Laboratory	**Electronic Safety Test Laboratory, EMC Division, SAMEER-Centre for Microwave Research, Sector 7, Rain Tree Marg, CBD-Belapur, Navi Mumbai, Maharashtra**		
Accreditation Standard	**ISO/IEC 17025: 2005**		
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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

ELECTRONICS TESTING

I.	**IT EQUIPMENTS**			
1.	**Laptops/ VDU/Scanners/ Set Top Box/ Automatic Data Processing Machine/ Telephone Answering Machines/ Mobile Phones/ Cash Registers/ Printers/Power Adapters/ Smart Card Readers/ Smart Watch/ Passport Readers**	Input Current	IEC 60950-1; IS13252 (P-1)(Cl.: 1.6.2)	A.C.: 1 V to 300 V Current: 0.01A to 27A D.C.: 1 V to 420 V Current: 0.1m A to 14.40A Power: 1 W to 6kW P. F.: 0.2 to 1 Freq.: 50Hz to 1 KHz
		Markings and Instructions	IEC 60950-1; IS13252 (P-1) (Cl.: 1.7)	Qualitative
		Access to Energized Parts	IEC 60950-1; IS13252 (P-1)(Cl.: 2.1.1.1)	1 N to 30 N
		Energy Hazards	IEC 60950-1; IS13252 (P-1)(Cl.: 2.1.1.5)	1 V to 600 V 0.01mA to 10 A
		Discharge of Capacitors	IEC 60950-1; IS13252 (P-1) (Cl.: 2.1.1.7)	1 V to 400V(pk) 1 Hz to 500 MHz 1 ms to 10s (DSO)
		Energy Hazard – DC Mains Supply	IEC 60950-1; IS13252 (P-1)(Cl.: 2.1.1.8)	1 V to 400V(pk) 1 Hz to 500 MHz 1 ms to 10s (DSO)
		SELV Circuits	IEC 60950-1; IS13252 (P-1) (Cl.: 2.2)	1 V to 600 V 0.01A to 10 A
		TNV Circuits	IEC 60950-1; IS13252 (P-1) (Cl.: 2.3.1/2.3.2/2.3.3/2.3.4)	100 V to 4000 V
		Limited Current Circuits	IEC 60950-1; IS13252 (P-1) (Cl.: 2.4)	1 V to 400V(pk) 1 Hz to 500 MHz 1 ms to 10s (DSO) 0.01mA to 10 mA
		Limited Power Source	IEC 60950-1; IS13252 (P-1) (Cl.: 2.5)	1 V to 600 V 0.01A to 10 A

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		Protective Earthing conductor and Protective Bonding conductor	IEC 60950-1; IS13252 (P-1)(Cl.: 2.6.3)	25 A to 40 A, 1 mΩ to 600 mΩ 1s to 120 s
		Humidity conditioning	IEC 60950-1; IS13252 (P-1) (Cl.: 2.9.2)	25ºC to + 40°C 30 % to 98 % RH
		Clearance, Creepage distances & Distances through Insulation	IEC 60950-1; IS13252 (P-1) (Cl.: 2.10.1 / 2.10.2/ 2.10.3 / 2.10.4 / 2.10.5.9 /2.10.5.10) (Excluding 2.10.3.9 b)	100 V to 600 V 0.01 mm to 150 mm 1 Hz to 500 MHz 500V to 5 kVac & 500V to 6 kVdc
		Electric Strength Test	IEC 60950-1; IS 13252 (P-1)(Cl.: 2.10.8.3)	25ºC to + 40°C 30 % to 98 % RH 500V to 5 kVac & 500V to 6 kVdc
		Abrasion Resistance	IEC 60950-1; IS13252 (P-1) (Cl.: 2.10.8.4)	Pin tip angle: 40º Steel pin radius: 0.25mm Mass:10 N
		Termination of conductor	IEC 60950-1; IS13252 (P-1)(Cl.:3.1.9)	1 N to 200 N
		Cord Anchorage and Strain relief	IEC 60950-1; IS13252 (P-1) (Cl.:3.2.6)	1 N to 100 N
		Stability	IEC 60950-1; IS13252 (P-1)(Cl.:4.1)	1° to 20° 0° to 360°
		Steady Force	IEC 60950-1;IS13252 (P-1) (Cl.: 4.2.2 / 4.2.3)	1 N to 200 N
		Impact Test	IEC 60950-1; IS13252 (P-1) (Cl.: 4.2.5)	100 to 1000 mm Steel Ball: 50mm Dia. Mass: 0.5 kg Energy: 0.5J to 3.5J
		Drop Test	IEC 60950-1: IS13252 (P-1) (Cl.: 4.2.6)	100 mm to1000 mm
		Stress Relief Test	IEC 60950-1: IS13252 (P-1) (Cl.: 4.2.7)	25°C to 70°C 1 N to 30 N

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		Wall or Ceiling mounted equipment	IEC 60950-1: IS13252 (P-1) (Cl.: 4.2.10)	1 N to 50 N
		Handles and Manual controls	IEC 60950-1: IS13252 (P-1) (Cl.: 4.3.2)	1 N to 50 N
		Direct Plug-in equipment	IEC 60950-1: IS13252 (P-1) (Cl.: 4.3.6)	0.05 Nm to 0.30 Nm
		Hazardous Moving Parts	IEC 60950-1:IS13252 (P-1) (Cl.: 4.4.2 / 4.4.3)	1N to 30 N
		Thermal requirements	IEC 60950-1: IS13252 (P-1) (Cl.: 4.5.2 to 4.5.4)	A.C.: 1 V to 300 V Current: 0.01A to 27A D.C.: 1 V to 420.0 V Current: 0.1mA to 14.40A Power: 1 W to 6kW P. F. : 0.2 to 1 Freq.: 50 / 60 Hz Temp.: 25°C to 300°C Hot Resistance: Up to 10KΩ 5A, 10A, 15A
		Resistance to abnormal heat	IEC 60950-1: IS13252 (P-1) (Cl.: 4.5.5)	25°C to 125°C 0.2 mm to 20 mm
		Openings in transpo-rtable equipment	IEC 60950-1: IS13252 (P-1) (Cl.: 4.6.4)	0.01mm to 150 mm
		Resistance to Fire	IEC 60950-1: IS13252 (P-1) (Cl.: 4.7.3.1)	550 °C to 960 °C 1 s to 60 s
		Touch Current and Protective Conductor Current	IEC 60950-1:IS13252 (P-1) (Cl.: 5.1, Annex D)	0.01mA to 10mA
		Electric Strength	IEC 60950-1: IS13252 (P-1) (Cl.: 5.2)	0.5kV$_{AC}$ to 5 kV$_{AC}$ 0.5 kV$_{DC}$ to 6 kV$_{DC}$
		Abnormal Operation and Fault Condition	IEC 60950-1: IS13252 (P-1) (Cl.: 5.3)	A.C.: 1 V to 300 V Current: 0.01A to 27A D.C.: 1 V to 420.0 V

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				Current: 0.1m A to 14.40A Power: 1 W to 6kW P. F. : 0.2 to 1 Freq.: 50 / 60 Hz Temp: 25°C to 300°C Hot Resistance: Up to 10KΩ 5A, 10A, 15A
		Connection to telecom network	IEC 60950-1: IS13252 (P-1) (Cl.: 6.1)	0.5 kV_{AC} to 5 kV_{AC}
		Protection of the telecom. wiring system from overheating	IEC 60950-1: IS13252 (P-1) (Cl.: 6.3)	1 V to 600 V 0.01A to 10 A
II.	**AUDIO/VIDEO EQUIPMENTS**			
1.	**Audio, Video and Similar Electronic Apparatus (Electronic games (Video), Power Adapters for Audio, Video & Similar Electronic Apparatus, Amplifier, TV)**	Normal Operating Conditions	IEC 60065 : IS 616 (Cl.: 4.2)	A.C.: 1 V to 300 V Current: 0.01A to 27A D.C.: 1 V to 420.0 V Current: 0.1mA to 14.40A Power: 1 W to 6kW P. F. : 0.2 to 1 Freq.:50Hz to 1 KHz
		Marking and instructions	IEC 60065 : IS 616 (Cl.: 5)	Qualitative
		Heating under normal operating conditions	IEC 60065: IS 616 (Cl.: 7)	A.C.: 1 V to 300 V Current: 0.01A to 27A D.C.: 1 V to 420.0 V Current: 0.1mA to 14.40A Power: 1 W to 6kW P. F. : 0.2 to 1 Freq.: 50 / 60 Hz 25ºC to 300ºC Hot Resistance:

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				Up to 10KΩ 5A, 10A, 15A VST Temp. : 25ºC to 400°C
		Constructional requirements with regard to the protection against electric shock	IEC 60065: IS 616 (Cl.: 8.2 / 8.3 / 8.4 / 8.5 / 8.6 / 8.8 / 8.9 / 8.10 / 8.11 / 8.12 / 8.13 / 8.14/8.17)	Touch Current: 0.01 mA to10mA Force gauge: 1 N to 20 N Temperature: 25 ºC to 180ºC 30% to 98% RH IR:500V to 1000 VDC 1 MΩ to 1000 MΩ. High Voltage: 0.5 kV_{AC} to 5 kV_{AC} 0.5 kV_{DC} to 6 kV_{DC} 0.01mm to 150 mm 1N to 50 N 1 s to 30 min Vibration: Freq.: 10 Hz to 55 Hz Amplitude: 0.35mm Sweep Rate: 1 Octave/min
		Determination of Hazardous Live Parts	IEC 60065: IS 616 (Cl.: 9.1.1.2)	1 V to 1000V 0.1A to 10 A Touch Current: 0.01 mA to 10mA
		Determination of Accessible parts	IEC 60065 : IS 616 (Cl.: 9.1.1.3)	1 N to 20 N
		Openings of The Enclosure	IEC 60065: IS 616 (Cl.: 9.1.3)	0.01mm to 150 mm
		Terminals	IEC 60065 : IS 616 (Cl.: 9.1.4)	1 N to 10 N 0.01 mm to 150 mm

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		Pre-Set Controls	IEC 60065 : IS 616 (Cl.: 9.1.5)	1 N to 10 N 0.01 mm to 150 mm
		Withdrawal of Mains Plug	IEC 60065 : IS 616 (Cl.: 9.1.6)	1 V to 400V (pk) 1 Hz to 500 MHz 1 ms to 10s (DSO)
		Resistance To External Forces	IEC 60065: IS 616 (Cl.: 9.1.7)	1N to 100N 1s to 10 s
		Humidity Treatment	IEC 60065 : IS 616 (Cl.: 10.3)	25ºC to 40ºC 30% to 98% RH
		Insulation Resistance and Dielectric Strength	IEC 60065 : IS 616 (Cl. 10.4)	IR:500 to 1000 VDC 1 MΩ to 1000 MΩ. High Voltage: 0.5 kV_{AC} to 5 kV_{AC} 0.5 kV_{DC} to 6 kV_{DC}
		Fault conditions Electrical shock hazard	IEC 60065: IS 616 (Cl.: 11.1)	1 V to 1000 V 0.1A to 10 A Touch current: 0.01mA -10mA
		Fault conditions Heating	IEC 60065 : IS 616 (Cl. 11.2)	A.C.: 1 V to 300 V Current: 0.01A to 27A D.C.: 1 V to 420.0 V Current: 0.1mA to 14.40A Power: 1 W to 6kW P F : 0.2 to 1 Freq.: 50 / 60 Hz Temp: 25°C t o 300°C Hot Resistance: Up to 10KΩ 5A, 10A, 15A
		Vibration Test	IEC 60065: IS 616 (Cl. : 12.1.3)	Vibration: Freq.: 10 Hz to 55 Hz Amplitude: 0.35mm Sweep Rate: 1 Octave/min

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				Time: 1 Sec to 30 min.
		Impact test	IEC 60065: IS 616 (Cl. 12.1.4 / 12.7.3.5)	100 mm to 1500 mm Steel Ball: 50 mm dia. Mass: 0.5 kg 0.5 J to 3.5 J
		Drop Test	IEC 60065: IS 616 (Cl.: 12.1.5 / 12.7.3.4)	100 mm to 1500 mm 0.1kg to 7 kg High Voltage: 0.5 kV_{AC} to 5 kV_{AC} 0.5 kV_{DC} to 6 kV_{DC}
		Stress Relief Test	IEC 60065: IS 616 (Cl.: 12.1.6 / 12.7.3.2)	25°C to 70°C
		Fixing of Actuating Elements	IEC 60065: IS 616 (Cl.: 12.2)	1 N to 100 N 0.1 Nm to 2.6 Nm 0.1 kg to 10 kg 1 s to 1 min. 0.01 mm to 150 mm
		Drawers	IEC 60065: IS 616 (Cl.: 12.4)	1 N to 50 N 1 s to 10 s
		Antenna Coaxial Sockets Mounted On the Apparatus-Endurance, Impact, Torque test	IEC 60065: IS 616 (Cl. 12.5)	1 N to 50 N 0.5 J 1 s to 10 s
		Telescoping or rod antennas	IEC 60065: IS 616 (Cl.: 12.6)	1 N to 100 N 0.1 Nm to 2.6 Nm 1 s to 1min
		Apparatus Containing Coin/ Button Cell Batteries	IEC 60065: IS 616 (Cl.: 12.7.1 / 12.7.2 / 12.7.3.2 / 12.7.3.3 / 12.7.3.4 / 12.7.3.5 / 12.7.3.6)	0.01 mm to 150 mm 25ºC to 70 ºC 0.1 Nm to 2.6 Nm 0.1 m to 1 m 0.5 J to 2 J 1 kg to 34 kg 1 N to 30 N

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		Clearance	IEC 60065: IS 616 (Cl.: 13.3.1 / 13.3.2 /13.3.3)	0.1 mm to 150 mm 1 N to 30N
		Determination of Working Voltage	IEC 60065 IS 616 (Cl.: 13.2)	1 V to 400 V(pk) 1 Hz to 500 MHz 1 ms to 10 s (DSO) 0.01mm to 150 mm
		Measurement of Transient Voltages	IEC 60065: IS 616 (Cl.: 13.3.4) (Excluding 13.4.4. (b)	Voltage:0.5 kV to 4 kV Pulse Width: 50 µs Rise Time: 1.2 µs
		Creepage Distance	IEC 60065: IS 616 (Cl.: 13.4)	100 V to 600 Vac 0.1mm to 150 mm
		Provisions For Protective Earthing	IEC 60065: IS 616 (Cl.: 15.2)	25 A to 40 A 1 mΩ to 600 mΩ 1s to 1 min
		Terminals for external flexible cords and for permanent connection to the mains supply.	IEC 60065: IS 616 (Cl.: 15.3.2)	0.5 N to 5 N
		Devices forming a part of the Mains plug	IEC 60065 : IS 616 (Cl.: 15.4.1 / 15.4.3)	0.01 mm to 150 mm 0.01 Nm to 0.5 Nm 1 N to 70 N 25 °C to 70 °C
		External flexible cords	IEC 60065: IS 616 (Cl.: 16.5)	1 N to 40 N 0.01 mm to 150 mm 0.01 Nm to 0.5 Nm 1 s to 1 min
		Electric Connections & Mechanical fixings	IEC 60065: IS 616 (Cl.: 17)	1 N to 10 N 0.1 Nm to 2.6 Nm 0.01 mm to 150 mm
		Stability and Mechanical Hazards	IEC 60065: IS 616 (Cl.: 19.1 /19.2/ 19.3 /19.4 / 19.5/19.7)	1° to 20° 0° to 360° 1 N to 100 N 100 mm to 1500 mm Weights:0.1 kg to 90 kg

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III.	**HOUSEHOLD & SIMILAR ELCTRICAL APPLIANCES**			
1.	**Particular Requirements for Microwave oven, Including combination Microwave ovens**	Verification of Marking	IEC 60335-2-25: IS 302-2-25: IEC 60335-1: IS 302-1, (Cl.: 7)	Qualitative
		Protection against access electric shock	IEC 60335-2-25: IS 302-2-25:IEC 60335-1: IS 302-1,(Cl.: 8.1)	1N to 20 N. 1 V to 600 V
		Power Input and Current	IEC 60335-2-25: IS 302-2-25:IEC 60335-1: IS 302-1(Cl.: 10)	A.C.: 1V to 300 V Current: 0.01 Ato 27A Power: 1W to 6kW P F: 0.2 to 1 Freq.: 50 / 60 Hz
		Heating	IEC 60335-2-25: IS 302-2-25:IEC 60335-: IS 302-1(Cl.: 11.1 / 11.2 /11.3 11.4 / 11.7 / 11.8)	A.C.: 1V to 300 V Current: 0.01A to 27A Power: 1W to 6kW Freq.:50/60Hz P F: 0.2 to 1 25ºC to 300ºC Hot Resistance: Up to 10KΩ 5A, 10A, 15A
		Leakage Current and Electric strength at operating temperature	IEC 60335-2-25: IS 302-2-25: IEC 60335-1: IS 302-1(Cl.:13 & Cl.:16)	0.01mA to 10 mA High Voltage: 0.1 kV $_{AC}$ to 5 kV $_{AC}$ 0.1 kV $_{DC}$ to 6 kV $_{DC}$
		Transient Over voltages	IEC 60335-2-25: IS 302-2-25: IEC 60335-1: IS 302-1, (Cl.: 14)	Voltage: 0.5 kV to 4 kV 1.2/50 μS
		Moisture Resistance	IEC 60335-2-25: IS 302-2-25: IEC 60335-1: IS 302-1(Cl.:15.2 / 15.3 /	1Sec to 30 min Temperature: 25°C to 60° RH: 30% to 98%

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			15.101 / 15.102 / 15.103)	0.1mm to 150mm Leakage Current; 0.01mA to 10mA High Voltage: Upto 150 mm 0.5 kV_{AC} to 5 kV_{AC} 0.5 kV_{DC} to 6 kV_{DC}
		Leakage Current and Electric Strength	IEC 60335-2-25: IS 302-2-25: IEC 60335-1: IS 302-1(Cl.: 16.101)	Leakage Current: 0.01 mA to 10 mA High Voltage: 0.5 kV_{AC} to 5 kV_{AC} 0.5 kV_{dc} to 6 kV_{DC} Freq.: 50Hz to 100 Hz
		Overload Protection of Transformers and associated circuits	IEC 60335-2-25 IS 302-2-25 IEC 60335-1 IS 302-1 (Cl.: 17)	A.C.: 1 V to 300 V Current: 0.01 A to 27A Power: 1 W to 6kW P F: 0.2 to 1 Freq.: 50 / 60 Hz Temperature: Ambient to 300ºC
		Abnormal Operation	IEC 60335-2-25: IS 302-2-25: IEC 60335-1: IS 302-1(Cl.:19.101 / 19.102 / 19.103 / 19.104 / 19.105 / 19.11.2 / 19.13)	A.C.: 1 V to 300 V Current: 0.01A to 27A Power: 1 W to 6kW P F: 0.2 to 1 Freq.: 50 / 60 Hz Temperature: Ambient to 300ºC 0.1 mm to 150 mm RF power: 0.1 mW/cm^2 to 10mW/cm^2 Steel Wire: Dia.: 1.5 mm Length: 40 mm to 140 mm

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		Stability and Mechanical Hazards	IEC 60335-2-25: IS 302-2-25: IEC 60335-1: IS 302-1(Cl.: 20 / 20.101)	1°to 30º 0.1 kg to 7 Kg 0.5 N to 5N
		Mechanical Strength	IEC 60335-2-25 IS 302-2-25 IEC 60335-1 IS 302-1 (Cl.: 21.1 / 21.2)	Impact Hammer: 0.5 J High Voltage: 0.5 kV $_{AC}$ to 5 kV $_{AC}$ 0.5 kV $_{DC}$ to 6 kV $_{DC}$ Pin tip angle: 40º Steel pin radius: 0.25mm Force: 1 N to 30 N
			IEC 60335-2-25: IS 302-2-25: IEC 60335-1: IS 302-1 (Cl.: 21.102 / 21.103 / 21.104 / 21.105)	1N to 200 N 0.1 mm to 150 mm 1 sec to 15min Impact: 3 Joule, RF Power: 0.1 mW/cm^2 to 10 mW/cm^2
		Construction	IEC 60335-2-25: IS 302-2-25: IEC 60335-1: IS 302-1 (Cl.: 22 / 22.1 / 22.3 / 22.5 / 22.11 / 22.12 /22.26 /22.27 / 22.53 / 22.103 / 22.105 / 22.108 / 22.109 / 22.110 / 22.111 / 22.112 / 22.113 / 22.115 / 22.116/22.118/ 22.119)	Qualitative 25°C to 70 ºC 1 sec to 60 min. 0.1 mm to 150 mm 1N to 90 N 0.1 Nm to 2.6 Nm 0.1 V to 400 V(pk) 1 Hz to 500 MHz 1 ms to 10s (DSO) High Voltage: 0.1 kV $_{AC}$ to 5 kV $_{AC}$ 0.1 kV $_{DC}$ to 6 kV $_{DC}$ Test Probe B A.C.: 1 V to 300 V

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				Current: 0.01 A to 27A Power: 1W to 6kW Freq.: 50 / 60 Hz P F: 0.2 to 1 1 N to 90N RF Power: 0.1 to 10mW/cm^{20} Vibration: Freq.: 10 Hz to 55 Hz Amplitude: 0.35 mm Sweep Rate: 1 Octave / min Test Punch: Tip Angle : 60° Mass: 76 g Energy: 5 J
		Internal Wiring	IEC 60335-2-25: IS 302-2-25: IEC 60335-1: IS 302-1(Cl. 23)	0.1 kV $_{AC}$ to 5 kV $_{AC}$ 0.1 kV $_{DC}$ to 6 kV $_{DC}$ 1 sec to 15 min
		Terminals for external conductors	IEC 60335-2-25: IS 302-2-25: IEC 60335-1: IS 302-1(Cl.: 26)	0.1 Nm to 2.6 Nm 1 N to 200 N
		Provision for Earthing	IEC 60335-2-25: IS 302-2-25: IEC 60335-1: IS 302-1(Cl.: 27)	1 A to 40 A 1mΩ to 600 mΩ 1 ms to 60 s
		Screws and connections	IEC 60335-2-25: IS 302-2-25: IEC 60335-1: IS 302-1 (Cl.: 28)	0.1 Nm to 2.6 Nm 0.1 mm to150 mm
		Clearances, Creepage Distances and Solid Insulation	IEC 60335-2-25: IS 302-2-25: IEC 60335-1: IS 302-1(Cl.: 29)	1 N to 30N 0.1mm to 150 mm High-Voltage 0.1 kV $_{AC}$ to 5 kV $_{AC}$ 0.1 kV $_{DC}$ to 6 kV $_{DC}$ 100 V to 600V

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		Resistance to Heat and Fire	IEC 60335-2-25: IS 302-2-25: IEC 60335-1: IS 302-1 (Cl.: 30.1/ 30.2 / 30.2.1 / 30.2.2 / 30.2.3 / 30.2.3.1/ 30.2.3.2)	1 N to 20 N 25°C to 125°C 0.1 mm to 20 mm 550 °C to 1000 °C 1 ms to 60 s
		Radiation, Toxicity and similar hazards.	IEC 60335-2-25: IS 302-2-25: IEC 60335-1: IS 302-1 (Cl.: 32)	0.1 mm to 150 mm RF Power: 0.1 mW/cm^2 to 10 mW/cm^2
2.	**Uninterruptible Power Systems (UPS): (Single Phase Upto 6 kVA Only)**	Marking and Instructions	IEC 62040-3: IS 16242 (P-3) (Cl.:5.1.2)	Qualitative
		Cable and inter-connection check	IEC 62040-3: IS 16242 (P-3) (Cl.:6.2.2.2)	Qualitative
		Light load and functional test	IEC 62040-3: IS 16242 (P-3) (Cl.:6.2.2.3)	1 V to 500 V 10 mA to 50 A 1 W to 6kW 50-60 Hz PF : 0.2 to 1
		No load & Full load	IEC 62040-3: IS 16242 (P-3) (Cl.:6.2.2.4 & 6.2.2.5)	1 V to 500 V 10 mA to 50 A 1 W to 6kW 50/60 Hz PF : 0.2 to 1
		Synchronization	IEC 62040-3: IS 16242 (P-3) (Cl.:6.2.2.6)	A.C.: 1 V to 500 V Freq.: 40Hz to 100Hz Load: 0.5 to 50A
		AC input failure & AC input return	IEC 62040-3: IS 16242 (P-3) (Cl.:6.2.2.7 & 6.2.2.8)	1 V to 500 V 10 mA to 50A 1 W to 6kW 50/60Hz PF : 0.2 to 1
		Transfer To bypass	IEC 62040-3: IS 16242 (P-3) (Cl.:6.2.2.9)	1 V to 500 V 10 mA to 50 A 1 W to 6kW

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				50/60 Hz P F : 0.2 to 1 1 ms to 10 s (DSO) Load: 0.5 to 50A Phase Angle: 0° to 360°
		Steady-state input voltage tolerance	IEC 62040-3: IS 16242 (P-3) (Cl.:6.4.1.1)	A.C.: 1 V to 300 V Freq.: 45Hz to 70Hz 1 $V_{AC/DC}$ to 500$V_{AC/DC}$ Load: 0.5A to 50A
		Input frequency tolerance	IEC 62040-3: IS 16242 (P-3)Cl.: 6.4.1.2	Freq.: 45Hz - 70Hz
		Inrush current	IEC 62040-3: IS 16242 (P-3)Cl.: 6.4.1.3	0.5s to 5 min. 0.1 A to 100 A
		Harmonic distortion of input current	IEC 62040-3: IS 16242 (P-3)Cl.: 6.4.1.4	Upto 50th order
		Power factor	IEC 62040-3: IS 16242 (P-3)Cl.: 6.4.1.5	P F : 0.2 to 1 250 mA to 50 A
		Efficiency	IEC 62040-3: IS 16242 (P-3)Cl.: 6.4.1.6	1 W to 6 kW Load: 25 %, 50 %, 75%, 100%
		Output - Linear Load Normal Mode – i) No load ii) Full Load	IEC 62040-3: IS 16242 (P-3)Cl.: 6.4.2 Cl.: 6.4.2.1 Cl.: 6.4.2.2	1 V to 500 V, 10 mA to 50A, 1 W to 6 kW 50/60 Hz P F : 0.2 to 1
		Storage Energy Mode – i) No load ii) Full Load	IEC 62040-3: IS 16242 (P-3) Cl.: 6.4.2.3 Cl.: 6.4.2.4	1 V to 500 V, 10 mA to 50 A, 0 W to 6 kW 50/60Hz, P F 0.2 to 1
		DC Component	IEC 62040-3: IS 16242 (P-3) Cl.: 6.4.2.6	0.1 $V_{AC/DC}$ to 500 $V_{AC/DC,}$ 1s to 5 min.

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Output Overvoltage test	IEC 62040-3: IS 16242 (P-3) Cl.: 6.4.2.8	1 V to 500 V, 10 mA to 50A, 1 W to 6 kW 50/60 Hz, P F : 0.2 to 1
		Overload and Fault Clearing Capability i) Overload – Normal Mode ii) Overload – Storage Energy Mode	IEC 62040-3; IS 16242 (P-3) Cl.: 6.4.2.10, Cl.: 6.4.2.10.1 Cl.: 6.4.2.10.2	1 V to 500 V, 10 mA to 50A, 1 W to 6 kW 50/60 Hz, P F : 0.2 to 1
		Fault Clearing Capability i) Normal Mode ii) Stored Energy Mode	IEC 62040-3; IS 16242 (P-3) Cl. 6.4.2.10.3 Cl. 6.4.2.10.4	1 V to 500 V, 10 mA to 50A, 1 W to 6 kW 50/60 Hz, P F : 0.2 to 1
		Dynamic Performance i) Normal To Stored Energy Mode ii) Stored Energy To Normal Mode iii) Normal To Bypass Mode – Overload	IEC 62040-3; IS 16242 (P-3) Cl. L 6.4.2.11 Cl.: 6.4.2.11.1 Cl.: 6.4.2.11.2 Cl.: 6.4.2.11.3	1 V to 500 V, 10 mA to 50A, 1 W to 6 kW 50/60 Hz, P F : 0.2 to 1 THD: Upto 50th order. 1 V to 400V (pk), 1 Hz to 500 MHz, 1 ms to 10s (DSO)
		Step Load i) Normal Mode ii) Stored Energy Mode	IEC 62040-3; IS 16242 (P-3) Cl.: 6.4.2.11.4 Cl.: 6.4.2.11.5	1 V to 500 V, 10 mA to 50A, 1 W to 6 kW 50/60 Hz, P F : 0.2 to 1 THD: Upto 50th order. 1 V to 400V (pk),

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
				1 Hz to 500 MHz, 1 ms to 10s (DSO)
		Output Non Linear Load i) Normal Mode - Full load ii) Store Energy Mode- Full load	IEC 62040-3; IS 16242 (P-3) Cl.: 6.4.3, Cl.: 6.4.3.1 Cl.: 6.4.3.2	1 V to 500 V, 10 mA to 50A, 1 W to 6 kW 50/60 Hz, P F : 0.2 to 1 THD: Upto 50th order. 1 V to 400V (pk), 1 Hz to 500 MHz, 1 ms to 10s (DSO)
		Dynamic Performance i) Normal to stored energy mode ii) stored energy to Normal mode iii) Load Step-Normal Mode iv) Load Step - Stored Energy Mode	IEC 62040-3; IS 16242 (P-3)Cl.: 6.4.3.3, Cl.: 6.4.3.3.1 Cl.: 6.4.3.3.2 Cl.: 6.4.3.3.3 Cl.: 6.4.3.3.4	1 V to 500 V, 10 mA to 50A, 1 W to 6 kW 50/60 Hz, P F : 0.2 to 1 THD: Upto 50th order. 1 V to 400V (pk), 1 Hz to 500 MHz, 1 ms to 10s (DSO)
		Stored and restored energy i) Stored Energy Time ii) Restored Energy Time iii) Battery Ripple Current iv) Restart Test	IEC 62040-3; IS 16242 (P-3) Cl.: 6.4.4 Cl.: 6.4.4.1 Cl.: 6.4.4.2 Cl.: 6.4.4.3 Cl.: 6.4.4.4	1 V to 500 V, 10 mA to 50A, 1 W to 6 kW 50/60 Hz, P F : 0.2 to 1 THD: Upto 50th order. 1 V to 400V (pk), 1 Hz to 500 MHz, 1 ms to 10s (DSO)
		Shock test	IEC 62040-3; IS 16242 (P-3) Cl.: 6.5.2.1	Acceleration: 15g Duration:11ms,

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
				Axis: X, Y & Z,
		Free Fall test	IEC 62040-3; IS 16242 (P-3) Cl. 6.5.2.2	1 mm to 300 mm, Mass >100 kg
		Storage	IEC 62040-3; IS 16242 (P-3)Cl. 6.5.3	Dry heat test : 25°C to 180°C, Damp heat test : 25 °C to 60 °C, 30 % to 98 % Rh, Cold test: (-)25°C ±3°C.
		Operation	IEC 62040-3; IS 16242 (P-3)Cl.: 6.5.4	Dry heat test : 25°C to 180°C, Damp heat test : 25 °C to 60 °C, 30 % to 98 % Rh, Cold test: (-)25°C ±3°C.
		Acoustic Noise	Cl.: 6.5.5	35 dB to 135dB, 0.1 m to 3 m
IV.	**ENVIRONMENTAL TEST FACILITY**			
1.	**Electrical & Electronics Items Work Space (mm): (950 X 950 X 950)**	Cold Test	IS 9000 (P-II/Sec. 1 to 4); IEC 60068-2-1; IEC 60571; JSS 55555 (Test Number 20) JSS 50101 (Test Number: 21) QM 333 (Test No. 1) MIL-STD-810G (Method : 502.5)	(-)70°C to +25°C
		Dry Heat Test	IS 9000 (P-III/Sec. 1 to 5) IEC 60068-2-2	25°C to 180°C

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			IEC 60571 JSS 55555 (Test Number 17) JSS 50101 (Test Number: 22) QM 333 (Test No. 2) MIL-STD-810G (Method : 501.5)	
		Damp Heat Test (Steady State)	IS 9000 (P-4) IEC 60068-2-78 IEC 60571 JSS 55555 (Test Number 10) JSS 50101 (Test Number: 7) QM 333 (Test No. 5) MIL-STD-810G	25 ºC to 60 ºC RH: 30% to 98%
		Damp Heat Test (Cyclic)	IS 9000 (P-V/Sec 1 & 2) IEC 60068-2-30 IEC 60571 JSS 55555 JSS 50101 (Test Number: 5) QM 333 (Test No. 3) MIL-STD-810G	25 ºC to 60 ºC RH: 30% to 98%
		Change of Temperature	IS 9000 (P-14 /Sec 2) IEC 60068-2-14 (Test Nb) QM 333 (Test No. 4)	(-) 70ºC to 180 ºC Ramp Rate: 5 ºC/min
2.	**Vibration Test**	Vibration Sine / Random Test	IEC 60068-2-6 IS 9000 (P-VIII) JSS 50101 JSS 55555 QM-333 (Test No.6) IEC 60571 IEC 60225-21-1 IEC 61373	Waveform Type: Sine, Random, Sine on Random, Random on Random Freq.: 5 to 3200Hz Displacement: 38mm (Pk-Pk)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			MIL-STD-810G IEC 60068-2-64	Acceleration: 0.01 g to 75g Velocity: 1.7 m/s Load: < 100 kg
		Shock Test	IS 9000 (P-VII / Sec 1) IEC 60068-2-27 JSS 50101 JSS 55555 IEC 60571 IEC 61373 MIL-STD-810G	Shock pulse: Half sine, Triangle, Trapezoid, Sqaure Pulse Amplitude; 0.1 g to 140 g Pk Pulse Width: 0.1 ms to 30 ms