

Laboratory TUV India Pvt. Ltd., Anjani Palladium, 203 & 204, Second Floor,  
Survey No. 126/1, Baner Main Road, Baner, Pune, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-5237 (In lieu of T-4383 & T-4384)

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Validity 13.01.2017 to 12.01.2019

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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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**ELECTRICAL TESTING**

<b>I. SAFETY TEST FACILITY</b>				
1.	<b>Electrical Equipment for Measurement, Control and Laboratory Use</b>	Durability of Markings	IEC 61010 -1 (Clause 5.3) BS EN 61010-1 (Clause 5.3)	Qualitative
		Mains Supply	IEC 61010 -1(Claue 5.1.3) BS EN 61010-1 (Clause 5.1.3)	1 mA to 20 A (AC & DC Current) 0.15 V to 600 V (AC & DC Voltage) 0.2 mW to 3000 W 1 Hz to 999.9 Hz
		Protection against Electric Shock	IEC 61010 -1 (Clause 6) BS EN 61010-1 (Clause 6)	Qualitative
		Procedure for Voltage	IEC 61010 -1 (Clause 6.8) BS EN 61010-1 (Clause 6.8)	0.01 kV to 5.0 kV (DC & AC Voltage ) 200 mA of AC & DC current
		Protective Bonding	IEC 61010 -1(Claue 6.5.2) BS EN 61010-1 (Clause 6.5.2)	6 A to 60 A 0.001 Ω to 0.600 Ω 0.3 s to 999 s
		Insulation Requirements	IEC 61010 -1(Claue 6.7) BS EN 61010-1 (Clause 6.7)	0.01 mm to 150mm, 100 V to 600 V
		Humidity Preconditioning	IEC 61010 -1(Claue 6.8.2) BS EN 61010-1 (Clause 6.8.2)	(-) 40 °C to (+) 180 °C 10 % RH to 95 % RH
		Impulse Voltage Withstand	IEC 61010 -1 (Clause 6.8.3.3) BS EN 61010-1 (Clause 6.8.3.3)	1.2 μs / 50 μs 100 V to 7 kV

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		Cord Entry	IEC 61010 -1 (Clause 6.10.2.1) BS EN 61010-1 (Clause 6.10.2.1)	0.01 mm to 150 mm
		Plugs & Connectors	IEC 61010 -1 (Clause 6.10.3) BS EN 61010-1 (Clause 6.10.3)	400 V 0.005 mA to 50 mA
		Stability	IEC 61010 -1 (Clause 7.4) BS EN 61010-1 (Clause 7.4)	0° to 20° 360° Rotatable
		Static	IEC 61010 -1(Claue 8.2.1) BS EN 61010-1 (Clause 8.2.1)	Qualitative
		Impact	IEC 61010 -1(Claue 8.2.2) BS EN 61010-1 (Clause 8.2.2)	Qualitative (Height: 1.3 m) 50 mm/500 g
		Drop	IEC 61010 -1 (Clause 8.2.3) BS EN 61010-1 (Clause 8.2.3)	Qualitative (upto 1000mm)
		Integrity of Clearance, Creepage Distance	BS EN 61010-1 (Clause 10.5.1)	0.1 kV to 5.0 kV 200 mA (DC & AC Voltage)
		Equipment's Temperature Limits & Resistance to Heat	IEC 61010 -1 (Clause 10) BS EN 61010-1(Claue 10)	10 % RH to 98%RH
		Insulating Material	IEC 61010 -1 (Clause 10.5.3) BS EN 61010-1 (Clause 10.5.3)	0.1 mm to 30 mm
		Non-Metallic Enclosures	IEC 61010 -1 (Clause 10.5.2) BS EN 61010-1 (Clause 10.5.2)	Qualitative

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		Cleaning	IEC 61010 -1 (Clause 11.2) BS EN 61010-1 (Clause 11.2)	Qualitative
		Protection by interlocks	IEC 61010 -1 (Clause 15) BS EN 61010-1 (Clause 15)	Qualitative
<b>II. LAMPS, LUMINAIRES AND ACCESSORIES</b>				
1.	Controlgear for Led Modules	Verification of Marking	IS 15885 (Part 2/Section 13) (Clause 7) IS 15885-1 IEC 61347-2-13 (Clause 7) IEC 61347-1 EN 61347-2-13 EN 61347-1	Qualitative
		Protection Against Accidental Contact With Live Parts	IS 15885 (Part 2/Section 13) (Clause 8) IS 15885-1 IEC 61347-2-13 (Clause 8) IEC 61347-1 EN 61347-2-13 EN 61347-1	Qualitative
		Terminals	IS 15885 (Part 2/Section 13) (Clause 9) IS 15885-1(Clause 8) IEC 61347-2-13 (Clause 9) IEC 61347-1 (Clause 8) EN 61347-2-13 EN 61347-1 (Clause 9)	0.01 mm to 150 mm 100 cNm to 500 cNm
		Provisions For Protective Earthing	IS 15885 (Part 2/Section 13) (Clause 10) IS 15885-1 (Clause 9) IEC 61347-2-13	6 A to 60 A 0.001 $\Omega$ to 0.600 $\Omega$ 0.3 s to 999 s

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			(Clause 10) IEC 61347-1 (Clause 9) EN 61347-2-13 EN 61347-1	
		Moisture Resistance And Insulation	IS 15885 (Part 2/Section 13) (Clause 11) IS 15885-1 (Clause 11)	(-) 40 °C to (+) 180 °C 10 % RH to 95 % RH 0.01 kΩ to 1 G Ω
		Electric Strength	IEC 61347-2-13(Claue 11) IEC 61347-1 EN 61347-2-13 EN 61347-1	0.01 kV to 5.0 kV (AC & DC) 200 mA (AC & DC)
		Fault Conditions	IS 15885 (Part 2/Section 13) (Clause 12) IS 15885-1 IEC 61347-2-13 IEC 61347-1 EN 61347-2-13 EN 61347-1 IS 15885 (Part 2/Section13) (Clause 14)	0.01 kV to 5.0 kV (AC & DC) 200 mA (AC & DC)
		Transformer Heating	IS 15885-1 IEC 61347-2-13 IEC 61347-1 EN 61347-2-13 EN 61347-1 IS 15885 (Part 2/Section 13) (Clause 15)	0.01 kΩ to 1 GΩ 0° C to 300° C 25° C to 120° C
		Construction	IS 15885-1 IEC 61347-2-13 IEC 61347-1 EN 61347-2-13 EN 61347-1	Qualitative
		Creepage Distances And Clearances	IS 15885 (Part 2/Section 13) (Clause 15) IS 15885-1	0.01 mm to 150 mm

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			IEC 61347-2-13 IEC 61347-1 EN 61347-2-13 EN 61347-1	
		Screws , Current carrying parts and connection	IS 15885 (Part 2/Section13) (Clause 17) IS 15885-1 IEC 61347-2-13 IEC 61347-1 EN 61347-2-13 EN 61347-1 IS 15885 (Part 2/Section 13)	Upto 100 cNm
		Resistance To Heat, Fire And Tracking	IS 15885-1 (Clause 18) IEC 61347-2-13 IEC 61347-1 EN 61347-2-13 EN 61347-1	0.001 mm at 30.00 mm
		Resistance to corrosion	IS 15885 (Part 2/Section 13) (Clause 20) IS 15885-1 (Clause 19) IEC 61347-2-13 IEC 61347-1 EN 61347-2-13 EN 61347-1	Qualitative
2.	<b>Fixed General Purpose Luminaires</b>	Verification of Marking	IS 10322 (Part 5/Section I) (Clause 1.5 (3)) IS 10322 (Part 1) (Clause 1.5 (3)) IEC 60598-2-1 IEC/EN 60598-1	Qualitative
		Construction	IS 10322 (Part 5/Section I) (Clause 1.6 (4)) IS 10322 (Part 1) (Clause 1.6 (4))	0.01 mm to 150 mm 10 N to 250 N (Height: 1.3 m 50 mm/500 g)

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			IEC 60598-2-1 IEC 60598-1 EN 60598-2-1 EN 60598-1	
		Creepage distance and clearance	IS 10322 (Part 5/Section I) (Clause 1.8 (7))	Qualitative
		Provision for Earthing	IS 10322 (Part 1) IEC 60598-2-1 IEC 60598-1 EN 60598-2-1 EN 60598-1 (Clause 1.7 (11))	0.01 kV to 5.0 kV (DC & AC Voltage) 200 mA (AC/DC Current) 0.1 s to 999 s
		Terminals	IS 10322 (Part 5/Section I) IS 10322 (Part 1) (Clause. 1.9 (14, 15)) IEC 60598-2-1 IEC 60598-1 EN 60598-2-1 EN 60598-1	Upto 100 cNm 0.01 mm to 150 mm
		Protection Against Electric Shock	IS 10322 (Part 5/Section I) (Clause 1.11(8)) IS 10322 (Part 1) (Clause 1.11(8)) IEC 60598-2-1 IEC 60598-1	Qualitative
		Resistance To Dust (IP First Numeral: 1X, 2X, 3X & 4X, also X3 and X4) Resistance to Moisture	IS 10322 (Part 5/Section I) (Clause 1.13 (9)) IS 10322 (Part 1) IEC 60598-2-1 IEC 60598-1	Qualitative Water flow $1^{+0.5}_0$ mm/minute 1 s to 60 minutes  $3^{+0.5}_0$ mm/minute 0.07 L/Min $\pm$ 5% per hole Multiplied by number of 7 holes

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		Insulation Resistance And Electric Strength	IS 10322 (Part 5/Section I) (Clause 1.14 (10)) IS 10322 (Part 1) IEC 60598-2-1 IEC 60598-1 IS 10322 (Part 5/Section II)	(-) 40 °C to (+) 180 °C Ambient to 300 °C
		Resistance To Heat, Fire And Tracking	IS 10322 (Part 1) (Clause 16(13)) IEC 60598-2-2 (Clause 2.16 (13)) IEC 60598-1	(-) 40 °C to (+) 180 °C 10 % RH to 95 % RH 0.01 kV to 5.0 kV (AC & DC) 200 mA (AC & DC) 0.01 kΩ to 1 GΩ
<b>III.</b>	<b>DOMESTIC ELECTRICAL APPLIANCES</b>			
<b>1.</b>	<b>Domestic Electric Food Mixers (liquidizers and grinders) and centrifugal juicers</b>	Verification of Marking	IS 302(Part 1) IS 4250 IEC 60335-1 IEC 60335-2-14 EN 60335-1 EN 60335-2-14 (Clause 7)	Qualitative
		Protection against access to live parts	IS 302(Part 1) IS 4250 IEC 60335-1 IEC 60335-2-14 EN 60335-1 EN 60335-2-14 (Clause 8)	Qualitative
		Electric Strength	IS 302(Part 1) IS 4250 IEC 60335-1 IEC 60335-2-14 EN 60335-1 EN 60335-2-14 (Clause 13 & 16)	0.01 kV to 5.0 kV (AC/DC) 200mA (AC/DC)

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		Provision for Earthing	IS 302(Part 1) IS 4250 IEC 60335-1 IEC 60335-2-14 EN 60335-1 EN 60335-2-14 (Clause 27)	6 A to 60 A 0.001 $\Omega$ to 0.600 $\Omega$
		Leakage Current	IS 302(Part 1) IS 4250 IEC 60335-1 IEC 60335-2-14 EN 60335-1 EN 60335-2-14 (Clause 13 & 16)	0.001 mA to 50 mA
		Creepage Distance and Clearance	IS 302(Part 1) IS 4250 IEC 60335-1 IEC 60335-2-14 EN 60335-1 EN 60335-2-14 (Clause 29)	0.01 mm to 150 mm
2.	Electric Iron	Verification of Marking	IS 302 (Part 1) IS 302-2-3 IEC 60335-1 IEC 60335-2-3 EN 60335-1 EN 60335-2-3 (Clause 7)	Qualitative
		Protection against access to live parts	IS 302 (Part 1) IS 302-2-3 IEC 60335-1 IEC 60335-2-3 EN 60335-1 EN 60335-2-3 (Clause 8)	Qualitative
		Electric Strength	IS 302 (Part 1) IS 302-2-3 IEC 60335-1	0.01 kV to 5.0 kV (AC/DC) 200mA (AC/DC)

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			IEC 60335-2-3 EN 60335-1 EN 60335-2-3 (Clause 13 & 16)	
		Moisture Resistance	IS 302(Part 1) IS 302-2-3 IEC 60335-1 IEC 60335-2-3 EN 60335-1 EN 60335-2-3 (Clause 15)	(-) 40° C to (+) 180 ° C 10 % RH to 95 % RH
		Leakage Current	IS 302(Part 1) IS 302-2-3 IEC 60335-1 IEC 60335-2-3 EN 60335-1 EN 60335-2-3 (Clause 13 & 16)	0.001 mA to 50 mA
		Provision for Earthing	IS 302(Part 1) IS 302-2-3 IEC 60335-1 IEC 60335-2-3 EN 60335-1 EN 60335-2-3 (Clause 27)	3 A to 60 A 0.001 Ω to 0.600 Ω
3.	Microwave ovens	Verification of Marking	IS 302(Part 1) IS 302-2-25 IEC 60335-1 EN 60335-2-25 EN 60335-1 (Clause 7)	Qualitative
		Protection against access to live parts	IS 302(Part 1) IS 302-2-25 IEC 60335-1 EN 60335-2-25	Qualitative

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			EN 60335-1 (Clause 8)	
		Electric Strength	IS 302(Part 1) IS 302-2-25 IEC 60335-1 EN 60335-2-25 EN 60335-1 (Clause 13 & 16)	0.01 kV to 5.0 kV (AC/DC) 200mA (AC/DC)
		Moisture Resistance	IS 302(Part 1) IS 302-2-25 IEC 60335-1 EN 60335-2-25 EN 60335-1 (Clause 15)	(-) 40 °C to (+) 180 °C 10 % RH to 95 % RH
		Provision for Earthing	IS 302(Part 1) IS 302-2-25 IEC 60335-1 EN 60335-2-25 EN 60335-1 (Clause 27)	3 A to 60 A 0.001 Ω to 0.600 Ω 0.3 s to 999 s
		Leakage Current	IS 302(Part 1) IS 302-2-25 IEC 60335-1 EN 60335-2-25 EN 60335-1 (Clause 13.1 & 16.1)	0.001 mA to 50 mA
<b>IV.</b>	<b>POWER SUPPLIES &amp; STABILIZERS</b>			
<b>1.</b>	<b>Uninterruptable power system (UPS)</b>	Verification of Markings	EN 62040-1 IS 16242-1	Qualitative
		Power Interfaces	EN 62040-1 IS 16242-1 (Clause. 4.6)	1 mA to 20 A (AC & DC Current) 0.15 V to 600 V (AC & DC Voltage) Upto 4500 W

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				1 Hz to 999.9 Hz
		Markings and Instruction	EN 62040-1 IS 16242-1 (Clause. 4.7)	Qualitative
		Protection Against Electric Shock and Energy Hazards	EN 62040-1 IS 16242-1 (Clause. 5.1)	Qualitative
		Requirements for Auxiliary Circuits	EN 62040-1 IS 16242-1 (Clause. 5.2)	1 mA to 20 A (AC & DC Current) 0.15 V to 600 V (AC & DC Voltage) 0.2 mW to 3000 W 1 Hz to 999.9 Hz
		Protective Earthing and Bonding	EN 62040-1 IS 16242-1 (Clause. 5.3)	6 A to 60 A 0.001 $\Omega$ to 0.600 $\Omega$ 0.3 s to 999 s
		AC and D.C .Power Isolation	EN 62040-1 IS 16242-1 (Clause. 5.4)	Qualitative
		Over Current and Earth Fault Protection	EN 62040-1 IS 16242-1 (Clause. 5.5)	Qualitative
<b>V.</b>	<b>ROTATING ELECTRICAL MACHINES</b>			
1.	<b>Safety of Machinery-Electrical Equipment of Machines</b>	Test methods in TN-systems Verification of the continuity of the protective bonding circuit	BS/ EN 60204-1 (Clause 18.2.2)	6 A to 60 A 0.001 $\Omega$ to 0.600 $\Omega$ 0.3 s to 999 s
		Insulation resistance tests	BS/ EN 60204-1 (Clause 18.3)	0,01 k $\Omega$ to 1 G $\Omega$ 0 to 1000 Volts

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		Voltage Test	BS/ EN 60204-1 (Clause 18.4)	0.01 kV to 5.0 kV 0.01 kV to 5.0 kV (DC & AC Voltage ) 200 mA of AC DC current 0.1 s to 999 s Visual Inspection
VI.	<b>ENVIRONMENTAL TEST FACILITY</b>			
1	<b>Environmental Testing Of Electronics And Electrical Items</b>  (Chamber test space Dimension : (l) 1475 mm (w) 950 mm (h) 1100 mm)	Dry Heat Test	IS 9000-3 (Sec 1 to 5) IEC 60068-2-2	25 °C to 150 °C
		Cold Test	IS 9000-2 (Sec 1 to 4) IEC 60068-2-1	25 °C to (-) 40 °C
		Damp Heat Test (Steady State)	IS 9000-4 IEC 60068-2-78	Temp : 25 °C to 85 °C, Rh : 30 % to 95 %
		Damp Heat Test (Cyclic)	IS 9000-5 (Sec 1 & 2) IEC 60068-2-30	Temp : 25 °C to 55 °C, Rh : 30 % to 95 %
		Change of temperature	IS 9000-14 (Sec 2) Method Nb IEC 60068-2-14 Clause. 8. Nb	Temp: (-) 40 °C to + 5 °C

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<b>I.</b>	<b>IT EQUIPMENT</b>			
<b>1.</b>	<b>Information Technology Equipment</b>	Power Interface	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause 1.6)	1 mA to 20 A (AC & DC Current) 0.15 V to 600 V (AC & DC Voltage) 0.2 mW to 3000 W 1 Hz to 999.9 Hz
	<b>CPU / Disk drives / optical drives / Solid state drive / memory module (DIMM) / Main board</b>	Marking and Instructions	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 1.7)	Qualitative
	<b>Keyboards</b>	Protection from Hazards	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 2.1)	Qualitative
	<b>Monitors / VDUs/Modem</b>	Discharge of Capacitor in Equipment	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 2.1.1.7)	0.1 V <sub>peak</sub> to 400 V <sub>peak</sub> 0.001 sec - 999 sec
	<b>Network devices</b>	SELV Circuits	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 2.2)	0.1 V <sub>peak</sub> to 50 V <sub>peak</sub> 0.1 V DC to 60 V DC
	<b>Personal computers / Laptop / Note Book / tablets</b>	TNV Circuits	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 2.3)	0.1 V AC to 80 V AC 0.1 V DC to 120 V DC
	<b>Printers / scanner / Copier Servers</b>	Test for operating voltages generated externally	IS 13252 (Part 1) IEC 60950-1 EN 62368-1	Qualitative 0.1 V DC to 120 V DC
	<b>Others</b>			

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		Limited Current Circuit Measurements test	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 2.4)	0.1 mA to 70 mA
		Limited Power Sources	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 2.5)	0.1 V DC to 60 V DC 1 mA to 20 A 0.1 VA to 800 VA
		Provision for Earthing and Bonding	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 2.6)	6 A to 60 A 0.001 $\Omega$ to 0.600 $\Omega$ 0.3 s to 999 s
		Over Current and Earth Fault Protection in Primary Circuits	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 2.7)	Qualitative
		Electrical Insulation	IS 13252 (Part 1) EN 62368-1 (Clause. 2.9)	(-) 40° C to (+) 180° C 10 % RH to 95 % RH
		Clearances , Creepage Distance and Distance Through Insulation	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 2.10)	0.01 mm to 150 mm
		Measurement of transient voltages	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 2.10.3.9)	100 V to 7 kV for 10X700 $\mu$ s 1.2 $\mu$ s (Rise time) 50 $\mu$ s (Time to half value) 100 V to 7 kV for 10X700 $\mu$ s 10 $\mu$ s (Rise time) 700 $\mu$ s (Time to half value)
		Comparative tracking Index	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 2.10.2.4)	100V to 600 Volts

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		Mandrel Test	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 2.10.5.8)	Qualitative
		Abrasion test	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 2.10.8.4)	Qualitative
		Wiring, Connections and Supply	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 3.0)	Qualitative
		Termination of conductors	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 3.1)	Qualitative
		Wiring Terminals for Connection of External Conductors	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 3.2)	Qualitative
		Interconnection of Equipment	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 3.5)	Qualitative
		Physical Requirements, Stability	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 Clause. 4.0 & 4.1 )	1° to 20°
		Mechanical Strength	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 4.2.1, 4.2.2, 4.2.3, 4.2.4 )	10 N to 250 N [1.3 m (Height) 50 mm/500 g]

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		Drop Test	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 ( Clause 4.2.6 )	Qualitative Upto 1000mm & 750mm
		Stress relief test	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 Clause 4.2.7 )	Qualitative Ambient to 300 °C
		Design and Construction	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 4.3 )	Qualitative
		Protection Against Hazardous Moving Parts	IS 13252 (Part 1) IEC 60950-1 EN 62368-1, (Clause. 4.4 )	Qualitative
		Thermal Requirements	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 4.5 )	Ambient to 300 °C
		Resistance to abnormal heat (Ball pressure test)	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 4.5.5 )	Ambient to 300 °C 5 mm diameter of ball in Loading Device 20 N force from loading device
		Resistance to Fire	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 4.7 )	Needle Flame test apparatus Needle Flame Tester- Flame height: Upto 12 mm Flame exert angle: Adjustable 0,20,45 ° Temp: 100 °C to 700 °C, Time: Upto 200 s

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		Glow wire test	IS 13252 (Part 1) IEC 60950-1 EN 62368-1	500 °C to 960 °C, 1s to 30 s
		Vertical Flammability Burning Tester	IS 13252 (Part 1) IEC 60950-1 EN 62368-1	Qualitative 50W, internal diameter: 9.5 mm ± 0.3mm 0°, 20°, 45°
		Simulated Abnormal Conditions Touch Current and Protective Conductor Current	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 5 & 5.1 )	0.01 mA to 50 mA
		Electric Strength	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 5.2)	0.01 kV to 5.0 kV (AC Voltage) 0.01 kV to 5.0 kV (DC Voltage) 200 mA of AC current 200 mA of DC current 0.1 s to 999 s Visual Inspection
		Abnormal Operating and Fault Conditions	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 5.3)	Ambient to 300 °C
		Steady State test & Requirement of Separation between telecommunication network from Earth	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause 6.1, 6.2, 6.3 )	0.01 kV to 5.0 kV (AC Voltage) 0.01 kV to 5.0 kV (DC Voltage) 200 mA of AC current 200 mA of DC current 0.1 s to 999 s Visual Inspection

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Voltage Surge test	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 7.4.2 )	100 V to 10 kV Visual Inspection
		Impulse Test	IS 13252 (Part 1) IEC 60950-1 EN 62368-1 (Clause. 7.4.3 )	100 V to 7 kV for 10X700 $\mu$ s 1.2 $\mu$ s (Rise time) 50 $\mu$ s (Time to half value) 100 V to 7 kV for 10X700 $\mu$ s 10 $\mu$ s (Rise time) 700 $\mu$ s (Time to half value)
II.	<b>AUDIO EQUIPMENT</b>			
1.	<b>Audio, Video and Similar Electronic Apparatus (Amplifiers Others Domestic electronics &amp; appliances LCD/LED Display / TV  Cassette players/ Recorders and its components  DVD players/Blu ray players )</b>	Normal Operating Conditions	IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 4.2)	1 mA to 20 A (AC & DC Current) 0.15 V to 600 V (AC & DC Voltage) 0.2 mW to 3000 W
Markings Test		IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 5)	Qualitative	
Heating under normal operating conditions		IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 7)	Ambient to 300 °C	
Test for External forces windows covers, internal forces		IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 8.1)	Upto 500 N	

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		Mandrel Test for non-separable thin sheet material	IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 8.22)	Qualitative 150 N
		Electric shock hazard under normal operating conditions	IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 9)	400 V <sub>peak</sub> 0.01 mA to 50 mA
		Determination of accessible parts	IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 9.1)	Qualitative
		Openings of the enclosure	IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 9.13)	Qualitative
		Terminals	IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 9.1.4)	Qualitative
		Resistance to external forces	IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 9.1.7)	Qualitative 50 N to 500 N
		Insulation requirement: Surge test	IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 10.1)	100 V to 10 kV Visual Inspection

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		Insulation requirement: Humidity Treatment	IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 10.2)	(-) 40° C to (+) 180 ° C 10 % RH to 95 % RH
		Insulation resistance and dielectric Strength test	IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 10.3)	0.01 kV to 5.0 kV (AC Voltage) 0.01 kV to 5.0 kV (DC Voltage) 200 mA of AC current 200 mA of DC current 0.1 s to 999 s Visual Inspection
		Drop test	IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 12.1.4)	Qualitative
		Push pull test	IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 12.2)	Qualitative Upto 500 N
		Torque test	IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 12.6)	10 cNm to 500 cNm 0.01 mm to 5 mm
		Stress relief test	IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 12.1.5)	Qualitative  Upto 180 °C Visual Inspection

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		Remote controls devices (Tumbling Barrel)	IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 12.3)	Qualitative
		Antenna coaxial sockets	IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 12.5)	Qualitative, 10 cNm to 500 cNm Visual Inspection
		Clearances, Creepage distances	IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 13)	0.01 mm to 150 mm
		Determination of Working voltage	IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause. 13.2 )	5 V DC to 1000 V DC 5 V AC to 1000 V AC
		Measurement of transient voltages	IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause. 13.3.4 )	100 V to 7 kV for 1.2X50 $\mu$ s 1.2 $\mu$ s (Rise time) 50 $\mu$ s (Time to half value) 100V to 7kV for 10X700 $\mu$ s 10 $\mu$ s (Rise time) 700 $\mu$ s (Time to half value)
		Provisions for protective earthing	IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 15.2)	3 A to 60 A 0.001 $\Omega$ to 0.600 $\Omega$ 0.3 s to 999 s

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		External Flexible Cords	IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 16.0)	0-150mm
		Electrical connections and mechanical fixings	IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 17)	Qualitative 10 cNm to 500 cNm
		Stability and mechanical hazards	IEC 60065 EN 60065 IS 616 EN 62368-1 (Clause 19.1)	Qualitative 1.0° to 20°
		Resistance to Fire (Glow wire)	IEC 60065 EN 60065 IS 616 EN 62368-1	500 °C to 960 °C 1s to 30 s
		Water – IPX3 to IP X4 Degrees of Protection provided by enclosures (Clause 5.4.1, Annex A)	IEC 60065 EN 60065 IS 616 EN 62368-1	Qualitative IPX3 to IP X4
<b>III.</b>	<b>EMC TEST FACILITY</b>			
<b>1.</b>	<b>Electrical &amp; Electronic products</b>	Conducted Emission	CISPR 11 CISPR 15 CISPR 32 CISPR 14-1 BS EN 55011 BS EN 55015 BS EN 55032 BS EN 55015	Level: Up to 137 dBµV 9 kHz to 30 MHz Max. Current: 16 A for 1 to Φ 32 A for 3 to Φ

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			BS EN 55014-1 IEC 61000-6-3 IEC 61000-6-4 IEC 61326-1 BS EN 61000-6-3 BS EN 61326-1 BS EN 61000-6-4	
		Harmonic emission	IEC 61000-3-2 BS EN 61000-3-2 IEC 61326-1 BS EN 61326-1	Up to 40 <sup>th</sup> Harmonics, Power line: Single Phase up to 16A
		Flicker emission	IEC 61000-3-3 BS EN 61000-3-3 IEC 61326-1 BS EN 61326-1	230V @ 50Hz Single Phase up to 16A
		Clicks (discontinues emission ) test	CISPR 14-1 BS EN 55014-1	150 KHz to 30 MHz. Single Phase up to 16A
		Disturbance power (radiated power) test	CISPR 14-1 BS EN 55014-1	30 MHz to 300MHz Single Phase up to 16A
		Electrostatic Discharge (ESD) immunity test	IEC 61000-4-2 BS EN 61000-4-2 CISPR 14-2 BS EN 55014-2 BS EN 55024 BS EN 61000-6-1 BS EN 61000-6-2 IEC 61000-6-1 IEC 61000-6-2 CISPR 24 IEC 61326-1 BS EN 61326-1	Level: Contact Discharge: (±)2 kV to (±)8kV Air Discharge: (±)2 kV to (±)15kV
		Electric Fast Transient (EFT)/ Burst immunity test	IEC 61000-4-4 BS EN 61000-4-4 BS EN 55014-2	Rise Time: 5 ns Pulse Width: 50 ns Burst Duration: 15 ms

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			BS EN 55024 CISPR 24 BS EN 61000-6-1 BS EN 61000-6-2 IEC 61000-6-1 IEC 61000-6-2 IEC 61326-1 BS EN 61326-1 CISPR 14-2	Level: (±)0.25kV to ±4 kV Single phase: up to 16 A Three Phase: up to 32 A I/O Lines
		High Energy / Telecom Surge Immunity Test	IEC 61000-4-5 BS EN 61000-4-5 BS EN 55014-2 BS EN 55024 CISPR 24 BS EN 61000-6-1 BS EN 61000-6-2 IEC 61000-6-1 IEC 61000-6-2 IEC 61326-1 BS EN 61326-1 CISPR 14-2	(1.2/50 µS Lightning Surge)  (10/700 µS Telecom Surge)  Level: (±)0.5 kV to (±)6 kV  Single phase: up to 16 A Three Phase: up to 32 A I/O Lines
		Conducted RF Susceptibility Test	IEC 61000-4-6 BS EN 61000-4-6 CISPR 24 BS EN 55024 BS EN 61000-6-1 BS EN 61000-6-2 IEC 61000-6-1 IEC 61000-6-2 IEC 61326-1 BS EN 61326-1	Range: 150 kHz to 80 MHz Level: 1 V to 10 V Modulation depth: 80 % Single phase: up to 16 A Three Phase: up to 32 A I/O Lines
		Power Frequency Magnetic field Immunity test	IEC 61000-4-8 BS EN 61000-4-8 BS EN 55014-2 BS EN 55024	1A/M to 100A/M continuous EUT size: 1 m <sup>3</sup>

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			CISPR 24 BS EN 61000-6-1 BS EN 61000-6-2 IEC 61000-6-1 IEC 61000-6-2 IEC 61326-1 BS EN 61326-1 CISPR 14-2	
		Voltage dips, Short Interruption & Voltage Variation test.	IEC 61000-4-11 BS EN 61000-4-11 BS EN 55014-2 BS EN 55024 CISPR 24 BS EN 61000-6-1 BS EN 61000-6-2 IEC 61000-6-1 IEC 61000-6-2 IEC 61326-1 BS EN 61326-1 CISPR 14-2	Level: 0 to 100% Single phase: up to 16 A