Laboratory	**Electronics Test and Development Centre, B-108, Phase VIII, Industrial Area, Mohali, Punjab**		
Accreditation Standard	**ISO/IEC 17025: 2005**		
Discipline	**Electronics Testing**	**Issue Date**	**19.10.2014**
Certificate Number	**T-0117**	**Valid Until**	**18.10.2016**
Last Amended on	**-**	**Page**	**1 of 7**

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
I.	**POWER SUPPLY EQUIPMENT AND SYSTEMS**			
1.	**Automatic Line voltage correctors, Single Phase (step Type)**	Marking	IS 8448: 1989 (RA 2003) Edition 2.2 Cl. 11	Qualitative
		Output Voltagle	IS 8448: 1989 (RA 2003) Edition 2.2 Cl. 13.3	AC : 0.2 V to 1 kV DC : 0.2 V to 1 kV
		No Load Current	IS 8448: 1989 (RA 2003) Edition 2.2 Cl. 13.6	AC : 0.01 A to 20 A DC : 0.01 A to 20 A
		High Voltage	IS 8448: 1989 (RA 2003) Edition 2.2 Cl. 13.5	1.2 kV to 5 kV
		Insulation Resistance	IS 8448: 1989 (RA 2003) Edition 2.2 Cl. 13.4	100 kΩ to 3 TΩ 50 V to 1000 V (DC)
		Temperature Rise	IS 8448: 1989 Ed2.2 (reaffirmed 2003) Cl. 13.7	Ambient to 70 ºC
		Leakage Current	IS 8448: 1989 (RA 2003) Edition 2.2 Cl. 7.2	2.5 µA to 40 mA
		Efficiency	IS 8448: 1989 (RA 2003) Edition 2.2 Cl. 9.2	Upto 5 kVA
2.	**Servo motor Operated Automatic Line Voltage Correctors, Single Phase**	Marking	IS 9815 (Part1): 1994 (RA 1999) Cl. 10	Qualitative
		Output Voltage	IS 9815 (Part1): 1994 (RA 1999) Cl. 11.6	AC : 0.2 V to 1 kV DC : 0.2 V to 1 kV

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	Servo motor Operated Automatic Line Voltage Correctors, Single Phase	No Load Current	IS 9815 (Part1): 1994, (RA 1999) Cl. 11.7	AC : 0.01A to 20 A DC : 0.01A to 20 A
		Load Loss (Efficiency)	IS 9815 (Part1): 1994, (RA 1999) Cl. 11.9	Upto 5 kVA
		High Voltage	IS 9815 (Part1): 1994, (RA 1999) Cl. 11.5	1.2 kV to 5 kV
		Insulation Resistance	IS 9815 (Part1): 1994, (RA 1999) Cl. 11.4	100 kΩ to 3 TΩ 50 V to 1000 V (DC)
		Leakage Current	IS 9815 (Part1): 1994, (RA 1999) Cl. 7.3	2.5 μA to 40 mA
		Efficiency	IS 9815 (Part1): 1994, (RA 1999) Cl. 9.6	Upto 5 kVA
3.	**Solid State Inverter, Single Phase**	Marking	IS 9815 (Part1): 1994, (RA 1999) Cl. 10	Qualitative
		Output Voltage	IS 9815 (Part1): 1994, (RA 2003) Cl. 7.0	AC : 0.2 V to 1 kV DC : 0.2 V to 1 kV
		No Load Current	IS 13314: 1992 (RA 2003) Cl.7.8	AC : 0.01 A to 20 A DC : 0.01 A to 20 A
		Efficiency (Load Loss)	IS 13314: 1992 (RA 2003) Cl.7.9.3	Up to 5 kVA
		High Voltage	IS 13314: 1992 (RA 2003) Cl.7.6	1.2 kV to 5 kV

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	Solid State Inverter, Single Phase	Insulation Resistance	IS 13314: 1992 (RA 2003) Cl.7.7	100 kΩ to 3 TΩ 50 V to 1000 V (DC)
		Frequency	IS 13314: 1992 (RA 2003) Cl.7.9.2	500 Hz
		Harmonics Contents	IS 13314: 1992 (RA 2003) Cl.7.11	1 % to 99 %
4.	**Stabilized Power Supply DC Output, 60V/30A**	Efficiency	IS 7204 (Part 4): 1980 (RA 2006) Cl. 18.4	Upto 60 V
		Output Voltage	IS 7204 (Part 5): 1980 (RA 2006) Cl. 18.4	DC : 0.2 V to 1 kV
		Load Current	IS 7204 (Part 6): 1980 (RA 2006) Cl. 18.4	DC : 0.01 A to 30 A
II.	**ELECTRONICS COMPONENTS**			
1.	**Passive Electronic Components (At 1 kHz)**	Resistance	ISQC 400000 –1988 IS 8909 (Part1): 1978 (RA 2006) JSS 50401 Cl. 13.2	100 mΩ to 10 MΩ
		Inductance	IS10230 (Part 1): 1982 (RA 2008) JSS 54500 (Part 2): 1979	100 µH to 10 H
		Capacitance	IS 1079:1983 (RA 2003) ISQC 300000 – 1988, Cl. 4.7	10 pF to 20 mF

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2.	**LCD Projectors**	Luminous Efficiency	JIS X 6911 : 2003 Cl. 2.2 of Annexure-2	1 Lux to 2000 Lux
III.	**SAFETY TESTING**			
1.	**Ballasts for Fluorescent Lamp**	Marking	IS13021 (Part 2): 1991 (RA 2002) Cl. 5 IS1534 (Part 1): 1977 (RA 2001) Cl. 8	Qualitative
		Insulation Resistance	IS13021 (Part 1): 1991 (RA 2000) Cl. 13 IS 1534 (Part 1): 1977 (RA 2001) Cl. 9.7.1	100 kΩ to 3 TΩ 50 V to 1000 V (DC)
		Electric Strength	IS13021 (Part 1): 1991 (RA 2000), Cl. 14	1.2 kV to 5 kV
		High Voltage Test	IS1534 (Part 1): 1977 (RA 2001) Cl. 9.7.4	1.2 kV to 5 kV
		Power Factor	IS 13021 (Part 2): 1991 (RA 2000) Cl. 9	±1
		Current Waveform	IS 13021 Part 2); 1991 (RA 2002) Cl. 12	Upto 1.1 kV, 50 Hz
		Power Output	IS1534 (Part 1): 1977 (RA 2000), Cl. 9.13.4	1 W to 6 kW
		Supply Current	IS13021 (Part 2): 1991 (RA 2000) Cl. 10	AC: 0.001 A to 20 A DC: 0.001 A to 20 A

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2.	**House Hold and similar electrical appliances, Audio Video and similar electronic Products IT and Medical Products**	Creepage Distance	IS 302: 1977 IS 616: 2005 IS 13252: 2010	Upto 300 mm
		Clearance	IS 302: 1977 IS 616: 2005 IS 13252: 2010	Upto 300 mm
IV.	**ENVIRONMENTAL TESTING**			
1.	**Environmental Testing such as Climatic Temperature of Electrical / Electronic Equipments and Components**	Dry Heat	IS 9000: 1977 (Part2 / Sec - 3) (RA 2007) QM 333, JSS 50101 (Test No.22) IEC 60068-2-2 : 2007	Temperature : Ambient to 180 ºC
		Dry Cold	IS 9000: 1977 (Part 3/ Sec -3) (RA 2007) QM 333,JSS 50101 (Test No.21) IEC 60068-2-1:2007	Temperature: (-)70º C to Ambient
		Damp Heat (Steady State)	IS 9000: 2008 (Part 4 / Sec - 3) QM 333,JSS 50101 (Test No.7) IEC 60068-2-78:2001	Temperature: 15 ºC to 95 ºC RH: 15 % to 95 %
		Damp Heat (Cyclic)	IS 9000: 1981 (Part5 / Sec - 3) (RA 2007) QM 333, JSS 50101 (Test No.5) IEC 60068-2-30:2005	Temp.: 15 ºC to 95 ºC RH: 15 % to 95 %

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	Environmental Testing such as Climatic Temperature of Electrical / Electronic Equipments and Components	Damp Heat (Composite / Moisture Resistance)	IS 9000: 2006 (Part 6/Sec - 3): (RA 2007) QM 333, JSS 50101 (Test No.6) IEC: 0068-2-38: 2007	Temp.: 15 ºC to 95 ºC RH: 15 % to 95 %
		Temperature Cycling	IS 9000: 1983 (Part XVI/Sec 3): (RA 2007) QM 333, JSS 50101 (Test No 20) IEC 60068-2-14: 2009	Temp.: - 70 ºC to 180 ºC
		Salt Mist	IS 9000: 1983 (Part 11/Sec- 3): (RA 2007) QM 333, JSS 50101 (Test No.4) IEC 60068-2-52:1996	Temp : Ambient to 55 ºC RH : 90 % to 95 %
		Dust and IP First Numeral 5 & 6	IEC60529: 2001 IP5X and IP6X IEC 60068-2-68: 1994 IS 9000 (Part 11) IS12063: 1987(RA 2004)	Temp.: Ambient to 70 ºC
2.	**Mechanical Durability Testing Of Electrical / Electronic Equipments and Components**	Bump	IS 9000: 2006 (Part 7/ Sec-2): QM 333, QM 309 JSS 50101 (Test No.11). IEC 60068-2-29:2007	Bump Rate: (1 to 3) bumps/s Amplitude: 25 mm Acceleration: 40 g ± 4g Pulse Duration: 6 ms (Half sine) Max. Weight : 113 kg

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Last Amended on	**-**	**Page**	**7 of 7**

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	Mechanical Durability Testing Of Electrical / Electronic Equipments and Components	Vibration	IS 9000: 1981 (Part 8 /Sec - 3): (RA 2006) QM 333, JSS 50101 (Test No.23) IEC 60068-2-6:2007	Frequency: 5 Hz to 2 kHz Amplitude/Disp.: 25 mm (p-p) Acceleration : 80 g
		Drop Free Fall / Tilt / Topple	IS 9000 (Part 7 /Sec-3/Sec-4): (RA 2006) IEC 60068-2-31:1982	Height of Drop : 25 mm to 1000 mm
		Solderability	JSS 50101(Test No.19) IS 9000 (Part X18): (RA 2006) IEC 60068-2-54:2006	Bath Temperature : 225 ºC to 350 ºC
		Resistance to Soldering Heat	JSS 50101 (Test No. 15) IS 9000 (Part 18/ Sec 1): (RA 2006) IEC 60068-2-20:2007	Bath Temperature : 225 ºC to 350 ºC
		Resistance to Solvents	JSS 50101 (Test No.16) IS 9000 (Part 18/ Sec 2): (RA 2006) IEC60068-2-45:1980	Qualitative

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