



National Accreditation Board for Testing and Calibration Laboratories

SCOPE OF ACCREDITATION

Laboratory Name : INSTITUTE FOR DESIGN OF ELECTRICAL MEASURING INSTRUMENTS, S.T.TOPE MARG, OPP. EVERARD NAGAR, CHUNABHATTI,, MUMBAI, MUMBAI, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

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Validity 03/12/2018 to 30/08/2020 **Last Amended on** 04/08/2020

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	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	Using Standard Shunt with AC Measurement Standard, Digital Multimeter by Direct / Comparison Method	1 mA to 100 A, 10 Hz to 1 kHz	0.006 % to 0.01 %
2	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC CURRENT	Using Standard Shunt with AC Measurement Standard, Digital Multimeter by Direct / Comparison Method	10 µA to 1 mA, 10 Hz to 1 kHz	0.025 % to 0.006 %
3	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC CURRENT	Using Standard Shunt with AC Measurement Standard, Digital Multimeter by Direct / Comparison Method	10 µA to 100 A, 1 kHz to 10 kHz	0.015%
4	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC CURRENT	Using Standard CT with Power / Energy Reference Meter by Direct Method	100 A to 10000 A, 50 Hz	0.25%



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5	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC CURRENT	Using Power / Energy Comparator by Direct Method	100 A to 160 A, 40 Hz to 70 Hz	90ppm
6	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC HIGH VOLTAGE	Using Precision AC Divider with 6 ½ Digit Multi meter by Direct Method	1 kV to 2.4 kV , 50 Hz to 60 Hz	0.01%
7	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC HIGH VOLTAGE	Using AC High Voltage Divider & 6½ Digit Multimeter by Direct Method	100 kV to 200 kV, 50 Hz	1.4%
8	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC HIGH VOLTAGE	Using AC High Voltage Divider & 6½ Digit Multimeter by Direct Method	2.4 kV to 100 kV, 50 Hz	0.22%
9	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC RESISTANCE	Using Precision Component Analyser by Direct Method	0.001 Ohm to 10 kOhm, 1 kHz	0.02 % to 0.0025 %



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10	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC VOLTAGE	Using AC/DC Thermal Transfer Standard, Multifunction Calibrator & Reference Multimeter by Direct Method	1 mV, 10 Hz to 20 kHz	0.3 % to 0.06 %
11	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC VOLTAGE	Using AC/DC Thermal Transfer Standard, Multifunction Calibrator & Reference Multimeter by Direct Method	2 mV to 2 V, 10 Hz to 1 kHz	400 ppm to 10 ppm
12	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC VOLTAGE	Using AC/DC Thermal Transfer Standard, Multifunction Calibrator & Reference Multimeter by Direct Method	2 mV to 20 V, 1 kHz to 1 MHz	800 ppm to 10 ppm



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13	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC VOLTAGE	Using AC/DC Thermal Transfer Standard, Multifunction Calibrator & Reference Multimeter by Direct Method	2 V to 1000 V,10 Hz to 1 kHz	10 ppm to 36 ppm
14	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC VOLTAGE	Using AC/DC Thermal Transfer Standard, Multifunction Calibrator & Reference Multimeter by Direct Method	20 V to 60 V,1 kHz to 300 kHz	30 ppm to 10 ppm
15	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC VOLTAGE	Using Multifunction Calibrator by Comparison Method	5 mV to 5.5 V(p-p), 1 MHz to 1100 MHz	4 % to 10 %
16	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC VOLTAGE	Using AC/DC Thermal Transfer Standard, Multifunction Calibrator & Reference Multimeter by Direct Method	60 V to 600 V, 1 kHz to 100 kHz	400 ppm to 10 ppm



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17	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC VOLTAGE	Using AC/DC Thermal Transfer Standard, Multifunction Calibrator & Reference Multimeter by Direct Method	600 V to 1000 V,1 kHz to 20 kHz	12ppm
18	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	ACTIVE / REACTIVE / APPARENT POWER / ENERGY (1 PHASE)	Using Power Energy Comparator with Precision AC Voltage Divider By Direct Method	480 v to 1050 V, 50 Hz and 60 Hz, 10 mA to 120 A, PF 0.01 to 1.0	0.011% / PF
19	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	ACTIVE / REACTIVE / APPARENT POWER / ENERGY (1 PHASE / 3 PHASE)	Using Power/ Energy Meter Test System by Direct Method	25 V to 480 V , 40 Hz to 70 Hz , 120 A to 300 A, PF;0.01 to 1	0.01 % to 0.25 % / PF
20	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	ACTIVE / REACTIVE / APPARENT POWER / ENERGY (1 PHASE / 3 PHASE)	Using Power/ Energy Comparator by Direct Method	25 V to 480 V , 40 Hz to 70 Hz, 1mA to 120 A, PF : 0.01 to 1	0.04 % to 0.01 % / PF



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21	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	ACTIVE / REACTIVE / APPARENT POWER / ENERGY (SINGLE PHASE)	Using Power Energy Comparator with Precision AC Voltage Divider by Direct method	480 V to 1050 V, 50 Hz and 60 Hz, 1 mA to 10 mA, PF: 0.01 to 1	0.04 % to 0.011 % / PF
22	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	CAPACITANCE	Using Standard Capacitor & Four Terminal Capacitance Standard with Precision Component Analyser by Comparison Method	1 µF to 1 F, 1 kHz	150 ppm to 800 ppm
23	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	CAPACITANCE	Using Standard Capacitor & Four Terminal Capacitance Standard with Precision Component Analyser by Comparison Method	1 µF to 1 F, 100 Hz	200 ppm to 800 ppm
24	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	CAPACITANCE	Using Fused Silica Capacitance Standard by Comparison Method	1 pF to 100 pF, 1 kHz	5ppm



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25	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	CAPACITANCE	Using Fused Silica Capacitance Standard with Precision Component Analyser by Comparison Method	1 pF to 100 pF,100 Hz	7 ppm to 3 ppm
26	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	CAPACITANCE	Using Fused Silica Capacitance Standard , with Precision Component Analyser by Comparison Method	1 pF, 50 Hz	60ppm
27	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	CAPACITANCE	Using Fused Silica Capacitance Standard , with Precision Component Analyser by Comparison Method	10 pF, 50 Hz	7ppm



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28	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	CAPACITANCE	Using Fused Silica Capacitance Standard , Standard Capacitor & Four Terminal Capacitance Standard with Precision Component Analyser by Comparison Method	100 pF to 1 µF, 1 kHz	5 ppm to 150 ppm
29	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	CAPACITANCE	Using Fused Silica Capacitance Standard , with Precision Component Analyser by Comparison Method	100 pF, 50 Hz	4ppm
30	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	CAPACITANCE at 200 V to 100 kV ,50 Hz	Using C & Tan Delta Measurement System & Standard Capacitor by Direct Method	10 pF to 1 uF	0.14 % to 0.025 %
31	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	CT / PT BURDEN	Using Power / Energy Meter by Direct Method	1 VA to 100 VA, At 50 Hz	0.05%



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32	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	CT CALIBRATION : RATIO ERROR & PHASE ANGLE ERROR	Using Standard CT , Instrument Transformer Measuring Bridge by Comparison Method	1 to 5000A/1-5A(Direct), 5000A to 10000 A/1-5A(By Turns) at 50 Hz	0.004 % to 0.025% for Ratio Error,0.15 min to 0.65 min for Phase Angle Error
33	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	Electrical Fast Transient (50? & 1k?) \$ As per IEC 61000-4-4 :2012 Ed.3.0 Rise Time	Using Oscilloscope Model : DSO6054A, DPO 7254C With load resistor KW - 1000 KW - 50 by Direct Method	5 ns	6.5%
34	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	INDUCTANCE	Using Precision Component Analyser by Direct Method	100 µH to 100 mH, 1 kHz	0.07 % to 0.02 %
35	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	INDUCTANCE	Using Precision Component Analyser by Direct Method	100 mH to 10 H, 1 kHz	0.02 % to 0.04 %
36	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	ISOLATION CURRENT TRANSFORMER	Using ICT Calibration System by Comparison Method	1 mA to 100 A at 50 & 60 Hz (Ratio 1:1)	0.0076 % for Ratio Error , 0.30 min to 0.25 min for Phase Angle Error



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37	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	ISOLATION CURRENT TRANSFORMER	Using Power/ Energy Comparator by Comparison Method	100 A to 120 A, AT 50 Hz to 60 Hz (Ratio 1:1)	0.01 % for Ratio Error to 0.25 min for Phase Angle Error
38	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	POWER FACTOR (PHASE ANGLE)	Using Power/ Energy Comparator & Using Precision AC Voltage Divider with Power/ Energy Comparator by Direct Method	0 ° to 360 °, (0 to UPF), 40 Hz to 70 Hz , 25 V to 1050 V, 1 mA to 160 A	0.008°
39	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	RATIO & PHASE ANGLE OF CT COMPARATOR (AITTS)	Using Power / Energy Test System with AITTS by Comparison Method	0.05 A to 6 A, At 50 Hz	0.003 % to 0.02 % for Ratio Error 0.1 min to 0.6 min for Phase Angle Error
40	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	RATION & PHASE ANGLE ERROR OF PT COMPARATOR	Using Power / Energy Test system with AITTS by Comparison Method	25 V to 150 V, at 50 Hz	0.008 % to 0.013 %, for Ratio Error , 0.25 min for Phase Error
41	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	TAN DELTA at 200V to 100 kV at 50 Hz	Using C & Tan Delta Measurement System & Standard Capacitor by Direct Method	1 x 10 ⁻⁵ to 5 x 10 ⁻²	1.6 x 10 ⁻⁵ to 5.7 x 10 ⁻³



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42	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	VOLTAGE TRANSFORMER: RATIO ERROR & PHASE ERROR	Using Standard Capacitor, EPD, Instrument Transformer Measuring Bridge by Comparison Method	1.1 kV to 100 kV/110 V, 1.1 kV to 132 kV / $\sqrt{3}$ / 110 V/ $\sqrt{3}$, 50 Hz	0.01 % for Ratio Error to 0.32 % for Ratio Error
43	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC CURRENT	Using Precision Power Calibration System by Direct Method	1 mA to 10 mA, 40 Hz to 70 Hz	250 ppm to 10 ppm
44	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC CURRENT	Using Multi function Calibrator with Transconductance Amplifier , Standard Resistors, AC Current Shunts and AC Measurement Standard by Comparison / V/R Method	1 mA to 100 A, 1 kHz to 10 kHz	0.006 % to 5.5 %
45	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC CURRENT	Using Multi Function Calibrator with Transconductance Amplifier, Standard Resistors, AC Current Shunt, AC Measurement Standard by Comparison / V/R Method	1 mA to 120 A, 10 Hz to 1 kHz	0.006 % to 0.25 %



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46	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC CURRENT	Using Multi function Calibrator with Transconductance Amplifier , Standard Resistors, AC Current Shunts and AC Measurement Standard by Comparison / V/R Method	10 μ A to 1 mA,1 kHz to 10 kHz	0.05 % to 0.006 %
47	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC CURRENT	Using Multi Function Calibrator with Transconductance Amplifier,Standard Resistors, AC Current Shunt, AC Measurement Standard by Comparison / V/R Method	10 μ A to 1 mA,10 Hz to 1 kHz	0.08 % to 0.006 %
48	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC CURRENT	Using Precision Power Calibration System by Direct Method	10 mA to 100 A, 40 Hz to 70 Hz	10 ppm to 30 ppm
49	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC CURRENT	Using Power Comparator by Comparison Method	100 A to 160 A,40 Hz to 70 Hz	30 ppm to 80 ppm



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50	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC CURRENT	Using AC Current Source with Standard CT & Power Meter by Direct Method	120 A to 5000 A,50 Hz	0.03 % to 0.15 %
51	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC HIGH VOLTAGE	Using Precision AC Divider with 6.5 Digit Multimeter by Comparison Method	1 kV to 2.4 kV,50 Hz to 60 Hz	0.35%
52	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC HIGH VOLTAGE	Using AC High Voltage Source with AC High Voltage Divider with 6.5 Digit Multimeter by Comparison Method	2.4 kV to 100 kV, 50 Hz	0.6%
53	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC HIGH VOLTAGE	Using AC High Voltage Source with AC High Voltage Divider with kV Meter by Comparison Method	100 kV to 200 kV,50 Hz	1.5%
54	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC RESISTANCE	Using Standard AC Resistor by Direct Method	0.01 Ohm, 1 kHz	0.07%



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55	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC RESISTANCE	Using Standard AC Resistor by Direct Method	0.1 Ohm,1 kHz	0.04%
56	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC RESISTANCE	Using Standard AC Resistor by Direct Method	1 kOhm,50 Hz,100 Hz & 1KHz	0.36%
57	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC RESISTANCE	Using Standard AC Resistor by Direct Method	1 mOhm, 50 Hz	0.03%
58	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC RESISTANCE	Using Standard AC Resistor by Direct Method	1 Ohm, 1 kHz	0.005%
59	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC RESISTANCE	Using Standard AC Resistor by Direct Method	1 Ohm,50 Hz	0.02%
60	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC RESISTANCE	Using Standard AC Resistor by Direct Method	10 kOhm,50 Hz,100 Hz & 1 kHz	0.36%



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61	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC RESISTANCE	Using Standard AC Resistor by Direct Method	10 mOhm, 50 Hz	0.03%
62	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC RESISTANCE	Using Standard AC Resistor by Direct Method	10 Ohm, 1 kHz	0.005%
63	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC RESISTANCE	Using Standard AC Resistor by Direct Method	100 mOhm, 50 Hz	0.02%
64	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC RESISTANCE	Using Standard AC Resistor by Direct Method	100 Ohm,1kHz	0.005%
65	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC RESISTANCE	Using Standard AC Resistor by Direct Method	200 µOhm , 50 Hz	0.012%



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66	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC VOLTAGE	Using AC/DC Thermal Transfer Standard with Multi Function Calibrator by Comparison Method	1 mV to 2 V,10 Hz to 1 kHz	0.64 % to 20 ppm
67	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC VOLTAGE	Using AC/DC Thermal Transfer Standard with Multi Function Calibrator by Comparison Method	1 mV to 20 V, 1 kHz to 1 MHz	0.62 % to 20 ppm
68	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC VOLTAGE	Using Precision Power Calibration System by Direct Method	1 V to 480 V,40 Hz to 70 Hz	5 ppm to 20 ppm
69	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC VOLTAGE	Using AC/DC Thermal Transfer Standard with Multi Function Calibrator by Comparison Method	2 V to 200 V,10 Hz to 1 kHz	20 ppm to 200 ppm
70	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC VOLTAGE	Using AC/DC Thermal Transfer Standard with Multi Function Calibrator by Comparison Method	20 V to 60 V, 1 kHz to 300 kHz	20 ppm to 50 ppm



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71	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC VOLTAGE	Using AC/DC Thermal Transfer Standard with Multi Function Calibrator by Comparison Method	200 V to 1000 V, 10 Hz to 1 kHz	200 ppm to 30 ppm
72	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC VOLTAGE	Using Multi Function Calibrator by Direct Method	5 mV to 5.5 V(p-p), 500 kHz to 1.1 GHz	4 % to 10 %
73	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC VOLTAGE	Using AC/DC Thermal Transfer Standard with Multi Function Calibrator by Comparison Method	60 V to 1000 V, 1 kHz to 20 kHz	20 ppm to 200 ppm
74	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	ACTIVE/ REACTIVE/APPARENT POWER/ENERGY (1 PHASE)	Using Multifunction Calibrator, Transconductance Amplifier , Power Energy Comparator with Precision AC Voltage Divider by Comparison Method	480V to 1050 V, 50 Hz to 60 Hz, 10 mA to 120A, PF: 0.01 to 1	0.011%/PF



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75	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	ACTIVE/ REACTIVE/APPARENT POWER/ENERGY (1 PHASE)	Using Multifunction Calibrator, Transconductance Amplifier , Power Energy Comparator with Precision AC Voltage Divider by Comparison Method	480V to 1050 V, 50 Hz to 60Hz,1 mA to 10 mA,PF:0.01 to 1	0.04 %/PF to 0.011 %/PF
76	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	ACTIVE/ REACTIVE/APPARENT POWER/ENERGY (1 PHASE / 3 PHASE)	Using Precision Power Calibration System (PPCS) by Direct Method	1V to 480V, 40 Hz to 70 Hz, 10 mA to 100A PF:0.01 to 1	20 ppm/PF to 40 ppm/PF
77	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	ACTIVE/ REACTIVE/APPARENT POWER/ENERGY (1 PHASE / 3 PHASE)	Using Three Phase Power Calibrator / Tester with Power / Energy Comparator by Comparison Method	25V to 480V, 40 Hz to 70 Hz,1 mA to 10 mA PF:0.01 to 1	0.04 %/PF to 0.01 %/PF
78	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	ACTIVE/ REACTIVE/APPARENT POWER/ENERGY (1 PHASE / 3 PHASE)	Using Three Phase Power Calibrator/ Tester with Power / Energy Comparator by Comparison Method	25V to 480V, 40Hz to 70 Hz,100 A to 160A, PF: 0.01 to 1	0.01%/PF
79	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitor & Four Terminal Capacitance Standard by Direct Method	1 μF, 1 kHz	0.015%



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80	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitor & Four Terminal Capacitance Standard	1 μ F, 100 Hz	0.015%
81	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitor & Four Terminal Capacitance Standard by Direct Method	1 F, 1 kHz	0.07%
82	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitor & Four Terminal Capacitance Standard by Direct Method	1 F,100 Hz	0.2%
83	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitor & Four Terminal Capacitance Standard by Direct Method	1 mF, 100 Hz	0.05%
84	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitor & Four Terminal Capacitance Standard by Direct Method	1 mF,1 kHz	0.03%



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85	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Multifunction Calibrator by Direct Method	1 nF to 110 mF	0.4 % to 1.5 %
86	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitor & Four Terminal Capacitance Standard by Direct Method	1 nF, 1 kHz	0.015%
87	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Fused Sillica Capacitance Standard by Direct Method	1 pF, 1 kHz	4ppm
88	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Fused Sillica Capacitance Standard by Direct Method	1 pF, 100 Hz	6ppm
89	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Fused Sillica Capacitance Standard by Direct Method	1 pF, 50 Hz	0.06%



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90	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitor & Four Terminal Capacitance Standard by Direct Method	10 μ F, 1 kHz	0.03%
91	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitor & Four Terminal Capacitance Standard by Direct Method	10 μ F, 100 Hz	0.03%
92	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitor & Four Terminal Capacitance Standard by Direct Method	10 mF, 1 kHz	0.04%
93	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitor & Four Terminal Capacitance Standard by Direct Method	10 mF, 100 Hz	0.05%
94	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitor & Four Terminal Capacitance Standard by Direct Method	10 nF, 1 kHz	0.015%



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95	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Fused Silica Capacitance Standard by Direct Method	10 pF, 1 kHz	2.5ppm
96	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Fused Silica Capacitance Standard by Direct Method	10 pF, 50 Hz	0.06%
97	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Fused Silica Capacitance Standard by Direct Method	10 pF,100 Hz	3ppm
98	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitor & Four Terminal Capacitance Standard by Direct Method	100 µF, 1 kHz	0.03%
99	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitor & Four Terminal Capacitance Standard by Direct Method	100 µF, 100 Hz	0.03%



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100	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitor & Four Terminal Capacitance Standard by Direct Method	100 mF, 1 kHz	0.05%
101	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitor & Four Terminal Capacitance Standard by Direct Method	100 mF, 100 Hz	0.05%
102	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitor & Four Terminal Capacitance Standard by Direct Method	100 nF, 1 kHz	0.015%
103	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Fused Silica Capacitance Standard by Direct Method	100 pF, 1 kHz	2.3ppm
104	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Fused Silica Capacitance Standard by Direct Method	100 pF, 100 Hz	2.5ppm



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105	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Fused Silica Capacitance Standard by Direct Method	100 pF, 50 Hz	0.06%
106	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE AT HIGH VOLTAGE	Using Standard Gas Filled Capacitor by Direct Method	100 pF, up to 100 kV, 50 Hz	0.02%
107	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE AT HIGH VOLTAGE	Using Standard Gas Filled Capacitor by Direct Method	1000 pF, up to 30 kV, 50 Hz	0.012%
108	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE AT HIGH VOLTAGE	Using Standard Capacitor with High Precision Capacitance Bridge (Schering Bridge) by Comparison Method	125 pF, up to 2 kV 50 Hz	0.05%
109	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE AT HIGH VOLTAGE	Using Standard Capacitor with high Precision Capacitance Bridge (Schering Bridge) by Comparison Method	2000 pF, up to 2 kV, 50 Hz	0.05%



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110	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	INDUCTANCE	Using Standard Inductor by Direct Method	1 H,1 kHz	0.05%
111	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	INDUCTANCE	Using Standard Inductor by Direct Method	1 mH,1 kHz	0.15%
112	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	INDUCTANCE	Using Standard Inductor by Direct Method	10 H,1 kHz	0.06%
113	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	INDUCTANCE	Using Standard Inductor by Direct Method	10 mH,1 kHz	0.06%
114	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	INDUCTANCE	Using Standard Inductor by Direct Method	100 µH, 1 kHz	0.3%
115	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	INDUCTANCE	Using Standard Inductor by Direct Method	100 mH,1 kHz	0.05%



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116	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	POWER FACTOR / PHASE ANGLE	Using Precision Power Calibration System (PPCS) by Comparison Method	0° to 360°, 1V to 480 V, 10 mA to 100 A, 40 Hz to 70 Hz	0.0012°
117	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	POWER FACTOR / PHASE ANGLE	Using Three Phase Calibrator / Tester with Reference Meter by Comparison Method	0° to 360°, 25 V to 480V,1 mA to 160A, 40 Hz to 70 Hz	0.008°
118	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	POWER FACTOR / PHASE ANGLE	Using Multi Function Calibrator,Trans Conductance Amplifier , Power Energy Comparator with Precision AC Voltage Divider by Comparison Method	0° to 360°, 480V to 1050V, 1 mA to 120A, 50 Hz to 60 Hz	0.008°
119	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	TAN DELTA	Using Standard Tan Delta Calibrator with C & Tan Delta Measurement System by Comparison Method	1x 10 ⁻¹ ,1.5 x 10 ⁻¹ ,1.8 x up to 2 kV, 50 Hz	1.5%
120	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	TAN DELTA	Using Standard Gas Filled Capacitor with Dissipation Boxes by Direct Method	5 x 10 ⁻⁵ to 5 x 10 ⁻² up to 25 kV AC, 50 Hz	2.5 x 10 ⁻⁵ to 4.2 x 10 ⁻⁴



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121	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC CURRENT	Using Electrometer Standard Resistor / Standard Shunts with Reference Multimeter by Direct / V/R Method	1 mA to 20 A	40 ppm to 10 ppm
122	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC CURRENT	Using Electrometer Standard Resistor / Standard Shunts with Reference Multimeter by Direct / V/R Method	1 pA to 1 mA	1.5 % to 40 ppm
123	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC CURRENT	Using Electrometer Standard Resistor / Standard Shunts with Reference Multimeter by Direct / V/R Method	1000 A to 3000 A	20 ppm to 0.2 %
124	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC CURRENT	Using Electrometer Standard Resistor / Standard Shunts with Reference Multimeter by Direct / V/R Method	20 A to 1000 A	10 ppm to 20 ppm
125	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC HIGH VOLTAGE	Using DC High Voltage Divider & 6½ Digit Multimeter by Direct Method	1 kV to 100 kV	0.03%



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126	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC POWER / ENERGY	Using Digital Multimeters by Direct method	10 V to 1000 V, 1 A to 30 A	0.006 % to 0.05 %
127	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC RESISTANCE	Using DCC Bridge and Automated Dual Source & High Resistance Ratio Bridge by Comparison Method	1 µOhm to 10 Ohm	500 ppm to 1 ppm
128	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC RESISTANCE	Using DCC Bridge and Automated Dual Source & High Resistance Ratio Bridge by Comparison Method	1 TOhm to 100 TOhm	0.1 % to 1.5 %
129	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC RESISTANCE	Using DCC Bridge and Automated Dual Source & High Resistance Ratio Bridge by Comparison Method	10 Ohm to 100 MOhm	1 ppm to 15 ppm
130	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC RESISTANCE	Using DCC Bridge and Automated Dual Source & High Resistance Ratio Bridge by Comparison Method	100 GOhm to 1 TOhm	200 ppm to 0.1 %



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131	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC RESISTANCE	Using DCC Bridge and Automated Dual Source & High Resistance Ratio Bridge by Comparison Method	100 MOhm to 100 GOhm	15 ppm to 200 ppm
132	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC VOLTAGE	Using Reference Voltage Divider, DC Voltage Standard, Reference Multimeter & Multifunction Calibrator by Direct / Comparison Method	10 µV to 10 mV	500 ppm to 15 ppm
133	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC VOLTAGE	Using Binary Voltage Divider with Range Extender, DC Voltage Standard & Multifunction Calibrator by Direct / Comparison Method	10 mV to 10 V	0.6 ppm to 0.1 ppm
134	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC VOLTAGE	Using Binary Voltage Divider with Range Extender, DC Voltage Standard & Multifunction Calibrator by Direct / Comparison Method	10 V to 1050 V	0.1 ppm to 2.5 ppm



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135	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC CURRENT	Using High Precision Multitap Shunt with Standard Multimeter by Comparison / V/R Method	1 mA to 20 A	4 ppm to 20 ppm
136	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC CURRENT	Using High Precision Multitap Shunt with Standard Multimeter by Comparison / V/R Method	1 pA to 1 mA	500 ppm to 4 ppm
137	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC CURRENT	Using High Precision Multitap Shunt with Standard Multimeter by Comparison / V/R Method	1000 A to 3000 A	0.2 % to 0.5 %
138	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC CURRENT	Using High Precision Multitap Shunt with Standard Multimeter by Comparison / V/R Method	20 A to 1000 A	20 ppm to 0.2 %
139	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC HIGH VOLTAGE	Using DC High Voltage Source with DC High Voltage Divider & 6.5 Digit Multimeter by Comparison Method	1 kV to 100 kV	0.6%



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140	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC POWER DC Clamp-on-Power Meter	Using Multi Function Calibrator and Curent Coil	33 mV to 1000V, 3.3 mA to 1000 A	0.015 % to 0.8 %
141	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC POWER / ENERGY	Using Multi Function Calibrator by Direct Method	33 mV to 1000V, 3.3 mA to 20.5 A	0.015 % to 0.15 %
142	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Multi Function Calibrator and Decade Resistance Box with Reference Multimeter by Comparison Method	0.1 Ohm to 190 kOhm	60 ppm to 12 ppm
143	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Resistor by Direct Method	1 GOhm	0.03%
144	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Resistor by Direct Method	1 kOhm	2ppm



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145	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Precision Standard Shunt / Standard Resistors by Direct Method	1 mOhm	0.006%
146	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Resistor by Direct Method	1 MOhm	15ppm
147	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Resistor by Direct Method	1 Ohm	2ppm
148	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Resistor by Direct Method	1 TOhm	2%
149	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	10 μOhm (3000A/30 mV)	0.008%
150	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Resistor by Direct Method	10 GOhm	1.2%



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151	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Resistor by Direct Method	10 kOhm	2ppm
152	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Precision Standard Shunt / Standard Resistors by Direct Method	10 mOhm	0.0008%
153	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Resistor by Direct Method	10 MOhm	16ppm
154	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Resistor by Direct Method	10 Ohm	10ppm
155	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	100 μOhm (300A/30 mV)	0.005%
156	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Resistor by Direct Method	100 kOhm	15ppm



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157	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Precision Standard Shunt / Standard Resistors by Direct Method	100 mOhm	0.0005%
158	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Resistor by Direct Method	100 MOhm	30ppm
159	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using High Value Decade Resistance Box with Dual Voltage Source High Value Resistance Bridge by Comparison Method	100 MOhm to 1 TOhm	100 ppm to 1.2 %
160	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Resistor by Direct Method	100 Ohm	10ppm
161	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Resistor by Direct Method	100 TOhm	3%



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162	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	150 μ Ohm (400A/60 mV)	0.12%
163	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Precision Standard Shunt / Standard Resistors by Direct Method	16 mOhm	0.002%
164	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Multi Function Calibrator and Decade Resistance Box with Reference Multimeter by Comparison Method	190 kOhm to 100 MOhm	12 ppm to 100 ppm
165	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	200 μ Ohm (500A/100 mV)	0.003%
166	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	240 μ Ohm (250A/60 mV)	0.12%



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167	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	40 μ Ohm (1500A/60 mV)	0.005%
168	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	60 μ Ohm (1000A/60 mV)	0.12%
169	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	600 μ Ohm (100A/60 mV)	0.12%
170	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Precision Standard Shunt / Standard Resistors by Direct Method	8 mOhm	0.002%
171	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC VOLTAGE	Using Reference Voltage Divider, DC Voltage Standard, Reference Multimeter and Multifunction Calibrator by Direct / Comparison Method	10 μ V to 10 mV	500 ppm to 15 ppm



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172	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC VOLTAGE	Using Binary Voltage Divider with Range Extender, DC Voltage Standard & Multifunction Calibrator by Direct / Comparison Method	10 mV to 10 V	15 ppm to 0.1 ppm
173	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC VOLTAGE	Using Binary Voltage Divider with Range Extender, DC Voltage Standard & Multifunction Calibrator by Direct / Comparison Method	10 V to 1050 V	0.1 ppm to 2.5 ppm
174	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Electrostatic Discharge (± 2 kV to ± 15 kV) As per IEC 61000-4-2 :2008 Ed.2.0 Current at 60ns	Using Oscilloscope Model : DPO 7254C By Direct Method	2 A to 15 A	7.2%
175	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	TRANSFORMER TURNS RATION METER CALIBRATOR	Using Multifunction Calibrator with Digital Multimeters by Comparison Method	0.8 to 2100	0.03%
176	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	OSCILLOSCOPE TIME BASE(MARKER)	Using Multifunction Calibrator with Scope Option by Direct Method	1 ns to 20 ms	3ppm



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177	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	OSCILLOSCOPE TIME BASE(MARKER)	Using Multifunction Calibrator with Scope Option by Direct Method	50 ms to 5 s	80 ppm to 0.6 %
178	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	OSCILLOSCOPE AMPLITUDE (DEFLECTION FACTOR)	Using Multifunction Calibrator with Scope Option by Direct Method	1 mV to 6.6 V (50 Ohm)	5 % to 0.3 %
179	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	OSCILLOSCOPE AMPLITUDE (DEFLECTION FACTOR)	Using Multifunction Calibrator with Scope Option by Direct Method	1 mV to 130 V (1MOhm)	5 % to 0.15 %
180	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	OSCILLOSCOPE BANDWIDTH	Using Multifunction Calibrator with Scope Option by Direct Method	5 mV to 5.5 V(p-p), 50 kHz to 1.1 GHz	2.4 % to 5 %
181	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	TRANSFORMER TURNS RATIO METER	Using TTR Calibrator with Digital Multimeters by Comparison Method	0.8 to 10000 at 50 Hz	0.05%



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182	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Damped Oscillatory Generator (Short Circuit) Decaying	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 EM Test Load Resistor Model:KW0R1 by Direct method	Pk 5 must be > 25% of the PK1 to PK10 must be < 25% of the PK1	6.2%
183	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Damped Oscillatory Generator As per IEC 61000-4-18 :2011 Ed.1.1 I. Slow Damped Oscillatory (In open Circuit) Amplitude	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 by Direct Method	± 0.25 kV to ± 4 kV	6.6%
184	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Damped Oscillatory Generator As per IEC 61000-4-18 :2011 Ed.1.1 I. Slow Damped Oscillatory (In open Circuit) Amplitude	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 EM Test Load Resistor Model:KW0R1 by Direct Method	± 0.25 kV to ± 2.5 kV	6.6%



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185	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Damped Oscillatory Generator \$ As per IEC 61000-4-18 :2011 Ed.1.1 Fast Damped Oscillatory (Open Circuit)Bust Duration	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 EM Test Load Resistor Model:KW0R1 By Direct Method	3 MHz-50ms,10MHz-15ms,30MHz-5ms	6%
186	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Damped Oscillatory Generator \$ As per IEC 61000-4-18 :2011 Ed.1.1 Fast Damped Oscillatory (Open Circuit)Burst Period	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 EM Test Load Resistor Model:KW0R1 By Direct Method	300 ms	6%
187	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Damped Oscillatory Generator \$ As per IEC 61000-4-18 :2011 Ed.1.1 Fast Damped Oscillatory (Open Circuit)Decaying	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 EM Test Load Resistor Model:KW0R1 By Direct Method	Pk 5 must be > 50% of the Pk1 to Pk10 must be < 50% of the Pk1	6.7%



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188	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Damped Oscillatory Generator \$ As per IEC 61000-4-18 :2011 Ed.1.1 Fast Damped Oscillatory (Short Circuit) Current Amlitude	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 EM Test Load Resistor Model:KW0R1 By Direct Method	5 A to 80 A	6.2%
189	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Damped Oscillatory Generator \$ As per IEC 61000-4-18 :2011 Ed.1.1 Fast Damped Oscillatory (Short Circuit) Current Oscillation Frequency	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 EM Test Load Resistor Model:KW0R1 by Direct Method	3,10,30 MHz	6.1%
190	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Damped Oscillatory Generator \$ As per IEC 61000-4-18 :2011 Ed.1.1 Fast Damped Oscillatory (Short Circuit) Current Rise Time	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 EM Test Load Resistor Model:KW0R1 By Direct Method	3MHz<330ns ,10 MHz<100 ns, to 30MHz <33ns	6%



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191	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Damped Oscillatory Generator As per IEC 61000-4-18 :2011 Ed.1.1 I. Slow Damped Oscillatory (In open Circuit) Repetition Rate	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 EM Test Load Resistor Model:KW0R1 By Direct Method	40/s for 100kHz to 400/s for 1 MHz	6%
192	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Damped Oscillatory Generator As per IEC 61000-4-18 :2011 Ed.1.1 I. Fast Damped Oscillatory (Open Circuit) Amplitude	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 EM Test Load Resistor Model:KW0R1 By Direct Method	± 0.25kV kV to ± 4 kV	6.5%
193	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Damped Oscillatory Generator As per IEC 61000-4-18 :2011 Ed.1.1 I. Fast Damped Oscillatory (Open Circuit) Rise Time	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 EM Test Load Resistor Model:KW0R1 By Direct Method	5 ns	6.1%



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194	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Damped Oscillatory Generator As per IEC 61000-4-18 :2011 Ed.1.1 I. Fast Damped Oscillatory (Open Circuit) Voltage Oscillation Frequency	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 EM Test Load Resistor Model:KW0R1 By Direct Method	3, 10, 30 MHz	6.0%
195	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Damped Oscillatory Generator As per IEC 61000-4-18 :2011 Ed.1.1 I. Slow Damped Oscillatory (In open Circuit) Rise Time	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 by Direct Method	0.5 us	12.1%
196	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Damped Oscillatory Generator As per IEC 61000-4-18 :2011 Ed.1.1 I. Slow Damped Oscillatory (In open Circuit) Rise Time	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 EM Test Load Resistor Model:KW0R1 By Direct Method	75 ns	6.5%



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197	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Damped Oscillatory Generator As per IEC 61000-4-18 :2011 Ed.1.1 I. Slow Damped Oscillatory (In open Circuit) Voltage Decay	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 EM Test Load Resistor Model:KW0R1 By Direct Method	Pk 5 must be > 50% of the to Pk10 must be < 50% of the Pk1	6.7%
198	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Damped Oscillatory Generator As per IEC 61000-4-18 :2011 Ed.1.1 I. Slow Damped Oscillatory (Short Circuit) Current Amplitude	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 EM Test Load Resistor Model:KW0R1 By Direct Method	1.25 A to 12.5 A	6.3%
199	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Damped Oscillatory Magnetic Field As per IEC 61000-4-10 :2016 Ed.2.0 Decay Rate	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 by Direct Method	Pk5 shall be >50 % of the Pk1 Value to Pk10 shall be < 50 % of the Pk1 Value	6.3%



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200	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Damped Oscillatory Magnetic Field As per IEC 61000-4-10 :2016 Ed.2.0 Oscillation Period	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 by Direct Method	10 μ s \pm 1 μ s at 100kHz to 1 μ s \pm 0.1 μ s at 1MHz	6%
201	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Damped Oscillatory Magnetic Field As per IEC 61000-4-10 :2016 Ed.2.0 Peak Current	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 by Direct Method	11.1 A to 111 A (+/-) 20%	6.3%
202	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Damped Oscillatory Magnetic Field As per IEC 61000-4-10 :2016 Ed.2.0 Repetition Time	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 by Direct Method	25ms \pm 2.5 ms at 100kHz to 2.5ms \pm 0.25 ms at 1MHz	6%
203	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Electrical Fast Transient (50 Ohm & 1kOhm) As per IEC 61000-4-4 :2012 Ed.3.0 Pulse Width	Using Oscilloscope Model : DSO6054A, DPO 7254C With load resistor KW - 1000 KW - 50 by Direct Method	50 ns \pm 30% at 50 Ohm 50 ns, -15ns to +100 ns at 1kOhm	6.5%



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204	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Electrical Fast Transient (50 Ohm & 1kOhm) As per IEC 61000-4-4 :2012 Ed.3.0 Repetition Rate	Using Oscilloscope Model : DSO6054A, DPO 7254C With load resistor KW - 1000 KW - 50 by Direct Method	200µs (5kHz) 10 µs (100kHz)	6.5%
205	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Electrical Fast Transient (50 Ohm& 1 kOhm) As per IEC 61000-4-4 :2012 Ed.3.0 Burst Duration	Using Oscilloscope Model : DSO6054A, DPO 7254C With load resistor KW - 1000 KW - 50 by Direct Method	15ms (5 kHz) 0.75ms (100kHz)	6.5%
206	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Electrical Fast Transient (50 Ohm& 1 kOhm) As per IEC 61000-4-4 :2012 Ed.3.0 Burst Period	Using Oscilloscope Model : DSO6054A, DPO 7254C With load resistor KW - 1000 KW - 50 by Direct Method	300 ms	6.5%
207	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	ELECTRICAL FAST TRANSIENT (50 Ohm & 1 kOhm) as per IEC 61000-4-4:2012 Ed 3.0 Amplitude	Using Oscilloscope Model : DSO6054A, DPO 7254C With load resistor KW - 1000 KW - 50 by Direct Method	±0.25 kV to ±4.0 kV	6.7%
208	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	ELECTRICAL FAST TRANSIENT (50 Ohm & 1 kOhm) as per IEC 61000-4-4:2012 Ed 3.0 Rise Time	Using Oscilloscope Model : DSO6054A, DPO 7254C With load resistor KW - 1000 KW - 50 by Direct Method	5 ns	6.5%



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209	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Electrostatic Discharge (± 2 kV to ± 15 kV) As per IEC 61000-4-2 :2008 Ed.2.0 Current at 30ns	Using Oscilloscope Model : DPO 7254C By Direct Method	4 A to 30 A	7.2%
210	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Electrostatic Discharge (± 2 kV to ± 15 kV) As per IEC 61000-4-2 :2008 Ed.2.0 Current at 60 ns	Using Oscilloscope Model : DPO 7254C By Direct Method	2 A to 15 A	7.2%
211	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Electrostatic Discharge (± 2 kV to ± 15 kV) As per IEC 61000-4-2 :2008 Ed.2.0 Peak Current	Using Oscilloscope Model : DPO 7254C By Direct Method	± 7.5 A to ± 60 A	7.2%
212	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Power frequency Magnetic Field As per IEC 61000-4-8 :2009 Ed.2.0 Current	Using Std. Ref. Meter Model MT 310 by Direct Method	1 A to 100 A	1 % to 1 %
213	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Pulse Magnetic Field As per IEC 61000-4-9 :2016 Ed.2.0 Pulse Duration	Using Oscilloscope Model : DSO6054A, DPO 7254C With Pearson Current Monitor Model 411 by Direct Method	20 μ s	6.1%



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214	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Pulse Magnetic Field As per IEC 61000-4-9 :2016 Ed.2.0 Pulse Level	Using Oscilloscope Model : DSO6054A, DPO 7254C With Pearson Current Monitor Model 411 by Direct Method	100 A to 1000 A	6.3%
215	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Pulse Magnetic Field As per IEC 61000-4-9 :2016 Ed.2.0 Rise Time	Using Oscilloscope Model : DSO6054A, DPO 7254C With Pearson Current Monitor Model 411 by Direct Meter	8 μ s	6.1%
216	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Ring Wave Generator Open Circuit As per IEC 61000-4-12 :2017 Ed.3.0 Amplitude	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 by Direct Method	\pm 0.25 kV to \pm 4 kV	6.6%
217	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Ring Wave Generator Open Circuit As per IEC 61000-4-12 :2017 Ed.3.0 Decaying	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411	Pk2 40 % to 110 % of Pk1 Pk3 40% to 80% of Pk2 Pk4 40% to 80% of Pk3	6.7%



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218	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Ring Wave Generator Short Circuit As per IEC 61000-4-12 :2017 Ed.3.0 Current Amplitude	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 by Direct Method	20.8 to 333.3 A at 12 Ohm 8.3 to 133.3 A at 30 Ohm	6.2%
219	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Ring Wave Generator Short Circuit As per IEC 61000-4-12 :2017 Ed.3.0 Rise Time	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 by Direct Method	< 1 us	11.8%
220	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Ring Wave Generator Open Circuit As per IEC 61000-4-12 :2017 Ed.3.0 Oscillation Frequency	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 by Direct Method	100 kHz	6.5%



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221	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Ring Wave Generator Open Circuit As per IEC 61000-4-12 :2017 Ed.3.0 Rise Time	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 by Direct Method	0.5 us	12.1%
222	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Surge In Open Circuit Voltage As per IEC 61000-4-5 :2017 Ed.3.1 Amplitude	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 By Direct Method	± 0.5 kV to ± 7.0 kV	6.6%
223	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Surge In Open Circuit Voltage As per IEC 61000-4-5 :2017 Ed.3.1 Front Time	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 By Direct Method	1.2 μs	7.9%



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224	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Surge In Open Circuit Voltage As per IEC 61000-4-5 :2017 Ed.3.1 Pulse Width	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 By Direct Method	50 μ s	6.5%
225	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Surge In Short Circuit Current As per IEC 61000-4-5 :2017 Ed.3.1 Current Amplitude	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 By Direct Method	± 0.25 kA to ± 4 kA (± 0.5 kV to ± 7.0 kV)	6.3%
226	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Surge In Short Circuit Current As per IEC 61000-4-5 :2017 Ed.3.1 Front Time	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 By Direct Method	8 μ s	6.1%



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227	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Surge In Short Circuit Current As per IEC 61000-4-5 :2017 Ed.3.1 Pulse Width	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 By Direct Method	20 μ s	6.0%
228	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Telecom Surge In Open Circuit Voltage As per IEC 61000-4-5 :2017 Ed.3.1 Amplitude	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 by Direct Method	\pm 0.5 kV to \pm 10.0 kV	6.6%
229	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Telecom Surge In Open Circuit Voltage As per IEC 61000-4-5 :2017 Ed.3.1 Front Time	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 by Direct Method	10 μ s	7.9%



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230	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Telecom Surge In Open Circuit Voltage As per IEC 61000-4-5 :2017 Ed.3.1 Pulse Width	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 by Direct Method	700 μ s	6.5%
231	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Telecom Surge In Short Circuit Current As per IEC 61000-4-5 :2017 Ed.3.1 Current Amplitude	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 by Direct Method	± 12.5 A to ± 250 A (± 0.5 kV to ± 10.0 kV)	6.3%
232	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Telecom Surge In Short Circuit Current As per IEC 61000-4-5 :2017 Ed.3.1 Pulse Width	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 by Direct Method	320 μ s	6.0%



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233	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Telecom Surge In Short Circuit Current As per IEC 61000-4-5 :2017 Ed.3.1 Front Time	Using Oscilloscope Model : DSO6054A, DPO 7254C With Differential probe model 4241 & Current Monitor Model 411 by Direct Method	5 μ s	6.1%
234	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Voltage Dips and interruption at 230V AC 50 Hz & DC. As per IEC 61000-4-11 :2017 IEC 61000-4-29 :2000	Using Oscilloscope Model : DSO6054A With Differential probe model 4241 by Direct Method	0 % to 80 % of Voltage	5%
235	ELECTRO-TECHNICAL-EMI/ EMC (Measure)	Voltage Dips and interruption at 230V AC 50 Hz & DC. As per IEC 61000-4-11 :2017 IEC 61000-4-29 :2000	Using Oscilloscope Model : DSO6054A With Differential probe model 4241 by Direct Method	10 ms to 5 s	6%
236	ELECTRO-TECHNICAL-OTHERS (Measure)	HARMONICS FUNDAMENTAL FREQUENCY 50 Hz	Using Power / Energy Comparator by Direct Method	1 to 40th order with Fundamental Frequency	0.5%
237	ELECTRO-TECHNICAL-OTHERS (Measure)	IMPULSE VOLTAGE (AMPLITUDE)	Using Impulse Probe with DSO by Direct Method	1 kV to 15 kV	6.3%



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238	ELECTRO-TECHNICAL-OTHERS (Measure)	IMPULSE VOLTAGE (TIME)	By Using Impulse Probe with DSO by Direct Method	10 ns to 100 us	0.1%
239	ELECTRO-TECHNICAL-OTHERS (Source)	IMPULSE CALIBRATION Time Parameters Tp(Time to Peak)	Using Reference Impulse Calibrator by using Direct Method	20 us	2.5%
240	ELECTRO-TECHNICAL-OTHERS (Source)	IMPULSE CALIBRATION Load:>250 kOhm, 100 pF to 300 pF Lightning Impulse Chopped Voltage (LIC)	Using Reference Impulse Calibrator by Direct Method	400 V to 1250 V,(+/- Polarity)	1.3%
241	ELECTRO-TECHNICAL-OTHERS (Source)	IMPULSE CALIBRATION Load:>250 kOhm, 100 pF to 300 pF Time Parameters, T2(Time to Half Value)	Using Reference Impulse Calibrator by Direct Method	60 us	2.5%
242	ELECTRO-TECHNICAL-OTHERS (Source)	IMPULSE CALIBRATION Time Parameters Tc (Time to Chop)	Using Reference Impulse Calibrator by using Direct Method	0.50 us	2.5%



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243	ELECTRO-TECHNICAL-OTHERS (Source)	IMPULSE CALIBRATION Load:>250 kOhm,100 pF to 300 pF Lightning Impulse(LI)	Using Reference Impulse Calibrator by Direct Method	80 V to 1600 V,(+/- Polarity)	0.6%
244	ELECTRO-TECHNICAL-OTHERS (Source)	IMPULSE CALIBRATION Load:>250 kOhm,100 pF to 300 pF Time parameters T1(Front Time)	Using Reference Impulse Calibrator by Direct Method	0.84 us	2.5%
245	ELECTRO-TECHNICAL-OTHERS (Source)	IMPULSE CALIBRATION Switching Impulse Voltage (SI)	Using Reference Impulse Calibrator by Direct Method	80 V to 1600 V (+/- Polarity)	0.6%
246	ELECTRO-TECHNICAL-OTHERS (Source)	IMPULSE CALIBRATION Time Parameters T2 (Time to Half Value)	Using Reference Impulse Calibrator by Direct Method	4000 us	2.5%
247	ELECTRO-TECHNICAL-OTHERS (Source)	PARTIAL DISCHARGE CALIBRATION APPARENT CHARGE(qo)	Using Partial Discharge Calibrator by Comparison Method. Calibration of partial discharge calibrator (IEC 60270:2000 + AMD1:2015)	1 pC to 50 nC	6%



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248	ELECTRO-TECHNICAL-OTHERS (Source)	POWER QUALITY HARMONICS	Using Multifunction Calibrator with PQ Option by Direct Method	1 to 40th	0.2%
249	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	AMPLITUDE MODULATION	Using RF Calibrator by Direct Method	Carrier Frequency :125 MHz to 1 GHz, Modulation Depth : 10 % to 99 %, Modulation Rate : 1 Hz to 100 kHz at 125 MHz, 1 Hz to 20 kHz at 1 GHz	5%
250	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	FREQUENCY MODULATION	Using RF Calibrator by Direct Method	Carrier Frequency :125 MHz to 1 GHz, Modulation Rate : 400 Hz to 200 kHz, Deviation : 1 Hz to 300 kHz at 125 MHz, 300 kHz to 1 MHz at 1 GHz	4%
251	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF ATTENUATION	Using RF Calibrator by Direct Method	1 dB to 110 dB	0.03 dB to 0.2 dB



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252	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF POWER (With 50 Ohm Level Head)	Using RF Calibrator by Direct Method	+20 dBm to +24 dBm, 10 Hz to 128 MHz	2.2%
253	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF POWER (With 50 Ohm Level Head)	Using RF Calibrator by Direct Method	-48 dBm to +14 dBm, 1.4 GHz to 4 GHz	15%
254	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF POWER (With 50 Ohm Level Head)	Using RF Calibrator by Direct Method	-48 dBm to +20 dBm, 10 Hz to 1.4 GHz	6%
255	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF POWER (With 50 Ohm Level Head)	Using RF Calibrator by Direct Method	-94 dBm to -48 dBm, 100 kHz to 4 GHz	30%
256	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF POWER (With 75 Ohm Level Head)	Using RF Calibrator by Direct Method	+14 dBm to -54 dBm, 125 MHz to 4 GHz	16%



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257	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF POWER (With 75 Ohm Level Head)	Using RF Calibrator by Direct Method	+18 dBm to -54 dBm, 10 Hz to 125 MHz	5%
258	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF POWER (With 75 Ohm Level Head)	Using RF Calibrator by Direct Method	-100 dBm to -90 dBm, 100 kHz to 3 GHz	30%
259	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF POWER (With 75 Ohm Level Head)	Using RF Calibrator by Direct Method	-90 dBm to -54 dBm, 100 kHz to 4 GHz	20%
260	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	TEMPERATURE BY SIMULATION METHOD : For Temperature Indicators, Recorders, Controllers T/C - K, J, N, E, T, R, S, B, C, L & U	Using Reference Multimeter, Nano Volt Micro Ohm Meter by Simulation Method	-270 °C to 2300 °C	0.01 °C to 0.26 °C



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261	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	TEMPERATURE BY SIMULATION METHOD : For Temperature Indicators, Recorders, Controllers : RTD	Using Reference Multimeter, Nano Volt Micro Ohm Meter by Simulation Method	-200 °C to 850 °C	0.001 °C to 0.02 °C
262	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	For Temperature Indicators, Recorders, Controllers RTD	Using Multifunction Calibrator with Reference Multimeter by Simulation Method	-200 °C to 850 °C	0.005 °C to 0.02 °C
263	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	For Temperature Indicators, Recorders, Controllers T/C: K,J,N,E,T,R,S,B,C,L&U	Using Multifunction Calibrator with Reference Multimeter by Simulation Method	-270 °C to 2300 °C	0.01 °C to 0.26 °C
264	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	FREQUENCY / PERIOD	Using GPS Controlled Frequency Standard & Counter by Direct Method	40 mHz to 20 GHz , 50 ps to 25 s	4 X 10-8 to 1.5 X 10-11
265	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	TIME INTERVAL	Using GPS Controlled Frequency Standard & Counter by Comparison Method	1 μs to 1000 s	1.1 x 10-3 to 1.1 x 10-7



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266	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	TIME INTERVAL	Using GPS Controlled Frequency Standard & Counter by Comparison Method	1000 s to 24 Hours & Multiple of 24 Hrs	1 x 10 ⁻⁷ to 0.023 %
267	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	FREQUENCY / TIME PERIOD	Using GPS Controlled Rubidium Standard with RF Reference Source by Direct Method	40 mHz to 4 GHz 250 ps to 25 s	1.5 x 10 ⁻¹¹ to 1.3 x 10 ⁻¹²
268	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	TIME INTERVAL	Using Multi Function Calibrator and Frequency Counter / Timer / Analyzer by Comparison Method	1 μs to 1000 s	1.1 x 10 ⁻³ to 1.1 x 10 ⁻⁷
269	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	TIME INTERVAL	Using Multi Function Calibrator and Frequency Counter / Timer / Analyzer by Comparison Method	1000 s to 24 Hours & Multiple of 24 Hrs.	1 x 10 ⁻⁷ to 0.023 %
270	FLUID FLOW-FLOW MEASURING DEVICES	Mass Flow Rate	Using Calibration Rig. at Lab by Comparison Method as per ISO-4185	1500 kg/h to 240000 kg/h	0.20%
271	FLUID FLOW-FLOW MEASURING DEVICES	Volumetric Flow Rate	Using Calibration Rig at Lab by Comparison Method as per ISO-4185	1.5 m ³ /h to 240 m ³ /h	0.20%



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272	MECHANICAL-ACCELERATION AND SPEED	Non Contact Mode RPM Measurement / Stroboscope	Using Digital Reference Tachometer with Servo Speed Controller (Speed Calibration System with a Non Contact Type Tachometer as a reference along with servo Speed Controller as per SANAS TR-45-01:2008 by Comparison Method	>100000 RPM to 120000 RPM	24RPM
273	MECHANICAL-ACCELERATION AND SPEED	Non Contact Mode RPM Measurement / Stroboscope	Using Digital Reference Tachometer with Servo Speed Controller (Speed Calibration System with a Non Contact Type Tachometer as a reference along with servo Speed Controller as per SANAS TR-45-01:2008 by Comparison Method	>12000 RPM to 100000 RPM	6RPM



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274	MECHANICAL-ACCELERATION AND SPEED	Non Contact Mode RPM Measurement / Stroboscope	Using Digital Reference Tachometer with Servo Speed Controller (Speed Calibration System with a Non Contact Type Tachometer as a reference along with servo Speed Controller as per SANAS TR-45-01:2008 by Comparison Method	>30 RPM to 12000 RPM	3RPM
275	MECHANICAL-ACCELERATION AND SPEED	Non Contact Mode RPM Measurement / Stroboscope	Using Digital Reference Tachometer with Servo Speed Controller (Speed Calibration System with a Non Contact Type Tachometer as a reference along with servo Speed Controller as per SANAS TR-45-01:2008 by Comparison Method	10 RPM to 1000 RPM	0.83RPM



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276	MECHANICAL-ACCELERATION AND SPEED	SPEED Calibration of Tachometer / RPM Measurement / Stroboscope / Tachometer (Contact Mode)	Using Digital Reference Tachometer with Servo Speed Controller by Comparison Method	>1000 RPM to 12000 RPM	3RPM
277	MECHANICAL-ACCELERATION AND SPEED	SPEED Calibration of Tachometer / RPM Measurement / Stroboscope / Tachometer (Contact Mode)	Using Digital Reference Tachometer with Servo Speed Controller by Comparison Method	10 RPM to 1000 RPM	0.83RPM
278	MECHANICAL-ACOUSTICS	Sound (Measure)	Sound Level Calibrator with Sound Level Meter by Comparison Method	74 dB to 114 dB at 125 Hz to 4 kHz	0.39dB
279	MECHANICAL-ACOUSTICS	Sound (Source)	Using Sound Level Calibrator by Direct Method	74,84,94,104,114 dB at 125 Hz,500 Hz,1 kHz ,4 kHz	0.39dB
280	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	DIAL THICKNESS GAUGE L.C. 1µm	Tungstun Carbide Slip Gauge Grade '0' by Comparison Method	Up to 10 mm	7.1 µm



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281	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	LENGTH GAUGE / SETTING ROD / LENGTH BAR / HEIGHT BLOCK	Electronic Probe With DRO, Tungstun Carbide Slip Gauge Grade '0' & Long Slip Gauge Grade 'K' & Comparator Stand by Comparison Method	Up to 500 mm	4.4 µm
282	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	MICROMETER HEAD L.C. 1µm	Tungstun Carbide Slip Gauge Grade '0' & 'I' , Comparator stand and Optical Flat by Comparison Method	Up to 50 mm	2.69 µm
283	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	BEVEL PROTRACTOR L.C. 1 min	Steel Angle Gauge Set & Surface Plate By Comparison Method	0 ° to 180 °	0.71min
284	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	BORE DIAL GAUGE (Transmission movement)	Electronic Dial Calibrator Tester By Comparison Method	Up to 2 mm	3.9µm



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285	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	CALIPER CHECKER	Check Master & Lever Dial Gauge by Comparison Method	Up to 1000 mm	4.6 μm
286	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	CALLIPERS (Vernier,Dial , Digital) L.C.10μm	Check Master & Tungsten Carbide Slip Gauge Grade '0' by Comparison Method	up to 1000 mm	13.2μm
287	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	CALLIPERS (Vernier,Dial , Digital) L.C.10μm	Calliper Checker by Comparison Method	up to 600 mm	10.1μm
288	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	CYLINDRICAL MEASURING PINS	Electronic Probe With DRO, ungssten Carbide Slip Gauge Grade '0' & Comparator Stand by Comparison Method	Up to 20 mm	1.3 μm
289	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	DEPTH GAUGE (Vernier, Dial, Digital) L.C. 10μm & coarser	Tungstun Carbide Slip Gauge Grade '0' & Long Slip Gauge Grade 'K' and Surface Plate by Comparison Method	Up to 300 mm	7.8 μm



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290	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	DEPTH MICROMETER L.C. 1µm	Tungstun Carbide Slip Gauge Grade '0' & Long Slip Gauge Grade 'K' and Surface Plate by Comparison Method	Up to 300 mm	5.0 µm
291	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	DIAL GAUGES (PLUNGER / LEVER TYPE) L.C. 1 µm	Electronic Dial Calibrator Tester By Comparison Method	Up to 25 mm	3.9µm
292	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	DIAL GAUGES (PLUNGER / LEVER TYPE) L.C. 10 µm	Universal Measuring System By Comparison Method	Up to 50 mm	5.1µm
293	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	EXTERNAL MICROMETER L.C. 1µm	Tungsten Carbide Slip Gauge Grade '0' & 'I' & Optical Flat by Comparison Method	Up to 25 mm	1.2µm
294	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	EXTERNAL MICROMETER L.C. 1µm	Tungsten Carbide Slip Gauge Grade '0' & 'I' , Long Slip Gauge Grade 'K' & Optical Flat by Comparison Method	up to 300 mm	3.1µm



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295	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	FEELER GAUGES	Digital Micrometer	Up to 2 mm	1.9µm
296	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	HEIGHT GAUGE (Vernier, Dial, Digital) L.C. 10µm	Calliper Checker & Surface Plate by Comparison Method	up to 600 mm	12.8µm
297	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	INDUSTRIAL GAUGE GO - NOGO GAUGE (ELECTRICAL VERIFICATION) (Parameter - Angle)	Universal Measuring System	Up to 90°	1.2 min.
298	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	INDUSTRIAL GAUGE GO - NOGO GAUGE (ELECTRICAL VERIFICATION) (Parameter - Diameter, Width, Length, Thickness)	Coordinate Measuring Machine	Up to 100 mm	5.7 µm
299	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	INDUSTRIAL GAUGE TEST PROBE (ELECTRICAL) (Parameter - Angle)	Universal Measuring System	Up to 90°	1.2 min.



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300	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	INDUSTRIAL GAUGE TEST PROBE (ELECTRICAL) (Parameter - Length, Diameter)	Universal Measuring System & IEC 61032	Up to 450 mm	5 µm
301	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	INSIDE MICROMETER L.C. 1µm	Universal Measuring System	25 mm to 200 mm	11 µm
302	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	MEASURING SCALE L.C. 50µm	Tape & Scale Calibrator By Comparison Method	Up to 1000 mm	75µm
303	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	MEASURING SCALE L.C. 50µm	Tape & Scale Calibrator by Comparison Method	Up to 2000 mm	100vL µm (L in m)
304	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	MEASURING TAPE (Oven metallic steel, Fiber, Cloth) L.C. 1.0mm	Tape & Scale Calibrator by Comparison Method	Up to 50000 mm	108 vL µm (L in m)



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305	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	PLAIN PLUG GAUGE / CYLINDRICAL SETTING MASTER / PLAIN MANDRELL	Tungstun Carbide Slip Gauge Grade '0' and Electronic Probe With DRO & Comparator Stand by Comparison Method	Up to 100 mm	3.3 µm
306	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	RING GAUGE	Coordinate Measuring Machine by Comparison Method	Up to 100 mm	6.5 µm
307	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	SNAP GAUGE / DIAL SNAP GAUGE (Parameter - Flatness, Parallelism)	Tungstun Carbide Slip Gauge Grade '0' & Long Slip Gauge Grade 'K' and Lever Dial Gauge by Comparison Method	Up to 300 mm	2.6 µm
308	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	STEP WEDGE	Digital Micrometer and Lever Dial Gauge	uP TO 40 mm	5.7 µm
309	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	TEST SIEVE (Aperture size & Pitch)	Universal Measuring System by Comparison Method	30 µm to 4 mm	6.1 µm



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310	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	ULTRASONIC THICKNESS GAUGE	Tungstun Carbide Slip Gauge Grade '0' & Long Slip Gauge Grade 'K' by Comparison Method	Up to 300 mm	71 µm
311	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	WIRE GAUGE (Parameter - diameter)	Universal Measuring System By Comparison Method	Up to 10 mm	5.1 µm
312	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	ANGLE GAUGE (Error in angle)	Coordinate Measuring Machine by Comparison Method	Up to 90°	1min.
313	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	CMM L.C. 0.01µm	Check Master By Comparison Method	Up to 1500 mm	6 µm
314	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	CNC MACHINE (Positioning accuracy)	Laser Measuring System	Up to 15000 mm	5.7 µm
315	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	ELECTRONIC HEIGHT GAUGE L.C. 0.1µm	Check Master by Comparison Method	Up to 1000 mm	5.2µm



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316	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	ELECTRONIC HEIGHT GAUGE L.C. 0.1µm	Check Master by Comparison method	Up to 600 mm	4.4µm
317	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	PROFILE PROJECTOR (Angle)	Steel Angle Gauge Set	0° to 360°	2.7min.
318	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	PROFILE PROJECTOR (Linear) L.C. 1 µm	Glass Scale by Comparison Method	300 X 300	1.8
319	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	PROFILE PROJECTOR (Magnification)	Slip Gauge Grade '0' & Digital Caliper by Comparison Method	10X-100X	0.16%
320	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	ROTARY / INDEXING TABLE	Laser Measuring System with Rotary Indexer	0° to 360°	2.3 min.
321	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	TAPE & SCALE CALIBRATOR L.C. 1µm	Tungstun Carbide Slip Gauge Grade '0' & Long Slip Gauge Grade 'K' by Comparison Method	Up to 1000	16
322	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	UNIVERSAL MEASURING SYSTEM / LENGTH MEASURING MACHINE L.C. 1.0µm	Tungstun Carbide Slip Gauge Grade '0' & Long Slip Gauge Grade 'K' by Comparison Method	X Axis 300 mm to Y Axis 200 mm	1.8µm



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323	MECHANICAL-PRESSURE BALANCE OR DEAD WEIGHT TESTER	Hydraulic Dead Weight Tester (HYDRAULIC)	By using Fluke Corp. Hydraulic DWT Cross Float System PG7302 series (With two different PCU) by cross float comparison method UUC to Standard as per Euramet-cg-3.	2 bar g & a to 2500 bar g & a	0.007% of rdg
324	MECHANICAL-PRESSURE BALANCE OR DEAD WEIGHT TESTER	Pneumatic Dead Weight Tester (PNEUMATIC)	By using DWT Cross Float System Make: DHI, Model: PG-7601 (With three different PCU) by cross float comparison method UUC to Standard as per Euramet-cg-3.	0.1 bar g to 35 bar g	0.005% of rdg
325	MECHANICAL-PRESSURE INDICATING DEVICES	Calibration of Absolute Pressure Manometer/ Indicators/Calibrator, Analog/Digital Barometers, Pressure Transmitter, Pressure Instruments (PNEUMATIC).	By using Paroscientific Digital Pressure Indicator Model: 785-50A-500A, by comparison method UUC to Standard as per DKD-R-6-1.	0 bar a to 1 bar a	0.02% of rdg



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326	MECHANICAL-PRESSURE INDICATING DEVICES	Calibration of Pneumatic Pressure Indicator/Calibrator/ Controller, Digital Pressure Gauges, Pressure Transmitter and Pressure Instruments (PNEUMATIC).	By Using Pneumatic DWT, Make: DH-Budenberg, Model: 5201S by comparison method UUC to Standard as per DKD-R-6-1.	2 bar g to 200 bar g	0.005% of rdg
327	MECHANICAL-PRESSURE INDICATING DEVICES	Digital Pressure Indicator/Calibrator/ Controller, Pressure Instruments and Gauges, Pressure Transmitter (Pneumatic)	By using Paroscientific Digital Pressure Indicator Model: 785-50A-500A, by Comparison UUC to Standard as per DKD-R-6-1	-0.9750 bar g to -0.1 bar g	0.005% of rdg
328	MECHANICAL-PRESSURE INDICATING DEVICES	Pneumatic Pressure Indicator/Calibrator/ Controller, Digital Pressure Gauges and Pressure Instruments, Pressure Transmitter (PNEUMATIC).	By using Pneumatic DWT, Make: DHI, Model: PG7601 (with three different PCU) by comparison method UUC to Standard as per DKD-R-6-1.	0.1 bar g & a to 35 bar g & a	0.005% of rdg



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329	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure Indicator, Pressure Calibrator/Controller, Pressure Chart Recorders, Pressure Transmitter, Pressure Instruments and Analog Gauge (HYDRAULIC).	By using Fluke corp. Hydraulic DWT PG7302 Series (with two different PCU) by direct method UUC to Standard as per DKD-R-6-1.	2 bar g & a to 2800 bar g & a	0.007% of rdg
330	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure Indicator/Calibrator, Manometer, Magnehelic Gauge, Low Pressure Gauges, Low Pressure Instruments, Pressure Instruments, Pressure Transmitter(PNEUMATIC)	By Using Fluke-Corp. Digital Pressure Controller/Indicator(Model: 7250i) By using comparison method UUC to Standard as per DKD-R-6-1.	75 mbar g to 350 mbar g	0.02% of rdg



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331	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure Indicator/Calibrator, Manometer, Magnehelic Gauge, Low Pressure Gauges, Low Pressure Instruments, Pressure Instruments, Pressure Transmitter(PNEUMATIC)	By Using Fluke-Corp. Digital Pressure Controller/Indicator(Model: 7250i) by comparison method UUC to standard as per DKD-R-6-1.	-75 mbar g to -350 mbar g	0.02% of rdg
332	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure Indicator/Calibrator, Manometer, Magnehelic gauge, Low Pressure Gauges, Low Pressure Instruments, Pressure Instruments, Pressure transmitter (PNEUMATIC)	By Using Fluke Digital Pressure Controller, Fluke Indicator (Model:7250LP) by Comparison Method UUC to Standard as per DKD-R-6-1	0 mbar g to 75 mbar g	0.02% of rdg



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333	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure Indicator/Calibrator, Manometer, Magnetic gauge, Low Pressure Gauges, Low Pressure Instruments, Pressure Instruments, Pressure Transmitter (PNEUMATIC)	By Using Fluke Digital Pressure Controller, Fluke Indicator(Model: 7250LP) By Comparison Method UUC to standard as per DKD-R-6-1	0 mbar g to -75 mbar g	0.02% of rdg
334	MECHANICAL-TORQUE MEASURING DEVICES	TORQUE SCREW DRIVER	Torque Transducer with Display Unit & ISO 6789:2017	0 Nm to 10 Nm	2.98%
335	MECHANICAL-TORQUE MEASURING DEVICES	TORQUE WRENCH DRIVER	Torque Transducer with Display Unit & ISO 6789:2017	0 Nm to 20 Nm	2.98%
336	MECHANICAL-TORQUE MEASURING DEVICES	TORQUE WRENCH DRIVER	Torque Transducer with Display Unit & ISO 6789:2017	1000 Nm to 2000 Nm	2.0%
337	MECHANICAL-TORQUE MEASURING DEVICES	TORQUE WRENCH DRIVER	Torque Transducer with Display Unit & ISO 6789:2017	20 Nm to 1000 Nm	2.36%



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338	MECHANICAL-VOLUME	Glassware / Pipette / Burette / Measuring Cylinder / Volumetric Flask / Graduated jar / Can etc	Using weighing balance of d:0.1 mg & d:1 mg& distilled water by Gravimetric method based on IS/ISO 4787	>10 ml to 100 ml	0.07ml
339	MECHANICAL-VOLUME	Glassware / Pipette / Burette / Measuring Cylinder / Volumetric Flask / Graduated jar / Can etc	Using weighing balance of d:0.1 mg & d:1 mg& distilled water by Gravimetric method based on IS/ISO 4787	>100 ml to 2000 ml	0.62ml
340	MECHANICAL-VOLUME	Glassware / Pipette / Burette / Measuring Cylinder / Volumetric Flask / Graduated jar / Can etc	Using weighing balance of d:0.1 mg & d:1 mg & distilled water by Gravimetric method based on IS/ISO 4787	>2000 ml to 20000 ml	4ml
341	MECHANICAL-VOLUME	Glassware / Pipette / Burette / Measuring Cylinder / Volumetric Flask / Graduated jar / Can etc	Using weighing balance of d:0.1 mg & d:1 mg& distilled water by Gravimetric method based on IS/ISO 4787	1 ml to 10 ml	12µl



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342	MECHANICAL-VOLUME	Micropipettes / Piston operated pipettes	Using weighing balance with d:0.001 mg & distilled water by Gravimetric method based on ISO 8655 - Part 6	5 µl to 1000 µl	0.4µl
343	MECHANICAL-WEIGHTS	Weights	Using E1 class standard weights 1 mg to 200 g and Balance of d:0.001 mg & 0.01 mg (Calibration of weights as per OIML R111-1 of accuracy class E2)	1 g	0.006mg
344	MECHANICAL-WEIGHTS	Weights	Using E1 class standard weight 1 kg and using Mass Comparator of d:0.1 mg (Calibration of weights as per OIML R111-1 of accuracy class E2)	1 kg	0.5mg



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345	MECHANICAL-WEIGHTS	Weights	Using E1 class standard weights 1 mg to 200 g and Balance of d:0.001 mg & 0.01 mg (Calibration of weights as per OIML R111-1 of accuracy class E2)	1 mg to 100 mg	0.003mg
346	MECHANICAL-WEIGHTS	Weights	Using E1 class standard weights 1 mg to 200 g and Balance of d:0.001 mg & 0.01 mg (Calibration of weights as per OIML R111-1 of accuracy class E2)	10 g	0.02mg
347	MECHANICAL-WEIGHTS	Weights	Using E1 class standard weight 10 kg and using Mass Comparator of d:1 mg (Calibration of weights as per OIML R111-1 of accuracy class E2)	10 kg	4mg



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348	MECHANICAL-WEIGHTS	Weights	Using E1 class standard weights 1 mg to 200 g and Balance of d:0.001 mg & 0.01 mg (Calibration of weights as per OIML R111-1 of accuracy class E2)	100 g	0.04mg
349	MECHANICAL-WEIGHTS	Weights	Using E1 class standard weights 1 mg to 200 g and Balance of d:0.001 mg & 0.01 mg (Calibration of weights as per OIML R111-1 of accuracy class E2)	2 g	0.008mg
350	MECHANICAL-WEIGHTS	Weights	Using E1 class standard weight 2 kg and using Mass Comparator of d:0.1 mg (Calibration of weights as per OIML R111-1 of accuracy class E2)	2 kg	1mg



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351	MECHANICAL-WEIGHTS	Weights	Using E1 class standard weights 1 mg to 200 g and Balance of d:0.001 mg & 0.01 mg (Calibration of weights as per OIML R111-1 of accuracy class E2)	20 g	0.03mg
352	MECHANICAL-WEIGHTS	Weights	Using E1 class standard weight 20 kg and using Mass Comparator of d:1 mg (Calibration of weights as per OIML R111-1 of accuracy class E2)	20 kg	9mg
353	MECHANICAL-WEIGHTS	Weights	Using E1 class standard weights 1 mg to 200 g and Balance of d:0.001 mg & 0.01 mg (Calibration of weights as per OIML R111-1 of accuracy class E2)	200 g	0.07mg



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354	MECHANICAL-WEIGHTS	Weights	Using E1 class standard weights 1 mg to 200 g and Balance of d:0.001 mg & 0.01 mg (Calibration of weights as per OIML R111-1 of accuracy class E2)	200 mg	0.004mg
355	MECHANICAL-WEIGHTS	Weights	Using E1 class standard weights 1 mg to 200 g and Balance of d:0.001 mg & 0.01 mg (Calibration of weights as per OIML R111-1 of accuracy class E2)	5 g	0.009mg
356	MECHANICAL-WEIGHTS	Weights	Using E1 class standard weight 5 kg and using Mass Comparator of d:0.1 mg (Calibration of weights as per OIML R111-1 of accuracy class E2)	5 kg	1.5mg



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357	MECHANICAL-WEIGHTS	Weights	Using E1 class standard weights 1 mg to 200 g and Balance of d:0.001 mg & 0.01 mg (Calibration of weights as per OIML R111-1 of accuracy class E2)	50 g	0.03mg
358	MECHANICAL-WEIGHTS	Weights	Using E1 class standard weight 500 g and using Mass Comparator of d:0.1 mg (Calibration of weights as per OIML R111-1 of accuracy class E2)	500 g	0.4mg
359	MECHANICAL-WEIGHTS	Weights	Using E1 class standard weights 1 mg to 200 g and Balance of d:0.001 mg & 0.01 mg (Calibration of weights as per OIML R111-1 of accuracy class E2)	500 mg	0.005mg



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360	THERMAL-TEMPERATURE	Aluminium Freezing Point	Using SPRT, Aluminium Freezing Point Cell & Precision Thermometry Bridge & Dry Block Calibrator by Fixed Point method	660.323 °C	6.9mK
361	THERMAL-TEMPERATURE	Gallium Melting Point	Using SPRT, Optimal Gallium Melting Point Cell & Precision Thermometry Bridge & Stirred Liquid Bath by Fixed Point method	29.7646 °C	3.2mK
362	THERMAL-TEMPERATURE	IR/ Non Contact Thermometer / Pyrometer	Using Standard Infrared Thermometer and Black Body Source Emissivity 0.95 by Comparison Method	0 °C to 120 °C	0.90°C
363	THERMAL-TEMPERATURE	IR/ Non Contact Thermometer / Pyrometer	Using Standard Infrared Thermometer and Black Body Source ,Emissivity 0.95 by Comparison Method	120 °C to 250 °C	1.98°C



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364	THERMAL-TEMPERATURE	IR/ Non Contact Thermometer / Pyrometer	Using Standard Infrared Thermometer and Black Body Source, Emissivity 0.95 by Comparison Method	250 °C to 500 °C	2.19°C
365	THERMAL-TEMPERATURE	Liquid Nitrogen Comparator	Using SPRT,Liquid Nitrogen Comparator & Precision Thermometry Bridge,Fixed Point Comparison Method	-195.798 °C	4.4mK
366	THERMAL-TEMPERATURE	Liquid-In-Glass Thermometer	Using SPRT and Read unit.Using Julabo / ISOTECH Liquid Bath based on facility available by Comparison method	-50 °C to 250 °C	0.17°C
367	THERMAL-TEMPERATURE	RTD,Thermocouple(with & without indicator),Temperature Indicator,Data loggers etc with sensors	Using SPRT and Read Unit & Fluke Dry Block Calibrator by Comparison method	140 °C to 660 °C	0.23°C
368	THERMAL-TEMPERATURE	RTD,Thermocouple(with & without indicator),Temperature Indicator,Data loggers etc with sensors	Using SPRT and Read unit & Fluke Dry Block Calibrator by Comparison method	-80 °C to 140 °C	0.12°C



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369	THERMAL-TEMPERATURE	Thermocouple(with & without indicator),Temperature Indicator,Data loggers etc with sensors	Using S-Type Thermocouple & Read Unit,using high Temperature Furnace by Comparison method	>660 °C to 1000 °C	1.52°C
370	THERMAL-TEMPERATURE	Tin Freezing Point	Using SPRT,Tin Freezing Point Cell & Precision Thermometry Bridge & Dry Block Calibrator by Fixed Point method	231.928 °C	4.4mK
371	THERMAL-TEMPERATURE	Triple Point of Mercury	Using SPRT, Mercury T.P Cell & Precision Thermometry Bridge & Stirred Liquid Bath by fixed Point method	-38.8344 °C	2.9mK
372	THERMAL-TEMPERATURE	Triple Point of Water	Using SPRT, Water Triple Point Cell & Precision Thermometry Bridge & Stirred Liquid Bath by Fixed Point method	0.01 °C	1.5mK



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373	THERMAL-TEMPERATURE	Zinc Freezing Point	Using SPRT,Zinc Freezing Point Cell & Precision Thermometry Bridge & Dry Block Calibrator by Fixed Point method	419.527 °C	5.4mk



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Site Facility					
1	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC CURRENT	Using Power / Energy Comparator by Direct Method	1 mA to 50 mA,40 Hz to 70 Hz	300 ppm to 70 ppm
2	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC CURRENT	Using Digital Multimeter by Direct Method	10 µA to 20 A,1 kHz to 10 kHz	0.1 % to 0.3 %
3	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC CURRENT	Using Digital Multimeter by Direct Method	10 µA to 200 µA,10 Hz to 1kHz	0.3 % to 0.05 %
4	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC CURRENT	Using Standard CT with Power / Energy Reference Meter by Direct Method	100 A to 3500 A,50 Hz	0.1%



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5	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC CURRENT	Using Digital Multimeter by Direct Method	200 μ A to 20 A,10 Hz to 1 kHz	0.05 % to 0.3 %
6	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC CURRENT	Using Power / Energy Comparator by Direct Method	50 mA to 160 A,40 Hz to 70 Hz	70 ppm to 90 ppm
7	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC HIGH VOLTAGE	Using AC High Voltage Divider with kV Meter by Direct Method	1 kV to 200 kV,50 Hz	1.4%
8	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC RESISTANCE	Using Precision Component Analyser by Direct Method	0.001 Ohm to 10 kOhm, 1 kHz	0.02 % to 0.0025 %
9	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC VOLTAGE	Using AC Measurement Standard by Direct Method	1 mV to 1000 V,10 Hz to 100 kHz	0.15 % to 0.005 %



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10	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC VOLTAGE	Using AC Measurement Standard by Direct Method	2 mV to 20 V,300 kHz to 1 MHz	0.03 % to 1 %
11	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC VOLTAGE	Using AC Measurement Standard by Direct Method	2 mV to 60 V,100 kHz to 300 kHz	0.03 % to 0.5 %
12	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC VOLTAGE	Using Multifunction Calibrator & Digital Storage Oscilloscope by Comparison Method	5 mV to 5.5 V(p-p),1 MHz to 1100 MHz	4 % to 10 %
13	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	ACTIVE /REACTIVE / APPARENT POWER / ENERGY (Single Phase/Three Phase)	Using Power/ Energy Comparator by Direct Method	25 V to 480 V, 40 Hz to 70 Hz, 1 mA to 120 A, PF: 0.01 to 1	0.04 %/PF to 0.01 %/ PF
14	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	ACTIVE /REACTIVE / APPARENT POWER / ENERGY (Single Phase/Three Phase)	Using Power/ Energy Meter Test System by Direct Method	25 V to 480 V, 40 Hz to 70 Hz,120 A to 300 A, PF: 0.01 to 1	0.01 %/PF to 0.25 %/PF



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15	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	ACTIVE /REACTIVE / APPARENT POWER / ENERGY (Single Phase)	Using Power Energy Comparator with Precision AC Voltage Divider by Direct Method	480 V to 1000 V , 50 Hz & 60 Hz, 1 mA to 10 mA, 10 mA to 120 A, PF: 0.01 to 1	110ppm/ PF
16	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	CT / P T Burden	Using Power / Energy Test System by Direct Method	1 VA to 100 VA	0.05%
17	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	CAPACITANCE	Using Standard Capacitor & Four Terminal Capacitance Standard with RLC Dig bridge by Comparison Method	1 pF to 100 nF, 1 kHz	0.5 % to 0.03 %
18	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	CAPACITANCE	Using Standard Capacitor & Four Terminal Capacitance Standard with RLC Dig bridge by Comparison Method	100 nF to 1 F, 1 kHz	0.03 % to 0.1 %



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19	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	CAPACITANCE AT 200 V TO 100 kV, 50 Hz	Using C & Tan Delta Measurement System & Standard Capacitor by Direct Method	10 pF to 1.5 uF	0.14 % to 0.025 %
20	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	CT / PT CALIBRATION CURRENT TRANSFORMER RATIO ERROR & PHASE ERROR	Using Standard CT , Instrument Transformer Measuring Bridge by Comparison Method	1 A to 10000 A/1-5 A , at 50 Hz	0.02 % to 0.06% for RE, 0.5 min to 2.5 min for Phase Error
21	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	CT/PT Burden	Using Power / Energy Test System by Direct Method	1 VA to 100 VA	0.05%
22	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	IMPULSE VOLTAGE (Amplitude)	Using Impulse Probe with DSO by Direct Method	1 kV to 15 kV	6.3%
23	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	IMPULSE VOLTAGE (Time)	Using Impulse Probe with DSO by Direct Method	10 ns to 100 us	0.1%



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24	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	INDUCTANCE	Using Precision Component Analyser using Direct Method	100 μ H to 100 mH,1 kHz	0.07 % to 0.02 %
25	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	INDUCTANCE	Using Precision Component Analyser by Direct Method	100 mH to 10 H,1 kHz	0.02 % to 0.04 %
26	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	ISOLATION CURRENT TRANSFORMER	Using Power/ Energy Comparator by Comparison Method by Direct Method	1 mA to 120 A, at 40 Hz & 70 Hz	0.008 % for RE to 0.30 min for PE
27	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	POWER FACTOR / PHASE ANGLE	Using Power/ Energy Comparator, Precision AC Voltage Divider with Power/ Energy Comparator by Direct Method	0 ° to 360 °, 0 to UPF,40 Hz to 70 Hz,25 V to 1050 V , 1 mA to 160 A	0.008°
28	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	Ratio and Phase Angle of CT / PT Comparator (AITTS)	Using Power / Energy Test System with AITTS by Comparison Method	0.05 A to 6 A, 50 Hz	0.003 % to 0.02 % for RE , 0.1 min to 0.6 min for PE



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29	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	Ratio and Phase Angle of CT / PT Comparator (AITTS)	Using Power / Energy Test System with AITTS by Comparison Method	25 V to 150 V,50 Hz	0.008 % to 0.013 % for RE , 0.25 min for PE
30	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	Tan Delta at 200 V to 100 kV @ 50 Hz.	Using C & Tan Delta Measurement System & Standard Capacitor by Direct Method	1 x 10 ⁻⁵ % to 1	1.6 x 10 ⁻⁵ to 5.7 x 10 ⁻³
31	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	VOLTAGE TRANSFORMER RATIO ERROR & PHASE ERROR (INDUCTIVE)	Using Standard Capacitor, EPD, Instrument Transformer Measuring Bridge by Comparison Method	1.1 kV to 66 kV / 110V , 1.1 kV to 66 kV/SQRT(3) / 110 V/SQRT(3)	0.06 % for Ratio Error to 2 min for Phase Error
32	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC CURRENT	Using Multifunction Calibrator by Direct Method	1 A to 20 A,40 Hz to 1 kHz	0.07 % to 0.12 %
33	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC CURRENT	Using Three Phase Power Calibrator with Power / Energy Comparator by Comparison Method	1 mA to 120 A, 40 Hz to 70 Hz	0.03 % to 0.01 %



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34	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC CURRENT	Using Multifunction Calibrator with 50 Turn Current Coil by Direct Method	120 A to 1000 A,50 Hz	0.6%
35	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC CURRENT	Using Multifunction Calibrator by Direct Method	30 μ A to 1 A,40 Hz to 1 kHz	0.5 % to 0.07 %
36	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC RESISTANCE	Using Standard AC Resistors by Direct Method	0.01 Ohm,1 kHz	0.1%
37	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC RESISTANCE	Using Standard AC Resistor by Direct Method	0.1 Ohm,1 kHz	0.05%
38	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC RESISTANCE	Using Standard AC Resistor by Direct Method	1 Ohm,1 kHz	0.01%
39	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC RESISTANCE	Using Standard AC Resistor by Direct Method	10 Ohm, 1 kHz	0.01%



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40	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC RESISTANCE	Using Standard AC Resistor by Direct Method	100 Ohm, 1 kHz	0.01%
41	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC VOLTAGE	Using Multifunction Calibrator with AC Measurement Standard by Comparison Method	1 mV to 1000 V,40 Hz to 1 kHz	0.7 % to 0.008 %
42	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	ACTIVE / REACTIVE / APPARENT POWER / ENERGY (1 PHASE / 3 PHASE)	Using Three Phase Power Calibrator with Power / Energy Comparator by Comparison Method	25 V to 480 V,40 Hz to 70 Hz, 10 mA to 120 A, PF: 0.01 to 1	0.013%/PF
43	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	ACTIVE / REACTIVE / APPARENT POWER / ENERGY (Single Phase / Three Phase)	Using Three Phase Power Calibrator with Power / Energy Comparator by Comparison Method	25 V to 480 V, 40 Hz to 70 Hz, 1 mA to 10 mA, PF: 0.01 to 1	0.04 % to 0.013 %/ PF
44	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitors by Direct Method	0.001 μ F, 1 kHz	0.02%
45	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitors by Direct Method	0.01 μ F,1 kHz	0.02%



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46	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitor by Direct Method	0.1 μ F,1 kHz	0.02%
47	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitor by Direct Method	1 μ F,1 kHz	0.03%
48	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Four Terminal Capacitance Standard by Direct Method	1 F,1 kHz	0.08%
49	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitors & Four Terminal Capacitance Standard by Direct Method	1 mF,1 kHz	0.04%
50	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Multifunction Calibrator by Direct Method	1 nF to 110 mF	0.5 % to 2 %



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51	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitors by Direct Method	1 pF,1 kHz	0.4%
52	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitor by Direct Method	10 µF,1 kHz	0.04%
53	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Four Terminal Capacitance Standard by Direct Method	10 mF,1 kHz	0.05%
54	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitor by Direct Method	10 pF,1 kHz	0.15%
55	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitor by Direct Method	100 µF,1 kHz	0.04%
56	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Four Terminal Capacitance Standard by Direct Method	100 mF,1 kHz	0.06%



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57	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE	Using Standard Capacitors by Direct Method	100 pF, 1 kHz	0.08%
58	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE AT HIGH VOLTAGE	Using Standard Gas Filled Capacitor by Direct Method	100 pF, Up to 100 kV,50 Hz	0.02%
59	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE AT HIGH VOLTAGE	Using Standard Gas Filled Capacitor by Direct Method	1000 pF, Up to 30 kV, 50 Hz	0.012%
60	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	CAPACITANCE AT HIGH VOLTAGE	Using Standard Capacitor with High Precision Capacitance Bridge by Comparison Method	125 pF & 200 pF Up to 2 kV,50Hz	0.05%
61	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	INDUCTANCE	Using Standard Inductor by Direct Method	1 H,1 kHz	0.05%



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62	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	INDUCTANCE	Using Standard Inductor by Direct Method	1 mH,1 kHz	0.2%
63	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	INDUCTANCE	Using Standard Inductor by Direct Method	10 H,1 kHz	0.06%
64	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	INDUCTANCE	Using Standard Inductor by Direct Method	10 mH,1 kHz	0.1%
65	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	INDUCTANCE	Using Standard Inductor by Direct Method	100 µH,1 kHz	0.3%
66	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	INDUCTANCE	Using Standard Inductor by Direct Method	100 mH,1 kHz	0.05%
67	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	POWER FACTOR / PHASE ANGLE	Using Three Phase Power Calibrator with Power / Energy Comparator by Comparison Method	0 ° to 360°, 0 to UPF, 40 Hz to 70 Hz,25 V to 480 V, 1 mA to 120 A	0.008°



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68	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	TAN DELTA	Using Standard Tan Delta Calibrator with C & Tan Delta Measurement System by Comparison Method	1 x 10 ⁻¹ , 1.5 x 10 ⁻¹ , 1.8 x 10 ⁻¹ up to 2 kV, 50 Hz	1.5%
69	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	TAN DELTA	Using Standard Gas Filled Capacitor with Dissipation Boxes by Direct Method	5 x 10 ⁻⁵ to 5 x 10 ⁻² Up to 25 kV AC, 50 Hz	2.5 x 10 ⁻⁵ to 4.2 x 10 ⁻⁴
70	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC CURRENT	Using Standard DC Resistor / DC Shunt with Digital Multimeter by V/R Method	1 A to 100 A	0.002 % to 0.005 %
71	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC CURRENT	Using Standard DC Resistor / DC Shunt with Digital Multimeter by V/R Method	10 µA to 1 A	0.015 % to 0.002 %
72	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC CURRENT	Using Standard DC Resistor / DC Shunt with Digital Multimeter by V/R Method	100 A to 3000 A	0.005 % to 0.15 %



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73	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC HIGH VOLTAGE	Using DC High Voltage Divider with kV Meter by Direct Method	1 kV to 150 kV	1.4%
74	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC POWER / ENERGY	Using Digital Power Meter by Direct Method	10 V to 1000 V, 1A to 30 A	0.15%
75	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC RESISTANCE	Using Reference Multimeter / Electro meter by Direct Method	0.1 Ohm to 200 kOhm	0.02 % to 0.001 %
76	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC RESISTANCE	Using Reference Multimeter / Electro meter by Direct Method	200 kOhm to 100 TOhm	0.001 % to 3 %
77	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC VOLTAGE	Using Reference Multimeter by Direct Method	0.1 mV to 1050 V	0.3 % to 0.001 %
78	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC CURRENT	Using Multifunction Calibrator with 8 ½ Digital Multimeter by Direct / Comparison Method	10 µA to 300 mA	0.25 % to 0.02 %



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79	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC CURRENT	Multifunction Calibrator with Current Coil by Direct Method	20 A to 1000 A	0.6%
80	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC CURRENT	Using Multifunction Calibrator with 8 ½ Digital Multimeter by Direct / Comparison Method	300 mA to 20 A	0.02 % to 0.15 %
81	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC POWER / ENERGY	Using Multifunction Calibrator by Direct Method	33 mV to 1000 V, 3.3 mA to 20.5 A	0.015 % to 0.8 %
82	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC POWER DC Clamp-on-Power Meter	Using Multifunction Calibrator & Current Coil by Direct Method	33 mV to 1000V , 3.3 mA to 1000 A	0.015 % to 0.8 %
83	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Multi Function Calibrator by Direct Method	0.1 Ohm to 100 kOhm	0.06 % to 0.005 %
84	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	1 kOhm	0.002%



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85	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	1 MOhm	0.002%
86	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	1 mOhm	0.01%
87	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Multi Function Calibrator by Direct Method	1 MOhm to 100 MOhm	0.05 % to 0.1 %
88	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	1 Ohm	0.002%
89	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	1 TOhm	3%
90	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	10 kOhm	0.002%



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91	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	10 MOhm	0.002%
92	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	10 mOhm	0.005%
93	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	10 Ohm	0.002%
94	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	100 µOhm	0.15%
95	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	100 kOhm	0.002%
96	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Multi Function Calibrator by Direct Method	100 kOhm to 1 MOhm	0.005 % to 0.05 %



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97	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	100 MOhm	0.005%
98	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Multifunction Calibrator & Decade Meg Ohm Box by Direct Method	100 MOhm to 1 TOhm	0.1 % to 2.5 %
99	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	100 Ohm	0.002%
100	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Resistor by Direct Method	100 TOhm	5%
101	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	150 µOhm	0.15%
102	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	240 µOhm	0.15%



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103	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	40 μ Ohm	0.15%
104	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	60 μ Ohm	0.15%
105	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC RESISTANCE	Using Standard Shunt by Direct Method	600 μ Ohm	0.15%
106	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC VOLTAGE	Using Multifunction Calibrator with 8 ½ Digital Multimeter by Direct / Comparison Method	0.1 mV to 1000 V	0.3 % to 0.001 %
107	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	OSCILLOSCOPE CALIBRATION Amplitude (Deflection Factor)	Using Multifunction Calibrator with Scope Option by Direct Method	1 mV to 130 V (1 MOhm)	5 % to 0.2 %
108	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	OSCILLOSCOPE CALIBRATION BANDWIDTH	Using Multifunction Calibrator with Scope Option by Direct Method	5 mV to 5.5 V(p-p), 50 kHz to 1.1 GHz	3 % to 5 %



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109	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	OSCILLOSCOPE CALIBRATION Amplitude (Deflection Factor)	Using Multifunction Calibrator with Scope Option by Direct Method	1 mV to 6.6 V(50 Ohm)	5 % to 0.3 %
110	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	OSCILLOSCOPE CALIBRATION Time Base	Using Multifunction Calibrator with Scope Option by Direct Method	50 ms to 5 s	80 ppm to 0.6 %
111	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	OSCILLOSCOPE CALIBRATION Time Base (Marker)	Using Multifunction Calibrator with Scope Option by Direct Method	1 ns to 20 ms	3ppm
112	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	TRANSFORMER TURNS RATIO METER	Using TTR Calibrator with Digital Multimeters by Comparison Method	0.8 to 10000 at 50 Hz	0.05%
113	ELECTRO-TECHNICAL-OTHERS (Measure)	HARMONICS ORDER FUNDAMENTAL FREQUENCY 50 Hz	Using Power / Energy Test System by Direct Method	1 to 40th order with Fundamental Frequency	0.5%
114	ELECTRO-TECHNICAL-OTHERS (Source)	IMPULSE CALIBRATION Load:> 250 k Ohm, 100 pF to 300 pF Lightning Impulse Voltage(LI)	Using Reference Impulse Calibrator by Direct Method , IEC 60060(1989 & 2010)	80 V to 1600 V(+/- Polarity)	0.6%



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115	ELECTRO-TECHNICAL-OTHERS (Source)	IMPULSE CALIBRATION Load:> 250 k Ohm, 100 pF to 300 pF Time Parameter T1 (Front Time)	Using Reference Impulse Calibrator by Direct Method , IEC 60060(1989 & 2010)	0.84 us	2.5%
116	ELECTRO-TECHNICAL-OTHERS (Source)	IMPULSE CALIBRATION Load:> 250 k Ohm, 100 pF to 300 pF Time Parameter T2 (Time to Half Value)	Using Reference Impulse Calibrator by Direct Method , IEC 60060(1989 & 2010)	60 us	2.5%
117	ELECTRO-TECHNICAL-OTHERS (Source)	IMPULSE CALIBRATION Load:> 250 k Ohm, 100 pF to 300 pF Lightning Impulse Chopped Voltage (LIC)	Using Reference Impulse Calibrator by Direct Method , IEC 60060(1989 & 2010)	400 V to 1250 V(+/- polarity)	1.3%
118	ELECTRO-TECHNICAL-OTHERS (Source)	IMPULSE CALIBRATION Load:> 250 k Ohm, 100 pF to 300 pF Switching Impulse Voltage(SI)	Using Reference Impulse Calibrator by Direct Method , IEC 60060(1989 & 2010)	80 V to 1600 V (+/- Polarity)	0.6%
119	ELECTRO-TECHNICAL-OTHERS (Source)	IMPULSE CALIBRATION Load:> 250 k Ohm, 100 pF to 300 pF Time Parameters T2 (Time to Half value)	Using Reference Impulse Calibrator by Direct Method , IEC 60060(1989 & 2010)	4000 us	2.5%



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120	ELECTRO-TECHNICAL-OTHERS (Source)	IMPULSE CALIBRATION Load:> 250 k Ohm, 100 pF to 300 pF Time parameters Tc (Time to Chop)	Using Reference Impulse Calibrator by Direct Method , IEC 60060(1989 & 2010)	0.50 us	2.5%
121	ELECTRO-TECHNICAL-OTHERS (Source)	IMPULSE CALIBRATION Load:> 250 k Ohm, 100 pF to 300 pF Time Parameters Tp (Time to Peak)	Using Reference Impulse Calibrator by Direct Method , IEC 60060(1989 & 2010)	20 us	2.5%
122	ELECTRO-TECHNICAL-OTHERS (Source)	IMPULSE CALIBRATION Load:> 250 k Ohm, 100 pF to 300 pF Time Parameters Tp (Time to Peak)	Using Reference Impulse Calibrator by Direct Method , IEC 60060(1989 & 2010)	20 us	2.5%
123	ELECTRO-TECHNICAL-OTHERS (Source)	IMPULSE CALIBRATION Load:>250 kOhm, 100 pF to 300 pF Time Parameters, T2(Time to Half Value)	Using Reference Impulse Calibrator by Direct Method , IEC 60060(1989 & 2010)	4000 us	2.5%



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124	ELECTRO-TECHNICAL-OTHERS (Source)	PARTIAL DISCHARGE CALIBRATION APPARENT CHARGE(qo)	Using Partial Discharge Calibrator by Comparison Method. Calibration of partial discharge calibrator (IEC 60270:2000 + AMD1:2015)	1 pC to 50 nC	6%
125	ELECTRO-TECHNICAL-OTHERS (Source)	POWER QUALITY Harmonics	Using Multifunction Calibrator with PQ Option by Direct Method	1 to 40th	0.2%
126	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	AMPLITUDE MODULATION	Using RF Calibrator by Direct Method	Carrier Frequency :125 MH ,Modulation Depth : 10 % to 99%, Modulation Rate: 1 Hz to 100 kHz at 125 MHz, 1 Hz to 20 kHz at 1 GHz	5%
127	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	FREQUENCY MODULATION	Using RF Calibrator by Direct Method	Carrier Frequency :125 MHz to 1 GHz, Modulation Rate 400 Hz to 200 kHz, Deviation : 1 Hz to 300 kHz at 125 MHz , 300 kHz to 1 MHz at 1 GHz	4%



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128	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF ATTENUATION	Using RF Calibrator by Direct Method	1 dB to 110 dB	0.03 dB to 0.2 dB
129	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF POWER (With 50 Ohm Level Head)	Using RF Calibrator by Direct Method	-48 dBm to +20 dBm, 10 Hz to 1.4 GHz	6%
130	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF POWER (With 50 Ohm Level Head)	Using RF Calibrator by Direct Method	-48 dBm to +14 dBm, 1.4 GHz to 4 GHz	15%
131	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF POWER (With 50 Ohm Level Head)	Using RF Calibrator by Direct Method	-94 dBm to -48 dBm, 100 kHz to 4 GHz	30%
132	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF POWER (With 50 Ohm Level Head)	Using RF Calibrator by Direct Method	+20 dBm to +24 dBm, 10 Hz to 128 MHz	2.2%



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133	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF POWER (With 75 Ohm Level Head)	Using RF Calibrator by Direct Method	+14 dBm to -54 dBm, 125 MHz to 4 GHz	16%
134	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF POWER (With 75 Ohm Level Head)	Using RF Calibrator by Direct Method	+18 dBm to -54 dBm, 10 Hz to 125 MHz	5%
135	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF POWER (With 75 Ohm Level Head)	Using RF Calibrator by Direct Method	-100 dBm to -90 dBm, 100 kHz to 3 GHz	30%
136	ELECTRO-TECHNICAL-RF/MICROWAVE (1 GHZ AND ABOVE) (Source)	RF POWER (With 75 Ohm Level Head)	Using RF Calibrator by Direct Method	-90 dBm to -54 dBm, 100 kHz to 4 GHz	20%
137	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	TEMPERATURE BY SIMULATION METHOD : For Temperature Indicators, Recorders, Controllers RTD	Using Reference Multimeter, Nano Volt Micro Ohm Meter by Simulation Method	-200 ° to 850 °	0.005 ° to 0.02 °



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138	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	TEMPERATURE BY SIMULATION METHOD : For Temperature Indicators, Recorders, Controllers T/C - K, J, N, E, T, R, S, B, C, L & U	Using Reference Multimeter, Nano Volt Micro Ohm Meter by Simulation Method	-270 ° to 2300 °	0.01 ° to 0.3 °
139	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	TEMPERATURE BY SIMULATION METHOD : For Temperature Indicators, Recorders, Controllers RTD	Using Multifunction Calibrator with Digital Multimeter by Simulation Method	-200 ° to 850 °	0.005 ° to 0.02 °
140	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	TEMPERATURE BY SIMULATION METHOD : For Temperature Indicators, Recorders, Controllers T/C - K, J, N, E, T, R, S, B, C, L & U	Using Multifunction Calibrator with Digital Multimeter by Simulation Method	-270 ° to 2300 °	0.01 ° to 0.3 °
141	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	FREQUENCY / TIME PERIOD	Using Frequency Counter by Direct Method	40 mHz to 20 GHz, 25 s to 50 ps	4 X 10 ⁻⁷ to 1.5 X 10 ⁻⁸



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142	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	TIME INTERVAL	Using Frequency Counter & Time Interval Meter by Direct Method	1 μ s to 1000 s	1.1 x 10 ⁻³ to 1.1 x 10 ⁻⁷
143	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	TIME INTERVAL	Using Frequency Counter & Time Interval Meter by Direct Method	1000 s to 24 Hours & above	1 x 10 ⁻⁷ to 0.023 %
144	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	FREQUENCY / TIME PERIOD	Using RF Reference Source by Direct Method	1 Hz to 4 GHz, 1s to 0.25 ns	6 ppm to 0.1 ppm
145	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	TIME INTERVAL	Using Frequency Counter/Timer / Analyzer & Time Interval Meter by Direct Method	1 μ s to 1000 s	1.1 x 10 ⁻³ to 1.1 x 10 ⁻⁷
146	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	TIME INTERVAL	Using Frequency Counter/Timer / Analyzer & Time Interval Meter by Direct Method	1000 s to 24 Hours & Above	1 x 10 ⁻⁷ to 0.023 %
147	FLUID FLOW-FLOW MEASURING DEVICES	Volumetric Flow Rate	Using Ultrasonic Flow Meter by Comparison Method	5 m ³ /h to 240 m ³ /h	1.5%



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148	MECHANICAL-ACCELERATION AND SPEED	Non Contact Mode RPM Measurement / Stroboscope	Using Digital Reference Tachometer with Servo Speed Controller (Speed Calibration System with a Non Contact Type Tachometer as a reference along with servo Speed Controller as per SANAS TR-45-01:2008 by Comparison Method	>100000 RPM to 120000 RPM	24RPM
149	MECHANICAL-ACCELERATION AND SPEED	Non Contact Mode RPM Measurement / Stroboscope	Using Digital Reference Tachometer with Servo Speed Controller (Speed Calibration System with a Non Contact Type Tachometer as a reference along with servo Speed Controller as per SANAS TR-45-01:2008 by Comparison Method	>12000 RPM to 100000 RPM	6RPM



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150	MECHANICAL-ACCELERATION AND SPEED	Non Contact Mode RPM Measurement / Stroboscope	Using Digital Reference Tachometer with Servo Speed Controller (Speed Calibration System with a Non Contact Type Tachometer as a reference along with servo Speed Controller as per SANAS TR-45-01:2008 by Comparison Method	>30 RPM to 12000 RPM	3RPM
151	MECHANICAL-ACCELERATION AND SPEED	Non Contact Mode RPM Measurement / Stroboscope	Using Digital Reference Tachometer with Servo Speed Controller (Speed Calibration System with a Non Contact Type Tachometer as a reference along with servo Speed Controller as per SANAS TR-45-01:2008 by Comparison Method	10 RPM to 1000 RPM	0.83RPM



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152	MECHANICAL-ACCELERATION AND SPEED	SPEED Calibration of Tachometer / RPM Measurement / Stroboscope / Tachometer (Contact Mode)	Using Digital Reference Tachometer with Servo Speed Controller by Comparison Method	>1000 RPM to 12000 RPM	3RPM
153	MECHANICAL-ACCELERATION AND SPEED	SPEED Calibration of Tachometer / RPM Measurement / Stroboscope / Tachometer (Contact Mode)	Using Digital Reference Tachometer with Servo Speed Controller by Comparison Method	10 RPM to 1000 RPM	0.83RPM
154	MECHANICAL-ACOUSTICS	Sound (Measure)	Sound Level Calibrator with Sound Level Meter by Comparison Method	74 dB to 114 dB at 125 Hz to 4 kHz	0.39dB
155	MECHANICAL-ACOUSTICS	Sound (Source)	Using Sound Level Calibrator by Direct Method	74,84,94,104,114 dB at 125 Hz,500 Hz,1 kHz ,4 kHz	0.39dB
156	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	CMM L.C. 0.01µm	Check Master By Comparison Method	Up to 1500 mm	6 µm
157	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	CNC MACHINE (Positioning accuracy)	Laser Measuring System	Up to 15000 mm	5.7 µm



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158	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	ELECTRONIC HEIGHT GAUGE L.C. 0.1µm	Check Master by Comparison Method	Up to 1000 mm	5.2µm
159	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	ELECTRONIC HEIGHT GAUGE L.C. 0.1µm	Check Master by Comparison method	Up to 600 mm	4.4µm
160	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	PROFILE PROJECTOR (Angle)	Steel Angle Gauge Set	0° to 360°	2.7min.
161	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	PROFILE PROJECTOR (Linear) L.C. 1 µm	Glass Scale by Comparison Method	300 X 300	1.8
162	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	PROFILE PROJECTOR (Magnification)	Slip Gauge Grade '0' & Digital Caliper by Comparison Method	10X-100X	0.16%
163	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	ROTARY / INDEXING TABLE	Laser Measuring System with Rotary Indexer	0° to 360°	2.3 min.
164	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	TAPE & SCALE CALIBRATOR L.C. 1µm	Tungstun Carbide Slip Gauge Grade '0' & Long Slip Gauge Grade 'K' by Comparison Method	Up to 1000	16



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165	MECHANICAL-DIMENSION (PRECISION INSTRUMENTS)	UNIVERSAL MEASURING SYSTEM / LENGTH MEASURING MACHINE L.C. 1.0µm	Tungstun Carbide Slip Gauge Grade '0' & Long Slip Gauge Grade 'K' by Comparison Method	X Axis 300 mm to Y Axis 200 mm	1.8µm
166	MECHANICAL-PRESSURE INDICATING DEVICES	NEGATIVE PRESSURE Analog/Digital Pressure Gauges, Pressure Indicator, Transmitter, Pressure Instruments	Digital Pressure Calibrator. Model: MC6 (with an internal & external pressure modules) by comparison method UUC to Standard as per DKD-R-6-1.	1 bar vacuum to 0.1 bar vacuum	0.1% of rdg
167	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure (Hydraulic) Analog/Digital Pressure Gauges, Pressure Indicator, Transmitter, Pressure Chart Recorder, Pressure Instruments, Pressure Transmitter.	Digital Pressure Calibrator. Model: MC6 (with an internal & external pressure modules) by comparison method UUC to Standard as per DKD-R-6-1.	0 bar to 100 bar	0.05% of rdg



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S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
168	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure (Hydraulic) Analog/Digital Pressure Gauges, Pressure Indicator, Transmitter, Pressure Chart Recorder, Pressure Instruments.	Digital Pressure Calibrator. Model: MC6 (with an internal & external pressure modules) by comparison method UUC to Standard as per DKD-R-6-1.	0 bar to 1000 bar	0.05% of rdg
169	MECHANICAL-PRESSURE INDICATING DEVICES	Pressure (Pneumatic) Analog/Digital Pressure Gauges, Pressure Indicator, Transmitter, Pressure Instruments.	Digital Pressure Calibrator. Model: MC6(with an internal & external pressure modules) by comparison method UUC to Standard as per DKD-R-6-1.	0 bar to 20 bar	0.05% of rdg
170	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing Scale and Balance	E1 & E2 class standard weights 1mg to 20kg, readability 0.01 mg (Electronic weighing balance of accuracy Class I & coarser as per OIML R 76-1)	0 g to 220 g	0.06mg



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171	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing Scale and Balance	E1 & E2 class standard weights 1mg to 20kg, readability 0.001 mg (Electronic weighing balance of accuracy Class I & coarser as per OIML R 76-1)	0 g to 5 g	0.005mg
172	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing Scale and Balance	E1 & E2 class standard weights 1mg to 20kg, readability 0.1 mg (Electronic weighing balance of accuracy Class I & coarser as per OIML R 76-1)	0 g to 5 g	0.2mg
173	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing Scale and Balance	E1 & E2 class standard weights 1mg to 20kg, readability 1 mg (Electronic weighing balance of accuracy Class I & coarser as per OIML R 76-1)	0 g to 5 kg	3mg



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174	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing Scale and Balance	E1 & E2 class standard weights 1mg to 20kg, readability 10 mg (Electronic weighing balance of accuracy Class I & coarser as per OIML R 76-1)	0 kg to 10 kg	30mg
175	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing Scale and Balance	F1 class weights 20 kg denomination, readability 10g (Electronic weighing balance of accuracy class III & coarser as per OIML R 76 -1 & OIML R 47	0 kg to 100 kg	15g
176	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing Scale and Balance	F1 class weights 20 kg denomination, readability 1g (Electronic weighing balance of accuracy class III & coarser as per OIML R 76 -1 & OIML R 47	0 kg to 100 kg	2g



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177	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing Scale and Balance	F1 class weights 20 kg denomination, readability 10g (Electronic weighing balance of accuracy class III & coarser as per OIML R 76 -1 & OIML R 47	0 kg to 200 kg	15g
178	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing Scale and Balance	F1 class weights 20 kg denomination, readability 20g (Electronic weighing balance of accuracy class III & coarser as per OIML R 76 -1 & OIML R 47	0 kg to 200 kg	30g
179	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing Scale and Balance	E1 & E2 class standard weights 1mg to 20kg, readability 100 mg (Electronic weighing balance of accuracy Class I & coarser as per OIML R 76-1)	0 kg to 34 kg	220mg



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180	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing Scale and Balance	F1 class weights 20 kg denomination, readability 0.1kg (Electronic weighing balance of accuracy class III & coarser as per OIML R 76 -1 & OIML R 47 & ISO 4185:1990)	500 g to 5000 kg	0.35kg
181	THERMAL-SPECIFIC HEAT & HUMIDITY	Humidity Indicator with sensor of Humidity chamber / Environmental Chamber	Using Reference Temperature/Humidity sensor with indicator by Single position Calibration at different Temperature by Comparison method	10 %RH to 95 %RH at 25°C	1.3%RH
182	THERMAL-SPECIFIC HEAT & HUMIDITY	Humidity Indicator with sensor of Humidity chamber / Environmental Chamber	Using Reference Temperature/Humidity Sensor with Indicator by Single position calibration at different temperature by Comparison method	95 %RH at 25°C to 70°C	1.3%RH
183	THERMAL-TEMPERATURE	IR/ Non Contact Thermometer / Pyrometer	Using Standard Infrared Thermometer and Black Body Source Emissivity 0.95 by Comparison Method	0 °C to 120 °C	0.90°C



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184	THERMAL-TEMPERATURE	IR/ Non Contact Thermometer / Pyrometer	Using Standard Infrared Thermometer and Black Body Source ,Emissivity 0.95 by Comparison Method	120 °C to 250 °C	1.98°C
185	THERMAL-TEMPERATURE	IR/ Non Contact Thermometer / Pyrometer	Using Standard Infrared Thermometer and Black Body Source, Emissivity 0.95 by Comparison Method	250 °C to 500 °C	2.19°C
186	THERMAL-TEMPERATURE	Temperature Chambers/Deep Freezers/Oven	Using RTD sensors with Data Loggers for Multi position Calibration by Comparison method	0 °C to 250 °C	2.5°C
187	THERMAL-TEMPERATURE	Temperature Chambers/Deep Freezers/Oven	Using RTD sensors with Data logger for Multi Position Calibration by Comparison method	-80 °C to 0 °C	1.2°C
188	THERMAL-TEMPERATURE	Temperature Indicator of Cold Chambers,Ovens,Incubators,Furnaces,Baths etc At Single Position	Using RTD / PRT sensor with temperature indicator at Single Position by Comparison method	660 °C to 1000 °C	1.52°C



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189	THERMAL-TEMPERATURE	Temperature Indicator of Cold Chambers,Ovens,Incubators,Furnaces,Baths etc At Single Position	Using RTD / PRT sensor with temperature indicator at Single Position by Comparison method	-80 °C to 660 °C	0.23°C

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