Laboratory	**Best Standards Technologies Pvt. Ltd.,Door No. 49, Moorthy Nagar, 3rd Street, Chettiar Agaram, Porur, Chennai, Tamil Nadu**		
Accreditation Standard	**ISO/IEC 17025: 2005**		
Discipline	**Electro-Technical Calibration**	**Issue Date**	**20.10.2014**
Certificate Number	**C-0853**	**Valid Until**	**19.10.2016**
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	Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
	MEASURE			
1.	**DC VOLTAGE$**	1 mV to 100 mV 100 mV to 1 V 1 V to 1000 V	0.42% to 0.010% 0.010% to 0.006% 0.007%	Using 6½ DMM Agilent 34401A by Direct Method
	DC VOLTAGE♯	1 kV to 2 kV 2 kV to 10 kV 10 kV to 25 kV	2.85% to 2.79% 2.79% to 2.85% 2.85% to 3.42%	Using HV Probe & DMM PD 28 by Direct Method.
	DC VOLTAGE♣	200 V to 900 V	0.29% to 0.090%	Using Standard 6½ DMM by Direct method.
2.	**AC VOLTAGE$**	**1 kHz to 20 kHz** 10 mV to 10 V **10 kHz to 20 kHz** 10 V to 750 V	 0.54% to 0.12% 0.11%	Using 6½ DMM Agilent 34401A by Direct Method
	AC VOLTAGE♯	**50 Hz** 1 kV to 25 kV	 6.48% to 6.39 %	Using HV Probe & DMM PD 28 by Direct Method.
	AC VOLTAGE♣	**50 Hz** 40 mV to 20 V 20 V to 700 V	 0.93% to 0.76% 0.76% to 0.52%	Using 6½ DMM Agilent 34401A by Direct Method
3.	**DC CURRENT$**	10 mA to 100 mA 100 mA to 1 A 1 A to 20 A	0.085% to 0.064% 0.064% to 0.13% 0.13% to 0.35%	Using 6½ DMM Agilent 34401A & current shunt Agilent 34330A by Direct method.

Shally Sharma
Convenor

Avijit Das
Program Manager

	Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
4.	**AC CURRENT$**	**1 kHz**		Using 6½ DMM Agilent 34401A & current shunt Agilent 34330A by Direct method.
		100 mA to 1 A	0.58% to 0.18%	
		1 A to 10 A	0.18% to 0.64%	
		10 A to 20 A	0.64% to0.47%	
5.	**RESISTANCE$**	10 Ω to 100 Ω	0.059% to 0.020%	Using 61/2 DMM Agilent 34401A by Direct Method
		100 Ω to 10 kΩ	0.020% to 0.013%	
		10 kΩ to100 kΩ	0.013%	
		100 k Ω to 1 M Ω	0.013%	
		1 MΩ to 10 MΩ	0.013% to 0.047%	
		10 MΩ to100 MΩ	0.047% to 0.94%	
6.	**FREQUENCY#**	3 Hz to 100 Hz	0.12% to 0.012%	By using standard 6 ½ DMM & Frequency counter Goodwill GFC 8055G by Direct Method
		100 Hz to 10 kHz	0.012%	
		0.01 MHz to 550 MHz	0.08% to 0.0016%	
7.	**TIMER#**	10 s to 7200 s	4.3%to 0.70%	Using Standard Timer Quantum by Direct method
8.	**TEMPERATURE SIMULATION# (Indicator , Controller And Recorder)**			
	RTD	-100°C to 800°C	0.30°C	Using MFC UNAMAT TRX By Direct method.
	THERMOCOUPLES			
	'J' TYPE	-180°C to 750°C	0.51°C	Using MFC Unomat
	'T' TYPE	-250°C to 400°C	2.1°C to 0.62°C	TRX
	'K' TYPE	-140°C to 1340°C	7.0°C to 0.99°C	By Direct Method.
	'R' TYPE	50°C to1700°C	3.6°C to 2.5°C	
	'S' TYPE	100°C to1700°C	3.7°C to 2.7°C	
	'E' TYPE	0°C to 800°C	2.3°Cto 0.42°C	
	'N' TYPE	-200°C to1300°C	0.77°C	
	'B' TYPE	600°C to1810°C	3.1°C	

	Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
9.	**DC CURRENT♣**	200 mA to 1 A 1 A to 10 A 10 A to 20 A	0.090% to 0.13% 0.13% to 0.35% 0.35%	Using Standard 6½ DMM with current shunt by Direct method.
10..	**AC CURRENT ♣**	**50 Hz** 200 mA to 1000 mA 1000 mA to 10 A 10 A to 20 A	 0.70% to 1.4% 1.4% to 2.7% 2.7% to 1.6%	 Using Standard 6½ DMM with current shunt by Direct method.
11.	**RESISTANCE♣**	20 Ω to 200 Ω 200 Ω to 20 kΩ 20 kΩ to 200 kΩ 200 kΩ to 10 MΩ	0.060% 0.060% to 0.030% 0.030% 0.030% to 0.27%	Using Standard 6½ DMM by Direct method.
	SOURCE			
1.	**DC VOLTAGE♯**	10 mV to 300 mV 300 mV to 1 V 1 V to 1000 V	0.060% to 0.0090% 0.0090% to 0.014% 0.014% to 0.012%	Using Multifunction calibrator Wavetek 9000 by Direct method.
2.	**AC VOLTAGE♯**	**10 Hz to 3 kHz** 10 mV to 100 mV 100 mV to 300 mv	4.5% to 0.11% 0.11% to 0.055%	Using Multifunction calibrator Wavetek 9000 by Direct method.
		50 Hz to 3 kHz 300 mV to 100 V 100 V to 300 V	0.054% to 0.080% 0.080% to 0.082%	
		50 Hz to 1 kHz 300 V to 500 V 500 V to 750 V	 0.082% to 0.072% 0.072% to 0.068%	

	Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
	AC VOLTAGE$	**10 Hz to 30 kHz**	0.13% to 0.090%	Using Multifunction calibrator Wavetek 9000 by Direct method.
		100 mV to 3 V	0.090% to 0.12%	
		3 V to 100 V		
		50 kHz to 3 kHz	0.54% to 0.33%	
		100 mV to 3 V	0.33% to 0.53%	
		3 V to 100 V		
3.	**DC CURRENT♯**	100 µA to 300 µA	0.042% to 0.030%	Using Multifunction calibrator Wavetek 9000 by Direct method.
		300 µA to 3 mA	0.030% to 0.027%	
		3 mA to 30 mA	0.029%	
		30 mA to 300 mA	0.028%	
		300 mA to 3 A	0.028% to 0.081%	
		3 A to 10 A	0.083%	
		10 A to 20 A	0.083% to 0.098%	
		10 A to 100 A	1.4% to 1.1%	Using Standard MFC Wavetek 9000 with Current coil Zeal by Direct Method
		100 A to 500 A	1.1% to 0.91%	
		500 A to 1000 A	0.91% to 0.81%	
4.	**AC CURRENT♯**	**10 Hz to 3 kHz**		Using Multifunction calibrator Wavetek 9000 by Direct method.
		100 µA to 300 µA	0.43% to 0.20%	
		300 µA to 3 mA	0.20% to 0.090%	
		3 mA to 300 mA	0.090% to 0.11%	
		300 mA to 3A	0.11% to 0.14%	
		3 A to 20 A	0.14% to 0.28%	
		3 kHz & 10 kHz		
		30 mA to 300 mA		
		300 mA to 3 A	0.14%	
		3 A to 10 A	0.14% to 0.39%	
			0.39% to 0.69%	
		50 Hz		Using Standard MFC with 100 TURNS Current coil by Direct Method
		10 A to 100 A	1.9% to 1.3%	
		100 A to 500 A	1.3% to 1.2%	

Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
	500 A to 1000 A	1.2% to 1.1%	
5. RESISTANCE#	1 Ω to 10 Ω	1.2% to 0.14%	Using Multifunction calibrator Wavetek 9000 by Direct method.
	10 Ω to 100 Ω	0.14% to 0.050%	
	100 Ω to 1 kΩ	0.050% to 0.030%	
	1 kΩ to100 kΩ	0.030% to 0.038%	
	100 k Ω to 1 M Ω	0.038% to 0.098%	
	1 MΩ to 10 MΩ	0.098% to 0.20%	
	10 MΩ to100 MΩ	0.20% to 0.12%	
6. CAPACITANCE$	**1 kHz**		
	100 pF to 1nF	3.5% to 6.7%	Using Standard Capacitance Box by Direct Method
	1 nF to 10 nF	6.7% to 3.5%	
	10 nF to 100 nF	3.5% to 3.5%	
	1 µF to 10µF	7.4% to 3.5%	
7. INDUCTANCE$	**1 kHz**		
	100 µH to 1 mH	3.5% to 6.9%	Using Standard Inductance Box by Direct Method
	1 mH to 10 mH	6.9% to 3.7%	
	10 mH to 100 mH	3.7% to 3.7%	
	100 mH to 1 H	3.7% to 8.2%	
8. FREQUENCY#	1 Hz to 10 MHz	0.0030 % to 0.00030 %	Using Multifunction calibrator Wavetek 9000 by Direct method.
9. TEMPERATURE SIMULATION# (indicator, Controller and Recorder)			
RTD	-100°C to 800°C	0.30°C	Using MFC UNMAT TRX(s.no:04823) By Direct method.
THERMOCOUPLES			
'J' TYPE	-180°C to 750°C	0.62°C	
'T' TYPE	-250°C to 400°C	2.1°C to 0.62°C	

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Quantity Measured/ Instrument	Range / Frequency	*Calibration Measurement Capability (±)	Remarks
'K' TYPE	-140°C to 1340°C	7.03°C to 0.99°C	
'R' TYPE	50°C to 1700°C	3.61°C to 2.52°C	
'S' TYPE	100°C to 1700°C	3.7°C to 2.7°C	
'E' TYPE	0°C to 800°C	2.3°C to 0.42°C	
'N' TYPE	-200°C to 1300°C	0.77°C	
'B' TYPE	600°C to 1810°C	3.1°C	

*** 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.

Shally Sharma
Convenor

Avijit Das
Program Manager