Laboratory	**Precision Calibration and Testing Centre, 167/8 First Floor, Main Road, Sarai Jullena, New Delhi**		
Accreditation Standard	**ISO/IEC 17025: 2005**		
Certificate Number	**CC-2905**	**Page**	**1 of 19**
Validity	**03.12.2018 to 02.12.2020**	**Last Amended on**	**-**

"In view of the transition for ISO/IEC 17025:2017, the validity of this accreditation certificate will cease on 30.11.2020"

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
		ELECTRO TECHNICAL CALIBRATION		
I.	**MEASURE**			
1.	DC Voltage$	1 mV to 10 mV 10 mV to 100 mV 100 mV to 10 V 10V to 1000 V 1 kV to 15 kV	0.053 % to 0.014 % 0.014 % to 0.002 % 0.002 % to 0.0007 % 0.0007 % to 0.001 % 2.50 %	Using 8 ½ DMM Fluke 8508A by Direct Measurement HV Probe with DMM
2.	AC Voltage$	**50 Hz to 10kHz** 1 mV to 100 V **50 Hz to 1 kHz** 100 V to 1000 V **50 Hz** 1 kV to 15 kV	 0.83 % to 0.03% 0.02% to 0.02% 6.20%	 Using 8 ½ DMM Fluke 8508A by Direct Measurement HV Probe with DMM
3.	DC Current $	1 µA to 10 µA 10 µA to 10 mA 10 mA to 100 mA 100 mA to 1 A 1 A to 10 A 10 A to 20 A	0.75 % to 0.009 % 0.009 % to 0.005 % 0.005 % to 0.01 % 0.01 % to 0.025% 0.025% to 0.05% 0.050% to 0.07%	Using 8 ½ DMM Fluke 8508A by Direct Measurement
4.	AC Current $	**50 Hz to 1 kHz** 10 µA to 100 mA 100 mA to 1 A 1 A to 10 A 10 A to 20 A	 0.46 % to 0.06 % 0.06 % to 0.10 % 0.10 % to 0.12 % 0.12 %	Using 8 ½ DMM Fluke 8508A by Direct Measurement

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
5.	DC Resistance $	1Ω to 1 MΩ 1 MΩ to 10 MΩ 10 MΩ to 100 MΩ 100 MΩ to 2 GΩ 2GΩ to 20 GΩ	0.06 % to 0.003 % 0.003 % to 0.005 % 0.005 % to 0.02 % 0.02 % to 0.60 % 0.60 % to 0.22%	Using 8 ½ DMM Fluke 8508A by Direct Measurement
6.	Frequency $	5 Hz to 10 Hz 10 Hz to 1 MHz	0.05 % to 0.05 % 0.05 % to 0.06 %	Using 8 ½ DMM Fluke 8508A by Direct Measurement
7.	Capacitance $	**1 kHz** 1 nF to 10 µF	 1.10 % to 0.40 %	Using Digital LCR Meter by Direct Measurement
8.	Inductance $	**1 kHz** 100 µH to 10 H	 2.10 % to 1.50 %	Using Digital LCR Meter by Direct Measurement
9.	AC Resistance $	**1 kHz** 1Ω to 10 Ω 10 Ω to 100 Ω 100 Ω to 100 kΩ	 1.60 % to 1.20 % 1.20 % to 0.70 % 0.70 % to 0.60 %	Using Digital LCR Meter by Direct Measurement
10.	Time Interval #	1 s to 100 s 100 s to 1000 s 1000 s to 9000 s 10 s to 1000 s 1000 s to 9900 s 9900 s to 86400 s	0.01 s to 0.02 s 0.02 s to 0.12 s 0.12 s to 1.00 s 0.15 s to 0.20 s 0.20 s to 0.50 s 0.50 s to 4.00 s	Timer Calibrator By Comparison Measurement Stop Watch By Comparison Measurement

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
11.	Temperature $ Thermocouple (J,K,T -Type) Thermocouple (R,S,B ,N-Type) RTD-PT100 Type	 (-)200 °C to 1200 °C 150 °C to 1700 °C (-)200 °C to 500 °C	 0.4 °C to 0.8 °C 0.5 °C to 0.9 °C 0.02 °C to 0.06 °C	Using 8 ½ DMM Fluke 8508A by Direct Measurement / Simulation Method
12.	DC Voltage♣	1 mV to 10 mV 10 mV to 100 mV 100 mV to 1000 V 1 kV to 37 kV	0.60 % to 0.04 % 0.04 % to 0.01 % 0.01 % to 0.01 % 2.6%	Using 6 ½ DMM 8846A Fluke by Direct measurement HV Probe with DMM
13.	AC Voltage♣	**50 Hz** 10 mV to 1000 V 1 kV to 15 kV 15 kV to 100 kV	 0.55 % to 0.10 % 5.80 % 4.0 % to 2.5 %	Using 6 ½ DMM 8846A Fluke HV Probe with DMM HV Divider by Direct measurement
14.	DC Current♣	10 µA to 100 mA 100 mA to 10 A	0.60 % to 0.08 % 0.08 % to 0.20 %	Using 6 ½ DMM 8846A Fluke by Direct measurement
15.	AC Current♣	**50 Hz** 1 mA to 100 mA 100 mA to 10 A	 0.60 % to 0.50 % 0.50 % to 0.45 %	Using 6 ½ DMM 8846A Fluke by Direct measurement

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
II.	**SOURCE**			
1.	DC Voltage #	1 mV to 32 mV 32 mV to 320 mV 320 mV to 1000 V	0.40 % to 0.02 % 0.02 % to 0.009 % 0.009 % to 0.01%	Using 5500 A MFC Fluke by Direct Sourcing
2.	AC Voltage #	**50 Hz to 1 kHz** 10 mV to 32 mV 32 mV to 32 V 32 V to 1000 V	 0.41 % to 0.25 % 0.25 % to 0.05% 0.05% to 0.07%	Using 5500 A MFC Fluke by Direct Sourcing
3.	DC Current #	10 µA to 320 µA 320 µA to 320 mA 320 mA to 2 A 2 A to 11 A 10 A to 1000 A	0.67 % to 0.04 % 0.04 % to 0.02% 0.02 % to 0.04 % 0.04 % to 0.095 % 0.90 %	Using 5500 A MFC Fluke With Current coil by Direct Sourcing
4.	AC Current #	**50Hz to 1kHz** 30 µA to 320 µA 320 µA to 11 A **50 Hz** 10 A to 1000 A	 0.98 % to 0.25 % 0.25 % to 0.16 % 0.80 %	Using 5500A MFC Fluke With Current coil by Direct Sourcing
5.	Frequency #	5 Hz to 1 MHz 1 MHz to 300 MHz	0.10% to 0.03% 0.03% to 0.008%	Using 5500A MFC Fluke by Direct Sourcing

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
6.	Low Resistance #	1 mΩ 10 mΩ 100 mΩ 1Ωto 1 kΩ	0.65 % 0.70 % 0.70 % 0.70 %	Using Standard Resistance Box (Discrete Values) by Direct Sourcing
7.	Resistance #	1 Ω to 32 Ω 32 Ω to 320 Ω 320 Ω to 3.2 MΩ 3.2 MΩ to 32 MΩ 32 MΩ to 320 MΩ	0.90 % to 0.07 % 0.07 % to 0.015% 0.015 % to 0.02 % 0.02 % to 0.12 % 0.12 % to 0.58 %	Using 5500A MFC Fluke by Direct Sourcing
8.	Temperature # Thermocouple (J,K,T -Type) Thermocouple (R,S,B ,N-Type) RTD-PT100 Type	 (-)200 °C to 1300 °C 0 °C to 1700 °C (-)200 °C to 600 °C	 0.30 °C to 0.33 °C 0.7 °C to 1.2 °C 0.11 °C to 0.18 °C	Using 5500A MFC Fluke by Direct Sourcing / Simulation Method
9.	AC Power $ At 50Hz	**0.1 W – 6 kW** Voltage : (10V – 600V) Current: (0.1A – 10A) PF: UPF to ± 0.2 PF	0.80% to 0.20%	Using 5500A MFC Fluke by Direct Sourcing
10.	DC Power $	**1 W – 10 kW** Voltage : (10V – 1000V) Current: (0.1A – 10A)	0.12% to 0.15%	Using 5500A MFC Fluke by Direct Sourcing

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
11.	Power Factor $	± 0.1 - UPF	0.0032PF	Using 5500A MFC Fluke by Direct Sourcing
12.	AC Current $	**50Hz** 10A to 990 A	1.20%	Using AC High Current Source by Direct Sourcing
13.	Capacitance $	**1 kHz** 1nF to 3.2 nF 3.2 nF to 32 nF 32 nF to 320 nF 320 nF to 100µF	 1.73% to 0.70% 0.70% to 0.40% 0.40% to 0.30% 0.30% to 0.70%	Using 5500A MFC Fluke by Direct Sourcing
14.	Inductance $	**1 kHz** 1mH , 10mH , 1 H	3.0 %	Using Fixed Inductance Box by Direct Sourcing
15.	AC Resistance $	**1 kHz** 1 Ω 10 Ω 100Ω 1kΩ 10 kΩ 100 kΩ	 1.0 % 1.0 % 1.0 % 1.0 % 1.0 % 1.10 %	Using Fixed Resistance Box by Direct Sourcing

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
16.	Oscilloscope $	Amplitude 1 kHz (Square Wave) 5 mV to 100 V (50 Ω / 1MΩ) Time Base 5 nS to 5S Bandwidth 10 MHz to 300 MHz	 2.85% to 0.3% 0.5% to 0.7% 5.2%	Using 5500A MFC Fluke by Direct Sourcing
17.	Pulse Type Counter Meter / Period Meter $	100 to 50000 Pulse Count / Period	1.73 Pulse Count	Using Counter Calibrator by Direct Sourcing / Measurement
18.	AC High Voltage $ At 50 Hz	0 to 5 kV	2.27%	Using AC High Voltage Source , by Direct Sourcing
19.	Insulation Resistance$ (High Resistance)	2 , 20 , 200 & 500 MΩ 1 , 2 , 20 GΩ 200 GΩ	2.5% 3.5% 4.0%	Using Resistance Box (Discrete Value) By Direct Sourcing

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
	MECHANICAL CALIBRATION			
I.	**DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)**			
1.	Digital / Dial / Vernier Calipers $ L.C. 0.01 mm Φ Vernier Calipers # L.C. 0.02 mm	Upto 300 mm >300 mm to 600 mm >600 mm to 1000 mm >1000 mm to 2000 mm	7.0 µm 8.0 µm 9.0 20.0 µm	Using Gauge Blocks / Length Bars / Caliper Checker / Slip Gauge Accessories By Comparison Method
2.	Digital / Dial / Vernier Height Gauge $ L.C. : 0.01 mm Φ	Upto 300 mm >300 mm to 600 mm >600 mm to 1000 mm	8 µm 9 µm 10 µm	Using Gauge Blocks / Length Bar/ Caliper Checker / Surface Plate By Comparison Method
3.	Digital / Dial / Vernier Depth Gauge $ L.C. : 0.01 mm Φ	Upto 300 mm >300 mm to 600 mm	7 µm 8 µm	Using Gauge Blocks / Length Bars / Surface Plate By Comparison Method

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
4.	Digital / External Micrometer $			
	L.C. 0.001 mm	Upto 50 mm	1 µm	
		>50 mm to 100 mm	2 µm	Using Gauge Blocks / Length Bars
		>100 mm to 200 mm	2.5 µm	By Comparison Method
		>200 mm to 300 mm	3 µm	
	L.C. 0.01 mm	Upto 300 mm	5 µm	
		>300 mm to 600 mm	6 µm	
		>600 mm to 1000 mm	7 µm	
		> 1000 mm to 2000 mm	16 µm	
5.	Digital / Internal Micrometer $			Using V-Block , Dial Gauge , Gauge Blocks , Vertical Comparator By Comparison Method
	L.C. : 0.001 mm	Upto 200 mm	3.0 µm	
		>200 mm to 300 mm	3.0 µm	
	L.C. : 0.01 mm	Upto 300 mm	6.0 µm	
		>300 mm to 600 mm	7.0 µm	
		>600 mm to 1000 mm	8.0 µm	
	Digital / Internal Micrometer #			
	L.C. : 0.01 mm	1000 mm to 2000 mm	17.0 µm	

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
6.	Digital / Depth Micrometer $ L.C. : 0.001 mm L.C. : 0.01 mm	Upto 100 mm >100 mm to 200 mm >200 mm to 300 mm Upto 300 mm >300 mm to 600 mm	1.0 µm 2.5 µm 3.0 µm 5.0 µm 6.0 µm	Using Gauge Blocks / V-Block & Surface Plate By Comparison Method
7.	Digital / Dial Indicators – Plunger Type $ L.C. : 0.001 mm L.C. : 0.01 mm Φ	Upto 1.00 mm >1.00 mm to 12.5 mm >12.5 mm to 25.4 mm Upto 25 mm >25 mm to 50 mm >50 mm to 100 mm	1.0 µm 1.5 µm 2.0 µm 5.0 µm 6.0 µm 7.0 µm	Using Dial Calibration Tester By Comparison Method Using Slip Gauge with Dial Comparator By Comparison Method
8.	Digital / Dial Indicators – Lever Type $ L.C. : 0.001 mm	Upto 1mm	1.0 µm	Using Dial Calibration Tester By Comparison
9.	Bore Gauge Stroke Length / Transmission $	Upto 2 mm	1.7 µm	Using Dial Calibration Tester By Comparison Method
10.	Micrometer Setting Rods $	25 mm to 100 mm 100 mm to 300 mm 300 mm to 600 mm 600 mm o 1000 mm	3.0 µm 5.0 µm 7.0 µm 8.0 µm	Using Gauge Blocks / Surface Plate with Lever Gauge By Comparison Method

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
11.	Dial Thickness Gauge$ L.C. : 0.001 mm L.C.:0.01 mm	 Upto 1 mm >1 mm to 10 mm Upto 10 mm >10 mm to 25 mm	 2.5 µm 3.5 µm 6.0 µm 7.0 µm	Using Gauge Blocks By Comparison Method
12.	Metric Steel Scale $	Upto 1000 mm	$68\sqrt{\frac{l}{500}}$ µm L is in mm	Using Tape Calibration Unit By Comparison Method
13.	Metric Steel Tape / Pie Tape $	Upto 50 meter	$68\sqrt{\frac{l}{500}}$ µm L is in mm	Using Tape Calibration Unit By Comparison Method
14.	Bevel Protractor / Degree Protractor / Combination Set $	$0^0 – 90^0 – 0^0$	4 minute of arc	Using Angle Gauges By Comparison Method
15.	Plain Plug gauge $	3 mm to 100 mm >100 mm to 200 mm >200 mm to 300 mm	3.0 µm 4.6 µm 6.0 µm	Using Gauge Blocks with Comparator By Comparison Method
16.	Plain Ring Gauge $	Upto 100 mm >100 mm to 200 mm >200 mm to 300 mm	2.0 µµm 3.0 µµm 4.0 µµm	Using ULM100 Gauge Block with Accessories By Comparison Method
17.	Cylindrical Pins $	Upto 5 mm >5 mm to 20 mm	2.0 µm 2.5 µm	Using Dial Gauge with Comparator Stand By Comparison Method

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
18.	Snap Gauge $ Plain / Dial / Adjustable	Upto 150 mm >150 mm to 300 mm >300 mm to 450 mm	2.5 µm 6.0 µm 7.5 µm	Using Gauge Blocks By Comparison Method
19.	Thread Plug Gauge $ (Effective Diameter Only)	Upto 25 mm >25 mm to 50 mm >50 mm to 100 mm	4.0 µm 4.5 µm 5.0 µm	Using Micrometer Head with Free Float Table Fixture & Three wire Unit By Comparison Method
20.	Thread Ring Gauge $ (Effective Diameter Only)	>3 mm to 100 mm	2.5 µm	Using ULM By Comparison Method
21.	Feeler Gauge $	Upto 5 mm	2.0 µm	Using Digital Micrometer By Comparison Method
22.	Angle Plate $ Flatness Squareness	Upto 300 mm	4.0 µm 5.0 µm	Using Surface Gauge Set Up & Cylindrical Square By Comparison Method
23.	Engineers Square $ Straightness Squareness	upto 600 mm	4.0 µm 6.0 µm	Using Surface Gauge Set & Cylindrical Square By Comparison Method
24.	V-Blocks $ Flatness Parallelism Squareness	Upto 300 mm X 100 mm X 100 mm	4.0 µm 5.0 µm 6.0 µm	Using Surface Plate / Test Mandrel & Dial Indicator , Leveling Screws By Comparison Method

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
25.	Coating Thickness Gauge $ L.C.: 1.0 µm L.C. : 0.1 µm	Upto 1 mm >1 mm to 3 mm >3 mm to 5 mm	3.0 µm 6.0 µm 8.0 µm	Using Thickness Foils By Comparison Method
26.	Inside / Outside Caliper / Pistol Caliper$	Upto 300 mm	70.0 µm	Gauge Blocks Gauge Blocks Accessories By Comparison Method
27.	Dial Comparator Stand$ Flatness	Upto 150 mm X 150 mm	4.0 µm	Using Surface Plate / Dial Indicator
28.	Weld / Hi-Lo Gauge / Bridge Cam Gauge $	Upto 10 mm 10mm to 25 mm 25 mm to 50 mm	2.0 µm 4.0 µm 5.0 µm	Using Slip Gauges / Comparator Stand By Comparison Method
29.	Width / Gap Gauge $	Upto 150 mm 150 mm to 300 mm	2.0 µm 5.5 µm	Using Slip Gauge / Digital Vernier Caliper By Comparison Method
30.	Surface Plate – Cast Iron / Granite Comparator Stand ♣	Upto 3000 mm	$0.5\sqrt{\frac{L+W}{150}}$ µm L & W in mm	Using Straight Edge / Gauge Blocks / Spirit Level
31.	Bench Centre ♣ Parallelism Co-axiality	Centre Distance Upto 500 mm	 5.0 µm 5.0 µm	Using Test Mandrel / Lever Gauge By Comparison Method

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
32.	Linear / Vernier / Digital / Electronic Height Gauge ♣ L.C. 0.0001 mm	Upto 2000 mm	1.0 µm	Using Gauge Block / Gauge Block Accessories Caliper Checker By Comparison Method
VI.	**ACCELERATION & SPEED**			
1.	Non-Contact Type # RPM Indicator / Centrifuge.	100 rpm to 12000 rpm >12000 rpm to 24000 rpm	5.14 % 0.35 %	Using Digital Tachometer
VII.	**ACOUSTICS**			
1.	Sound Level Meter $	**1 kHz** 94 dB & 114 dB	1.5 dB	Using Sound Calibrator
VIII.	**PRESSURE DEVICES**			
1.	Analogue / Digital Pressure Gauges, Pressure Transducer with Indicator, Magnahelic Gauges, Pressure Switches #	25 mmH_2O to 200 mmH_2O (245 Pa to 1961 Pa) 0 to 1 bar 0 to 7 bar	0.4 mmH_2O (3.92 Pa) 3.0 mbar 0.35 % rdg.	Using Digital Manometer / Digital Pressure Gauge with Pneumatic Comparator BY Comparison Method as per DKD R6-1.
2.	Analogue / Digital Pressure Gauges, Pressure Transducer with Indicator, Pressure Switches #	0 to 70 bar 0 to 700 bar	0.35 % rdg. 0.86 % rdg.	Using Digital Pressure Gauge with Hydraulic Comparator. BY Comparison Method as per DKD R6-1.

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
3.	Analogue / Digital Vacuum Gauge, Transducer with Indicator, Vacuum Switches #	(-) 25 mmH_2O to (-)140 mmH_2O (-245 Pa to (-)1373 Pa) 0 to -0.9 bar	0.42 mmH_2O@ (4.12 Pa) 0.93 % rdg.	Using Digital Manometer / Digital Pressure/ Vacuum Gauge with Vacuum Comparator. BY Comparison Method as per DKD R6-2
IX.	**WEIGHTS**			
1.	Mass $ Calibration of Weights (Conventional Mass) Of M1 Class and coarser	1 mg 2 mg 5 mg 10 mg 20 mg 50 mg 100 mg 200 mg 500 mg 1 g 2 g 5 g 10 g 20 g 50 g 100 g 200 g	0.03 mg 0.03 mg 0.03 mg 0.03 mg 0.03 mg 0.03 mg 0.03 mg 0.03 mg 0.03 mg 0.03 mg 0.03 mg 0.04 mg 0.05 mg 0.05 mg 0.08 mg 0.17 mg 0.22 mg	Using F_2 Accuracy Class Standard Weights and Digital Weighing Balance (Readability: 0.01 mg / 0.1 mg) By Comparison as per OIML R-111 by substitution method and ABBA cycle.
2.	Discrete Weight $ (Conventional Non Std. Mass i.e. Hook / Disc / Square)	1 g to 200 g 200 g to 2 kg 2 kg to 5 kg 5 kg to 20 kg	0.3 mg 171.3 mg 328.3 mg 631.7 mg	Using F_2 & M1 Accuracy Class Standard Weights and Digital Weighing Balance (Readability: 0.01 mg / 0.1 mg / 0.2 g / 0.5 g / 1 g)

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
X.	**VOLUME**			
1.	Micropipette$ (Piston Operated Pipette)	10 µl to 100 µl 100 µl to 1000 µl 1000 µl to 5000 µl	0.10 µl 0.18 µl 0.44 µl	Using Standard weights & Semi-micro balance and distilled water of known density as per Gravimetric method based on ISO855-6
2.	Laboratory Glassware$ (Pipette , Burette , Flask , Jar , Cylinder etc)	1 ml to 10 ml >10 ml to 100 ml >100 ml to 200 ml >200 ml to 2 liter >2 liter l to 5 liter >5 liter to 20 liter	0.0003 ml 0.0005 ml 0.0010 ml 0.42 ml 0.50 ml 0.61 ml	Using Standard weights & semi-micro balance/ Analytical balance, and distilled water of known density as per Gravimetric Method Based on ISO 4787
XI.	**WEIGHING SCALE AND BALANCE**			
1.	Weighing Machine ♣ Readability :0.1 mg & Coarser	0 to 220 g	0.22 mg	Using Standard Weights of Class F2 as per Procedure based on OIML R76 (2006) calibration of Class II Weighing Balance & Coarser
	Readability: 0.1 g & Coarser	0 to 2 kg	130 mg	Using Standard Weights of Class M1 as per Procedure based on OIML R76 (2006) calibration of Class III Weighing Balance & Coarser
	Readability: 0.2 g & Coarser	Upto 10 kg	220 mg	
	Readability: 0.5 g & Coarser	Upto 60 kg	560 mg	

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
		THERMAL CALIBRATION		
I.	**TEMPERATURE**			
1.	Glass Thermometer, Digital / Dial Thermometer , RTD & Thermocouple with or without (Controller / Indicator / Data Logger / Recorder / Temperature / Transmitter) #	(-) 30ºC to 50ºC 50ºC to 250ºC	0.18 ºC 0.18 ºC	Using Standard PRT & 6.1/2 Digit DMM, Liquid bath / Oil bath by Comparison Method
2.	Digital Dial Thermometer , RTD & Thermocouple with or without (Controller / Indicator / Data Logger / Recorder / Temperature / Transmitter) #	250ºC to 600ºC 600ºC to 1000ºC 1000ºC to 1200ºC	2.5 ºC 2.5 ºC 2.5 ºC	Using R Type Thermocouple & 6.1/2 / 5.1/2 Digit DMM , Oil bath and Dry Block Furnace by Comparison Method

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
3.	Non Contact Thermometry Optical Pyrometer , IR Thermometer $	50ºC to 500ºC	4.0 ºC	Using Digital pyrometer with Black Body Calibrator By Comparison Method
4.	Temperature indicator with sensor liquid bath,Dry Block Furnace , Oven , Environmental Chamber, Centrifuge , Incubator(non medical), BOD Incubator , Freezer & Deep Freezer ♣	(-)30 ºC to 250ºC 250 ºC to 400ºC	0.2 ºC 2.5 ºC	Single Point Calibration Using Std. PRT & R Type Thermocouple & 5.1/2 Digit DMM using Liquid bath / Oil bath / Dry Block . By Comparison Method
5.	Temperature Indicator with sensor of oven , Dry Block Furnace , Muffle Furnace ♣	50ºC to 600ºC 600ºC to 1200ºC	2.5 ºC 2.5 ºC	Single Point Calibration Using Type R Thermocouple & 5.1/2 Digit DMM By Comparison Method
6.	Freezer , Oven , Cold Chamber , Centrifuged Chamber , Incubator(non medical) , BOD Incubator(non medical) , Closed Chamber , Furnace ♣	(-)30 ºC to 50ºC 50 ºC to 300ºC	1.2 ºC 2.9 ºC	9 Point Calibration Using Multi point Data Logger with RTD (Pt-100) sensors By Multi Point Direct Method

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
II.	**SPECIFIC HEAT AND HUMIDITY**			
1.	Thermo Hygrometer with sensor & Inbuilt Sensor $	30% RH to 95% RH @ 25 ºC 15 ºC to 50 ºC @ 50% RH	1.40% RH @ 25 ºC 0.8 ºC @ 50% RH	Using Digital Thermo hygrometer with sensor & Humidity Chamber By Comparison Method
2.	Indicator of Environmental/ Conditioning Chamber/ Humidity Chamber ♣	30 % RH to 95 % RH @25 ºC	1.50% RH @25 ºC	Single Point Calibration Using Digital Thermo hygrometer with sensor By Comparison Method

*** Measurement Capability is expressed as an uncertainty (±) at a confidence probability of 95%**
$ Only in Permanent Laboratory
♣ Only for Site Calibration
 # The laboratory is also capable for site calibration however, the uncertainty at site depends on the prevailing actual environmental conditions and master equipment used.
Φ Laboratory can also calibrate instruments/devices of coarser resolution / least count within the accredited range using same reference standard/ master equipment under the scope of accreditation.

Mohit Kaushik
Convenor

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