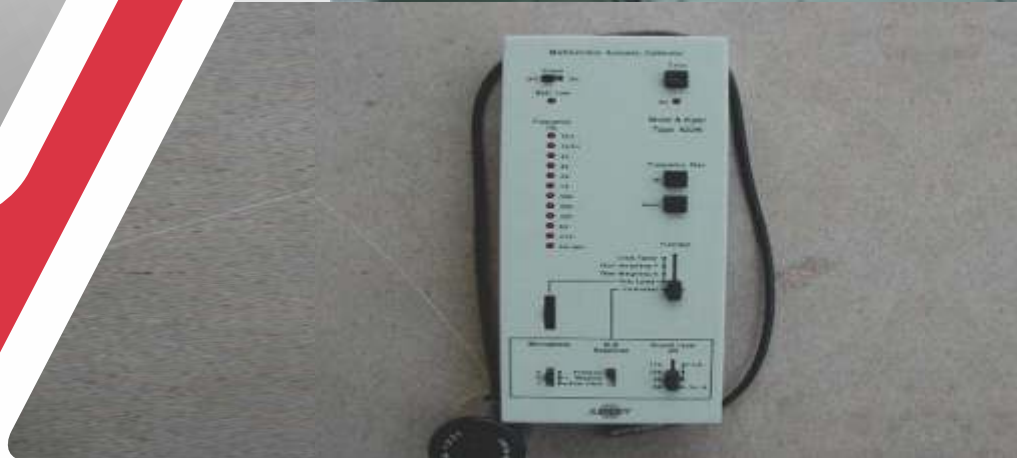


CALIBRATION LABORATORY

Quality Assurance Through Calibration
(Accredited as per ISO / IEC 17025)

ISO 9001
ISO 14001
ISO 27001
OHSAS 18001
CERTIFIED



CL - 274



CC - 2742

CALIBRATION CAPABILITIES

One of the leading Laboratory in India

Wide range of Calibration facilities under one roof

Undertake Turn- Key Calibration Assignments

Qualified and Experienced Technical staff

Onsite Calibration Facility for Various Parameters

Customer Centric Approach

ISO/IEC 17025 since 2000

Customer Retention for more than 10 years shows quality services

PARAMETERS

Mass & Balance

Micro Balances, Weighing Scales, Fractional Weight Sets, Weights etc.

Sound & Vibration

Sound Level Meters, Accelerometers, Calibrators, Microphones, Vibration Analyzers etc.

Pressure

Pressure Gauges, Transmitters, Manometers, Vacuum Gauges, Pressure Systems etc.

Speed

Contact / Non Contact Tachometers & Pulse Engine Tachometers etc.

ARAI CALIBRATION LAB PROVIDES THE CALIBRATION SERVICE TO INTERNAL AS WELL AS EXTERNAL CUSTOMERS.

EMI / EMC

LISN ,CDN ,EM Clamp. Current probes, ESD Target plate, Electronic Switches, Monopole Antennas, Preamplifiers, ESD Generators ,Conducted Immunity Generators, Micro pulse Generators in Automotive field, RF Signal Generators, Signal Generators etc.

Electrotechnical

Multimeters, Calibrators, Shunt, Oscilloscopes, Function Generators, Counters, Timers, Indicators, HV Testers etc.

Temperature & Humidity

SPRTs / PRTs, Thermocouples, RTD Sensors, Environmental Chambers, Hygrometers, Temp Baths etc.

Flow Meters

Blow by Meters, Mass Flow Meters -Air Media
PLU / DFL meter calibration-
Petrol / Diesel media

Load Cell / Torque Calibration

Load Cells, Load cell with Indicators, Load cells of Dummy, Torque Wrenches, Pedal Force Meters, LVDT, MSW Steering wheel

NEW CALIBRATION FACILITIES



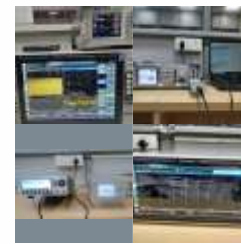
- Impedance Of LISN, CDN etc.
- Insertion Loss for LISN, Bulk current probe, Attenuators etc.
- 0.1 dB to 65 dB
- Return Loss (VSWR) 1.0023 to 3.5
- Gain : Preamplifiers



- ESD Generators As per ISO10605 and IEC 610004-2
- Open ckt Voltage up to ± 30 kV
- Short ckt current in contact Discharge for
- Peak Current (I pk)
- I@t1 & t2 ns
- Rise/Fall Time



- Different type of Generators For Conducted immunity pulses of Generators used in Automotive as well as Non automotive Testing
- Peak Voltage
- Short ckt Current
- Rise / Fall Time
- Td Pulse Duration



RF Generator and Signal Generator calibration.

- Power Level Linearity and Flatness
- Frequency Calibration up to 18GHz
- Modulation for AM, FM and phase Harmonics and Total Harmonic distortion (THD)



Load Cell calibration :

Now ARAI Calibration Lab has established Load cell calibration Facility under ISO / IEC17025-2017, which is accredited by IAS (International Accreditation Service-USA)

Load Cell Calibration

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY ^{1,2} (±)
Mechanical		
Load Cell	100 N to 5 kN	1.2%
(Tension & Compression)	5 kN to 50 kN	0.09%
	50 kN to 100 kN	0.11%

MECHANICAL CALIBRATION



Comparator Balance

Range	CMC(±)
Up to 22 g	0.0044 mg to 0.0013 mg
Up to 220 g	0.08 mg
Up to 610 g	0.28 mg
Up to 5100 g	6 mg
Up to 12 kg	80 mg
Up to 60 kg	160 mg
Up to 150 kg	3 g



Mass

Range	CMC(±)
1 mg to 500 g	0.0020mg to 0.25mg
1 kg to 5 kg	1.6 mg to 5 mg
10 kg to 100 kg	160 mg to 1 g

1 mg to 500 g (E2 Class)
Weight Set Calibration Facility



Acceleration @ Lab
(Piezoelectric, Piezo
Resistive, Capacitive, etc.)

Range	CMC(±)
Accelerometers (0.1 g to 10g)	(3 HZ to 10 kHz) 0.85% to 1.8%
Vibration Shakers, Exciters (0.1g to 10g)	(10Hz to 10kHz) 1.27% to 1.45%
Vibration Meters for Acceleration (0.5g to 10g) For velocity (1mm/s to 200mm/s) For Displacement (0.01mm to 5mm)	(10 Hz to 5 kHz) 1.60%

Pressure @ Lab

Range	CMC(±)
0 to 1000 bar g	0.013% rdg
0 - 25 bar g	0.01% rdg
0 - 2.5 bar A	0.02% rdg
0 to -0.9 bar	0.013% rdg
(±)250 mbar to 250 mbar	0.02% rdg
0 to 25 mbar	0.078% rdg



Speed Calibration

Range	CMC(±)
Non- Contact Mode 100 to 12000 rpm	1.27 to 2.11 rpm
Contact Mode 100 to 5000 rpm	1.80 rpm



Sound Level

Range	CMC(±)
31.5Hz to 16 kHz At 94 dB to 114 dB	0.3 dB to 0.61 dB

THERMAL CALIBRATION



Primary Calibration (Fixed Point Cell)	Range	CMC(±)
Boiling Point of Ln_2	-196°C	0.015°C
Mercury	-38.8344°C	0.0049°C
TPW	0.01°C	0.004°C
Gallium	29.7646°C	0.005°C
Indium	156.5985°C	0.007°C
Tin	231.928°C	0.0058°C
Zinc	419.527°C	0.008°C
Aluminum	660.323°C	0.016°C



Secondary Calibration	
Range	CMC(±)
-50 to -40°C	0.1°C
-40 to 25°C	0.1°C
25 to 650°C	0.1°C
650 to 1200°C	1.40°C
20 to 90 % RH at 25°C to 40°C	1.17 %RH

ELECTRO - TECHNICAL CALIBRATION

DC & AC Voltage	100 μV to 1000 V & 1 mV to 1000 V (10 Hz to 300 kHz)
DC & AC Current	10 μA to 20 A & 10 μA to 1000 A (10 Hz to 5 kHz)
Resistance	1 Ω to 1G Ω
Insulation Resistance	100 k Ω to 1 G Ω
Discrete Standard resistance	1 Ω ,25 Ω , 100 Ω ,300 Ω & 400 Ω
Thermocouples	-250 to 1768°C
RTD	-200 TO 850°C
Capacitance	3 nf to 30 mf
Power Meter	AC/DC Power ,PF
Time	2s to 24Hrs



FLUID FLOW CALIBRATION

Fuel Flow Meter Calibration (DFL & PLU)	
Range	CMC(±)
1 lph to 50 lph	0.3% rdg

Air Flow Meter Calibration	
Range	CMC(±)
20 kg/hr to 200 kg/hr	1.2% rdg
200 kg/hr to 2000 kg/hr	0.75% rdg



Blow by Meter (Air Media)	
Range	CMC(±)
10 to $\leq$ 30 LPM	1.5 %
>30 to $\leq$ 100 LPM	1.05%
>10 to $\leq$ 200 LPM	1.02%

