

Laboratory **Electronics Regional Test Laboratory (South), STQC Directorate,
Akkulam, Sreekariyam P.O., Thiruvananthapuram, Kerala**

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

Certificate Number **CC-2610 (In lieu of C-0060)**

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Validity **17.03.2018 to 16.03.2020**

Last Amended on -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
<u>ELECTRO TECHNICAL CALIBRATION</u>				
I.	SOURCE			
1.	DC Voltage [§]	1 mV to 100 mV 100 mV to 10 V 10 V to 1000 V	472 ppm to 14 ppm 14 ppm to 5 ppm 5 ppm to 9 ppm	Using Fluke 5720A by Direct Method
2.	DC Current [§]	10 μ A to 100 μ A 100 μ A to 1 mA 1 mA to 1A 1 A to 10 A 10 A to 20 A 20 A to 1000 A	747 ppm to 116 ppm 116 ppm to 50 ppm 50 ppm to 111 ppm 111 ppm to 472 ppm 472 ppm to 1200 ppm 0.30 %	Using Fluke 5720A by Direct Method Using Fluke 5520 A with Current Coil by Direct Method
3.	DC Resistance [§]	1 m Ω , 10 m Ω , 100 m Ω 1 Ω to 10 Ω 10 Ω to 1 M Ω 1 M Ω to 100 M Ω	0.13 %, 0.058 %, 0.024 % 24 ppm 24 ppm to 26 ppm 26 ppm to 135 ppm	Using Fluke 5720A by Direct Method
4.	AC Voltage [§]	40 Hz to 20 kHz 10 mV to 100 mV 100 mV to 100 V 100 V to 1000 V 20 kHz to 50 kHz 10 mV to 100 V	640 ppm to 270 ppm 270 ppm to 120 ppm 120 ppm to 226 ppm 630 ppm to 743 ppm	Using Fluke 5720 by Direct Method

Shally Sharma
Convenor

Avijit Das
Program Director

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5.	AC Current [§]	50 Hz to 1 kHz 10 μ A to 1 mA 1 mA to 100 mA 100 mA to 10 A 10 A to 20 A 50Hz 20 A to 1000 A	0.17 % to 0.024 % 0.024 % to 0.028 % 0.028 % to 0.06 % 0.06 % to 0.2 % 0.47 % to 0.35 %	Using Fluke 5720A by Direct Method Using Fluke 5520 A by Direct Method Using Fluke 5520 A with Current Coil by Direct Method
6.	Ac Power [§] (Upf) 1 ϕ	50 Hz 120/240 V 0.02A to 20 A Up to 4.8 kW	0.096 % to 0.12 %	Using Fluke 5520A by Direct Method
7.	Capacitance [§] (Discrete)	1 kHz 1 pF, 10 pF, 100 pF 1 nF, 10 nF, 100 nF, 1 μ F 10 nF to 100 nF 1 kHz 100 nF to 1 μ F 100 Hz 1 μ F to 10 μ F 10 μ F to 100 μ F	0.12 % 0.06 % 0.06 % 0.72 % to 0.41 % 0.41 % 0.41 % 0.41 % to 0.70 %	Using Standard Capacitors (Discrete Values) GR 1409 series HP 1638 series by Direct Method Using Fluke 5520A by Direct Method Using Fluke 5520A by Direct Method

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8.	Inductance [§]	1 kHz 100 μ H 1 mH, 10 mH, 100 mH 1 H, 10 H	0.29 % 0.12 % 0.12 %	Using Standard Inductors (Discrete Values) GR Make 1482 Series by Direct Method
9.	Frequency [§]	1 Hz to 10 Hz 10 Hz to 2.7 GHz	1 ppm 1 ppm to 0.1 ppm	Using Rubidium Frequency Std. R & S XSRMZ, Arbitrary Function Generator, Fluke 281 & Signal Generator Marconi 2031 by Direct Method
10.	Oscilloscope [§] Bandwidth Time Mark Amplitude	500 MHz 2 ns to 10 ns 10 ns to 5 s DC:1mV to 130V 1kHz AC:1mV to 130V	6 % 0.35% to 0.065% 0.065% to 0.02% 4.78 % to 0.065 % 5.1 % to 0.15 %	Using Fluke 5520A by Direct Method
11.	Amplitude Modulation [§]	1 GHz Rate: 1 kHz Depth: 30 % to 90 %	6.6 % to 7.6 %	Using Signal Generator Marconi 2031 by Direct Method
12.	Frequency Modulation [§]	At 1GHz, Rate 1 kHz Deviation: 10 kHz At 1GHz, Rate 100 kHz Deviation: 100 kHz	6.74 % 6.38 %	Using Signal Generator Marconi 2031 by Direct Method

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II.	MEASURE			
1.	DC Voltage [§]	100 mV to 1V 1 V to 1000 V	10 ppm to 6 ppm 6 ppm to 8 ppm	Using DMM Fluke 8508A by Direct Method
2.	DC Current [§]	100 μ A to 100 mA 100 mA to 1A 1A to 20 A	25 ppm to 67 ppm 67 ppm to 0.024 % 0.024 % to 0.050 %	Using DMM Fluke 8508A by Direct Method
3.	DC Resistance [§]	100 m Ω to 10 Ω 10 Ω to 100 k Ω 100 k Ω to 1 M Ω 1 M Ω to 10 M Ω 10 M Ω to 100 M Ω 100 M Ω to 1 G Ω	75 ppm to 14 ppm 14 ppm to 11 ppm 11 ppm to 17 ppm 17 ppm to 41 ppm 41 ppm to 267 ppm 267 ppm to 0.29 %	Using DMM Fluke 8508A by Direct Method
4.	AC Voltage [§]	50 Hz to 1 kHz 10 mV to 100 mV 100 mV to 100 V 100 V to 1000 V 1 kHz to 10 kHz 100 V to 1000 V	0.10 % to 0.020 % 0.020 % to 0.016 % 0.016 % to 0.022 % 0.018 % to 0.022 %	Using DMM Fluke 8508A by Direct Method
5.	AC Current [§]	50 Hz to 1 kHz 100 μ A to 100 mA 100 mA to 1A 1A to 20 A	0.082 % 0.082 % to 0.096 % 0.096 % to 0.11 %	Using DMM Fluke 8508A by Direct Method
6.	Capacitance [§]	1 kHz 100 pF to 1 μ F	0.38 % to 0.11 %	Using LCR Meter HP4284A by Direct Method

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7.	Inductance [§]	1 kHz 100 μ H to 10 mH 10 mH to 10 H	0.32 % to 0.17 % 0.17 % to 0.26 %	Using LCR meter HP4284A by Direct Method
8.	Frequency [§]	1 Hz to 10 Hz 10 Hz to 2.7 GHz	1 ppm 1 ppm to 0.1 ppm	Using Rubidium Frequency Std XSRMZ, Frequency Counters Agilent 53132 by Direct Method
9.	Amplitude Modulation [§]	1GHz Rate: 1kHz Depth: 90%	4.6 %	Using Modulation Meter Marconi 2305 by Direct Method
10.	Frequency Modulation [§]	At 1GHz, Rate 1kHz Deviation: 10 kHz	3.61 %	Using Modulation Meter Marconi 2305 by Direct Method

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

[§]Only in Permanent Laboratory

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