



National Accreditation Board for Testing and Calibration Laboratories

(A Constituent Board of Quality Council of India)



SCOPE OF ACCREDITATION

Laboratory Hi Physix Laboratory, K-12, Sector-2, DSIIDC, Industrial Area, Bawana, Delhi

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-5639 (in lieu of T-1488, T-3058 & T-3808) **Page 40 of 55**

Validity 08.05.2017 to 20.07.2018 **Last Amended on --**

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
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ELECTRONICS TESTING

I. DOMESTIC ELECTRONIC APPLIANCES & ACCESSORIES				
1.	Audio-Video & Electronics Appliances	Verification of Marking And Instruction requirements	IS 616: 2010 (Clause. 5), IEC 60065: 2005	Qualitative
		Laser Radiation (Products Marked Class I Only)	IS 616: 2010 (Clause. 6.2), IEC 60065: 2005	Qualitative
		Heating Under Normal Operating Condition	IS 616: 2010 (Clause 7) except 7.2, IEC 60065: 2005	1 °C to 400 °C; 0.0001 to 11.11 x 10 ⁶ MΩ
		Constructional Requirement with Regard to Protection against Electric Shock	IS 616: 2010 (Clause. 8), IEC 60065: 2005	1 °C to 100 °C, 20 % Rh to 99 % Rh 0.01 mm to 200 mm; 0.01 kV to 5 kV AC/DC 1 N to 30 N / 0.35 mm 10 Hz to 55 Hz to 10 Hz
		Insulation Requirements Surge Test, Humidity Treatment Insulation Resistance & Dielectric Strength Test	IS 616: 2010 (Clause. 10) IEC 60065: 2005	0.01 kV to 5 kV AC/DC 0.01 kV to 15 kV 100 kΩ to 2 GΩ 1 °C to 100 °C, 20 % Rh to 99 % Rh
		Fault Conditions	IS 616: 2010 (Clause. 11) IEC 60065: 2005	1 °C to 400 °C 0.1 V to 1000 V AC/DC
		Mechanical Strength	IS 616: 2010 (Clause. 12) IEC 60065: 2005	1 Counts to 9999 Counts, 10 g to 20 kg; 0.01 mm to 200 mm Upto 6 Nm Torque, 1 Nm for spring

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				hammer: 10 Hz to 55 Hz to 10 Hz, 0.35 mm, 1°C to 199.9 °C
		Electric Shock Hazards Under Normal Operating Conditions	IS 616: 2010 (Clause. 9) IEC 60065: 2005	40 V to 75 V, 1 N to 75 N 0.001 V to 1000 VAC/DC 1 µA to 20 mA
		Clearances And Creepage Distances	IS 616: 2010 (Clause. 13) IEC 60065: 2005	0.05 mm to 1 mm 0.01 mm to 200 mm 0.1 V to 1000 VAC/DC
		Batteries	IS 616: 2010 (Clause. 14.10) IEC 60065: 2005	0.001 V to 100 V 1 µA to 10 A AC/DC
		Terminal	IS 616: 2010 (Clause. 14.10) IEC 60065: 2005	0.1 Nm to 6 Nm 0.01 mm to 200 mm 0.01 A to 50 A 0.01°C to 19.99 °C
		External Flexible Cords	IS 616: 2010 (Clause. 16), IEC 60065: 2005	0.001 mm to 25 mm, 0.01 mm to 200 mm 40N, 0.25 Nm
		Electrical Connection And Mechanical Fixings	IS 616: 2010 (Clause. 17) IEC 60065: 2005	0.1 Nm to 6 Nm; 1 N to 30 N
		Stability And Mechanical Hazards	IS 616: 2010 (Clause. 19), IEC 60065: 2005	Inclination 1 to 20°, Force 1 N to 250 N
		Resistance To Fire	IS 616: 2010 (Clause. 20) IEC 60065: 2005	Mass 20 N, Ball Ø 5 mm 0.1 V _{AC} to 500 V _{AC} , 1 ms to 99.99 min
II.	IT EQUIPMENT			
1.	IT Equipment Including Electrical Business Equipment	General Requirements	IS 13252 (Part 1): 2010 IEC 60950-1: 2005	Qualitative

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		Components	IS 13252 (Part 1): 2010 (Cl. 1.5) IEC 60950-1: 2005	Qualitative
		Power Interface	IS 13252 (Part 1): 2010 (Cl. 1.6) IEC 60950-1: 2005	Voltage AC 0.05 V to 300 V, DC 0.01 V to 300 V Current AC 0.001 A to 20 A, DC 0.001 A to 5A Power: 0.1 W to 6000 W
		Verification of Markings And Instruction requirements	IS 13252 (Part 1): 2010 (Cl. 1.7) IEC 60950-1: 2005	Qualitative
		Protection From Hazards Protection From Electric Shock And Energy Hazards	IS 13252 (Part 1):2010 (Clause 2.1) IEC 60950-1: 2005	40 V to 75 V, 1 N to 75 N (0.1 kV to 5kV) AC/DC, (100 k to 2G) Ω 0.05 mm to 1 mm, 0.01 mm to 200 mm
		SELV Circuits	IS 13252 (Part 1):2010 (Clause 2.2) IEC 60950-1: 2005	Voltage AC/DC 0.01 V to 1000 V Current AC/DC 0.001 A to 10 A
		TNV Circuits	IS 13252 (Part 1):2010(Claus 2.3) IEC 60950-1: 2005	Voltage AC/DC 0.01 V to 1000 V Current AC/DC 0.001 A to 10 A 0.01 kV to 5 kV AC/DC
		Limited Current Circuits	IS 13252 (Part 1):2010 (Clause 2.4) IEC 60950-1: 2005	0.001 A to 10 A (AC/DC)

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		Limited Power Sources	IS 13252 (Part 1):2010 (Clause 2.5) IEC 60950-1: 2005	Voltage AC/DC 0.01 V to 1000 V Current AC/DC 0.001 A to 10 A
		Provision For Earthing And Bonding	IS 13252 (Part 1):2010 (Clause 2.6) IEC 60950-1: 2005	0.1 A to 50 A, 19.99 V 0.001 mm to 25 mm 0.001 Ω to 5 Ω
		Over-Current And Earth Fault Protection In Primary Circuits	IS 13252 (Part 1):2010 (Clause 2.7) IEC 60950-1: 2005	Qualitative
		Electrical Insulation	IS 13252 (Part 1):2010 (Clause 2.9) IEC 60950-1: 2005	1 °C to 100 °C, 20 % Rh to 99 % Rh 0.1 kV to 5 kV
		Clearances, Creepage Distances And Distances Through Insulation	IS 13252 (Part 1):2010 (Clause 2.10) IEC 60950-1: 2005	0.05 mm to 1 mm, 0.01 mm to 200 mm 0.01 kV to 15 kV 0.01 kV to 5 kV AC/DC 1 °C to 100 °C, 20 % Rh to 99 % Rh
		Wiring Connection And Supply General	IS 13252 (Part 1):2010 (Clause 3.1) IEC 60950-1: 2005	Qualitative
		Connections To Mains Supply	IS 13252 (Part 1):2010 (Clause 3.2) IEC 60950-1: 2005	Voltage AC/DC 0.01 V to 1000 V 0.001 mm to 25 mm 1 N to 100 N
		Wiring Terminals For External Conductors	IS 13252 (Part 1):2010 (Clause 3.3) IEC 60950-1: 2005	1 °C to 400 °C 0.001 mm to 25 mm 0.01 mm to 200 mm
		Disconnections From The Mains Supply	IS 13252 (Part 1):2010 (Clause 3.4) IEC 60950-1: 2005	Qualitative

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		Interconnection Of Equipment	IS 13252 (Part 1):2010 (Clause 3.5) IEC 60950-1: 2005	Qualitative
		Physical Requirements Stability	IS 13252 (Part 1):2010 (Clause 4.1) IEC 60950-1: 2005	Inclination 10 ° to 20 ° Force 1 N to 1000 N
		Mechanical Strength	IS 13252 (Part 1):2010 (Clause 4.2) IEC 60950-1: 2005	1 N to 250 N, 1 N to 1000 N 0.10 °C to 199.90 °C, 1 mm to 3000 mm
		Design And Construction	IS 13252 (Part 1):2010 (Clause 4.3) IEC 60950-1: 2005	1 N to 100 N. 0.25 Nm voltage AC/DC 0.01 V to 100 V; 1 µA to 5 A
		Batteries	IS 13252 (Part 1): 2010 (Clause 4.3.8) IEC 60950-1: 2005	1 N to 100 N. 0.25 Nm Voltage AC/DC 0.01 V to 100 V; 1 µA to 5 A
		Human Exposure To UV Radiatin Only	IS 13252 (Part 1): 2010 (Clause. 4.3.13.4) IEC 60950-1: 2005	Qualitative
		Protection Against Hazardous Moving Parts	IS 13252 (Part 1):2010 (Clause 4.4) IEC 60950-1: 2005	1 N to 100 N
		Thermal Requirements	IS 13252 (Part 1):2010 (Clause 4.5) IEC 60950-1: 2005	0.1 °C to 199.9 °C 1 °C to 400 °C 10 mΩ to 1 MΩ
		Opening In Enclosure	IS 13252 (Part 1):2010 (Clause 4.6) IEC 60950-1: 2005	(-)50°C to 100°C 0.01 mm to 200 mm
		Resistance To Fire	IS 13252 (Part 1):2010 (Clause 4.7) IEC 60950-1: 2005	1 °C to 1350 °C Mass 20 N, 9.5 mm Ball Ø 5 mm 0.1 Vac to 500 Vac, 1 ms to 99.99 min

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		Electrical Requirements and Simulated Abnormal Conditions Touch Current And Protective Conductor Current	IS 13252 (Part 1):2010 (Clause 5.1) IEC 60950-1: 2005	1 μ A to 20 mA
		Electric Strength Test	IS 13252 (Part 1):2010 (Clause 5.2) IEC 60950-1: 2005	0.1 kV to 5 kVAC/DC
		Abnormal Operating and Fault Conditions	IS 13252 (Part 1): 2010 (Clause. 5.3) IEC 60950-1: 2005	1 °C to 400 °C 10 m Ω to 1 M Ω 1 μ A to 20 mA
		Connection to telecommunication Network	IS 13252 (Part 1): 2010 (Clause. 6.1,6.2,6.3), IEC 60950-1: 2005	0.01 kV to 5 kV AC/DC 0.01 kV to 15 kV 0.01 V to 1000 Vac/ac 0.1 A to 10 A
		Connection to Cable Distribution System	IS 13252 (Part 1): 2010 (Clause. 7.1,7.2,7.3), IEC 60950-1: 2005	0.01 kV to 5 kV AC/DC 0.01 kV to 15 kV
III.	CELLS & BATTERIES			
1.	Secondary Cells and Batteries Containing Alkaline Or Other Non-Acid Electrolytes – Portable Sealed Secondary Cells, And For Batteries Made From Them, For Use In Portable Applications	Insulation & Wiring	IS 16046: 2015 (Clause. 5.2) IEC 62133: 2012	100 M Ω to 10 G Ω , 50 V to 1 kV
Venting		IS 16046: 2015 (Clause. 5.3) IEC 62133: 2012	Qualitative	
Temperature / Current Management		IS 16046: 2015 (Clause. 5.4) IEC 62133: 2012	Qualitative	
Terminal Contact		IS 16046: 2015 (Clause. 5.5) IEC 62133: 2012	Qualitative	
Assembly Of Cells Into Batteries		IS 16046: 2015 (Clause. 5.6) IEC 62133: 2012	Qualitative	
Quality Plan		IS 16046: 2015 (Clause. 5.7) IEC 62133: 2012	Qualitative	

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		Type Test Condition	IS 16046: 2015 (Clause. 6) IEC 62133: 2012	20° C(±)5° C
		Charging Procedure For Test Purposes (Nickel System)	IS 16046: 2015 (Clause. 7.1) IEC 62133: 2012	(0.01 to 30) Vdc, 0.01 A to 20 A 1000 V, 10 A 120 V, 30 A, 150 W
		Classification Continuous Low-Rate Charging (Cells) (Nickel System)	IS 16046: 2015 (Clause. 7.2.1) IEC 62133: 2012	(0.01 V to 10 V)/20V, 0.01 A to 6 A
		Vibration Test (Nickel System)	IS 16046: 2015 (Clause. 7.2.2) IEC 62133: 2012	5 Hz to 10 kHz
		Moulded Case Stress At High Ambient Temperature (Batteries) (Nickel System)	IS 16046: 2015 (Clause. 7.2.3) IEC 62133: 2012	RT to 99.9 °C
		Temperature Cycling (Nickel System)	IS 16046: 2015 (Clause. 7.2.4) IEC 62133: 2012	(-)-30 °C to RT RT to 99.9 °C
		Incorrect Installation Of A Cell (Nickel System)	IS 16046: 2015 (Clause. 7.3.1) IEC 62133: 2012	1 °C to 600 °C 1 Ω
		External Short Circuit (Nickel System)	IS 16046: 2015 (Clause. 7.3.2) IEC 62133: 2012	1°C to 400 °C 1°C to 600°C 1 Ω to 20 Ω
		Free Fall (Nickel System)	IS 16046: 2015 (Clause. 7.3.3) IEC 62133: 2012	1 m
		Mechanical Shock (Nickel System)	IS 16046: 2015 (Clause. 7.3.4) IEC 62133: 2012	180 gn
		Thermal Abuse (Cells) (Nickel System)	IS 16046: 2015 (Clause. 7.3.5) IEC 62133: 2012	RT to 199.9 °C
		Crushing Of Cells (Nickel System)	IS 16046: 2015 (Clause. 7.3.6) IEC 62133: 2012	1 kN to 15 kN 0.01 Vdc to 19.99 Vdc
		Low Pressure (Cells) (Nickel System)	IS 16046: 2015 (Clause. 7.3.7) IEC 62133: 2012	750 mmHg, Max. 100 °C
		Over Charge (Nickel System)	IS 16046: 2015 (Clause. 7.3.8) IEC 62133: 2012	0.01 Vdc to 30 Vdc, 0.01 A to 20 A

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		Forced Discharge (Cells) (Nickel System)	IS 16046: 2015 (Clause. 7.3.9) IEC 62133: 2012	0.01 Vdc to 30 Vdc, 0.01 A to 20 A 120 V, 30 A, 150 W
		Charging Procedure For Test Purpose	IS 16046: 2015 (Clause. 8.1) IEC 62133: 2012	0.01 Vdc to 30 Vdc, 0.01 A to 20 A 1000 V, 10 A 120 V, 30 A, 150 W
		First Procedure (Lithium System)	IS 16046: 2015 (Clause. 8.1.1) IEC 62133: 2012	
		Second Procedure (Lithium System)	IS 16046: 2015 (Clause. 8.1.2) IEC 62133: 2012	0.01 Vdc to 30 Vdc, 0.01 A to 20 A 1000 V, 10 A 120 V, 30 A, 150 W 1°C to 99.9 °C (-)-30°C to RT
		Continuous Charging At Constant Voltage (Cells) (Lithium System)	IS 16046: 2015 (Clause. 8.2.1) IEC 62133: 2012	(0.01 V to 10 V)/20 V, 0.01 A to 6 A
		Moulded Case Stress At High Ambient Temperature (Battery) (Lithium System)	IS 16046: 2015 (Clause. 8.2.2) IEC 62133: 2012	1°C to 99.9 °C
		External Short Circuit (Cell) (Lithium System)	IS 16046: 2015 (Clause. 8.3.1) IEC 62133: 2012	1°C to 600 °C 1 Ω to 20 Ω
		External Short Circuit (Battery) (Lithium System)	IS 16046: 2015 (Clause. 8.3.2) IEC 62133: 2012	1 °C to 400 °C 1 °C to 600 °C 1 Ω to 20 Ω
		Free Fall (Lithium System)	IS 16046: 2015 (Clause. 8.3.2) IEC 62133: 2012	1 m
		Thermal Abuse (Cells) (Lithium System)	IS 16046: 2015 (Clause. 8.3.4) IEC 62133: 2012	1°C to 199.9 °C
		Crush (Cells) (Lithium System)	IS 16046: 2015 (Clause. 8.3.5) IEC 62133: 2012	1 kN to 15 kN 0.01 Vdc to 19.99 Vdc 0.1 mm to 150 mm

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		Over-Charging Battery (Lithium System)	IS 16046: 2015 (Clause. 8.3.6) IEC 62133: 2012	0.01 Vdc to 30 Vdc, 0.01 A to 20 A 1°C to 600 °C
		Forced Discharge(Cells) (Lithium System)	IS 16046: 2015 (Clause. 8.3.7) IEC 62133: 2012	0.01 Vdc to 30 Vdc, 0.01 A to 20 A 120 V, 30 A, 150 W
		Transport Test (Lithium System)	IS 16046: 2015 (Clause. 8.3.8) IEC 62133: 2012	Qualitative
		Design Evaluation	IS 16046: 2015 (Clause. 8.3.9) IEC 62133: 2012	Qualitative
		Verification of Information For Safety	IS 16046: 2015 (Clause. 9) IEC 62133: 2012	Qualitative
		Cell Marking	IS 16046: 2015 (Clause. 10.1) IEC 62133: 2012	Qualitative
		Battery Marking	IS 16046: 2015 (Clause. 10.2) IEC 62133: 2012	Qualitative
		Packaging	IS 16046: 2015 (Clause. 11) IEC 62133: 2012	Qualitative
		Verification of Information For Safety	IS 16046: 2015 (Clause. 5) IEC 62133: 2012	Qualitative
		Cell Marking	IS 16046: 2015 (Clause. 6.1) IEC 62133: 2012	Qualitative
		Battery Marking	IS 16046: 2015 (Clause. 6.2) IEC 62133: 2012	Qualitative
IV.	POWER SUPPLIES AND STABILIZERS			
1.	Uninterruptible Power Systems (UPS)	Components	IS 16242 (Part 1):2014 (Clause 4.5) IEC 62040-1: 2008	Qualitative
		Power Interfaces	IS 16242 (Part 1):2014 (Clause 4.6) IEC 62040-1: 2008	0.1 V to 300 V/ 0.01 A to 40 A
		Verification of Markings And Instruction requirements	IS 16242 (Part 1):2014 (Clause 4.7) IEC 62040-1: 2008	Qualitative

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		Protection Against Electric Shock And Energy Hazards	IS 16242 (Part 1):2014 (Clause 5.1) IEC 62040-1: 2008	40 V to 75 V, 1 N to 75 N 0.05 mm to 1 mm, 0.01 mm to 200 mm
		Requirements For Auxilliary Circuits	IS 16242 (Part 1):2014 (Clause 5.2) IEC 62040-1: 2008	Voltage AC/DC 0.01 V to 1000 V Current AC/DC 0.001 A to 10 A 0.1 kV to 5 kVAC/DC
		Protective Earthing And Bonding	IS 16242 (Part 1):2014 (Clause 5.3) IEC 62040-1: 2008	0.001 A to 50 A, 19.99 V
		AC And D.C. Power Isolation	IS 16242 (Part 1):2014 (Clause 5.4) IEC 62040-1: 2008	Qualitative
		Overcurrent And Earth Fault Protection	IS 16242 (Part 1):2014 (Clause 5.5) IEC 62040-1: 2008	Qualitative
		Protection Of Personnel – Safety Interlocks.	IS 16242 (Part 1):2014 (Clause 5.6) IEC 62040-1: 2008	Qualitative
		Clearances, Creepage Distances And Distances Through Insulation	IS 16242 (Part 1):2014 (Clause 5.7) IEC 62040-1: 2008	0.05 mm to 1 mm 0.01 mm to 200 mm
		Wiring, Connections & Supply - General - Connection To Power - Wiring Terminals For External Power Conductor	IS 16242 (Part 1): 2014 (Clause 6) IEC 62040-1: 2008	Qualitative
		Physical Requirements - Enclosure - Stability - Mechanical Strength - Construction Details - Resistance To Fire	IS 16242 (Part 1): 2014 (Clause 7) IEC 62040-1: 2008	Inclination 10 ° to 20 °, 1 N to 250 N, 1 N to 1000 N Voltage AC/DC 0.01 V to 100 V/

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		- Battery Location - Temperature Rise		1 μ A to 10 A, 1 $^{\circ}$ C to 400 $^{\circ}$ C 10 m Ω to 1 M Ω (-)50 $^{\circ}$ C to 100 $^{\circ}$ C 0.01 mm to 200 mm 1 $^{\circ}$ C to 1350 $^{\circ}$ C, Mass 20 N, Ball \varnothing 5 mm
		Electrical Requirements And Simulated Abnormal Conditions -General Provisions For Earth Leakage - Electric Strength - Abnormal Operating And Fault Conditions	IS 16242 (Part 1): 2014 (Clause 8) IEC 62040-1: 2008	1 $^{\circ}$ C to 400 $^{\circ}$ C 10 m Ω to 1 M Ω 1 μ A to 20 mA 0.01 kV to 5 kV AC/DC
		Connection To Telecommunication Networks	IS 16242 (Part 1): 2014 (Clause 9) IEC 62040-1: 2008	0.01 kV to 5 kV AC/DC 0.01 kV to 15 kV 100 k Ω to 2 G Ω
V.	EMI/EMC TEST FACILITIES			
1.	Electronic Products	Radiated Emission Using 3-Axis Loop Antenna (2m Dia)	IS 15111 (Part 2): 2002/ IEC 60969 (Edition 1.2): 2001 IS 6873 (Part 5): 2012 / CISPR 15: 2009 EN 55015 (Clause. 4.3.1) IS16102 (Part 2): 2012/ IEC62612: 2013 (Clause. 5.1) IS 16103 (Part 2): 2012/ IEC 62717: 2011	9 kHz to 30 MHz,

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		Conducted Emission	IS 15111 (Part 2): 2002/ IEC 60969 (Edition 1.2): 2001 IS 6873 (Part 5): 2012 / CISPR 15: 2009 EN 55015 (Clause. 4.3.1) IS 16102 (Part 2): 2012/ IEC62612: 2013 (Clause. 5.1) IS 16103 (Part 2): 2012/ IEC 62717: 2011 IS 60947 (Part 5/Sec I): 2003/ IEC 60947-5-1: 20 IEC 60571: 2006 IEC 61326-1: 2005 IEC 62040-2: 2005 IS12784 (Part-1): 1989 / IEC:60688: 2002 IEC 61000-6-3: 2011 IS 6873 (Part 3): 2009/ CISPR 13: 2009 (Clause. 4.2) IS 6873 (Part 7): 1999/ CISPR 22: 2008/EN 55022	9 kHz to 30 MHz Main terminal

Mallika

Mallika Gope
Convenor

N. Venkateswaran

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Program Director