



NABL

SCOPE OF ACCREDITATION

Laboratory	Electronics Test & Development Centre, 100 Feet Road, Peenya Industrial Area, Bangalore, Karnataka		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electronics Testing	Issue Date	22.10.2014
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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
I. IT PRODUCTS				
1.	Personal Computers	Checking for Specified Processor, Speed, Memory, Availability of Interfaces etc., <ul style="list-style-type: none"> • Routine Tests • Acceptance Tests Performance Requirements - Visual Examination - Functional Performance - Effect of Power Supply Variations. <ul style="list-style-type: none"> • Safety Requirements • Earth Leakage Current Test <ul style="list-style-type: none"> • Dielectric Test Markings <ul style="list-style-type: none"> • EMC/EMC Requirements <ul style="list-style-type: none"> • ESD, EFT & Surge <ul style="list-style-type: none"> • Environmental Tests • Vibration Test • Burn-in • Dry Heat • Damp Heat Cyclic • Cold Test • Free fall • Bump Test 	IS 14896: 2001 Clause No. 10.2 Clause No. 10.3 Clause No. 7 IS 13252 Clause No. 5 IS 13252, Clause No. 5.2 Clause No. 5.2 Clause No. 8 IS 6873 (Part 7) Clause No. 6 IS 14700 (Part 4/ Sec II ,IV & V)	Qualitative (Visual Check) Qualitative (Functional Check) 100 V to 270 V Upto 5V, 30A, 0.1 Ω to 600Ω 0.1 to 10kV AC/DC 0.s1 to 60s 10 to 55Hz, 1g, 45 mins/axis, x,y,z axis 45°C 55 °C 40 °C / 95% RH (-)10 °C 25mm 1000bumps @ 40g

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
2.	Dot Matrix Printer	General Requirements; Physical Requirements Functional Requirements Printing Method Print Head No. of Print Digits. Standard Character. Stationary & Paper Handling Ribbon Print Speed Self-Test Status Display/Indicators Duty Cycle Power Supply Requirements EMI/EMC Requirements. Electric Safety Requirements: • Earth Leakage Current • Dielectric Strength Acoustic Noise Climatic Test Requirements Dry Heat Test Cold Test Damp Heat Test Vibration Test Bump Test Vertical Drop Test MTBF/MCBF @ Coated	IS 14486: 1997 Clause No. 4.0 Clause No. 4.1 Clause No. 4.2 Clause No. 4.2.1 Clause No. 4.2.2 Clause No. 4.2.3 Clause No. 4.2.4 Clause No. 4.2.5 Clause No. 4.2.6 Clause No. 4.2.7 Clause No. 4.2.9 Clause No. 4.2.10 Clause No. 4.2.11 Clause No. 4.3 Clause No. 4.4 Clause No. 4.5 Clause No. 4.5.1 Clause No. 4.5.2 Clause No. 4.7 Clause No. 4.8 Clause No. 4.9.1 Clause No. 4.10.1 Clause No. 4.10.2 Clause No. 4.11	Qualitative (Visual Check) 100V to 270V 10 op/min Qualitative (Visual Check) Qualitative (Visual Check) Qualitative (Visual Check) 100V to 270V 0~5V, 30A, 0.1-600Ω 0.1 to 10kV AC/DC 50dB to 130 dB 40 °C to 55±2°C (-)10 °C to 5±3°C 40 °C ±2°C, RH: 93+2,-3% 10 to 55Hz, 1g, 45 mins/axis, 3 axis 1000bumps @ 40g Drop height 25,50,100,

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	Dot Matrix Printer	Duty Cycle Safety Tests : a. AC Breakdown Test b. Insulation Resistance	IS 13462: 1992	250,500 mm 100V to 5kV 100V to 1000V
3.	SPL Measurement	<ul style="list-style-type: none">Sound Level Meter TestingSelf-GeneratedFrequency WeightingPeak C Sound Level	IEC 60672: 2003-04 Clause No. 10, Clause No. 11 Clause No. 17	30dB to 120dB 94dB
II. SAFETY				
1.	Safety of Information Technology Equipment, UPS	Input Current	IEC 0950:2005+A1:2009A2:2013, CL No. 1.6 IEC 62040-1-1:2004,CL No.1.6 IEC 62040-1-2:2004,CL No. 1.6 IS:13252(Part 1):2010 Cl No. 1.6	10 mA to 30 A, 1000 Vac/dc,
		Marking	IEC 0950:2005+A1:2009A2:2013, CL No. 1.7.1.1 IEC 62040-1-1:2004,CL No.1.7.1.1 IEC 62040-1-2:2004,CL No. 1.7.1.1 IS:13252(Part 1):2010 Cl No. 1.7.1.1	1 s to 60 s

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	Safety of Information Technology Equipment, UPS	Protection from Hazards	IEC 0950:2005+A1:2009A2:2013, CL No. 2.1.1 IEC 62040-1-1:2004, CL No. 2.1.1 IEC 62040-1-2:2004, CL No. 2.1.1 IS:13252(Part 1):2010 Cl No. 2.1.1	Qualitative test
		Discharge of capacitors in equipment	IEC 0950:2005+A1:2009A2:2013, CL No. 2.1.1.7 IEC 62040-1-1:2004, CL No. 2.1.1.7 IEC 62040-1-2:2004, CL No. 2.1.1.7 IS:13252(Part 1):2010 Cl No. 2.1.1.7	0.1 s to 100 s 1 V to 50 V
		Resistance of earthing conductors	IEC 0950:2005+A1:2009A2:2013, CL No. 2.6.3.4 IEC 62040-1-1:2004, CL No. 2.6.3.4 IEC 62040-1-2:2004, CL No. 2.6.3.4 IS:13252(Part 1):2010 Cl No. 2.6.3.4	Up to 5V, 30A, 0.1 Ω to 600 Ω 0.01 Ω to 60 Ω
	Crepage/ clearance distance		IEC 0950:2005+A1:2009A2:2013, CL No. 2.10 IEC 62040-1-1:2004, CL No. 2.10 IEC 62040-1-2:2004, CL No. 2.10 IS:13252(Part 1):2010 Cl No. 2.10	0.01 mm to 150 mm

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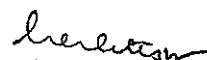
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	Safety of Information Technology Equipment, UPS	working Voltage	IEC 0950:2005+A1:2009A2:2013, CL No. 2.10.2 IEC 62040-1-1:2004,CL No.2.10.2 IEC 62040-1-2:2004,CL No. 2.10.2 IS:13252(Part 1):2010 CI No. 2.10.2	up to 250MHz
		Measurement of transient voltage	IEC 0950:2005+A1:2009A2:2013, CL No. 2.10.3.9 IEC 62040-1-1:2004,CL No.2.10.3.9 IEC 62040-1-2:2004,CL No. 2.10.3.9 IS:13252(Part 1):2010 CI No. 2.10.3.9	500 kV to 10 kV
		Creepage Distance	IEC 0950:2005+A1:2009A2:2013, CL No. 2.10.4 IEC 62040-1-1:2004,CL No.2.10.4 IEC 62040-1-2:2004,CL No. 2.10.4 IS:13252(Part 1):2010 CI No. 2.10.4	0.01 mm to 150 mm


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	Safety of Information Technology Equipment, UPS	Thermal cycling and thermal ageing	IEC 0950:2005+A1:2009A2:2013, CL No. 2.10.9 IEC 62040-1-1:2004, CL No.2.10.9 IEC 62040-1-2:2004, CL No. 2.10.9 IS:13252(Part 1):2010 CI No. 2.10.9	100 °C to 180 °C
		Stability Test	IEC 0950:2005+A1:2009A2:2013, CL No. 4.1 IEC 62040-1-1:2004, CL No. 4.1 IEC 62040-1-2:2004, CL No. 4.1 IS:13252(Part 1):2010 CI No. 4.1	0 to 15°C
		steady Force Test 10N,30n,250N	IEC 0950:2005+A1:2009A2:2013, CL No. 4.2.2,4.2.3,4.2.4 IEC 62040-1-1:2004, CL No. 4.2.2,4.2.3,4.2.4 IEC 62040-1-2:2004, CL No. 4.2.2,4.2.3,4.2.4 IS:13252(Part 1):2010 CI No. 4.2.2,4.2.3,4.2.4	Upto 250 N
		impact Test	IEC 0950:2005+A1:2009A2:2013, CL No. 4.2.5 IEC 62040-1-1:2004, CL No.4.2.5 IEC 62040-1-2:2004, CL No. 4.2.5 IS:13252(Part 1):2010 CI No.4.2.5	Dia: 50 mm/500 g

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	Safety of Information Technology Equipment, UPS	Stress relief Test	IEC 0950:2005+A1:2009A2:2013, CL No. 4.2.7 IEC 62040-1-1:2004, CL No.4.2.7 IEC 62040-1-2:2004, CL No. 4.2.7 IS:13252(Part 1):2010 Cl No.4.2.7	
		Handle and Manual Control	IEC 0950:2005+A1:2009A2:2013, CL No. 4.3.2 IEC 62040-1-1:2004, CL No. 4.3.2 IEC 62040-1-2:2004, CL No. 4.3.2 IS:13252(Part 1):2010 Cl No. 4.3.2	Upto 100 N
		Direct Plug in equipment	IEC 0950:2005+A1:2009A2:2013, CL No. 4.3.6 IEC 62040-1-1:2004, CL No. 4.3.6 IEC 62040-1-2:2004, CL No. 4.3.6 IS:13252(Part 1):2010 Cl No. 4.3.6	Upto 0.5 Nm
		Protection against hazardous moving parts	IEC 0950:2005+A1:2009A2:2013, CL No. 4.4 IEC 62040-1-1:2004, CL No. 4.4 IEC 62040-1-2:2004, CL No. 4.4 IS:13252(Part 1):2010 Cl No. 4.4	Qualitative Test
		thermal requirements	IEC 0950:2005+A1:2009A2:2013, CL No. 4.5 IEC 62040-1-1:2004, CL No.4.5 IEC 62040-1-2:2004, CL No.4.5 IS:13252(Part 1):2010 Cl No.4.5	25 °C to 250°C winding resistance 1 mΩ to 20 kΩ

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	Safety of Information Technology Equipment, UPS	Resistance to abnormal	IEC 0950:2005+A1:2009A2:2013, CL No. 4.5.5 IEC 62040-1-1:2004, CL No. 4.5.5 IEC 62040-1-2:2004, CL No. 4.5.5 IS:13252(Part 1):2010 CI No. 4.5.5	Ball pressure test: >0.05mm, 25 °C to 150 °C, Upto 150 mm
		evaluation of larger opening	IEC 0950:2005+A1:2009A2:2013, CL No. 4.6.4 2 IEC 62040-1-1:2004, CL No. 4.6.4 2 IEC 62040-1-2:2004, CL No. 4.6.4 2 IS:13252(Part 1):2010 CI No. 4.6.4 2	0.01 mm - 150mm
		Adhesives for construction purposes	IEC 0950:2005+A1:2009A2:2013, CL No. 4.6.5 IEC 62040-1-1:2004, CL No. 4.6.5 IEC 62040-1-2:2004, CL No. 4.6.5 IS:13252(Part 1):2010 CI No. 4.6.5	upto 180 °C
		Material test	IEC 60950:2005+A1:2009A2:2013, CL No. 4.7.3 IEC 62040-1-1:2004, CL No. 4.7.3 IEC 62040-1-2:2004, CL No. 4.7.3 IS:13252(Part 1):2010 CI No. 4.7.3	180 °C

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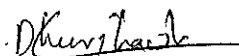


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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Safety of Information Technology Equipment, UPS	materials In high voltage components	IEC 0950:2005+A1:2009A2:2013, CL No. 4.7.3 .6 IEC 62040-1-1:2004, CL No. 4.7.3.6 IEC 62040-1-2:2004, CL No.4.7.3.6 IS:13252(Part 1):2010 CI No.4.7.3.6	Qualitative Test
		touch Current	IEC 0950:2005+A1:2009A2:2013, CL No. 5.1 IEC 62040-1-1:2004,CL No. 5.1 IEC 62040-1-2:2004,CL No.5.1 IS:13252(Part 1):2010 CI No.5.1	Upto 10 mA
		Electric Strength test	IEC 0950:2005+A1:2009A2:2013, CL No. 5.2 IEC 62040-1-1:2004,CL No. 5.2 IEC 62040-1-2:2004,CL No.5.2 IS:13252(Part 1):2010 CI No.5.2	Upto 5 kV AC 8 kV DC
		Impulse Test	IEC 0950:2005+A1:2009A2:2013, CL No. 6.2.2.1 IEC 62040-1-1:2004, CL No. 6.2.2.1 IEC 62040-1-2:2004, CL No. 6.2.2.1 IS:13252(Part 1):2010 CI No. 6.2.2.1	1.2 μsec/50 μsec,12kV


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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Safety of Information Technology Equipment, UPS	Voltage source	IEC 0950:2005+A1:2009A2:2013, CL No. 7.4.2 IEC 62040-1-1:2004, CL No. 7.4.2 IEC 62040-1-2:2004, CL No.7.4.2 IS:13252(Part 1):2010 Cl No. 7.4.2	Upto 10 kV
		Impulse Test	IEC 0950:2005+A1:2009A2:2013, CL No. 7.4.3 IEC 62040-1-1:2004, CL No. 7.4.3 IEC 62040-1-2:2004, CL No.7.4.3 IS:13252(Part 1):2010 Cl No. 7.4.3	Upto 12kV
II. ENVIROMENTAL TEST				
1.	Climatic Tests (Electrical & Electronic Products)	Cold (Low Temperature)	IS 9000 (Part 2/Sec I to IV): 1977 IEC 60068-2-1: 2007 JSS 50101: 1996 & JSS 55555: 2000 In house Method: QM 333/Issue-2:2010	Ambient to (-)75° C
		Dry Heat (High Temperature) Temperature cyclic	IS 9000 (Part 3/Sec I to V): 1977 IS 9000 (Part 14): 1988 IEC 60068-2-14: 2009 JSS 50101: 1996 & JSS 55555: 2000 In house Method: QM 333/Issue-2: 2010	Ambient to 180 ° C 180 ° C to 250 ° C (-)75° C to 180 ° C

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	Climatic Tests (Electrical & Electronic Products)	Temperature Shock	IS 9000 (Part 14): 1988 IEC 60068-2-14: 2009 JSS 50101: 1996 & JSS 55555: 2000 In house Method: QM 333/Issue-2: 2010	(-)75° C to 180 ° C 180 ° C to 250 ° C
		Damp Heat Steady State	IEC 60068-2-78:2001 IS 9000 (Part 4): 2008 JSS 50101: 1996 & JSS 55555: 2000 In house Method: QM 333/Issue-2: 2010	25 ° C to 85° C with 30% to 95% RH
		Damp Heat Cyclic	IS 9000 (Part 5): 1986 IEC 60068-2-30: 2005 In house Method: QM 333/Issue-2: 2010	25° C to 65° C with 95 % RH
		Salt Spray (Corrosion)	IS 9000 (Part 11): 1983, IEC 60068- 2-11: 1981, JSS 50101: 1996, JSS 55555: 2000 In house Method: QM 333/Issue-2: 2010 & ASTM B117: 2003	35° C with 95% RH & Spray of 5% NaCl & 35°C to 50°C with 95% RH storage
		Dust Test	IS 9000 (Part 12): 1981 JSS 50101: 1996 & JSS 55555: 2000 In house Method: QM 333/Issue-2: 2010	Size 1m x 1m x 1m Dust collect 25 (+/-)5 g Ambient (-)40° C

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	Climatic Tests (Electrical & Electronic Products)	Composite Temperature Humidity	IS 9000 (Part 6): 1978 IEC 60068-2-38: 2009 JSS 50101: 1996 & JSS 55555: 2000	(-)10° C to 65° C with 95% RH
2.	Durability Test (Electrical & Electronic Products)	Vibration	IS 9000(Part 8): 1981 IEC 68-2-6: 2007 JSS 50101: 1996 JSS 55555: 2000 & In house Method: QM 333/ Issue-2: 2010	5 Hz to 2.0 kHz (±) 0.035 mm to 50mm & 10 m/sec ² to 700 m/sec ²
		Bump Test	IEC 68-2-29: 1987 IS 9000 (Part 7/Sec II): 1988 JSS 50101: 1996 & JSS 55555: 2000	400 m/sec ²
		Robustness of Termination	IEC 60068-2-21: 2006, IS 9000 (Part 19): 1986, JSS 50101: 1996 & JSS 55555: 2000	01 N to 1000 N
		Drop & Topple	IEC 60068-2-31: 2008 IS 9000 (Part 7 / Sec III & IV): 1979, In house Method: QM 333/ Issue-2: 2010	Drop height 25 mm, 50 mm, 100 mm, 250 mm, 500 mm

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III. TELECOMMUNICATION EQUIPMENTS AND SYSTEMS				
1.	EPB Telephones, Modems, EPABX's, Cable Fault Locators, Mobile Phones, OFC cable, GD tubes, Connection/ Dis- Connection Modules, Invertors, Connectors and Millennium Controller, Repeaters	Vibration Low Temperature cyclic High Temperature. cyclic Damp Heat cyclic Rapid Temperature Damp Heat Steady State Salt Spray Bump Drop & Topple	In house Method: QM 333/Issue-2: 2010	5 Hz to 350 Hz, (+/-)6 mm or 15 m/sec ² whichever is lesser Ambient to (-)15°C Ambient to 60°C 25°C to 40°C with 95% RH (-)15°C to 60°C 35°C with 95% RH 35°C with 95% RH 400 m/sec ² Drop height : 100 mm or 30°
IV. EMC Test Facility				
1.	EMC Testing of IT Products/ House hold / Industrial / Medical Equipment	Conducted emission test Single phase /Three Phase 16A Power port Current probe method for telecom line	CISPR11 Ed 5.1 :2010 EN55011:2007 CISPR22 Ed 6.0: 2008 EN55022:2010 CISPR14-1 Ed 5.2:2011 CISPR 15 Ed 8:2013 IEC 62040-2 Ed 2.0:2005 IS13779:1999 IS6873 (Part 7 : 1999) IEC60571 Ed3 : 2012	150 kHz to 30 MHz 9 kHz to 30 MHz 150 kHz to 30 MHz 9 kHz to 30 MHz 150 kHz-30 MHz

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	EMC Testing of IT Products/ Household / Industrial / Medical Equipment	Radiated emission test	IEC60601-1-2 Ed 4.0:2014 IEC870-2-1:1995 IEC61000-6-3 Ed 2.1:2011 IEC61000-6-4 Ed 2.1:2011 TEC/EMI/TEL-001/01Feb 09 IEC61326-3-2 Ed 1.0:2008 IEC62236-3-2 Ed 2.0:2008 IEC60255-26 (ed2.0) :2008 FCC 47 CFR PART 15	
		Max height of Equipment 1.5 meter	IEC61000-6-3 Ed 2.1:2011 IEC61000-6-4 Ed 2.1:2011 CISPR11 Ed 5.1 :2010 EN55011:2007 CISPR22 Ed 6.0: 2008 EN55022:2010 CISPR14-1 Ed 5.2:2011 IEC62040-2 Ed 2.0:2005 IS13779:1999 IS6873 (Part 7 : 1999) FCC 47 CFR PART 15 IEC60571 Ed3 : 2012 IEC60601-1-2 Ed 4.0:2014 TEC/EMI/TEL-001/01Feb 09 IEC61326-3-2 Ed 1.0:2008 IEC62236-3-2 Ed 2.0:2008 IEC60255-26 (ed2.0) :2008 IEC870-2-1:1995	30 MHz to 1GHz 30 MHz to 6GHz 30 MHz to 1GHz
	Disturbance Power		CISPR14-1 Ed 5.2:2011 IS13779:1999	30 MHz to 300 MHz

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	EMC Testing of IT Products/ Household / Industrial / Medical Equipment	Electrical Fast Transient (EFT)	IEC61000-4-4 Ed 3.0:2012 IEC61000-6-1 Ed 2.0:2005 IEC61000-6-2 Ed 2.0:2005 IEC60255-22-4 Ed 3.0:2008 IS13779:1999 IS14700(Part 4/ Sec 4):2004 CISPR24:2010 IEC60571 Ed3 : 2012 IEC60601-1-2 Ed 4.0:2014 TEC/EMI/TEL-001/01Feb 09 IEC62236-3-2 Ed 2.0:2008 IEC61326-3-2 Ed 1.0:2008 IEC60255-26 ed 2.0 :2008 IEC870-2-1:1995	Amplitude :4 kV Pulse 5/50 ns Burst duration 15 ms Burst period 300 ms Repetition rate 5 kHz
		Electrostatic Discharge (ESD)	IEC61000-4-2 Ed 2.0:2008 IEC61000-6-1 Ed 2.0:2005 IEC61000-6-2 Ed 2.0:2005 IS13779:1999 CISPR24:2010 IEC60571 Ed3 : 2012 IEC60601-1-2 Ed 4.0:2014 IS14700(Part 4/ Sec 2):2008 IEC62236-3-2 Ed 2.0:2008 TEC/EMI/TEL-001/01Feb 09 IEC61326-3-2 Ed 1.0:2008 IEC60255-22-2 Ed 3.0:2008 IEC60255-26 ed 2.0 :2008 IEC870-2-1:1995	Level 0.5 kV to 30 kV Contact and Air discharge Discharge

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	EMC Testing of IT Products/ Household / Industrial / Medical Equipment	Surge (Combination wave) Only power port 1 Φ ,16A 3 Φ ,16A/phase	IEC61000-4-5 Ed 3.0:2014 IEC61000-6-1 Ed 2.0:2005 IEC61000-6-2 Ed 2.0:2005 IS13779:1999 CISPR 24:2010 IEC60571 Ed3 : 2012 IEC60601-1-2 Ed 4.0:2014 TEC/EMI/TEL-001/01Feb 09 IEC62236-3-2 Ed 2.0:2008 IEC61326-3-2 Ed 1.0:2008 IEC60255-26ed 2.0:2008 IEC60255-22-5 Ed 3.0:2008 IEC870-2-1:1995	Surge Vol 1.2 μ s/50 μ s Surge current 8/20 μ s Voltage level 0.5 kV to 6kV Current level 0.25kA to 3kA
		Surge(Ring wave test) 100kHz only	IEC870-2-1:1995 IEC61000-4-12 Ed 2.0:2006	Rise time 0.5 μ s Frequency 100 kHz Level 0.5 to 6 kV 150 kHz to 230 MHz
		RF conducted immunity (CS) 1)CDN method : Power port 3Phase 2) BCI method	IEC61000-4-6 Ed 4.0:2013 IEC61000-6-1 Ed 2.0:2005 IEC61000-6-2 Ed 2.0:2005 CISPR 24 :2010 IS13779:1999 IEC60571 Ed3 : 2012 IEC60601-1-2 Ed 4.0:2014 TEC/EMI/TEL-001/01Feb 09 IEC62236-3-2 Ed 2.0:2008 IEC61326-3-2 Ed 1.0:2008 IEC60255-26 ed 2.0:2008 IEC870-2-1:1995	Test levels 1V to 10Vrms Modulation 1kHz Modulation depth :80%AM

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	EMC Testing of IT Products/ Household / Industrial / Medical Equipment	Power frequency Magnetic Field test	IEC61000-4-8 Ed 2.0:2009 IEC61000-6-1 Ed 2.0:2005 IEC61000-6-2 Ed 2.0:2005 CISPR24:2010 IS13779:1999 IEC60571 Ed3 : 2012 IEC60601-1-2 Ed 4.0:2014 TEC/EMI/TEL-001/01Feb 09	1 A/m to 30A/m continuous
		Maximum EUT size 0.5mx0.5mx0.6m height		
		Impulse test	IS13779: 1999 IEC 61180-1	1.2µs/50µs 0.5 kV to 12 kV
		Impulse test	IEC60255-5 Ed 2.0:2000	0.5 Joule 1.2µs/50µs 0.5kV to 5kV
		Harmonic Current Emission	IEC61000-3-2 Ed 3.2:2014 IEC61326-3-2 Ed 1.0:2008 IEC60601-1-2 Ed 4.0:2014 IEC870-2-1:1995	Up to 40th Harmonics (at 50Hz)
	Flicker	IEC61000-3-3 Ed 3.0:2013 IEC61326-3-2Ed 2.0:2008 IEC870-2-1:1995	230V, Single phase, Frequency 50Hz	

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	EMC Testing of IT Products/ Household / Industrial / Medical Equipment	Voltage dips & short Interruption	IEC61000-4-11 Ed 2.0:2004	0%
			IEC61000-6-1 Ed 2.0:2005	40%
			IEC61000-6-2 Ed 2.0:2005	70%
			CISPR 24 Ed 2.0:2010	80%
		IEC60601-1-2 Ed 4.0:2014	Duration 1 to 250 Cycle	
		TEC/EMI/TEL-001/01Feb 09		
		IEC61326-3-2 Ed 1.0:2008	20 ms to 5s	
		IEC870-2-1:1995		
		Radiated immunity (RS) (Maximum EUT size for Imeter distance =0.5mx0.5m	IEC61000-4-3 Ed 3.2:2010 IEC61000-6-2 Ed 2.0:2005 IEC61000-6-1 Ed 2.0:2005 IS13779:1999 CISPR 24 Ed 2.0:2010 IEC60571 Ed3 : 2012 IEC60601-1-2 Ed 4.0:2014 TEC/EMI/TEL-001/01Feb 09 IEC62236-3-2 Ed 2.0:2008 IEC61326-3-2 Ed 1.0:2008 IEC602555-26(ed2.0)2008 IEC870-2-1:1995	80 MHz-6 GHz a)Up to 10V/m at 3 m b)30V/m at 1m Window Method (1GHz to 6GHz) 3V/m,10V/m,30V/m at1m
		Damped Oscillatory Test	IEC61000-4-18 Ed 1.1:2011 IEC60255-22-1Ed3.0:2007 IEEE C37.90.1:2002 IEC60255-26Ed 2.0:2008	0.25 kV to 2.5 kV
		Damped Oscillatory Magnetic field Test	IEC61000-4-10 Ed 1.1:2001	10 A/m to 100 A/m

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V. AUDIO/ VIDEO COMPONENTS AND PRODUCTS				
1.	Audio, Video and Similar Electronics Apparatus safety Requirements for(plasma/LCD/LED/Television)	Normal operating condition	EN/IEC 60065:2001 ed 7.2 2011-02, CL.4.2.2 IS 616:2010,CL.4.22	10 mA to 30 A, 1000 Vac/dc,
		Marking Legibility	EN/IEC 60065:2001 ed 7.2 2011-02,CL.5 IS 616:2010,CL.5	0.1 s to 60 s
		Heating under normal operating condition	EN/IEC 60065:2001 ed 7.2 2011-02,CL.7 IS 616:2010,CL.7	0 to 250 °C
		hygroscopic materials	EN/IEC 60065:2001 ed 7.2 2011-02,CL.8.3 IS 616:2010,CL.8.3	0 to 42 °C 90 %RH 95 %RH
		External forces- windows and covers	EN/IEC 60065:2001 ed 7.2 2011-02, CL.8.13,8.14 IS 616:2010,CL.8.13,8.14	Upto 50N 10 s
		Internal forces	EN/IEC 60065:2001 ed 7.2 2011-02,CL.8.15 IS 616:2010,CL.8.15	Upto 2 N
		protection agianst electric shock Accessibility	EN/IEC 60065:2001 ed 7.2 2011-02, CL.9.9.1.1.2,9.2 IS 616:2010,CL.9.9.1.1.2,9.2	Upto N Upto 22 N

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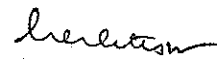
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	Audio, Video and Similar Electronics Apparatus safety Requirements for(plasma/LCD/LED/Television)	protection against electric shock -opening in enclosure	EN/IEC 60065:2001 ed 7.2 2011-02, CL.9.1.3 IS 616:2010,CL.9.1.3	4 mm to 100 mm
		protection against electric shock -Terminals	EN/IEC 60065:2001 ed 7.2 2011-02, CL.9.1.4 IS 616:2010,CL.9.1.4	Upto 22 mm Up to 11 N
		Withdrawal of main plug	EN/IEC 60065:2001 ed 7.2 2011-02,CL.9.1.6 IS 616:2010,CL.9.1.6	Upto 10 s
		Resistance to external forces	EN/IEC 60065:2001 ed 7.2 2011-02, CL.9.1.7 IS 616:2010,CL.9.1.7	Upto 250N 10s
		surge Test	EN/IEC 60065:2001 ed 7.2 2011-02, CL.10.1 IS 616:2010,CL.10.1	10KV AC 12/min
		Insulation Resistance	EN/IEC 60065:2001 ed 7.2 2011-02, CL.10.3 IS 616:2010,CL.10.3	500 VDC Upto 10 TΩ
		Dielectric Strength	EN/IEC 60065:2001 ed 7.2 2011-02, CL.10.3 IS 616:2010,CL.10.3	0 to 10 kV AC/DC 1 min
		Humidity Treatment	EN/IEC 60065:2001 ed 7.2 2011-02,CL.10.2 IS 616:2010,CL.10.2	28 °C to 42 °C 90 % RH to 95 % RH



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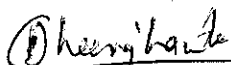


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	Audio, Video and Similar Electronics Apparatus safety Requirements for(plasma/LCD/LED/Television)	Fault Conditions Tests	EN/IEC 60065:2001 ed 7.2 2011-02,CL.11 IS 616:2010,CL.11	25 °C to 250°C
		Mechanical Strength Bump	EN/IEC 60065:2001 ed 7.2 2011-02,CL.12.1.1 IS 616:2010,CL.12.1.1	7 kg Upto 5 cm
		Mechanical Strength impact	EN/IEC 60065:2001 ed 7.2 2011-02,CL.12.1.3 IS 616:2010,CL.12.1.3	0.2 J to 1 J
		Mechanical Strength stress relief	EN/IEC 60065:2001 ed 7.2 2011-02,CL.12.1.5 IS 616:2010,CL.12.1.5	At 70° C
		Torque Test - Rod Antenna	EN/IEC 60065:2001 ed 7.2 2011-02,CL.12.1.6 IS 616:2010,CL.12.1.6	Upto 20N 1 min
		Creepage and Clearance Distance	EN/IEC 60065:2001 ed 7.2 2011-02,CL.13 IS 616:2010,CL.13	Upto 150mm
		Component- Resistors	EN/IEC 60065:2001 ed 7.2 2011-02,CL.14.1 IS 616:2010,CL.14.1	Upto 10mm Upto 10 kV AC
		Component protective Devices	EN/IEC 60065:2001 ed 7.2 2011-02,CL.14.5 IS 616:2010,CL.14.5	Upto 10mm



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	Audio, Video and Similar Electronics Apparatus safety Requirements for(plasma/LCD/LED/Television)	Provision for protective resistance	EN/IEC 60065:2001 ed 7.2 2011-02,CL.15.2 IS 616:2010,CL15.2	Upto 5V, 30A, 0.1 to 600 Ω
		Strain relief Test	EN/IEC 60065:2001 ed 7.2 2011-02,CL.16.5 IS 616:2010,CL.16.5	Max 40 N 1 min 0 to 25 Nm
		torque test on Screw Terminals	EN/IEC 60065:2001 ed 7.2 2011-02,CL.17.1 IS 616:2010,CL.17.1	Upto 6 mm Upto 2.5 Nm
		Torque test on Covers	EN/IEC 60065:2001 ed 7.2 2011-02,CL.17.7 IS 616:2010,CL.17.7	Upto 10 N
		Stability Test	EN/IEC 60065:2001 ed 7.2 2011-02,CL.19.1 IS 616:2010,CL.19.1	1° to 15°
		Resistance to Heat , Fire and tracking(Glow wire Test)	EN/IEC 60065:2001 ed 7.2 2011-02,CL.20, annex G IS 616:2010,CL.20, annex G	Up to 850 °C
		Resistance to Heat , Fire and tracking(Needle flame Test)	EN/IEC 60065:2001 ed 7.2 2011-02,CL.20, annex G IS 616:2010,CL.20, annex G	(Qualitative Test) 0.58g copper slug propane gas 99% purity 35mm(needle burner) Upto 1 hr 2mm,12mm 100 to 700°C

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	Audio, Video and Similar Electronics Apparatus safety Requirements for(plasma/LCD/LED/Television)	Resistance to Heat , Fire and tracking(flame Test)	EN/IEC 60065:2001 ed 7.2 2011-02,CL.20, annex G IS 616:2010,CL.20, annex G	50 V to 400 V AC/DC Upto 50 mm Upto 4 kV AC/DC

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