

Laboratory	Testing & Calibration Lab, 204, Diamond Industrial Estate No. 2, Ketki Pada Road, (Near Dahisar Toll Naka), Dahisar (East), Mumbai, Maharashtra		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electro-Technical Calibration	Issue Date	19.08.2014
Certificate Number	C-0808	Valid Until	18.08.2016
Last Amended on	-	Page	1 of 5

Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (\pm)	Remarks
SOURCE			
1. DC VOLTAGE[#]	1 mV to 32 mV	0.43 % to 0.02 %	Using Fluke 9100 MFC by Direct Method
	32 mV to 32 V	0.02 % to 0.008 %	
	32 V to 1000 V	0.008 % to 0.02 %	
2. DC CURRENT[#]	10 μ A to 320 μ A	0.15 % to 0.03 %	Using Fluke 9100 MFC by Direct Method
	32 μ A to 32 mA	0.03 % to 0.045 %	
	32 mA to 320 mA	0.045 % to 0.06 %	Using Fluke 9100 MFC with Current Coil by Direct Method
	320 mA to 20 A	0.06 % to 0.12 %	
	20 A to 1000 A	0.25 %	
3. AC VOLTAGE[#]	50 Hz to 1 kHz	0.13 % to 0.085 % 0.085 % to 0.095 %	Using 9100 Calibration System by Direct Method
	32 mV to 32 V		
	32 V to 1000 V		
4. AC CURRENT[#]	50 Hz to 1 kHz	2.85 % to 0.35 % 0.35 % to 0.09 % 0.09 % to 0.15 % 0.15 % to 0.26 % 0.35 %	Using Fluke 9100 MFC By Direct Method
	32 μ A to 320 μ A		
	320 μ A to 32 mA		
	32 mA to 3.2 A		
	3.2 A to 20 A		
50 Hz	20 A to 1000A	Using Fluke 9100 MFC with current coils by Direct Method	

Laboratory Testing & Calibration Lab, 204, Diamond Industrial Estate No. 2, Ketki Pada Road, (Near Dahisar Toll Naka), Dahisar (East), Mumbai, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Discipline Electro-Technical Calibration **Issue Date** 19.08.2014

Certificate Number C-0808 **Valid Until** 18.08.2016

Last Amended on - **Page** 2 of 5

	Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (\pm)	Remarks
5.	FREQUENCY [#]	10 Hz to 320 Hz 320 Hz to 1 MHz	0.06 % to 0.003 % 0.003 % to 0.01 %	Using Fluke 9100 MFC by Direct Method
6.	DC RESISTANCE [#]	4 Ω to 40 Ω 40 Ω to 4 k Ω 4 k Ω to 4 M Ω 4 M Ω to 40 M Ω 40 M Ω to 400 M Ω	1.41 % to 0.28 % 0.28 % to 0.04 % 0.04 % to 0.06 % 0.06 % to 0.16 % 0.16 % to 0.85 %	Using Fluke 9100 MFC by Direct Method
7.	DC RESISTANCE FOR Ω METER [#]	0.001 Ω to 0.01 Ω 0.01 Ω to 1 k Ω 1 k Ω to 10 k Ω	0.13 % 0.13 % to 0.011 % 0.011 % to 0.057 %	Using Standard 4Terminal Fixed Resistors in step of 1,10,100 by Direct Method)
8.	HIGH RESISTANCE FOR INSULATION TESTER [#]	0.1 M Ω to 10 G Ω	2.3 % to 2.7 %	Using Mega Ohm Box Fixed Values
9.	INSULATION RESISTANCE [#] AT 500/1000V DC	1 M Ω to 1 G Ω	0.8 % to 1.85 %	Using Fluke 9100 MFC by Direct Method
10.	AC POWER [#]	50 Hz 0.012 W to 6400 W 30 V to 320 V 0.02 A to 20 A UPF to 0.2 PF	0.2 % to 2.8 %	Using Fluke 9100 MFC by Direct Method

Laboratory	Testing & Calibration Lab, 204, Diamond Industrial Estate No. 2, Ketki Pada Road, (Near Dahisar Toll Naka), Dahisar (East), Mumbai, Maharashtra		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electro-Technical Calibration	Issue Date	19.08.2014
Certificate Number	C-0808	Valid Until	18.08.2016
Last Amended on	-	Page	3 of 5

Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (\pm)	Remarks
11. POWER FACTOR[#]	0.1-1-0.1PF LEAD/LAG 30V to 320V 0.2 to 20A @ 50Hz	0.006 PF to 0.002 PF	Using Fluke 9100 MFC by Direct Method
12. TEMPERATURE SIMULATION[#] (Indicator, Controller and Recorder) RTD TYPE PT 100	-200° C to 800° C	0.15° C to 0.35° C	Using Fluke 9100 MFC by Direct Method
THERMOCOUPLE TYPE J/K- TYPE R/S- TYPE	-100° C to 1370° C 150° C to 1700° C	0.4° C to 0.8° C 0.5° C to 1.0° C	
13. CAPACITANCE[#]	1 kHz 1 nF to 1 mF	0.96 % to 3.88 %	Using Fluke 9100 MFC by Direct Method
MEASURE			
1. DC VOLTAGE[#]	1 mV to 10 mV 10 mV to 1000 V	0.3 % to 0.05 % 0.05 % to 0.004 %	Using 6½ Digit Multimeter Fluke 8846 By Direct/Comparison Method
2. DC HIGH VOLTAGE[#]	0.5 kV to 25 kV	2.6 %	Using 6½ Digit Multimeter Fluke 8846 & HV Probe. by Direct/Comparison Method
3. DC CURRENT[#]	10 μ A to 100 mA 100 mA to 3 A 3 A to 10 A	0.3 % to 0.045 % 0.045 % to 0.11 % 0.11 % to 0.14 %	Using 6½ Digit Multimeter Fluke 8846 By Direct/Comparison Method

Avijit Das
Program Manager

Bibin Philip
Convenor

Laboratory	Testing & Calibration Lab, 204, Diamond Industrial Estate No. 2, Ketki Pada Road, (Near Dahisar Toll Naka), Dahisar (East), Mumbai, Maharashtra		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electro-Technical Calibration	Issue Date	19.08.2014
Certificate Number	C-0808	Valid Until	18.08.2016
Last Amended on	-	Page	4 of 5

Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (\pm)	Remarks
4. AC VOLTAGE[#]	50 Hz to 1 kHz 10 mV to 100 mV 100 mV to 100 V 100 V to 1000 V	0.38 % to 0.1 % 0.1 % to 0.22 % 0.22 % to 0.08 %	Using 6½ Digit Multimeter By Direct/Comparison
5. AC HIGH VOLTAGE[#]	50 Hz 0.5 kV to 24 kV	0.63 %	Using 6½ Digit Multimeter Fluke 8846 & Prayog PT by Direct/Comparison Method
6. AC CURRENT[#]	50 Hz to 1 kHz 10 μ A to 100 μ A 100 μ A to 100 mA 100 mA to 1 A 1 A to 10 A	0.79 % to 0.2 % 0.2 % to 0.12 % 0.12 % to 0.17 % 0.17 % to 0.27 %	Using 6½ Digital Multimeter Fluke 8846 By Direct/Comparison
7. AC HIGH CURRENT[#]	50 Hz 10 A to 600 A	0.5 % to 0.3 %	Using 6½ Digital Multimeter & Precision CT by Direct/Comparison (For Calibration of Current Sources, Meters & AC Shunts)
8. DC RESISTANCE[#]	1 Ω to 10 Ω 10 Ω to 100 k Ω 100 k Ω to 10 M Ω 10 M Ω to 100 M Ω 100 M Ω to 1G Ω	0.26 % to 0.035 % 0.035 % to 0.01 % 0.01 % to 0.035 % 0.035 % to 0.7 % 0.7 % to 2 %	Using 6½ Digital Multimeter Fluke 8846 By Direct/Comparison Method

Avijit Das
Program Manager

Bibin Philip
Convenor

Laboratory	Testing & Calibration Lab, 204, Diamond Industrial Estate No. 2, Ketki Pada Road, (Near Dahisar Toll Naka), Dahisar (East), Mumbai, Maharashtra		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electro-Technical Calibration	Issue Date	19.08.2014
Certificate Number	C-0808	Valid Until	18.08.2016
Last Amended on	-	Page	5 of 5

Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (\pm)	Remarks
9. TEMPERATURE SIMULATION [#] RTD TYPE PT-100	-200° C to 600° C	0.1° C to 0.2° C	Using 6½ Digital Multimeter Fluke 8846 By Direct/Comparison Method
10. FREQUENCY [#]	10 Hz to 1 MHz	0.045 % to 0.017 %	Using 6½ Digital Multimeter Fluke 846 By Direct/Comparison Method
11. CAPACITANCE [#]	1 kHz 100 pF to 1 mF	0.65 % to 0.017 %	Using APLABS Digital LCR Meter
12. POWER FACTOR [#]	240V/5A/50Hz 0.2 to UPF	0.014 PF to 0.00 1PF	Using Digital Pf Meter.
13. TIME [#]	1 s to 3600 s	0.01 s to 5 s	Using Digital Time Interval Meter
14. INDUCTANCE ^{\$}	1 kHz 100 µH to 10 H	0.7 % to 1.14 %	Using Digital LCR Meter
15. AC RESISTANCE ^{\$}	1 kHz 1Ω to 10 kΩ	1.14 % to 0.3 %	Using Digital LCR Meter

* Measurement Capability is expressed as an uncertainty (\pm) at a confidence probability of 95%.

^{\$}Only in Permanent Laboratory

[#] The laboratory is also capable for site calibration however, the uncertainty at site depends on the prevailing actual environmental conditions and master equipment used.

Avijit Das
Program Manager

Bibin Philip
Convenor