

Laboratory **Global Scientific Solution, WZ-7, Basai Darapur, New Delhi**

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **CC-2487 (In lieu of C-0725, C-0726)**

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Validity **26.10.2017 to 25.10.2019**

Last Amended on **06.12.2017**

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
<u>ELECTRO TECHNICAL CALIBRATION</u>				
I.	SOURCE			
1.	DC Voltage [#]	1 mV to 100 V 100 V to 1000V	0.6% to 0.015% 0.015% to 0.012%	Using Fluke-9100 MFC Calibrator by Direct Method
2.	AC Voltage [#]	50 Hz 10mVto 30mV 30mVto 300mV 300mVto 1000V	4.4% to 0.45% 0.45% to 0.06% 0.06% to 0.08%	Using Fluke-9100 MFC Calibrator by Direct Method
3.	DC Current [#]	10 μ A to 300 mA 300 mA to 20 A 20 A to 1000 A	0.2% to 0.03% 0.03% to 0.1% 0.71%	Using Fluke-9100 Calibrator by Direct Method Using + C.C
4.	AC Current [#]	50 Hz 30 μ A to 300 μ A 300 μ A to 20A 20A to 900 A	3.5% to 0.2% 0.2% to 0.28% 0.8%	Fluke-9100 Calibrator by Direct Method Using + C.C
5.	DC Resistance [#] (2Wire)	1 Ω to 10 Ω 10 Ω to 100k Ω 100 k Ω to 10 M Ω 10 M Ω to 400 M Ω	2.5% to 0.14% 0.14% to 0.03% 0.03% to 0.08% 0.08%to 0.092%	Using Fluke-9100 Calibrator by Direct Method
6.	Capacitance [#] (D.C)	1 nF to 100 nF 100 nF to 100 μ F	1.95% to 0.54% 0.54% to 0.75%	Using Fluke-9100 Calibrator by Direct Method

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Convenor

Avijit Das
Program Director

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7.	Frequency #	1 Hz to 100 Hz 100 Hz to 1.0 MHz	0.7% to 0.003% 0.003%	Using Fluke-9100 Calibrator by Direct Method
8.	Power Factor #	0.2 PF – UPF	0.004 PF	Using Fluke-9100 Calibrator by Direct Method
9.	AC Power # (1 ϕ , 50 Hz, UPF) P.F. 0.5	40V to 600V 100 mA to 20A 4 W to 12kW 240 V 100 mA to 20 A 12 W to 2.4 kW	0.15% to 0.35% 0.52% to 0.85%	Using Fluke-9100 Calibrator by Direct Method
10.	AC Energy # (1 ϕ , 50 Hz, UPF) 0.5-0.8 PF	240 V 0.1A to 20 A	0.19% to 0.23% 0.85%	Using Fluke-9100 Calibrator & Digital Timer by Direct Method
11.	Temperature Simulation # (Indicator/ controlers etc. RTD J Type K Type	(-)200°C to 800°C (-)200 °C to 760°C (-)200°C to1300°C	0.3 °C 0.35°C 0.42°C	Using Fluke-9100 Calibrator by Direct Method
12.	High Resistance*	2 M Ω , 20M Ω , 100 M Ω , 200 M Ω	3.5%	Using Meg Ohm Box by Direct Method

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II.	MEASURE			
1.	DC Voltage #	1mV to 100 mV 100 mV to 100 V 100 V to 1000 V	0.41% to 0.1% 0.1% to 0.005% 0.005% to 0.0081%	Using Fluke-8846A 6½ DMM by Direct Method
2.	AC Voltage #	50Hz 10mV to 100mV 100mV to 1000V	4.6% to 0.12% 0.12% to 0.1%	Using Fluke-8846A 6½ DMM by Direct Method
3.	DC Current #	1µA to 1mA 1mA to 100 mA 100 mA to 3A 3A to 10A	3.1% to 0.09% 0.09% to 0.063% 0.063% to 0.15% 0.15% to 0.19%	Using Fluke-8846A 6½ DMM by Direct Method
4.	AC Current #	50Hz 10 µA to 1 mA 1 mA to 1 A 1 A to 10 A	0.90% to 0.16% 0.16% 0.16% to 0.24%	Using Fluke-8846A 6½ DMM by Direct Method
5.	Resistance # (2 Wire)	1Ω to 10 Ω 10 Ω to 10 MΩ 10 MΩ to 400 MΩ	0.35% to 0.045% 0.045 % to 0.1% 0.1 % to 2.3%	Using Fluke-8846A 6½ DMM by Direct Method
6.	Capacitance # D.C	1 nF to 100 µF 100 µF to 10 mF	5.5% to 1.8% 1.8%	Using Fluke-8846A 6½ DMM by Direct Method
7.	Frequency #	10 Hz to 1MHz	0.035% to 0.015%	Using Fluke-8846A 6½ DMM by Direct Method

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8.	Temperature # (By Simulation Method) RTD	(-) 200°C to 600°C	0.3°C	Using Fluke-8846A 6½ DMM by Direct Method
9.	Time Interval #	10 sec to 3600 sec	1.2% to 0.11%	Using Time Interval Meter (Technocrat) by Direct Method
10.	DC High Voltage #	1 to 5 kV	2.4%	Using HV Probe(Fluke 80K40) + DMM by Direct Method
11.	AC High Voltage #	50 Hz 1 to 15kV	4.5%	Using HV Probe(Fluke 80K40) + DMM by Direct Method

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<u>MECHANICAL CALIBRATION</u>				
I.	DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)			
1.	Digital/Dial/ Vernier Caliper [§] L.C. 0.01mm	0 to 300mm >300mm to 500mm	8.0 μ m 10.40 μ m	Using Gauge Blocks/ & Surface Plate
2.	Digital/ Dial/ Vernier Depth Caliper/Gauge [§] L.C. 0.01mm	0 to 300mm	15.30 μ m	Using sets of Gauge Blocks/& Surface Plate
3.	Digital/ Dial/ Vernier Height Gauge [§] L.C. 0.01mm L.C. 0.02mm	0 to 300mm 0 to 600mm	8.0 μ m 13.0 μ m	Using Gauge Blocks/ & Surface Plate
4.	Digital/ External Micrometer [§] L.C. 0.001mm	0 to 300mm >300mm to 600mm	1.70 μ m 7.70 μ m	Using Gauge Blocks
5.	Internal Micrometer [§] L.C. 0.01mm (Stick Type)	50mm to 500mm	8.70 μ m	Using Gauge Block set , Accessories and Surface Plate
6.	Digital/ Depth Micrometer [§] L.C. 0.001mm	0 to 50mm >50mm to 300mm	1.70 μ m 10.50 μ m	Using Gauge Blocks/ & Surface Plate

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7.	Plunger type Dial Gauge ^s L.C. 0.001mm L. C. 0.001mm	0 to 1mm >1 mm to 10mm >10 mm to 50 mm	1.3 μ m 2.0 μ m 6.5 μ m	Using Gauge Blocks
8.	Bore Gauge ^s Travel Movement up to 1.2 mm only L.C.: 0.001 mm ^φ	1.2 mm	6.20 μ m	Using Gauge Blocks & accessories
9.	Dial/Digital thickness Gauge ^s L.C. 0.001mm	0 to 25 mm	1.7 μ m	Using Gauge Blocks
10.	Feeler Gauge ^s	0.001 to 3 mm	2.0 μ m	Using Digital Micrometer
11.	Dial Snap/ Snap Gauge ^s	Upto 150 mm > 150mm to 300 mm	2.60 μ m 4.0 μ m	Using Gauge Blocks
12.	Plain Plug Gauge ^s	3mm to 100 mm >100mm to 200 mm	3.0 μ m 4.0 μ m	Using Gauge Blocks & Dial Comparator
13.	Inside Dial Caliper ^s L.C.0.01 mm	>4 mm to 75 mm	8.0 μ m	Using Gauge Blocks & Accessories
14.	Coating Thickness Gauge ^s	0 to 700 μ m	4.30 μ m	Using Standard Coating foils

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15.	Coating Thickness Foils [§]	>10mm to 710 μ m	8.0 μ m	Using Digital Micrometer
16.	Surface Plate [#]	Upto 1000mm x 1000 mm	15.0 μ m	Using Straight Edgw & Slip Gauge
II.	PRESSURE INDICATING DEVICES			
1.	Vacuum Gauges [§]	0 to (-) 0.9 bar	0.011 bar	Using Digital Pressure Gauge
2.	Industrial Pressure/Gauges Hydraulic [#]	0 to 30 bar 0 to 600 kg/cm ²	0.03 bar 0.06% rdg	Using Digital Pressure Gauge

* Measurement Capability is expressed as an uncertainty (\pm) 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.

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