Laboratory	**Sri Sai Precision Instrumentation & Research Centre, C-12/4, NICE, MIDC, Satpur, Nashik, Maharashtra**			
Accreditation Standard	**ISO/IEC 17025: 2005**			
Certificate Number	**CC-2388** ***(in lieu of C-0948,C-0949 & C-0950)***	**Page**	**1 of 12**	
Validity	**26.10.2017 to 25.10.2019**	**Last Amended on**	**12.10.2017**	

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
		ELECTRO-TECHNICAL CALIBRATION		
I.	**MEASURE**			
1.	DC Current[$]	1 mA to 10 mA 10 mA to 400 mA 400 mA to 1A 1A to 10A	0.063% to 0.08% 0.08% to 0.067% 0.067% to 0.14% 0.14% to 0.18%	Using 6 ½ Digit Multimeter By Direct Method
2.	DC Current[$]	1 mA to 10 mA 10 mA to 400 mA 400 mA to 1A 1A to 10A	1.14%	Using 6 ½ Digit Multimeter By Comparison Method
3.	AC Current[$]	**50 Hz** 1 mA to 10 mA 10 mA to 100 mA 100 mA to 200 mA 200 mA to 1A 1A to 10A	 0.24% 0.24% to 0.165% 0.165% to 0.232% 0.232% to 0.175% 0.175% to 0.25%	Using 6 ½ Digit Multimeter By Direct Method
4.	AC Current[$]	**50 Hz** 1 mA to 10 mA 10 mA to 100 mA 100 mA to 200 mA 200 mA to 1A 1A to 10A	 1.131% to 1.17% 1.17% 1.17% 1.17% 1.17%	Using 6 ½ Digit Multimeter By Comparison Method
5.	DC Voltage[$]	1mV to 100 mV 100 mV to 1V 1V to 10 V 10 V to 100 V 100 V to 1000 V	0.06% to 0.018% 0.018% to 0.566% 0.566% to 0.168% 0.168% to 0.008% 0.008% to 0.009%	Using 6 ½ Digit Multimeter By Direct Method

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
6.	DC Voltage[$]	1mV to 100 mV 100 mV to 1V 1V to 10 V 10 V to 100 V 100 V to 1000 V	0.313% to 1.13% 1.13% 1.13% 1.13% 1.13%	Using 6 ½ Digit Multimeter By Comparison Method
7.	AC Voltage[$]	**50 Hz** 1 mV to 100 mV 100 mV to 1V 1 V to 10V 10 V to 100 V 100 V to 750 V	 0.935% to 0.12% 0.11% to 0.105% 0.105 % to 0.172% 0.172% to 0.105% 0.105%	Using 6 ½ Digit Multimeter By Direct Method
8.	AC Voltage[$]	**50 Hz** 1 mV to 100 mV 100 mV to 1V 1 V to 10V 10 V to 100 V 100 V to 750 V	 1.15% 1.15% 1.15% 1.15% 1.15%	Using 6 ½ Digit Multimeter By Comparison Method
9.	AC High Voltage[$]	**50 Hz** 1 kV to 20 kV	 9.8%	Using HV Probe & Digital Multimeter By Direct Method
10.	DC High Voltage[$]	1 kV to 40 kV	4.5%	Using HV Probe & Digital Multimeter By Direct Method
11.	Resistance[$]	1Ω to 10 MΩ 10 MΩ to 100 MΩ	0.47% to 1.29% 1.29%to 0.92%	Using 6 ½ Digit Multimeter By Direct Method
12.	DC Current[$]	1 mA to 10 mA 10 mA to 400 mA 400 mA to 1A 1A to 10A	0.063% to 0.08% 0.08% to 0.067% 0.067% to 0.14% 0.14% to 0.18%	Using 6 ½ Digit Multimeter By Direct Method

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
13.	AC Current♣	**50 Hz** 1 mA to 10 mA 10 mA to 100 mA 100 mA to 200 mA 200 mA to 1A 1A to 10A	 0.24% 0.24% to 0.165% 0.165% to 0.232% 0.232% to 0.175% 0.175% to 0.25%	Using 6 ½ Digit Multimeter By Direct Method
14.	DC Voltage♣	1mV to 100 mV 100 mV to 1V 1V to 10 V 10 V to 100 V 100 V to 1000 V	0.06% to 0.018% 0.018% to 0.566% 0.566% to 0.168% 0.168% to 0.008% 0.008% to 0.009%	Using 6 ½ Digit Multimeter By Direct Method
15.	AC Voltage♣	**50 Hz** 1 mV to 100 mV 100 mV to 1V 1 V to 10V 10 V to 100 V 100 V to 750 V	 0.935% to 0.12% 0.12% to 0.105% 0.105% to 0.172% 0.172% to 0.105% 0.105%	Using 6 ½ Digit Multimeter By Direct Method
16.	AC High Voltage♣	**50 Hz** 1 kV to 20 kV	 9.8%	Using Hv Probe & Digital Multimeter By Direct Method
17.	DC High Voltage♣	1 kV to 40 kV	4.5%	Using Hv Probe & Digital Multimeter By Direct Method
18.	Resistance♣	1Ω to 10 MΩ 10 MΩ to 100 MΩ	0.47% to 1.29% 1.29% to 0.92%	Using 6 ½ Digit Multimeter By Direct Method

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
II.	**SOURCE**			
1.	DC Current[$]	10A to 1000A	1.70% to 0.40%	Using Multifunction Calibrator With Current Coil By Direct Method
2.	AC Current[$]	**50 Hz** 10A to 900A	1.71% to 0.74%	Using Multifunction Calibrator With Current Coil By Direct Method
3.	AC High Voltage[$]	**50 Hz** 1 kV to 5 kV	7.5%	Using High Voltage Source By Direct Method
4.	Resistance[$]	1 Ω to 10 Ω 10 Ω to 100 Ω 100 Ω to 1000 Ω 1 kΩ to 10 kΩ 10 kΩ to 100 kΩ 100 kΩ to 1 MΩ 1 MΩ to 100 MΩ 500 MΩ 1 GΩ 2 GΩ 5 GΩ 7 GΩ 10 GΩ 50 GΩ 100 GΩ	1.5% to 1.4% 1.4% to 1.2% 1.2% to 0.571% 0.571% to 0.1% 0.1% 0.65% 0.65% to 1.45% 1.8% 5.8% 5.8% 5.8% 5.8% 5.8% 7.8% 7.8%	Using Resistance Decade Box By Direct Method
5.	Capacitance[$]	**1 kHz** 1 nF to 1µF	2.84%	Using Decade Capacitance Box By Direct Method

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
6.	Inductance[$]	**1 kHz** 10 µH to 1000 mH	2.92%	Using Decade Inductance Box By Direct Method
7.	Temperature Simulation[$] (Digital Temperature Indicator/ Controller) Thermocouple J-Type K-Type RTD Indicator (PT-100 3 Wire)	 (-)200°C to 750°C (-)150°C to 1370°C (-)150°C to 600°C	 2.26°C 1.7°C 2.3°C	 Using Universal Calibrator By Direct Method
8.	Resistance[♣]	1 Ω to 10 Ω 1 0 Ω to 100 Ω 100 Ω to 1000 Ω 1 kΩ to 10 kΩ 1 0 kΩ to 100 kΩ 100 kΩ to 1 MΩ 1 MΩ to 100 MΩ	1.5% to 1.4% 1.4% to 1.2% 1.2% to 0.571% 0.571% to 0.1% 0.1% to 0.65% 0.65% to 1.45%	Using Resistance Decade Box By Direct Method
9.	Temperature Simulation[♣] (Digital Temperature Indicator/ Controller) Thermocouple J-Type K-Type RTD Indicator (PT-100 3 Wire)	 (-)200°C to 750°C (-)150°C to 1370°C (-)150°C to 600°C	 2.26°C 1.70°C 2.29°C	 Using Universal Calibrator By Direct Method

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
	MECHANICAL CALIBRATION			
I.	**TORQUE GENERATING DEVICES**			
1.	Torque Torque Wrench[$] Type-II Class A,B,C	 2.5 Nm to10 Nm 10 Nm to 50 Nm 50 Nm to 200 Nm 200 Nm to1000 Nm 1000 Nm to3000 Nm	 1.68% 0.76% 0.82% 0.53% 0.59%	Using Torque Wrench Indicator with sensor
II.	**DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)**			
1.	External Micrometer[$] L.C. 0.001 mm L.C. 0.01 mm	 0 to 25 mm 0 to150 mm	 1.4 µm 7.3 µm	Using 'O' Grade Slip Gauge By Comparison Method
2.	Vernier Caliper[$] L.C. 0.01 mm [Φ] L.C. 0.01 mm [Φ]	 0 to 300 mm 0 to 600 mm	 11.0 µm 14.5 µm	Using 'O' Grade Slip Gauge By Comparison Method
3.	Height Gauge[$] L.C. 0.02 mm	0 to 600 mm	27.4 µm	Using Caliper Checker By Comparison Method

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
4.	Dial Gauge[$] (Plunger) L.C. 0.001 mm L.C. 0.01 mm	 0 to1 mm 0 to10 mm	 2.1 µm 3.2 µm	Using Dial Calibration Tester By Comparison Method
5.	Dial Gauge[$] (Lever) L.C. 0.001 mm L.C. 0.01 mm	 0 to1 mm 0 to10 mm	 1.7 µm 3.2 µm	Using Dial Calibration Tester By Comparison Method
6.	Depth Micrometer[$] L.C. 0.01 mm	Upto 300 mm	8.5 µm	Using Depth Micrometer Checker By Comparison Method
7.	Dial Thickness Gauge[$] L.C. 0.01 mm	0 to 10 mm	8.7 µm	Using Slip Gauge By Comparison Method
8.	Plain Plug Gauge[$]	Upto 100 mm	4.4 µm	Using Slip Gauge, Micron Dial Gauge & Comparator Stand By Comparison Method
9.	Snap Gauge[$]	Upto100 mm	1.7 µm	Using Slip Gauge By Comparison Method
10.	Vernier Depth Gauge[$] L.C. 0.02 mm	 Upto 300 mm	 21.0 µm	Using Depth Micrometer Checker By Comparison Method

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
11.	Feeler Gauge[$]	Upto 1 mm	2.9 µm	Using Digital External Micrometer By Comparison Method
III.	**WEIGHTS**			
1.	Mass /eights[$] F1 Class Weights & 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	0.01mg 0.01 mg 0.01 mg 0.01 mg 0.01 mg 0.01 mg 0.022 mg 0.022 mg 0.022 mg 0.03 mg 0.04 mg 0.04 mg 0.042 mg 0.042 mg 0.042 mg 0.10 mg 0.10 mg	Using E1 class standard weights ABBA method as per OINL R-111: 2004 and NABL 120-02 with Digital weighing balance upto 80 g of d = 0.01 mg and upto 200 g of d : 0.1 mg

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
IV.	**WEIGHING SCALE AND BALANCE**			
1.	Electronic Weighing Balance# Class I d ≥ 0.01 mg d ≥ 0.1 mg Class III d ≥ 10 g d ≥ 20 g	 1 mg to 80 g >8 g to 200 g >200 g to 100 kg >100 kg to 180 kg	 0.012 mg 0.08 mg 8.66 g 16.23 g	 Using E1 class standard weights as per OIML R-76 Using M1 class standard weights as per OIML R - 76
V.	**VOLUME**			
1.	Piston Pipette#	> 100µl to 1000 µl	8.5 µl	Using Digital Balance upto 80g/200 g readability 0.01/0.1 mg and distilled water of known density
2.	Glass Pipettes# (Graduated/ Non Graduated)	1 ml to 50 ml	0.06 ml	Using Digital Precision Balance & distilled water of known density as per ISO 4767 & ISO/TR20461
3.	Glass Burette#	1 ml to 25 ml	0.06 ml	
4.	Measuring Cylinder / Conical Flask/Beaker#	2 ml to 100 ml	0.483 ml	
VI.	**PRESSURE INDICATING DEVICES**			
1.	Hydraulic Pressure Dial / Digital Pressure Gauges & Calibrators#	0 to 10 bar >10 bar to 100 bar >100 bar to 700 bar	0.009 bar 0.1 bar 0.42 bar	Using Digital Pressure Gauge by Comparison method as per DKD-R-6-1

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
2.	Differential Pressure Digital Pressure Gauges & Calibrators#	0 to 10000 mmWC	58.01 mmWC	Using Digital Differential Pressure Gauge By Comparison Method As Per DKD-R-6-1
3.	Vacuum Dial / Digital Vacuum Gauges/ Indicators & Calibrators#	0 to 650 mmHg	6.5 mmHg	Using Digital Vacuum Gauge By Comparison Method As Per DKD-R-6-1

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
		THERMAL CALIBRATION		
I.	**TEMPERATURE**			
1.	RTDs/Thermocouple with or without indicator#	50°C to 350°C	0.7°C	Using RTD Probe with Indicator, Universal calibrator, 6 ½ Digit Multimeter & Dry bath By Comparison Method
2.	Liquid in Glass Thermometer#	50°C to 200°C	0.7°C	Using RTD Probe with Indicator & Oil Bath By Comparison Method
3.	Thermocouple with Without Temperature Indicator#	300°C to 600°C 600°C to 1000°C	1.9°C 1.93°C	Using S Type Thermocouple with Temperature Indicator, Universal calibrator & dry bath By Comparison Method

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
4.	Temperature Indicator of cold bath/Oven/Thermal Chamber[#]	(-)75°C to 200 °C	1.1°C	Using Digital Temperature Indicator 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.

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