



ISO 9001:2015 COMPANY
NABL Lab (ISO 17025:2017)
DGAQA ACCREDITED

**Reliability & Validation
TEST FACILITY
(QT, ESS, Burn-in, ALT & HALT, EMI)**

PRODUCT TESTING

- Environmental Test
- ESS & Burn-in
- Qualification Test
- Reliability Demo Test
- Accelerated Life Test
- HALT
- Validation Test
- EMI-EMC

ALTITUDE (CATH) CHAMBER

Chamber Workspace	800mm x 850mm x 900mm	
Temperature Range	-70°C to 180°C	±2°C
Rate of Change of Temp.	5°C/min as per IEC 60068-3-5	
Humidity Range	15% TO 95% RH	±3%RH
	in a Climatic Range of 10°C to 85°C	
Altitude Range	Atmospheric to 10 mbar	±3mbar
Altitude Rate	Atmospheric to 100 mbar within 25-30 minutes	
	Atmospheric to 10 mbar within 40-45 minutes	



SL.No.	Specific Test Perform	Test Method Specification against which tests are performed
1.	Altitude Test	MIL-STD 202G (conditions 105C, A/B/C/F) MIL-STD 810G (condition 500.5) IEC 60068-2-39 IEC 60068-2-40 RTCA/DO-160F JIS W 0812

OZONE TEST CHAMBER

Chamber Workspace	600mm X 600mm X 600mm	
Temperature Range	15°C to 45°C	±5°C
Humidity Range	25% TO 65% RH	±5%RH
Ozone Concentration Level	0.1 PPM to 9 PPM	±5%RH
Sensor Type	Electro-Chemical type	

SL.No.	Specific Test Perform	Test Method Specification against which tests are performed
1.	Ozone Test	ASTM D 518 IS-3400 (Part-20) ASTM D 1149 ISO 1431-1 : 1989 ASTM D 1171 ASTM D 3395 ASTM D 4575 BIS, ISO, DIN, MIL



Chamber Workspace	750mm x 800mm x 800mm
Temperature Range	20°C to 125°C ±2°C
Humidity Range	30% TO 95% RH ±3%RH
Calibrated On	14 Jul 2020
Calibration Due	13 Jul 2021

SL.No.	Specific Test Perform	Test Method Specification against which tests are performed
1.	Damp Heat Test (or) Tropical Exposure Test (or) Humidity Test (or) Dew Test	IEC 60068-2-78 IEC 60068-2-30 IEC 60068-2-67 IS 9000 (Part 4) IS 9000 (Part 5) MIL-STD-810F JSS 55555 ISO 16750-4 JSS 50101



Chamber Workspace	1500mm x 1500mm x 1500mm
Temperature Range	20°C to 180°C ±2°C
Humidity Range	20% TO 98% RH ±3%RH
Calibrated On	05 Feb 2021
Calibration Due	06 Feb 2022

SL.No.	Specific Test Perform	Test Method Specification against which tests are performed
1.	Damp Heat Test (or) Tropical Exposure Test (or) Humidity Test	IEC 60068-2-78 IEC 60068-2-30 IEC 60068-2-67 IS 9000 (Part 4) IS 9000 (Part 5) MIL-STD-810F JSS 55555 ISO 16750-4 JSS 50101



THERMAL CYCLING CHAMBER

Number of Equipment	2
Chamber Workspace	1000mm x 1000mm x 1000mm
Temperature Range	-65°C to 180°C
Ramp Rate	10°C/Min. Average
Calibrated On	14 Jul 2020
Calibration Due	13 Jul 2021

SL.No.	Specific Test Perform	Test Method Specification against which tests are performed
1.	Low Temperature Test	IEC 60068-2-14 IS 9000 (Part 2) IS 9000 (Part 14) MIL-STD-810F JSS 55555 IEC 60068-2-1
2.	Low Temperature Storage	IEC 60068-2-1
3.	Low Temperature Storage Cum Operation	IEC 60068-2-14 JSS 50101
4.	Low Temperature Operation	
5.	Thermal Cycling	IEC 60068-2-14 (tests Na & Nb) IS 9000 (Part 15, Sec I & Sec II) MIL-STD-810F JSS 55555



CLIMATIC CHAMBER

Chamber Workspace	800mm x 800mm x 900mm (W*D*H)
Humidity Range	30% to 98% RH
Temperature Range	-70°C to 200°C
Ramp Rate	10°C/Min. Average
Calibrated On	19 May 2020
Calibration Due	19 May 2021

SL.No.	Specific Test Perform	Test Method Specification against which tests are performed
1.	Low Temperature Test	IEC 60068-2-14 IS 9000 (Part 2) IS 9000 (Part 14) MIL-STD-810F JSS 55555 IEC 60068-2-1
2.	Low Temperature Storage	JSS 50101
3.	Low Temperature Storage Cum Operation	IEC 60068-2-1 IEC 60068-2-14
4.	Low Temperature Operation	
5.	Thermal Cycling	IEC 60068-2-14 (tests Na & Nb) IS 9000 (Part 15, Sec I & Sec II) MIL-STD-810F JSS 55555



THERMAL SHOCK CHAMBER

Basket Size	450mm x 550mm x 600mm
Temperature Range	-65°C to 180°C
Change Over Time	15Sec.
Calibrated On	14 Jul 2020
Calibration Due	13 Jul 2021

SL.No.	Specific Test Perform	Test Method Specification against which tests are Performed
1.	Thermal Shock / Rapid Change of Temperature with Prescribed Time of Transfer	IEC 60068-2-14 (tests Na & Nb) IS 9000 (Part 15, Sec I & Sec II) MIL-STD-810F JSS 55555



THERMAL SHOCK CHAMBER-2

Number of Equipment	2
Chamber Workspace	420*420*615
Temperature Range	-65°C to 180°C
Change over time	15 Sec
Calibrated On	19 May 2020
Calibration Due	18 May 2021

SL.No.	Specific Test Perform	Test Method Specification against which tests are Performed
1.	Thermal Shock / Rapid Change of Temperature with Prescribed Time of Transfer	IEC 60068-2-14 (tests Na & Nb) IS 9000 (Part 15, Sec I & Sec II) MIL-STD-810F JSS 55555



THERMAL CHAMBER OVEN

Chamber Workspace	500mm x 500mm x 500mm
Temperature Range	Ambient to 180°C, ±2°C
Calibrated On	13 Jul 2020
Calibration Due	12 Jul 2021

SL.No.	Specific Test Perform	Test Method Specification against which tests are performed
1.	High Temperature Test	IEC 60068-2-1
2.	High Temperature Storage	IEC 60068-2-14
3.	High Temperature Storage Cum Operation	IS 9000 (Part 3)
		IS 9000 (Part 4)
		MIL-STD-810F
4.	High Temperature Operation	JSS 55555
		ISO 16750-4
		JSS 50101
5.	Power on Burn-In Test	



HIGH TEMPERATURE CHAMBER

Chamber Workspace	1000mm x 1000mm x 1000mm
Temperature Range	Ambient to 180°C, ±2°C
Calibrated On	03 Oct 2020
Calibration Due	02 Oct 2021

SL.No.	Specific Test Perform	Test Method Specification against which tests are performed
1.	High Temperature Test	IEC 60068-2-1
2.	High Temperature Storage	IEC 60068-2-14 IS 9000 (Part 3)
3.	High Temperature Storage Cum Operation	IS 9000 (Part 4) MIL-STD-810F
4.	High Temperature Operation	JSS 55555 ISO 16750-4



HOT AIR OVEN CHAMBER

Chamber workspace	800mm x 800mm x 900mm
Temperature Range	Ambient to 200°C, ±2°C
Calibrated On	19 May 2020
Calibration Due	20 May 2021

SL.No.	Specific Test Perform	Test Method Specification against which tests are performed
1.	High Temperature Test	IEC 60068-2-1
2.	High Temperature Storage	IEC 60068-2-14
3.	High Temperature Storage Cum Operation	IS 9000 (Part 3)
		IS 9000 (Part 4)
4.	High Temperature Operation	MIL-STD-810F
		JSS 55555
5.	Power on Burn-In Test	ISO 16750-4
		JSS 50101



SALT SPRAY CHAMBER

Number of equipments	2 Nos	
Chamber Workspace	300 litres	
Temperature Range	Ambient to 50°C	
Ramp Rate	2°C/min	
Humidity Range	95-100%RH	
Calibrated On	13 Jul 2020	13 Jul 2020
Calibration Due	12 Jul 2021	12 Jul 2021

SL.No.	Specific Test Perform	Test Method Specification against which tests are performed
1.	Salt Spray Test / Cyclic Salt Spray and Humidity Test/ Salt spray humidity test	IEC 60068-2-11 IEC 60068-2-52 IS 9000 (Part 2) ASTM B 117 Rev A MIL-STD-810F JSS 55555 JIS Z 2731
2.	Mixed Gas test	



SALT SPRAY CHAMBER

Chamber Workspace	300 litres
Temperature Range	Ambient to 50°C
Ramp Rate	2°C/min
Humidity Range	95-100%RH
Calibrated On	02 Jul 2020
Calibration Due	01 Jul 2021

SL.No.	Specific Test Perform	Test Method Specification against which tests are performed
1.	Salt Spray Test / Cyclic Salt Spray and Humidity Test/ Salt spray humidity test	IEC 60068-2-11 IEC 60068-2-52 IS 9000 (Part 2) ASTM B 117 Rev A MIL-STD-810F JSS 55555 JIS Z 2731
2.	Mixed Gas test	



DUST CHAMBER (Ingression Protection Test) FACILITY

Chamber Workspace	1000*1000*1000 mm
Test Type	Dust Ingress Protection
Air Flow Rate	Upto 18m/s
Calibrated On	07 Jul 2020
Calibration Due	06 Jul 2021



SL. No.	Specific Test Perform	Test Method Specification against which tests are performed
1.	Dust Ingress Protection	IEC 60529 ISO 20653
	IP5X- Limited Ingress Protection	
	IP6X- Dust Tight Protection	
	IP5K- Dust Protected	
	IP6K- Dust Tight	
2.	IP1X- Solid Foreign Object- 50mm Diameter Sphere	IEC 60529 ISO 20653
3.	IP2X- Solid Foreign Object- 12mm Diameter Test Finger	
4.	IP3X- Solid Foreign Object- 2.5mm Steel Wire	
5.	IP4X- Solid Foreign Object- 1mm Steel Wire	

RAIN CHAMBER (Ingression Protection Test) FACILITY

Chamber Workspace	1000*1000*1000 mm
Test Type	Water Ingress Protection
Calibrated On	07 Jul 2020
Calibration Due	06 Jul 2021



SL. No.	Specific Test Perform	Water Flow Rate	Pressure	Rotating Speed of Table	Test Duration
1.	IPX1- Dripping Water	1mm/min, ±0.5	NA	1 RPM	10 min
2.	IPX2- Dripping Water when tilted up to 15°	3mm/min, ±0.5	NA	1 RPM	2.5 min for each tilt position
3.	IPX3- Spraying Water up to 60° Angle	0.7 L/min, ±0.5% per hole	80 to 100kPa	1 RPM	5 min
4.	IPX4- Splashing Water in all direction	10 L/min, ±0.5% per hole	80 to 100kPa	1 RPM	5 min
5.	IPX5- Powerful Water Jet with Low Pressure	12.5 L/min	30kPa	1 RPM	3 min
6.	IPX6- Powerful Water Jet with High Pressure	100 L/min	1000kPa	1 RPM	3 min
7.	IPX6K- Powerful Water Jet with Extremely High Pressure	75L/min	1000kPa	1RPM	3 min

IMMERSION TANK

Chamber Workspace	1000*1000*1000 mm
Test Type	Water Ingress Protection- Immersion Test

SL. No.	Specific Test Perform	Water Level	Test Method Specification against which tests are performed	Test Duration
1.	IPX7	Up to 1m	IEC 60529 ISO 20653	30 min
2.	IPX8	Deeper than 1m		As Per Customer Needs



HIGH PRESSURE JET CHAMBER (Ingression Protection Test) FACILITY

Chamber Workspace	720*780*500 mm(L*B*H)
Test Type	Water Ingress Protection
Calibrated On	07 Jul 2020
Calibration Due	06 Jul 2021



SL.No.	Specific Test Perform	Water Flow Rate (LPM)	Water Temperature	Pressure	Rotating Speed of Table	Test Duration	Test Method Specification against which tests are performed
1.	IPX9K- Powerful High Temperature Water Jets	14-16	80°C ± 5°C Deviating temperatures may be agreed	80-100 bar	5 RPM	30 Sec/ Nozzle	IEC 60529 ISO 20653

SPRAY TEST FACILITY (IPX4)

SL.No.	Specific Test Perform	Water Flow Rate (LPM)	Water Temperature	Water Pressure at Rain or Spray Nozzle (Gauge Pressure)	Number of Rain or Spray Nozzle	Test Duration	Test Method Specification against which tests are performed
1.	Spray Test – S1	24.5	Ordinary Temperature	0.10 Mpa	40	As Per Customer Need	JIS D 0203
2.	Spray Test- S2	39.2	Ordinary Temperature	0.30MPa	40	As Per Customer Need	JIS D 0203

ELECTRO DYNAMIC VIBRATION SHAKER

Rated Force	2500Kgf
Frequency Range	5 to 2500Hz
Maximum Acceleration	100g
Maximum Velocity	1800mm/s
Displacement	51mm
Payload Capacity	350Kg
Calibrated On	21 Dec 2019
Calibration Due	21 Dec 2020

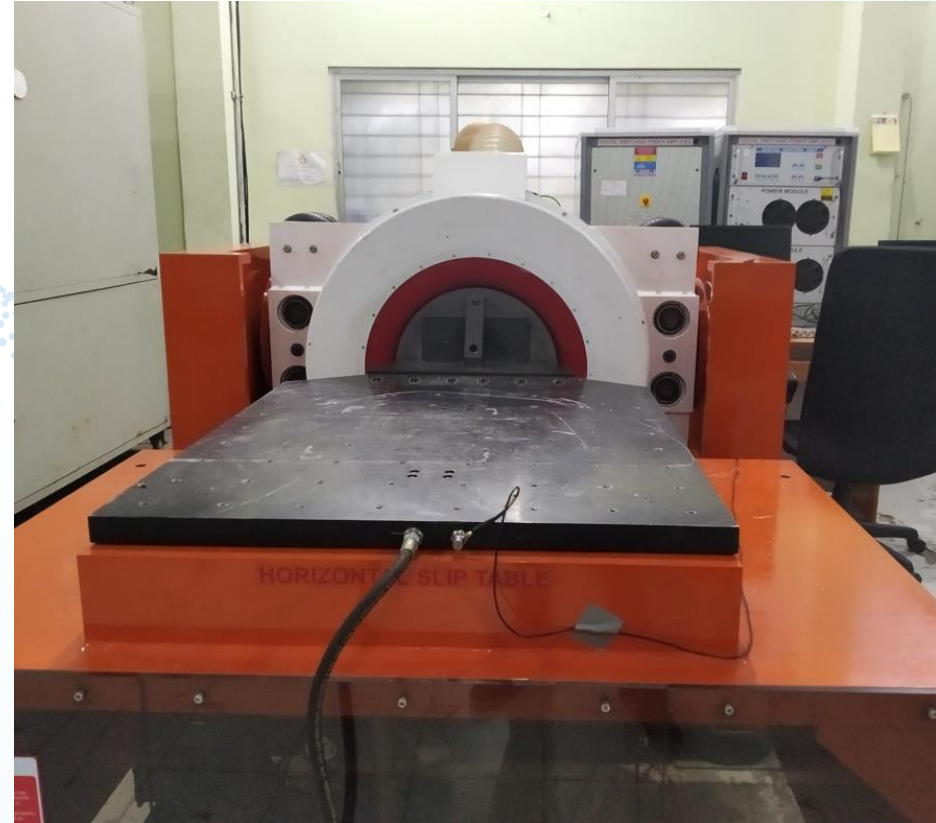
SL.No.	Specific Test Perform	Test Method Specification against which tests are performed
1.	Sine on Random	Sine: IS 9000(Part8) IEC 60068-2-6 MIL-STD-810F
2.	Sine	JSS 55555: 2012 Rev 1 JSS 50101
3.	Random	JIS D1601
4.	Mixed	Mixed Mode: IEC 60062-2-80 (Part 2);80
5.	Shock	MIL-STD-810G Random:
6.	Bump	IEC 60068-264 IEC 61373



ELECTRO DYNAMIC VIBRATION SHAKER

Rated Force	4000 Kgf
Frequency Range	5 to 2000Hz
Maximum Acceleration	160g
Maximum Velocity	2000mm/s
Displacement	70mm
Payload Capacity	500Kg
Calibrated On	27 Jun 2020
Calibration Due	26 Jun 2021

SL.No.	Specific Test Perform	Test Method Specification against which tests are performed
1.	Sine on Random	Sine: IS 9000(Part8) IEC 60068-2-6 MIL-STD-810F
2.	Sine	JSS 55555: 2012 Rev 1 JSS 50101
3.	Random	JIS D1601
4.	Mixed	Mixed Mode: IEC 60062-2-80 (Part 2);80
5.	Shock	MIL-STD-810G Random:
6.	Bump	IEC 60068-264 IEC 61373



BUMP TEST MACHINE

Maximum Acceleration	100g
Bump (Pulse) Duration	3 to 18 milli second
Bump rate control	1 to 3 Bump per second.
Payload Capacity	100 Kg
Calibrated On	23 Jul 2020
Calibration Due	22 Jul 2021

SL.No.	Specific Test Perform	Test Method Specification against which tests are performed
1.	Bump Test	JSS 55555: 2012 Rev 1 JSS 50101 JIS D1601 MIL-STD-810G



Combined Thermal Vibration Testing

SL.No.	Specific Test Perform	Test Method & Specification
1.	Low Temperature Test	IEC 60068-2-14 IS 9000 (Part 2) IS 9000 (Part 14) MIL-STD-810F JSS 55555 IEC 60068-2-1
2.	Low Temperature Storage	IEC 60068-2-1 IEC 60068-2-14 JSS 50101
3.	Low Temperature Storage Cum Operation	
4.	Low Temperature Operation	
5.	Thermal Cycling	IEC 60068-2-14 (tests Na & Nb) IS 9000 (Part 15, Sec I & II) MIL-STD-810F JSS 55555

Number of Equipment	1
Chamber Workspace	1200 x 1000 x 1000 (WxDxH)
Temperature Range	-70°C to 180°C
Ramp Rate	10°C/Min. Average

Rated Force	4000 Kgf
Frequency Range	5 to 2000Hz
Maximum Acc.	120g
Maximum Velocity	2000mm/s
Displacement	70mm
Payload Capacity	Up to 150Kg

SL.No.	Specific Test Perform	Test Method Specification against which tests are performed
1.	Sine on Random	Sine: IS 9000(Part8), IEC 60068-2-6 MIL-STD-810F JSS 55555: 2012 Rev 1 JSS 50101 JIS D1601
2.	Sine	Mixed Mode: IEC 60062-2-80 (Part 2);80 MIL-STD-810G
3.	Random	
4.	Mixed	
5.	Shock	
6.	Bump	Random: IEC 60068-264 IEC 61373



Calibration: up to date

MOULD GROWTH TEST CHAMBER

Equipment no's	1
Humidity	Up to 98% RH
Temperature	30°C
Payload Capacity	100 Kg

SL. No.	Specific Test Perform	Test Method Specification against which tests are performed
1.	Mould Growth Test	JSS 55555: 2012 MIL-STD-810G DO 160



DROP TESTER

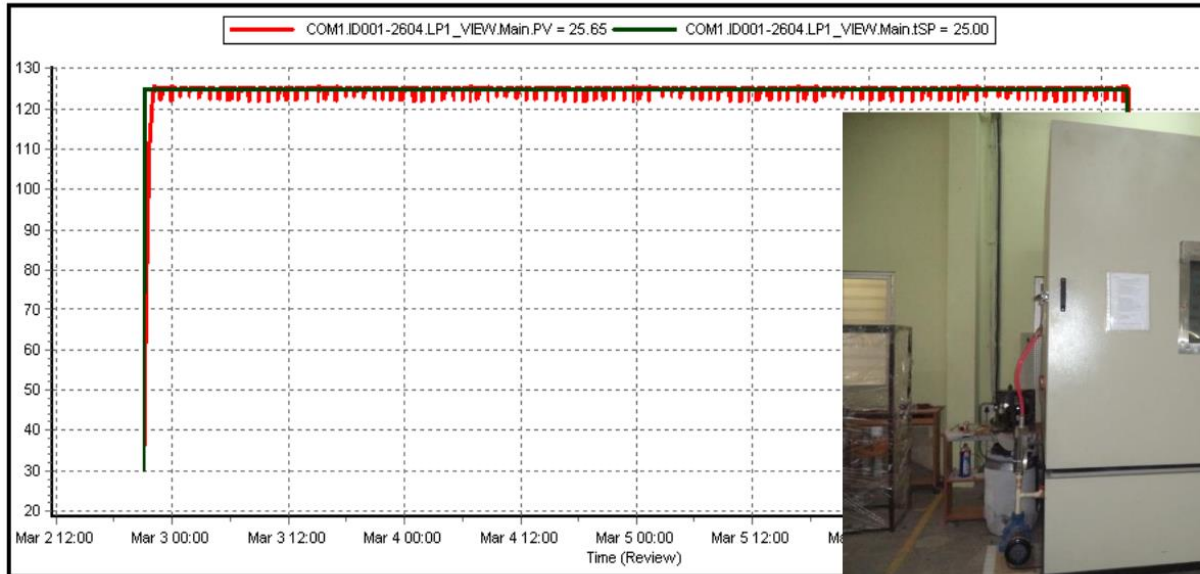
Testing Height (Drop Height)	Minimum 380mm & Maximum 1800mm
Max. Dimension of Box to be tested	500*500*500 mm (L*W*H)
Max. Weight of Box to be tested	60 Kg
Base Dimension (Floor)	1200 * 900 mm
Calibrated On	03 Sep 2020
Calibration Due	02 Sep 2021

SL.No.	Specific Test Perform	Test Method Specification against which tests are performed
1.	Drop Test	MIL STD 810G JSS 55555



COLD WATER SPLASH TEST

Chamber Workspace	1500mm x 1500mm x 1500mm
Chamber Temp Range	20°C to 180°C
Water Temp Range	0 to 4°C
Humidity Range	20% TO 98% RH \pm 3%RH
Calibrated On	14 Jul 2020
Calibration Due	13 Jul 2021





Chemical Tests

Chemical/ Fluid Contamination (Susceptibility) Tests

We do all tests as DO 160/ MIL 810/ JSS 55555/ IEC 60068

Please let us know the requirement with chemical details.

EMI-EMC Testing

Product/material	Specific Tests performed	Test Standard
Commercial	Conducted Emission	CISPR 11
Industrial	Radiated Emission	CISPR 15
Scientific	RF Radiated Susceptibility	CISPR 32
Medical	Electrostatic Discharge immunity	IEC 61000-4-2
Information technology	Electrical Fast transient (EFT)/Burst immunity	IEC 61000-4-3 IEC 61000-4-4
Multimedia	Conducted RF Susceptibility	IEC 61000-4-5
Lighting Equipment	Power frequency	IEC 61000-4-6
	Magnetic field immunity	IEC 61000-4-8
	Voltage Dips, Short Interruption	IEC 61000-4-11
	Voltage Variations immunity	
MIL	Conducted Emissions 30Hz to 10KHz	CE 101
	Conducted Emissions 10KHz to 10MHz	CE 102
	Radiated Emissions, Magnetic field 30Hz to 10KHz	RE 101
	Radiated Emissions, Electric field 10KHz to 18GHz	RE 102
	Conducted Immunity 30Hz -150 KHz	CS 101
	Conducted Immunity 60Hz - 100 KHz	CS 109
	Conducted Immunity BCI 100KHz - 200 MHz	CS 114
	Conducted Immunity BCI Impulse injection	CS 115
	Conducted Immunity damped transients	CS116
	Conducted Immunity ESD	CS 118
	Radiated immunity Magnetic Field 30Hz-10KHz	CS 101
Radiated Immunity Electric Field 2MHz - 18 GHz	RS103	
Automotive	Conducted Emissions/Radiated Emissions	CISPR-25
	Radiated Immunity 200MHz —6GHz	ISO 11452-2
	Conducted Immunity 1Mhz — 200MHz	ISO 11452-4





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