4%
62	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	RF Power 50MHz – 2GHz	Using RF mV Meter – URV-5, R&S Power Sensors, RF Attenuator , RF Amplifier By Direct/ Comparison Method	1 nW to 1 mW	6%

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63	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	RF Power 50MHz to 1GHz	Using RF mV Meter – URV-5, R&S Power Sensors, RF Attenuator , RF Amplifier By Direct/ Comparison Method	40 mW to 90 W	4%
64	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Measure)	VSWR : 50MHz-2GHz	Using SWR Bridge R & S, ZRB2 , RF Level Meter, URV-5, By Return Loss Method	1.05 to 3	0.15 to 0.3 in VSWR
65	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	Attenuation 50MHz - 1GHz	Using R & S RF Milli Voltmeter URV-5 ,Level Meter with Sensor, HP Power Meter, RF Step Attenuator, RSP By Power Ratio Method	1 dB to 10 dB	0.2 dB
66	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	Attenuation 50MHz - 1GHz	Using R & S RF Milli Voltmeter URV-5 ,Level Meter with Sensor, HP Power Meter, RF Step Attenuator, RSP By Power Ratio Method	10 dB to 60 dB	0.2dB

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67	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF Power 30MHz-2GHz	Using RF mV Meter R & S, RF Attenuator, Amplifier Research RF Amplifier 100W1000B & Signal Gen by Direct / Comparison Method	1 mW to 40 mW	4%
68	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF Power 30MHz-2GHz	Using RF mV Meter R & S, RF Attenuator, Amplifier Research RF Amplifier 100W1000B & Signal Gen by Direct / Comparison Method	1 nW to 1 mW	6%
69	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF Power 50MHz–1GHz	Using RF mV Meter R & S, RF Attenuator, Amplifier Research RF Amplifier 100W1000B & Signal Gen by Direct / Comparison Method	40 mW to 90 W	4%

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70	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency	Using frequency Counter Pendulum CNT90 by Direct / Comparison Method	10 Hz to 100 kHz	5X10-4 to 5X10-6
71	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency	Using frequency Counter Pendulum CNT90 by Direct / Comparison Method	100 kHz to 6 GHz	5X10-8
72	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Time Interval / Time Period	Using Freq. Counter Pendulam CNT-90 by Direct/Comparison Method	20 nsec to 2000 sec	0.0002%
73	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency	Using Pendulam CNT-90, Func Gen Agilent 33250A, Signal Generator, Keysight, E8257D by Direct / Comparison Method	10 Hz to 100 kHz	5X10-4 to 5X10-6
74	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency	Using Pendulam CNT-90, Func Gen Agilent 33250A, Signal Generator, Keysight, E8257D by Direct / Comparison Method	100 kHz to 6 GHz	5X10-8

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75	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Time Interval/Time Period	Using Agilent Func. Gen. Freq. Counter Pendulam CNT-90 by Direct / Comparison Method	20 nsec to 2000 sec	0.0002%
76	MECHANICAL-ACCELERATION AND SPEED	Rotational Speed Calibration of Centrifuge, Rotameter	Using Precision Tachometer by Comparison method	100 rpm to 6000 rpm	0.33% of reading
77	MECHANICAL-ACOUSTICS	Sound Pressure Level : Sound Level Calibrator and Sound Level Meter @1kHz	Using Precision Integrating Sound Level Meter, 2230 of B & K Using Sound Level Calibrator 4231 of B & K	94 & 114 dB(A)	0.34dB
78	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Surface Plate 1000 mm X 1000 mm	Using Electronic Level By comparison method	0 to 1000 mm	1.0xsqrt of (L +W)/150mm, where L & W in mm
79	MECHANICAL-PRESSURE INDICATING DEVICES	Precision Gauges, Precision Transmitter	Using Digital Pressure Calibrator as per DKD R-6-1	0 to 20 bar	0.013 bar

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80	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure (Hydraulic) Calibration of Precision Pressure Gauges, Pressure Transmitters	Using Digital Pressure Calibrator as per DKD R-6-1	0 to 700 bar	0.16 bar
81	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure (Vacuum) Calibration of Pressure Gauges , Pressure Transmitter	Using Low pressure Dead Weight Tester & Digital Pressure Calibrator as per DKD R-6-1	0 to (-) 980 mbar (g)	0.0007 bar
82	MECHANICAL-TORQUE MEASURING DEVICES	Torque Wrench / Screw Drivers : Type 1,Class A,B,C,D,E & Type II ,Class A,B,D,E	Using Torque Tranducer & Digital Indicator As per IS/ISO 6789	11 Nm to 100 Nm	1.70 % of reading
83	MECHANICAL-TORQUE MEASURING DEVICES	Torque Wrench/Screw Drivers Type 1,Class A,B,C,D,E & Type II ,Class A,B,D,E	Using Torque Tranducer & Digital Indicator As per IS/ISO 6789	0 to 10 Nm	1.75% of reading
84	MECHANICAL-WEIGHING SCALE AND BALANCE	Calibration of Balances: Class II and Coarser Readability: 100 mg	Using Standards Weights of Class E2 as per OIML & R -76 (2006)	0 to 12 kg	66.52 mg

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85	MECHANICAL-WEIGHING SCALE AND BALANCE	Calibration of Balances: Class II and Coarser Readability: 0.01 mg & 0.1 mg	Using Standards Weights of Class E2 as per OIML & R -76 (2006)	0 to 210 g	0.1 mg
86	MECHANICAL-WEIGHING SCALE AND BALANCE	Calibration of Balances: Class II and Coarser Readability:10 mg	Using Standards Weights of Class E2 as per OIML & R -76 (2006)	0 to 4.0 kg	7.0 mg
87	MECHANICAL-WEIGHING SCALE AND BALANCE	Calibration of Balances:Class II and Coarser Readability: 1 mg	Using Standards Weights of Class E2 as per OIML & R -76 (2006)	0 to 1000 g	1.5 mg
88	OPTICAL-OPTICAL	Optical Wavelength	Using Optical Spectrum Analyzer by direct method.	400 nm to 1750 nm	0.9 nm
89	OPTICAL-OPTICAL	Optical Length	Using Fibre Spool by direct method.	0 to 50 Km	0.003 % of Rdg.
90	OPTICAL-OPTICAL	Colour Temperature	Using Colorimeter & Standard Lamp by direct method and using x,y colour coordinate by indirect method.	Up to 10,000 K	At 1000K :23K to At 10000:150K
91	OPTICAL-OPTICAL	Illuminance	Using TH Lamp with Photometer by Comparison Method	10 lux to 10000 lux	At 10 lux:1 lux to At 10000 lux: 300 lux

SCOPE OF ACCREDITATION

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Accreditation Standard ISO/IEC 17025:2017

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*The validity is extended for one year up to 20.01.2022

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)(±)
92	OPTICAL-OPTICAL	Optical Attenuation	Using Optical Source, Lightwave Multimeter with sensor by direct method	0 to 60 dB	0.30 dB
93	OPTICAL-OPTICAL	Optical Power	Using Optical Source, Optical Attenuator and Lightwave Multimeter with Sensor by comparison method	10 dBm to - 60 dBm	0.32dBm
94	OPTICAL-OPTICAL	x,y Colour coordinate	Using Chroma Meter, Standard CFL & LED by Direct Method	x,y :0 to 1	0.005, 0.005
95	THERMAL-SPECIFIC HEAT & HUMIDITY	Relative Humidity :Environmental & Humidity Chambers	Using RTD, Data Logger & Humidity Indicator By Comparison Method	35 % RH to 95 % RH	2.5% RH
96	THERMAL-TEMPERATURE	Dry Well Calibrator, Furnace, Hot Chamber	Using ‘R’ Type T/C & Four Channel Thermometer by Direct Method	300 °C to 1300 °C	3.0 °C
97	THERMAL-TEMPERATURE	Refrigerator & Cold Chamber	Using RTD & Data Logger by Direct Method	- 80 °C to 50 °C	1.0 °C

National Accreditation Board for Testing and Calibration Laboratories

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98	THERMAL-TEMPERATURE	Bath, Oven, Chamber, Incubator (for Non-Medical Application) & Autoclave (for Non-Medical Application)	Using RTD & Data Logger by Direct Method	-50 °C to 300 °C	1.0 °C
99	THERMAL-TEMPERATURE	T/C, PRT, Indicator, Temp. Gauge, Sensors, Calibrator	Using PRT, Dry Block Calibrator, T/C Type 'K' & 'R' By Comparison Method	50 °C to 1200 °C	2.0 °C

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