

Laboratory TUV SUD South Asia Pvt. Ltd., A-151, 2C Main Road, 2nd Stage, Peenya Industrial Estate, Bangalore, Karnataka
 Location 1: A-151, 2C Main Road, 2nd Stage, Peenya Industrial Estate, Bangalore, Karnataka
 Location 2: Kushal Garden Arcade, B- Block, 2nd Floor, 1A, Peenya Industrial Area, 2nd Phase, Bangalore, Karnataka

Accreditation Standard ISO/IEC 17025: 2005

Discipline Electronics Testing

Issue Date 13.06.2014

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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
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Location 2

I. COMPUTER & ACCESSORIES

1.	IT & Business Equipment	Visual Inspection and Manual Tests	IEC 60950-1: 2005 EN 60950-1:2005 IS 13252 (Part 1) : 2010	Qualitative
		Components	Cl.1.5	
		Marking and Instructions	Cl.1.7	
		Access to energized parts	Cl. 2.1.1.1, 2.1.1.3, 2.1.1.4	
		Battery compartments	Cl. 2.1.1.2	
		Manual controls	Cl. 2.1.1.6	
		Protection in service access areas	Cl. 2.1.2:	
		Over current and earth fault protection in primary circuits	Cl. 2.7	
		Safety interlocks	Cl. 2.8.1 to 2.8.6	
		Electrical insulation	Cl. 2.9	
		Test for pollution degree 1	Cl. 2.10.10	

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Location 2				
	IT & Business Equipment	Enclosed and sealed parts	Cl. 2.10.12	Qualitative
		Wiring, connections and supply	Cl. 3.0	
		Physical requirements	Cl. 4.0	
		Design and construction	Cl. 4.3.1- 4.3.12	
		Protection against hazardous moving parts	Cl. 4.4	
		Openings in enclosure	Cl. 4.6	
		Connection to cable distribution systems	Cl. 7.0	
		Protection of cable distribution system	Cl. 7.2	
		Protection of equipment users	Cl. 7.4	

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Location 2				
	IT & Business Equipment	Electrical Tests		
		Power Interface	IEC 60950-1: 2005 EN 60950-1:2005 IS 13252 (Part 1) : 2010 Cl. 1.6	1mW to 3000W (AC/DC) 0 to 20A (AC, 50/60Hz)
		Protection from hazards	Cl. 2.0	Upto 100 V
		Discharge of capacitors in equipment	Cl. 2.1.1.7	Upto 100 V
		SELV circuits	Cl. 2.2	Upto 100 V
		Separation from hazardous voltages	Cl. 2.3.3	Upto 100 V
		Provision for Earthing and bonding	Cl. 2.6	Upto 1 Ω
		Electric strength test	Cl. 2.8.7.4, 2.10.8.3, 5.2	0 to 5 kV (AC/DC) Time: 0.1 to 200 sec
		Touch current & protective conductor current	Cl. 5.1	30 μ A to 30 mA
		Comparative tracking index	Cl. 2.10.4.2	Qualitative

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Location 2				
		Mechanical Requirements		
		Impact Test	Cl.4.2.5:	Steel sphere: Mass : 500 g Dia: 50 mm
		Stress relief test	Cl. 4.2.7:	Upto 250°C
	IT & Business Equipment	Thermal Requirements		
		Temperature rise tests	IEC 60950-1: 2005 EN 60950-1:2005 IS 13252 (Part 1) : 2010 Cl.4.5	Amb. to +200°C
		Thermal conditioning	Cl.2.10.8.2	25°C to 85°C
2.	Audio, Video and Similar Electronic Equipments	Visual Inspection and Manual Tests	IEC 60065 ed7.0 (2001-12)+ A1:2005+A2:2010 EN 60065: 2002 +A1:2006 + A2:2010 + A11:2008 + A12:2011 IS 616 :2010	Qualitative
		Markings and Instructions	Cl. 5.0	
		Constructional requirements	IS 616:2010 as per Clause No 8.1 to 8.17, 8.19 to 8.21	
		Accessible parts	Cl. 9.1.1.2	

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Location 2				
	Audio, Video and Similar Electronic Equipments	Operating knobs, handles, levers etc.	Cl. 9.1.2	Qualitative
		Openings of the enclosure	Cl. 9.1.3	
		Test for terminals	Cl. 9.1.4	
		Pre-set controls	Cl. 9.1.5	
		Test for terminals as per Clause No 15.1, 15.2, 15.3	Cl. 15	
		Test for External flexible cords Clause No. 16.2, 16.4, 16.6, 16.7	Cl. 16	Qualitative
		Test for Electrical connections and mechanical fixings as per Clause 17.2, 17.4 to 17.9	Cl. 17	
		Electrical Tests		
		Open circuit voltage measurement	Cl. 9.1.1.1 (a), 9.2, 11.1, 11.2.3	Upto 400 V
		Touch current	Cl. 9.1.1.1 (b) 9.2	30 μ A to 30mA
	IR and Di-electric strength	Cl. 10.3	IR: 0.1 M Ω to 1G Ω 0 to 5 kV (AC / DC) Time: 0.1 to 200 sec	

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Location 2				
	Audio, Video and Similar Electronic Equipments	Thermal Requirements Temperature rise test	Cl. 7.1, 7.2, 11.2	Amb to +200°C
		Insulation Requirements Humidity treatment	Cl. 10.2	-40 to +180°C Upto 95% RH
		Mechanical Tests Impact Test	Cl. 12.1.3	Steel sphere: Mass: 500 g Dia: 50 mm
		Stress relief test	Cl. 12.1.5	Upto 250°C
		Stability and mechanical hazards using inclined plane	Cl. 19	0 to 45° (Angular)
3.	Solid State Inverters	Visual Inspection Markings	IS 13314:1998 Cl. 7.5:	Qualitative
		Electrical tests High Voltage Test	Cl. 7.6:	0 to 5kV (AC/DC) Time: 0.1 to 200sec
		Insulation Resistance Test	Cl. 7.7:	0.1 MΩ to 1GΩ

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Location 2

No Load Test	Cl. 7.8	Voltage: Upto 400 V AC
Output Test	Cl. 7.9	Power: 1mW to 3000W

II. DOMESTIC ELECTRONICS APPLIANCES AND ACCESSORIES

1	Any Electrical / Electronic Product Industrial, scientific and medical equipment Sound and television broadcast receivers and associated equipment Household appliances, electric tools and similar apparatus	Conducted Emission Test	CISPR 11 ed 5.1 (2010-05) CISPR 11 ed 5.0 (2009-05) CISPR 11 ed 5.0:A1(2010-03) EN 55011:A1:2010 EN 55011:2009 CISPR 13 ed 5.0 (2009-06) EN 55013:2013 CISPR 14-1 ed 5.1 Consol. with am1 (2009-02) CISPR 14-1 ed 5.0 (2005-11) CISPR 14-1-am1 ed5.0 (2008-11) CISPR 14-1-am2 ed5.0 (2011-07) EN 55014-1:2006/A1:2009 EN 55014-1:2006	Current limitation 1Ph: 16 A 3Ph: 32 A 9 kHz to 30 MHz
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Location 2				
	Electrical lighting and similar equipment	Conducted Emission Test	CISPR 15 ed 8.0 (2013-05) EN 55015:2013	Current limitation 1Ph: 16 A 3Ph: 32 A 9 kHz to 30 MHz
	Information technology equipment		CISPR 22 ed6.0 (2008-09) EN 55022:2013 EN 55022:2010 EN 55022:2006	
	Residential, commercial and light-industrial Equipment		IEC 61000-6-3 ed2.1 Consol. with am1 (2011-02) IEC 61000-6-3-am 1 ed 2.0 (2010-12) IEC 61000-6-3 ed 2.0 (2006-07) EN 61000-6-3:2007/ A1:2011/AC:2012 EN 61000-6-3:2007/A1:2011 EN 61000-6-3:2007	
	Industrial Equipment		IEC 61000-6-4 ed2.1 Consol. with am1 (2011-02) IEC 61000-6-4-am1 ed 2.0 (2010-12) IEC 61000-6-4 ed2.0 (2006-07) EN 61000-6-4:2007/A1:2011 EN 61000-6-4:2007	

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Location 2				
	Digital Equipment	Conducted Emission Test	FCC Part 15B : 2010	Current limitation 1Ph: 16 A
	Digital Equipment (RF Lighting device)		FCC Part 18 : 2010	3Ph: 32 A 9 kHz to 30 MHz
	Electro medical devices		IEC 60601-1-2 ed4.0 (2014-02) EN 60601-1-2:2007	
	Automatic electrical controls for household		IEC 60730-1 ed5.0 (2013-11) EN 60730-1:2011	
	Uninterruptible power systems (UPS)		IEC 62040-2 ed2.0 (2005-10) EN 62040-2:2006	
	Electrical equipment for measurement, control and laboratory use		IEC 61326-1 ed2.0 (2012-07) IEC 61326-2-1 ed2.0 (2012-10) IEC 61326-1:2005 EN 61326-1:2013 EN 61326-1:2006 EN 61326-2-1:2013	

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	Telecommunication network equipment	Conducted Emission Test	EN 300386 V1.5.1	
	Radio Equipment		EN 301 489-1 V 1.9.2 IS 6873:Part 2 Sec 1 : 2012 IS 6873 : Part 3 : 1999 IS 6873 : Part 4 : 1999 IS 6873 : Part 5 : 1999 IS 6873 : Part 7 : 1999 IS 14700: Part 6 : Sec 3 : 2002	
2.	Any Electrical / Electronic Product	Electrostatic Discharge Immunity Test	IEC 61000-4-2: 2008 EN 61000-4-2: 2009 IS 14700 : Part 4 : Sec 2 : 2008	± 15 kV air ± 8 kV Contact
	Household appliances, electric tools and similar apparatus.		CISPR 14-2 ed1.2 Consol. with am1&2 (2008-07) CISPR 14-2 ed1.1 Consol. with am1 (2001-11) CISPR 14-2-am1 ed1.0 (2001-08) CISPR 14-2-am2 ed1.0 (2008-05) EN 55014-2:1997 EN 55014-2:1997/A2:2008	

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Location 2				
	Residential, commercial and light-industrial Equipment	Electrostatic Discharge Immunity Test	IEC 61000-6-1 ed2.0 (2005-03) EN 61000-6-1:2007	± 15 kV air ± 8 kV Contact
	Industrial Equipment		IEC 61000-6-2 ed2.0 (2005-01) EN 61000-6-2:2005	
	Electro medical devices		IEC 60601-1-2 ed4.0 (2014-02) EN 60601-1-2:2007	
	Information technology equipment		CISPR 24 ed2.0 (2010-08) EN 55024:2007	
	Uninterruptible power systems (UPS)		IEC 62040-2 ed2.0 (2005-10) EN 62040-2:2006	
	Telecommunication network equipment		EN 300386 V1.5.1	
	Radio Equipment		EN 301 489-1 V 1.9.2	

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Location 2				
	Electrical lighting and similar equipment		IEC 61547 ed2.0 (2009-06) EN 61547:2009	
	Electrical equipment for measurement, control and laboratory use.		IEC 61326-1 ed2.0 (2012-07) IEC 61326-2-1 ed2.0 (2012-10) IEC 61326-1:2005 EN 61326-1:2013 EN 61326-1:2006 EN 61326-2-1:2013	
	Sound and television broadcast receivers and associated equipment		CISPR 20 ed6.0 (2006-11) EN 55020:2014 EN 55020:2007	
	Automatic electrical controls for household	Electrostatic Discharge Immunity Test	IEC 60730-1 ed5.0 (2013-11) EN 60730-1:2011	± 15 kV air ± 8 kV Contact

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Location 2

3.	Any Electrical / Electronic Product	Electrical Fast Transient (EFT) / Burst Immunity Test (Power Line & Signal Line)	IEC 61000-4-4 ed3.0 (2012-04) IEC 61000-4-4 ed.2.0 (2004-07) EN 61000-4-4:2012 IS 14700:Part 4 Sec 4 : 2008	16 A and Upto ± 4.8 kV
	Household appliances, electric tools and similar apparatus		CISPR 14-2 ed1.2 Consol. with am1&2 (2008-07) CISPR 14-2 ed1.1 Consol. with am1 (2001-11) CISPR 14-2-am1 ed1.0 (2001-08) CISPR 14-2-am2 ed1.0 (2008-05)	
	Residential, commercial and light-industrial Equipment		EN 55014-2:1997 EN 55014-2:1997/A2:2008 IEC 61000-6-1 ed2.0 (2005-03) EN 61000-6-1:2007	

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Location 2				
	Industrial Equipment	Electrical Fast Transient (EFT) / Burst Immunity Test (Power Line & Signal Line)	IEC 61000-6-2 ed2.0 (2005-01) EN 61000-6-2:2005	16 A and Upto ± 4.8 kV
	Electro medical devices		IEC 60601-1-2 ed4.0 (2014-02) EN 60601-1-2:2007	
	Information technology equipment		CISPR 24 ed2.0 (2010-08) EN 55024:2007	
	Uninterruptible power systems (UPS)		IEC 62040-2 ed2.0 (2005-10) EN 62040-2:2006	
	Telecommunication network equipment		EN 300386 V1.5.1	
	Radio Equipment		EN 301 489-1 V 1.9.2	
	Electrical lighting and similar equipment		IEC 61547 ed2.0 (2009-06) EN 61547:2009	

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Location 2				
	Electrical equipment for measurement, control and laboratory use	Electrical Fast Transient (EFT) / Burst Immunity Test (Power Line & Signal Line)	IEC 61326-1 ed2.0 (2012-07) IEC 61326-2-1 ed2.0 (2012-10) IEC 61326-1:2005 EN 61326-1:2013 EN 61326-1:2006 EN 61326-2-1:2013	16 A and Upto ± 4.8 kV
	Sound and television broadcast receivers and associated equipment		CISPR 20 ed 6.0 (2006-11) EN 55020:2014 EN 55020:2007	
	Automatic electrical controls for household		IEC 60730-1 ed 5.0 (2013-11) EN 60730-1:2011	
4.	Any Electrical / Electronic Product	Surge Immunity Test	IEC 61000-4-5 ed 2.0 (2005-11) EN 61000-4-5:2006 IS 14700 (Part 4/Sec 5) 2008	16 A and Upto ± 4.4 kV

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Location 2				
	Household appliances, electric tools and similar apparatus.	Surge Immunity Test	CISPR 14-2 ed 1.2 Consol. with am1&2 (2008-07) CISPR 14-2 ed1.1 Consol. with am1 (2001-11) CISPR 14-2-am1 ed 1.0 (2001-08) CISPR 14-2-am2 ed 1.0 (2008-05) EN 55014-2:1997 EN 55014-2:1997/A2:2008	16 A and Upto \pm 4.4 kV
	Residential, commercial and light-industrial Equipment		IEC 61000-6-1 ed2.0 (2005-03) EN 61000-6-1:2007	
	Industrial Equipment.		IEC 61000-6-2 ed 2.0 (2005-01) EN 61000-6-2:2005	
	Electro medical devices		IEC 60601-1-2 ed 4.0 (2014-02) EN 60601-1-2:2007	
	Information technology equipment		CISPR 24 ed 2.0 (2010-08) EN 55024:2007	

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Location 2				
	Uninterruptible power systems (UPS)	Surge Immunity Test	IEC 62040-2 ed 2.0 (2005-10) EN 62040-2:2006	16 A and Upto \pm 4.4 kV
	Telecommunication network equipment		EN 300386 V1.5.1	
	Radio Equipment		EN 301 489-1 V 1.9.2	
	Electrical lighting and similar equipment		IEC 61547 ed2.0 (2009-06) EN 61547:2009	
	Electrical equipment for measurement, control and laboratory use		IEC 61326-1 ed2.0 (2012-07) IEC 61326-2-1 ed2.0 (2012-10) IEC 61326-1:2005 EN 61326-1:2013 EN 61326-1:2006 EN 61326-2-1:2013	
	Sound and television broadcast receivers and associated equipment		CISPR 20 ed 6.0 (2006-11) EN 55020:2014 EN 55020:2007	

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Location 2				
	Automatic electrical controls for household	Surge Immunity Test	IEC 60730-1 ed 5.0 (2013-11) EN 60730-1:2011	16 A and Upto ± 4.4 kV
5.	Any Electrical / Electronic Product	Magnetic Field Immunity Test	IEC 61000-4-8 ed 2.0 (2009-09) EN 61000-4-8:2010 IS 14700 (Part 4 / Sec 11) 2008	40 A/m
	Residential, commercial and light-industrial Equipment		IEC 61000-6-1 ed 2.0 (2005-03) EN 61000-6-1:2007	
	Industrial Equipment		IEC 61000-6-2 ed 2.0 (2005-01) EN 61000-6-2:2005	
	Electro medical devices		IEC 60601-1-2 ed 4.0 (2014-02) EN 60601-1-2:2007	
	Information technology equipment		CISPR 24 ed 2.0 (2010-08) EN 55024:2007	
	Uninterruptible power systems (UPS)		IEC 62040-2 ed 2.0 (2005-10) EN 62040-2:2006	

Laboratory	TUV SUD South Asia Pvt. Ltd., A-151, 2C Main Road, 2nd Stage, Peenya Industrial Estate, Bangalore, Karnataka Location 1: A-151, 2C Main Road, 2 nd Stage, Peenya Industrial Estate, Bangalore, Karnataka Location 2: Kushal Garden Arcade, B- Block, 2 nd Floor, 1A, Peenya Industrial Area, 2 nd Phase, Bangalore, Karnataka		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electronics Testing	Issue Date	13.06.2014
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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
Location 2				
	Electrical equipment for measurement, control and laboratory use	Magnetic Field Immunity Test	IEC 61326-1 ed2.0 (2012-07) IEC 61326-2-1 ed2.0 (2012-10) IEC 61326-1:2005 EN 61326-1:2013 EN 61326-1:2006 EN 61326-2-1:2013	40 A/m
	Electrical lighting and similar equipment		IEC 61547 ed2.0 (2009-06) EN 61547:2009	
	Automatic electrical controls for household		IEC 60730-1 ed5.0 (2013-11) EN 60730-1:2011	
6.	Any Electrical / Electronic Product Industrial, scientific and medical equipment	Voltage dips, short interruption & voltage variations Immunity Test DC Dips	IEC 61000-4-11 ed2.0 (2004-03) IEC 61000-4-29 ed1.0 (2000-08) EN 61000-4-11:2004 EN 61000-4-29:2000 IS 14700 : Part 11 IS 14700 : Part 29 IS 14700 : Part 4 : Sec 11 :2008	0%, 40%, 70%, 80% Current limitation of 16 A

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Discipline	Electronics Testing	Issue Date	13.06.2014
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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
Location 2				
	Household appliances, electric tools and similar apparatus	Voltage dips, short interruption & voltage variations Immunity Test DC Dips	CISPR 14-2 ed1.2 Consol. with am1&2 (2008-07) CISPR 14-2 ed1.1 Consol. with am1 (2001-11) CISPR 14-2-am1 ed1.0 (2001-08) CISPR 14-2-am2 ed1.0 (2008-05) EN 55014-2:1997 EN 55014-2:1997/A2:2008	0%, 40%, 70%, 80% Current limitation of 16 A
	Residential, commercial and light-industrial Equipment		IEC 61000-6-1 ed2.0 (2005-03) EN 61000-6-1:2007	
	Industrial Equipment		IEC 61000-6-2 ed2.0 (2005-01) EN 61000-6-2:2005	
	Electro medical devices		IEC 60601-1-2 ed4.0 (2014-02) EN 60601-1-2:2007	
	Information technology equipment		CISPR 24 ed2.0 (2010-08) EN 55024:2007	

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Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electronics Testing	Issue Date	13.06.2014
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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
Location 2				
	Uninterruptible power systems (UPS)	Voltage dips, short interruption & voltage variations Immunity Test DC Dips	IEC 62040-2 ed2.0 (2005-10) EN 62040-2:2006	0%, 40%, 70%, 80% Current limitation of 16 A
	Electrical lighting and similar equipment		IEC 61547 ed2.0 (2009-06) EN 61547:2009	
	Electrical equipment for measurement, control and laboratory use		IEC 61326-1 ed2.0 (2012-07) IEC 61326-2-1 ed2.0 (2012-10) IEC 61326-1:2005 EN 61326-1:2013 EN 61326-1:2006 EN 61326-2-1:2013	
	Sound and television broadcast receivers and associated equipment		CISPR 20 ed6.0 (2006-11) EN 55020:2014 EN 55020:2007	
	Automatic electrical controls for household		IEC 60730-1 ed5.0 (2013-11) EN 60730-1:2011	

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Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electronics Testing	Issue Date	13.06.2014
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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
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ENVIRONMENTAL TESTING

1.	Environmental Test (Climatic)	Cold (Low Temperature)	IEC 60068-2-1 (2007) IS 9000 (Part 2/ Sec 1 to 4) 1997	Ambient to -40°C Width: 140 cm Length: 180cm Height: 190 cm
		Dry Heat (High Temperature)	IEC 60068-2-2 (2007) IS 9000 (Part 3/ Sec 1 to 5) 1977	Upto 250°C Width: 710 mm Length: 550 mm Height: 760 mm
		Damp Heat Steady State	IEC 60068-2-78 (2001) IS 9000 (Part 4): 2008	25°C to 85°C, Upto 95% RH Width: 140 cm Length: 180 cm Height: 190 cm

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