Laboratory	**Adarsha Calibration Services, 204/4, Ullal, Sir.M. Vishveswaraiya Layout, Bangalore, Karnataka**		
Accreditation Standard	**ISO/IEC 17025:2005**		
Discipline	**Electro-Technical Calibration**	**Issue Date**	**29.09.2014**
Certificate Number	**C-1135**	**Valid Until**	**28.09.2016**
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Quantity Measured / Instrument	Range/ Frequency	* Calibration Measurement Capability (±)	Remarks
I. SOURCE			
1. DC Voltage [$]	1 mV to 329 mV 329 mV to 1V 1 V to 1000 V	0.0036 mV to 0.027 mV 0.027 mV to 0.00006 V 0.00006 V to 0.067 V	Using Multi-function calibrator FLUKE 5500E by Direct Method
2. AC Voltage [$]	**50 Hz to 1 kHz**		
	30mV to 300 mV 300 mV to 3 V 3 V to 1000 V	0.08 mV to 0.21 mV 0.21 mV to 0.0013 V 0.0013 V to 0.69 V	Using Multi-function calibrator FLUKE 5500E by Direct Method
3. DC Current [$]	10 µA to 3.29 mA 3.29 mA to 329 mA 329 mA to 10 A 10 A to 20 A 20 A to 550 A	0.06 µA to 0.001 mA 0.001 mA to 0.093 mA 0.093 mA to 0.009 A 0.009 A to 0.4 A 0.4 A to 5.2 A	Using Multi-function calibrator FLUKE 5500E & Current Coil by Direct Method
4. AC Current [$]	**50Hz**		
	100µA to 329 µA 329 µA to 329 mA 329 mA to 10 A 10 A to 20 A 20 A to 550 A	0.64 µA to 0.83 µA 0.83 µA to 0.86 mA 0.86 mA to 0.33 A 0.33 A to 0.7 A 0.7 A to 5.8 A	Using Multi-function calibrator FLUKE 5500E & Current Coil by Direct Method
5. Resistance [$] **(2 Wire)**	1 Ω to 10 Ω 10 Ω to 100 Ω 100 Ω to 1 kΩ 1 kΩ to 10 kΩ 10 kΩ to 100 kΩ 100 kΩ to 1 MΩ 1 MΩ to 10 MΩ 10 MΩ to 100 MΩ 100 MΩ to 290 MΩ	0.011 Ω to 0.019 Ω 0.019 Ω to 0.03 Ω 0.03 Ω to 0.0002 kΩ 0.0002 kΩ to 0.002 kΩ 0.002 kΩ to 0.02 kΩ 0.02 kΩ to 0.0002 MΩ 0.0002 MΩ to 0.008 MΩ 0.008 MΩ to 0.58 MΩ 0.58 MΩ to 2.1 MΩ	Using High Precision Decade Resistance box,(7400) by Direct Method

Quantity Measured / Instrument	Range/ Frequency	* Calibration Measurement Capability (±)	Remarks
	1 Ω to 10Ω	0.003 Ω to 0.006 Ω	Using High Precision Decade Resistance box,(7400) by Direct Method
	10 Ω to 100Ω	0.006 Ω to 0.06 Ω	
	100 Ω to 1kΩ	0.06 Ω to 0.0006 kΩ	
	1kΩ to 10kΩ	0.0006 kΩ to 0.006 kΩ	
	10kΩ to 0.1MΩ	0.006 kΩ to 0.00006 MΩ	
	0.1 M Ω to 1 MΩ	0.006 MΩ to 0.023 MΩ	Using High Stability Decade Mega ohm box.(8400) by Direct Method
	1 M Ω to 10 MΩ	0.023 MΩ to 0.244 MΩ	
	10 M Ω to 100 MΩ	0.244 MΩ to 2.603 MΩ	
	100 M Ω to 1GΩ	2.603 MΩ to 0.024 GΩ	
6. Frequency [$]	45 Hz to 1.0M Hz	0.0012Hz to 0.006 MHz	Using Multi-function calibrator FLUKE 5500E by Direct Method
7. Capacitance [$]	**@ 1 kHz**		
	0.35 nF to 1nF	0.015 nF to 0.017 nF	Using Multi-function calibrator FLUKE 5500E by Direct Method
	1 nF to 10 nF	0.017 nF to 0.07 nF	
	10 nF to 100 nF	0.07 nF to 0.4 nF	
	100 nF to 300 nF	0.4 nF to 1.2 nF	
	300 nF to 1 µF	1.2 nF to 0.008 µF	
	1 µF to 10 µF	0.008 µF to 0.05 µF	
	10 µF to 100 µF	0.05 µF to 0.7 µF	
8. TEMPERATURE SIMULATION [$]			
K Type	-200 °C to 1350°C	0.5 °C	Using Multi-function Calibrator fluke5500E by Direct Method
J Type	-200 °C to 1200 °C	0.32 °C	
B Type	600 °C to 1800 °C	1 °C	
E Type	-200 °C to 1000 °C	0.6 °C to 0.25 °C	
N Type	-200 °C to 1300°C	0.5 °C	
R Type	0 °C to 1750 °C	1 °C	
S Type	0 °C to 1750 °C	1°C	
T Type	-200 °C to 400 °C	0.7 °C to 0.2 °C	

	Quantity Measured / Instrument	Range/ Frequency	* Calibration Measurement Capability (±)	Remarks
9.	**DC Voltage ♣**	10 mv to 30 V	0.06 mV to 0.07 V	Using Handy Calibrator CA-150 by Direct method
10.	**DC Current ♣**	2 mA to 20 mA	0.01 mA to 0.1 mA	Using Handy Calibrator CA-150 by Direct method
11.	**Resistance ♣**	50 Ω to 450 Ω 450 Ω to 4.5 kΩ 4.5 kΩ to 45 kΩ	0.15 Ω to 0.2 Ω 0.2 Ω to 0.007 kΩ 0.007 kΩ to 0.12 kΩ	Using Handy Calibrator CA-150 by Direct method
12.	**TEMPERATURE SIMULATION ♣**			
	K Type	-200 °C to 1350 °C	1 °C	Using Handy Calibrator CA-150 by Direct method
	J Type	-200 °C to 1200 °C	1 °C	
	B Type	600 °C to 1800 °C	2 °C	
	E Type	-200 °C to 1000 °C	1 °C	
	N Type	-200 °C to 1300 °C	1.2 °C	
	R Type	100 °C to 1500 °C	2.3 °C	
	S Type	100 °C to 1500 °C	2.3 °C	
	T Type	-200 °C to 400 °C	1 °C	
	RTD(PT385)	-200 °C to 800 °C	0.6 °C	Using Handy Calibrator CA-150 by Direct method
II.	**MEASURE**			
1.	**DC Voltage $**	1 mV to 100 mV 100 mV to 10 V 10 V to 1000 V	0.0041 mV to 0.009 mV 0.009 mV to 0.00035 V 0.00035 V to 0.06 V	Using 6½ Digit DMM FLUKE 8846A by Direct Method
2.	**AC Voltage v**	**50 Hz**		
		100 V to 1000 V	0.16 V to 1.1 V	Using 6½ Digit DMM FLUKE 8846A by Direct Method

Neeraj Verma
Convenor

Avijit Das
Program Manager

	Quantity Measured / Instrument	Range/ Frequency	* Calibration Measurement Capability (±)	Remarks
3.	**DC Current** [$]	10 µA to 100 µA 100 µA to100 mA 100 mA to 10 A	0.036 µA to 0.088 µA 0.088 µA to 0.064 mA 0.064 mA to 0.025 A	Using 6½ Digit DMM FLUKE 8846A by Direct Method
4.	**AC Current** [$]	**50 Hz** 30 µA to 100 µA 100 µA to100 mA 100 mA to 10 A	 0.083 µA to 0.25 µA 0.25 µA to 0.166 mA 0.166 mA to 0.025A	Using 6½ Digit DMM FLUKE 8846A by Direct Method
5.	**Resistance** [$]	1 Ω to 100 Ω 100 Ω to 1 kΩ 1 kΩ to 10 kΩ 10 kΩ to 100 kΩ 100 kΩ to 1 MΩ 1 MΩ to 10 MΩ 10 MΩ to 100 MΩ	0.0036 Ω to 0.016 Ω 0.016 Ω to 0.00013 kΩ 0.00013 kΩ to 0.0013 kΩ 0.0013 kΩ to 0.0129 kΩ 0.0129 kΩ to 0.0001 MΩ 0.0001 MΩ to 0.0048 MΩ 0.0048 MΩ to 0.94 MΩ	Using 6½ Digit DMM FLUKE 8846A by Direct Method
6.	**Frequency** [$]	50 Hz to 1 MHz	0.009 Hz to 0.0002 MHz	Using 6½ Digit DMM FLUKE 8846A by Direct Method
7.	**Capacitance** [$]	**@ 1 kHz** 1 nF to 100 nF **@ 100 Hz** 100 nF to 100 µf	 0.005 nF to 0.41nF 0.41 nF to 0.3 µF	Using Auto Compute LCR-Q Meter by Direct Method
8.	**Inductance** [$]	**@1 kHz** 100 µH to 1 mH 1 mH to 10 mH 10 mH to 100 mH 100 mH to 1 H 1 H to 10 H	 0.6 µH to 0.004 mH 0.004 mH to 0.04 mH 0.04 mH to 0.4 mH 0.4 mH to 0.004 H 0.004 H to 0.053 H	Using Auto Compute LCR-Q Meter by Direct Method

	Quantity Measured / Instrument	Range/ Frequency	* Calibration Measurement Capability (±)	Remarks
9.	**TEMPERATURE SIMULATION** [$]			
	K Type	-200 °C to 1350 °C	0.5 °C	Using Multi-function Calibrator fluke 5500E by Direct Method
	J Type	-200 °C to 1200 °C	0.32 °C	
	B Type	600 °C to 1800 °C	1 °C	
	E Type	-200 °C to 1000 °C	0.6 °C to 0.25 °C	
	N Type	-200 °C to 1300 °C	0.5°C	
	R Type	0 °C to 1750 °C	1 °C	
	S Type	0 °C to 1750 °C	1 °C	
	T Type	-200 °C to 400 °C	0.7 °C to 0.2 °C	
10.	**Time** [$]	5 sec to 9000 sec	0.31 % to 0.093 %	Using Digital Time Totaliser by Direct Method
11.	**DC Voltage** [♣]	50 mV to 30 V	0.1 mV to 0.06 V	Using Handy Calibrator CA-150 Handy Calibrator by Direct Method
12.	**DC Current** [♣]	2 mA to 90 mA	0.06 mA to 0.122 mA	Handy Calibrator CA-150 by Direct Method
13.	**Resistance** [♣]	50 Ω to 450 Ω 450 Ω to 4.5 kΩ 4.5 kΩ to 45 kΩ	0.14 Ω to 0.38 Ω 0.38 Ω to 0.06 kΩ 0.06 kΩ to 0.09 kΩ	Using Handy Calibrator CA-150 by Direct Method
14.	**TEMPERATURE SIMULATION** [♣]			
	K Type	-190 °C to 1350 °C	2.5 °C	Using Handy Calibrator CA-150 by Direct Method
	J Type	-190 °C to 1200 °C	2.5 °C	
	B Type	600 °C to 1800 °C	3.5 °C	
	E Type	-200 °C to 1000 °C	2.5 °C	
	N Type	-200°C to 1300 °C	2.5 °C	
	R Type	100 °C to 1500 °C	3.4 °C	
	S Type	100 °C to 1500 °C	3.4 °C	
	T Type	-200 °C to 400 °C	2.5 °C	
	RTD (PT385)	-200 °C to 800 °C	1.2 °C	

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	Quantity Measured / Instrument	Range/ Frequency	* Calibration Measurement Capability (±)	Remarks
15.	**DC High Voltage ♣**	1 kV to 5 kV	2.5 %	Using HV Probe by Direct Method
16.	**AC High Voltage ♣**	**50 Hz** 1 kV to 5 kV	6 %	Using HV Probe by Direct Method
17.	**Time ♣**	5 sec to 9000 sec	0.31 % to 0.093 %	Using Digital Time Totaliser by Comparison Method

*** Measurement Capability is expressed as an uncertainty (±) at a confidence probability of 95%**
$Only in Permanent Laboratory
♣Only for Site Calibration

Neeraj Verma
Convenor

Avijit Das
Program Manager