



NABL

National Accreditation Board for Testing and Calibration Laboratories

(An Autonomous Body under Department of Science & Technology, Govt. of India)

CERTIFICATE OF ACCREDITATION

ACTION ENGINEERS

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2005

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

Vadsar Bridge (West End), Vadodara, Gujarat

in the discipline of

ELECTRO-TECHNICAL CALIBRATION

(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Certificate Number C-0776

Issue Date 05/12/2015



Valid Until 04/12/2017

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the additional requirements of NABL.

Signed for and on behalf of NABL

Avijit Das
Program Manager

Anil Relia
Director

Prof. S. K. Joshi
Chairman



NABL

SCOPE OF ACCREDITATION

Laboratory Action Engineers, Vadsar Bridge (West End), Vadodara, Gujarat


Accreditation Standard ISO/IEC 17025:2005

Discipline Electro-Technical Calibration Issue Date 05.12.2015

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Quantity Measured / Instrument	Range/ Frequency	*Calibration Measurement Capability (\pm)	Remarks
I. SOURCE			
1. RESISTANCE [#] (For Insulation Tester)	1 G Ω to 100 G Ω	1.4 % to 5.1 %	Resistance Box (Discrete Values)
II. MEASURE			
1. DC VOLTAGE [#]	1 mV to 100 mV 100 mV to 1000 V	0.45 % to 0.01 % 0.01 %	Using 6½ DMM & Fluke 8846A By Direct / Comparison Method
DC VOLTAGE ^S	>1 kV to 70 kV	2.2 % to 1.8 %	Using HV Divider & DMM (UDAY) by Direct / Comparison Method
DC VOLTAGE [*]	>1 kV to 100 kV	2.2 % to 1.8 %	
2. AC VOLTAGE [#]	50 Hz 1 mV to 1 V 1 V to 1000 V	4.8 % to 0.12 % 0.12 %	Using 6½ DMM By Direct / Comparison Method
AC VOLTAGE ^S	>1 kV to 50 kV	2.3 %	Using HV Divider & DMM By Direct / Comparison Method
AC VOLTAGE [*]	>1 kV to 100 kV	2.7 % to 2.3 %	
3. DC CURRENT [#]	10 μ A to 100 μ A 100 μ A to 1 A 1 A to 10 A	0.36 % to 0.1 % 0.1 % 0.1 % to 0.2 %	Using 6½ DMM By Direct / Comparison Method
	10 A to 100 A 100 A to 500 A	1.0 % to 0.62 % 0.62 % to 0.75 %	Using 6½ DMM & DC Shunt By Direct / Comparison Method
4. AC CURRENT [#]	50 Hz 100 μ A to 100 mA 100 mA to 10 A 10 A to 1000 A	0.5% to 0.2% 0.2% to 0.3% 0.52%	Using 6½ DMM By Direct / Comparison Method Using 6½ DMM & CT by Direct / Comparison Method
5. RESISTANCE [#] (2 Wire)	1 Ω to 100 Ω 100 Ω to 10 M Ω 10 M Ω to 100 M Ω 100 M Ω to 1 G Ω	0.7 % to 0.02 % 0.02 % to 0.05 % 0.05 % to 1.0 % 1.0 % to 3.0 %	Using 6½ DMM by Direct / Comparison Method


Naveen Jangra
Convenor


Avijit Das
Program Manager



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Quantity Measured / Instrument	Range/ Frequency	*Calibration Measurement Capability (\pm)	Remarks
6. LOW RESISTANCE [#] (4 Wire)	0.1 m Ω to 20 Ω	0.45 % to 0.1 %	Using 6½ DMM by Direct / Comparison Method
7. FREQUENCY [#]	10 Hz to 1 MHz	0.06 % to 0.02 %	Using 6½ DMM by Direct / Comparison Method
8. CAPACITOR [#] (DC)	1 nF to 1 mF	5.5 % to 2.2 %	Using 6½ DMM by Direct / Comparison Method
9. AC VOLTAGE RATIO [#]	50 Hz 1 to 1000	0.6 % to 0.5 %	Using 6½ DMM by Direct / Comparison Method
10. AC CURRENT RATIO [#]	50 Hz 1 to 1000	2.3 %	Using 6½ DMM & CT by Direct / Comparison Method
11. TIME [#]	1 ms to 2 Hrs.	0.1 ms to 4.2 s	Using 6½ DMM & Time Interval Meter by direct/comparison method
12. TEMPERATURE SIMULATION [#] Temperature Indicator / Controller / Recorder / Calibrator/ Scanner / Logger			
RTD	(-)100 °C to 600 °C	0.15 °C	Using 6½ DMM by Direct / Comparison Method
J - Type Thermocouple	(-)100 °C to 900 °C	0.20 °C	
K - Type Thermocouple	(-)100 °C to 1300 °C	0.20 °C	
R - Type Thermocouple	0 °C to 1600 °C	1.1 °C	
S - Type Thermocouple	0 °C to 1600 °C	1.1 °C	
B - Type Thermocouple	300 °C to 1600 °C	0.8 °C	
T - Type Thermocouple	(-)200 °C to 400 °C	0.8 °C	
E - Type Thermocouple	(-)200 °C to 1000 °C	0.2 °C	
N - Type Thermocouple	(-)200 °C to 1300 °C	0.2 °C	

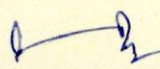
* Measurement Capability is expressed as an uncertainty (\pm) at a confidence probability of 95%

^SOnly 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.


Naveen Jangra
Convenor


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