

Laboratory **Measurements International Calibration House (A Division of Measurements International LLP), 305, Plot No. 6, Chetan Complex, LSC, Shrestha Vihar , Delhi**

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

Certificate Number **CC-2922**

Page

1 of 6

Validity **01.01.2019 to 31.12.2020**

Last Amended on 01.02.2019

"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
<u>ELECTRO TECHNICAL CALIBRATION</u>				
I.	MEASURE			
1.	Capacitance [#]	50Hz 100kV 50 pF 100 pF	0.0063 % 0.0036 %	Using Automatic Capacitance Bridge MIL 5010C
	Dissipation Factor [#]	50Hz 600V 1000 pF 50 Hz 100 kV 0 to 10 %	0.0025 % 0.0034 %	Using Standard Reference Capacitors IET Labs 1404A Using HV Standard Capacitors Samgor YL100-100
2.	High Voltage Electronic Dividers [#]	50Hz Primary: 1kV to 100 kV Secondary: 100 V	0.0040 %	Using Automatic Capacitance Bridge MIL 5010C, Standard Reference Capacitors IET Labs 1404A, HV Standard Capacitors Samgor YL100-100
3.	Phase Angle [#]	0 to 6°	0.0050 %	Using Automatic Capacitance Bridge MIL 5010C, Standard Reference Capacitors IET Labs 1404A, HV Standard Capacitors Samgor YL100-100

Dheeraj Chawla
Convenor

Avijit Das
Program Manager

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Certificate Number **CC-2922** **Page** **2 of 6**

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
4.	Current Transformers# Ratio Error Phase Error	50Hz Primary: 10 to 2000A Secondary: 1A	0.017% 0.017 %	Using Automatic Capacitance Bridge MIL 5010C, Standard CT MIL 7200ACC & 7201ACT
II.	SOURCE			
1.	DC Voltage ^s	1mV to 20mV 20mV to 200mV 0.2V to 1000V	0.35% to 0.02% 0.02% to 0.005% 0.005% to 0.008%	Using Multifunction Calibrator Time Electronics 5025C
2.	DC Current ^s	20 μ A to 200 μ A 0.2mA to 2A 2A to 20A 50A to 1000A	0.1% to 0.02% 0.02% to 0.015% 0.015% to 0.03% 1.9%	Using Multifunction Calibrator Time Electronics 5025C Using Multifunction Calibrator 5025C Time Electronics with Current Coil Time Electronics 9780

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Page

3 of 6

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
3.	DC Resistance [§] (Fixed Vales) 4 wire	200A 50 $\mu\Omega$ 100 $\mu\Omega$ 150 $\mu\Omega$ 200 $\mu\Omega$ 100A 0.5 m Ω 1 m Ω 1.5 m Ω 2 m Ω 30A 5 m Ω 10 m Ω 15 m Ω 20 m Ω 10A 50 m Ω 100 m Ω 150 m Ω 200 m Ω 2.5A 0.5 Ω 1 Ω 1.5 Ω 2 Ω	0.94% 0.9% 0.9% 0.94% 0.58% 0.58% 0.58% 0.58% 0.23% 0.23% 0.23% 0.23% 0.1% 0.1% 0.1% 0.1% 0.55% 0.15% 0.15% 0.15%	Using Decade Resistance Box Time Electronics 5070
	DC Resistance [§] (Decade Values) 2 wire	0.1 Ω to 1000 Ω	5.78% to 0.025%	Using Decade Resistance Box Tinsley ZX74

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
	DC Resistance ^s (Fixed Value) 2 wire	10 Ω 100 Ω 1k Ω 10k Ω 100k Ω 1M Ω 10M Ω 100M Ω	0.08% 0.004% 0.003% 0.003% 0.004% 0.01% 0.12% 1.1%	Using Multifunction Calibrator Time Electronics 5025C
4.	DC High Resistance ^s (Decade Values) 2 wire	1 k Ω to 10 k Ω 1 M Ω to 10 M Ω 1 G Ω to 10 G Ω	0.12 % 0.12 % 2.64 %	Using Decade Resistance Box Tinsley 4720
5.	AC Voltage ^s	50Hz 1mV to 20mV 20mV to 200mV 200mV to 1000V	3% to 0.2% 0.2% to 0.05% 0.05% to 0.3%	Using Multifunction Calibrator Time Electronics 5025C
6.	AC Current ^s	50Hz 20 μ A to 200 μ A 200 μ A to 200 mA 200 mA to 2 A 2 A to 20 A 50 A to 800 A	1.2% to 0.2% 0.2% to 0.09% 0.09% to 1.4% 1.4% to 0.3% 2.2%	Using Multifunction Calibrator Time Electronics 5025C Using Multifunction Calibrator Time Electronics 5025C with Current Coil Time Electronics 9780
7.	Digital Frequency ^s	1 Hz to 10 MHz	0.075 % to 0.007 %	Using Multifunction Calibrator Time Electronics 5025C

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Certificate Number

CC-2922

Page

5 of 6

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
8.	Capacitance ^s (Fixed Values)	1kHz 1nF 10nF 20nF 50nF 100nF 200nF 500nF 1 μ F 10 μ F 20 μ F 50 μ F 100 μ F	0.24% 0.24% 0.24% 0.24% 0.24% 0.24% 0.24% 0.24% 0.24% 0.26% 0.26% 0.26% 0.80%	Using Multifunction Calibrator Time Electronics 5025C
9.	Inductance ^s (Fixed Values)	1kHz 1mH 1.9mH 5mH 10mH 19mH 50mH 100mH 190mH 500mH 1H 10H	0.35% 0.2% 0.2% 0.2% 0.2% 0.2% 0.2% 0.2% 0.2% 0.2% 0.2% 3.3%	Using Multifunction Calibrator Time Electronics 5025C

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Certificate Number **CC-2922**

Page

6 of 6

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (±)	Remarks
10.	Temperature Simulation [§]			Using Multifunction Calibrator Time Electronics 5025C
	RTD-Pt100	(-)180 to 200°C 200°C to 850°C	0.08°C 0.18°C	
	Thermocouple			
	B Type	600°C to 1800°C	1.2°C	
	E Type	(-)200°C to 1000°C	0.12°C	
	J Type	(-)200°C to 1200°C	0.2°C	
	K Type	(-)200°C to 1300°C	0.23°C	
	N Type	(-)200°C to 1300°C	0.4°C	
	R Type	0°C to 1750°C	1°C	
	S Type	0°C to 1750°C	0.8°C	
T Type	(-)200°C to 400°C	0.2°C		

* Measurement Capability is expressed as an uncertainty (±) 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.