Accreditation Standard		Phase- II, New Delhi	Electronics Regional Test Laboratory (North), Okhla Industrial Area, Phase- II, New Delhi ISO/IEC 17025: 2005			
				Issue Date	40.00.0045	
Disci	ipline	Electrical Testing	Electrical Testing		18.03.2015	
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S. No.	Product / Material of Test	Specific Test Performed	Test Method Specificatio against which tests are performed		of Testing / of Detection	
AT L	<u>AB</u>					
I.	SAFETY TESTING F	FACILITY				
1.	Safety of machinery- Electrical equipments or Machines		IEC/EN 60204-1 Clause 16 & 17	Qualitativ	e	
for Ma	for Macmines	Power Interface	IEC/EN 60204-1 Clause 4.3.2	0.1 V to 3 0.01 A to 0.01 W to	12.5 A	
		Voltage Unbalance	IEC/EN 60204-1 Clause 4.3.2	0.1 V to 3 0.01 A to 0.01 W to	12.5 A	
		Voltage Interruption		0.1 V to 1 Upto 30 A		
		Harmonics		Upto 40 <sup>th</sup> Voltage ( Upto 40 <sup>th</sup> Current ( a	at 240 V ) Harmonic,	
		Incoming Supply Conductor	IEC/EN 60204-1	0 to 200 m	nm	
		Terminations and Devices for Disconnecting and	Clause 18.3	0 to 25 mr	n	
		Switching Off		0 to 200 N	ſ	
				0.25 Nm		
		Protection Against Electric	IEC/EN 60204-1	0 to 200 m	nm	
		Shock	Clause 6.0	1 N to 200	N	
				Upto 6.0 N	Vm	
					mV to 1000 V mV to 750 V	

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	Safety of machinery- Electrical equipments for Machines	Protection of Equipment	IEC/EN 60204-1 Clause. 7.0	Qualitative (Visual Inspection)
	IEC/EN 60204-1: 2009	Heating Test	IEC/EN 60204-1 Clause 13, 14	0.1 V to 300V AC 0.01 A to 12.5 A 0.01 W to 3000 W
				$3~\text{m}\Omega$ to $30~\text{k}\Omega$
				Upto 180 °C
		Design and Construction	IEC/EN 60204-1	0 to 200 mm
			Clause 8-12 & 15	0 to 25 mm
				0 to 2000 N
				Upto 5 kV AC Upto 6 kV DC
		Earth Continuity Test	IEC/EN 60204-1 Clause. 18.2.2	10 A & 25 A Upto 12 V <sub>max</sub>
		Insulation Resistance	IEC/EN 60204-1 Clause. 18.3	Upto 50 GΩ, 0 V to 1000 VDC
		Voltage Test	IEC/EN 60204-1 Clause. 18.4	Upto 5 kV AC Upto 6 kV DC
2.	Information technology equipment to Safety to Part 1: General	Marking and Instructions	IS 13252 (Part 1): 2010 / IEC 60950 (Part 1): 2005 Clause 1.7	Qualitative (Visual Inspection)
	Requirements IS 13252 (Part 1): 2010 /IEC 60950 (Part 1) Edition 2.2 2013	Power Interface	IS 13252 (Part 1): 2010 IEC 60950-1: 2005 Clause 1.6	0.1 V to 300 V AC 0.01 A to 12.5 A 0.01 W to 3000 W

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. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Information technology	Incoming Supply Conductor Terminations and Devices for	IS 13252 (Part 1): 2010 IEC 60950 -1: 2005	0 to 200 mm
	equipment to Safety to Part 1: General Requirements IS 13252 (Part 1): 2010 /IEC 60950 (Part 1) Edition 2.2 2013 Prote	Disconnecting and Switching Off	Clause 3.1-3.5	0 to 25 mm
		Switching Off		0 to 200 N
				0.25 Nm
		Protection Against Electric Shock	IS 13252 (Part 1): 2010 IEC 60950-1: 2005 Clause 2.1	0 to 200 mm
		SHOCK	IEC 00930-1. 2003 Clause 2.1	1 N to 200 N
				Upto 6.0 Nm
				dcV: 200 mV to 1000 V acV: 200 mV to 750 V
		Protection of Equipment	IS 13252 (Part 1): 2010 IEC 60950-1 2005 Clause 2.7	Qualitative (Visual Inspection)
		Heating Test	IS 13252 (Part 1): 2010 IEC 60950 -1: 2005 Clause 4.5	0.1 V to 300 V AC 0.01 A to 12.5 A 0.01 W to 3000 W
				$3~\text{m}\Omega$ to $30~\text{k}\Omega$
				Upto 180 °C
		Design and Construction	IS 13252 (Part 1) 2010	0 to 200 mm
			IEC 60950 (Part 1): 2005 Clause 4.3	0 to 25 mm
				0 to 200 N
				Upto 5 kV AC Upto 6 kV DC

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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
	Information technology equipment to Safety to Part 1: General	Insulation Resistance	IS 13252 (Part 1): 2010 IEC 60950 -1: 2005 Clause 6.2	Upto 50 GΩ, 0 to 1000 VDC
	Requirements IS 13252 (Part 1): 2010 /IEC 60950	Voltage Test	IS 13252 (Part 1): 2010 IEC 60950 -1: 2005 Clause. 5.2	Upto 5 kV AC Upto 6 kV DC
	(Part 1) Edition 2.2 2013	Protection Against Residual Voltages	IS 13252 (Part 1): 2010 IEC 60950 -1: 2005 Clause. 2.1.1.7	0.1 V to 300V AC 0.01 A to 12.5 A 0.01 W to 3000 W
3.	Safety Requirements for Electrical Equipment for Measurement, Control and	Testing In Single Fault Condition	IEC-61010-1 (Edition 2.0): 2001 & (Edition 3.0): 2010 Clause. 4.4.2 & 4.4.2.7.2/4.4.2.7.3	3 mΩ to 30 kΩ 0.1 V to 300 V AC 0.01 A to 12.5 A 0.01 W to 3000 W Upto 200 °C
	Laboratory Use & Subsequent Parts	Power Input	IEC-61010-1 (Edition 2.0): 2001 & (Edition 3.0): 2010 Clause 4.3.2.5 & 5.1.3	0.1 V to 300V AC 0.01 A to 12.5 A 0.01 W to 3000 W
		Verification of Marking and Documentation	IEC-61010-1 (Edition 2.0): 2001 & (Edition 3.0): 2010 Clause 5.3	Qualitative
		Residual Energy /Touch	IEC-61010-1 (Edition 2.0):	0.05 mA to 20 mA
		Current In Normal Condition & Fault Condition	2001 & (Edition 3.0): 2010 Clause 6.1, 6.3 & 6.10.3	DC: 200 mV to 1000 V AC: 200 mV to 750 V
		Determination of Accessible Parts	IEC-61010-1 (Edition 2.0): 2001 & (Edition 3.0): 2010 Clause 6.2, 6.3.1 & 6.3.2	Upto 200 mm 0.999 pF to 10 $\mu$ F at 1 kHz 99 $\mu$ H to 10 H at 1 kHz 0.1 $\Omega$ to 1 M $\Omega$ at 1 kHz Upto 6.0 Nm

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	Safety Requirements for Electrical Equipment for Measurement,	Bonding Impedance / Earth Continuity Test	IEC-61010-1 (Edition 2.0): 2001 & (Edition 3.0): 2010 Clause 6.5.2.3 /6.5.2.4 / 6.5.2.5 /6.5.2.6 /6.5.4	Upto 6.0 Nm 0 to 200 mm 10 A & 25 A Upto 12 V <sub>max</sub>
	Control and Laboratory Use & Subsequent Parts	Terminals for External Circuits (Capacitive Discharge Test)	IEC-61010-1 (Edition 2.0): 2001 & (Edition 3.0): 2010 Clause 6.6.2 /6.10.3	DCV: 200 mV to 1000 V ACV: 200 mV to 750 V
		Clearance & Creepage Distances	IEC-61010-1 (Edition 2.0): 2001 & (Edition 3.0): 2010 Clause 6.7	Upto 200 mm 1 N to 200 N Upto 6.0 Nm 0.01 s to 60 min Upto 100 °C 1 N to 200 N Upto 600 V rms Upto 2.0 A rms 0.01 s to 60 min
		Dielectric Strength Test	IEC-61010-1 (Edition 2.0): 2001 & (Edition 3.0): 2010 Clause 6.8.4	Qualitative (Upto 15 kV AC Upto 40 kV DC)
		Cord Anchorage Test	IEC-61010-1 (Edition 2.0): 2001 & (Edition 3.0): 2010 Clause 6.10.2	1 N to 200 N Upto 200 mm Upto 6.0 Nm
		Stability Tests	IEC-61010-1 (Edition 2.0): 2001 & (Edition 3.0): 2010 Clause 7.4	Qualitative (Upto 200 mm) 1 kg to 100 kg

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Safety Requirements for	Static Test	IEC-61010-1 (Edition 2.0): 2001 & (Edition 3.0): 2010	Qualitative (Upto 200 mm)
Electrical Equipment for Measurement,			Upto 15 kV AC Upto 40 kV DC
Control and Laboratory Use & Subsequent Parts	Dynamic Test	IEC-61010-1 (Edition 2.0): 2001 & (Edition 3.0): 2010 Clause 82.2	500 gm Ø 50 mm 2.1 Nm to 3.5 Nm
	Droptest	IEC-61010-1 (Edition 2.0): 2001 & (Edition 3.0): 2010 Clause 8.3.1 (Wooden Plate form)	Qualitative (Upto 1000 mm 52 mm)
	Flammability Test	IEC-61010-1 (Edition 2.0): 2001 & (Edition 3.0): 2010 Clause 9.3.1/14.7	Qualitative (0.5 mm to 9.5 mm 0.01 s to 60 min Upto 100 °C)
	Limiteditionenergy Circuit	IEC-61010-1 (Edition 2.0): 2001 & (Edition 3.0): 2010 Clause 9.4.	DC: 200 mV to 1000 V AC: 200 mV to 750 V 0.01 A to 60 A
	Heating Test	IEC-61010-1 (Edition 2.0): 2001 & (Edition 3.0): 2010 Clause 10.5.1.	0.1 V to 300V AC 0.01 A to 12.5 A 0.01 W to 3000 W 3 mΩ to 30 kΩ Upto 200 °C
	Stress Relief Test	IEC-61010-1 (Edition 2.0): 2001 & (Edition 3.0): 2010 Clause 10.5.2	Upto 180 °C

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	Safety Requirements for Electrical Equipment for Measurement, Control and	Test on Insulating Material	IEC-61010-1 (Edition 2.0): 2001 & (Edition 3.0): 2010 Clause 10.5.3	5 mm (Ball Pressure) 20 N Upto 150 °C (Vicat Tester) 20 N 0.5 mm to 20 mm
	Laboratory Use & Subsequent Parts	Specially Protect Edition Equipment (IP Rated)	IEC-61010-1 (Edition 2.0): 2001 & (Edition 3.0): 2010 Clause 11.7	Qualitative (Upto IP 57)
		Ionizing Radiation Test	IEC-61010-1 (Edition 2.0): 2001 & (Edition 3.0): 2010 Clause 12.2.1	0.1 mR/H to 100 mR/H
		Motor Temperatures	IEC-61010-1 (Edition 2.0): 2001 & (Edition 3.0): 2010 Clause 14.2	$3~\text{m}\Omega$ to $30~\text{k}\Omega$
				0.1 V to 300V ac 0.01 A to 12.5 A 0.01 W to 3000 W
				Upto 1300 °C
		Mains Transformers	IEC-61010-1 (Edition 2.0):	$3~\text{m}\Omega$ to $30~\text{k}\Omega$
		Temperatures	2001 & (Edition 3.0): 2010 Clause 14.3	0.1 V to 300V AC 0.01 A to 12.5 A 0.01 W to 3000 W
				Upto 200 °C
		Transient Over Voltage	IEC-61010-1 (Edition 2.0): 2001 & (Edition 3.0): 2010 Clause 14.3	Upto 12 kV
4.	Lamp control gear	Marking	IS 15885 (Part 1) IEC 61347-1 Clause. 7.0	Qualitative

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		against which tests are performed	Limits of Detection
Lamp control gear	Terminals	IS 15885 (Part 1)/ IEC 61347-1 Clause. 8.0	0 to 200 mm 1 N to 200 N Upto 6.0 Nm 0.01 s to 60 min Upto 200 °C 3 m $\Omega$ to 30 k $\Omega$
	Provisions for Protective Earthing	IS 15885 (Part 1)/ IEC 61347-1 Clause. 9.0	Qualitative (10 A & 25 A Upto 12 Vmax)
	Protection Against Accidental Contact With Live Parts	IS 15885 (Part 1)/ IEC 61347-1 Clause 10	0 to 200 mm 1 N to 200 N 0.05 mA to 20 mA dcV: 200 mV to 1000 V acV: 200 mV to 750 V
	Moisture Resistance and Insulation	IS 15885 (Part 1)/ IEC 61347-1 Clause 11 IS15885 (Part 2/Sec III)/	Upto 45°C (temp.) Upto 95 % (RH) Upto 45 °C (temp.)
		IEC 61347-2-3 Clause 11 (Annexure J)	Upto 95 % (RH)  Upto 50 GΩ, 0 to 1000 V DC
	Thermal Endurance Test for Windings of Ballasts	IS 15885 (Part 1)/ IEC 61347-1 Clause 13	$3 \text{ m}\Omega \text{ to } 30 \text{ k}\Omega$ Upto $200 ^{\circ}\text{C}$ Upto $50  \text{G}\Omega$ ,
	Lamp control gear	Provisions for Protective Earthing  Protection Against Accidental Contact With Live Parts  Moisture Resistance and Insulation  Thermal Endurance Test for	Provisions for Protective Earthing IS 15885 (Part 1)/ IEC 61347-1 Clause. 8.0  Protection Against Accidental Contact With Live Parts IS 15885 (Part 1)/ IEC 61347-1 Clause 10  Moisture Resistance and IS 15885 (Part 1)/ IEC 61347-1 Clause 11  IS15885 (Part 1)/ IEC 61347-1 Clause 11  IS15885 (Part 2/Sec III)/ IEC 61347-2-3 Clause 11 (Annexure J)

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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
	Lamp control gear	Fault Conditions	IS 15885 (Part 1)/ IEC 61347-1 Clause 14	Upto 200 °C
				0.1 V to 300V AC 0.01 A to 12.5 A 0.01 W to 3000 W
				Upto 50 GΩ, 100 V to 1000 VDC
		Creepage Distances and Clearances	IS 15885 (Part 1)/ IEC 61347-1 Clause 16	0 to 200 mm
		Screws, Current-Carrying Parts and Connections	IS 15885 (Part 1)/ IEC 61347-1 Clause 17	1 N to 200 N
				Upto 6.0 Nm
		Resistance to Heat, Fire and Tracking	IS 15885 (Part 1)/ IEC 61347-1 Clause 18	Upto 200 °C 5 mm 20 N 0 to 200 mm Upto 960 °C 0.1 s to 60 min Upto 600 V rms Upto 2.0 A rms 0.01 s to 60 min
		Resistance to Corrosion	IS 15885 (Part 1)/ IEC 61347-1 Clause 19	0.1 °C to 100 °C  Upto 45 °C (temp.)  Upto 95 % (RH)
		Protection of Associatedition components	IS15885 (Part 2/Sec III)/ IEC 61347-1 Clause 15	0.01 V to 1000 V 10 nS to 500 mS 1.0 kHz

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	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
L	amp control gear	Abnormal Conditions	IEC 61347-1 Clause 16	0.1 V to 600V ac 0.01 A to 40 A 0.01 W to 5000 W
		Asymmetric Pulse Test	IEC 61347-1 Clause 17.2	0.1 V to 1500 V 10 nS to 500 mS 10 Hz to 1.0 kHz
		Asymmetric Power Test	IEC 61347-1 Clause 17.3	0.1 V to 1500 V 10 nS to 500 mS Freq. 10 Hz to 1.0 kHz
		Open Filament Test	IEC 61347-1 Clause 17.4	0.1 V to 1500 V 10 nS to 500 mS 10 Hz to 1.0 kHz
		Voltage Across Capacitors	IS15885 (Part 2/Sec 8)/ IEC 61347-2-8 Clause 11	0.1 V to 600V AC 0.01 A to 40 A 0.01 W to 5000 W
		Ballast Heating Test	IS15885 (Part 2/Sec 3)/ IEC 61347-2-8 Clause 15	0.1 V to 600V AC 0.01 A to 40 A 0.01 W to 5000 W 3 mΩ to 30 kΩ Upto 200 °C Upto 250 °C
		High Voltage Impulse Test	IS15885 (Part 2/Sec 8)/ IEC 61347-2-8 Clause 16	Upto 5 kV AC Upto 6 kV DC
			IS15885 (Part 2/Sec 3)/ IEC 61347-2-8 Clause 17.2	Upto 6 kV with HV Probe DSO Freq. Upto 1 MHz 0 to 25 kV Upto 5 kV AC

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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
	Lamp control gear	Ballast Heating Test	IS15885 (Part 2/Sec IX)/ IEC 61347-2-9 Clause 14	0.1 V to 600V AC 0.01 A to 40 A 0.01 W to 5000 W 3 mΩ to 30 kΩ Upto 200 °C
		High Voltage Impulse Test	IS15885 (Part 2/Sec 9)/ IEC 61347-2-9 Clause 15.1	Upto 6 kV with HV Probe & DSO Freq. Upto 1 MHz 0 to 25 kV
			IS15885 (Part 2/Sec 3)/ IEC 61347-2-8 Clause 17.2	0.1 V to 1500 V 10 nS to 500 mS Freq. 10 Hz to 1.0 kHz
		Transformer Heating	IS15885 (Part 2/Sec 13)/ IEC 61347-2-13 Clause 15	0.1 V to 600V AC 0.01 A to 40 A 0.01 W to 5000 W 3 mΩ to 30 kΩ Upto 200 °C
		Vibration Test	IS15885 (Part 2/Sec 3)/ IEC 61347-1 Clause 16.3.3	10 Hz to 55 Hz to 10 Hz 1 Octave/min. 0.35 mm
5.	Electrical Equipments for Machines Information Technology	Verification of Marking and Instructions	IS 13252(Part 1): 2010 IEC 60950 (Part 1): 2013 Clause 1.7 IEC/EN 60204-1 Clause 16 & 17	Qualitative
	Equipment	Power Interface	IS 13252 (Part 1): 2010 IEC 60950 -1: 2013 Clause 1.6 IEC/EN 60204-1 Clause 4.3.2	0.1 V to 300V AC 0.01 A to 12.5 A 0.01 to 3000W

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	Electrical Equipments for Machines Information	Voltage Unbalance	IEC/EN 60204-1 Clause. 4.3.2	0.1 V to 300V ac 0.01 A to 12.5 A 0.01 W to 3000 W
	Technology Equipment	Voltage Interruption		0.1 V to 1000 V AC Upto 30 A
		Harmonics		Upto $40^{th}$ Harmonic Voltage (at 240 V ) Upto $40^{th}$ Harmonic , Current (at 30 A)
		Incoming Supply Conductor Terminations and Devices for	IEC 60204-1 Clause. 18.3	0 to 200 mm
		Disconnecting and Switching Off		0 to 25 mm 0 to 2000 N
				0.25 Nm
		Protection Against Electric Shock	IS 13252 (Part 1): 2010 /IEC 60950 -1: 2013 Clause 2.1 IEC 60204-1 Clause. 6.0	0 to 200 mm
		SHOCK		1 N to 200 N
				Upto 6.0 Nm
				DC: 200 mV to 1000 V AC: 200 mV to 750 V
		Protection of Equipment	IEC/EN 60204-1 Clause. 7.0	Qualitative
		Heating Test	IEC/EN 60204-1 Clause 13,14	0.1 V to 300V AC 0.01 A to 12.5 A 0.01 W to 3000 W 3 mΩ to 30 kΩ Upto 200 °C

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	Electrical Equipments for	Design and Construction	IS 13252 (Part 1): 2010 / IEC 60950 (Part 1): 2013	0 to 200 mm
	Machines Information		Clause 4.3 IEC/EN 60204-1	0 to 25 mm
	Technology Equipment		Clause 8-12 & 15	0 to 2000 N
	_1F			Upto 5 kV A Upto 6 kV DC
		Insulation Resistance	IS 13252 (Part 1): 2010 / IEC 60950 -1: 2013 Clause 6.2 IEC 60204-1 Clause. 18.3	Upto 50 G $\Omega$ , 50 VDC to 1000 VDC
		Voltage Test	IS 13252 (Part 1): 2010 / IEC 60950 -1: 2013	Upto 5 kV AC
			Clause 5.2 IEC 60204-1 Clause. 18.4	Upto 6 kV DC
		Protection Against Residual Voltages	IS 13252(Part 1): 2010 / IEC 60950 -1: 2013 Clause 2.1.1.7 IEC 60204-1 Clause. 18.5	0.1 V to 300V AC 0.01 A to 12.5 A 0.01 W to 3000 W
6.	Self- ballasted lamps for general lighting services	Verification of Marking	IS 15111 (Part 1) Clause 6 IEC 60968 Clause. 5	Qualitative
	SCIVICES	Interchangeability	IS 15111 (Part 1) Clause 7 IEC 60968 Clause. 6	Upto 200 mm

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6. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Self- ballasted lamps	Protection Against Electric	IS 15111 (Part 1) Clause 8	Upto 200 mm
	for general lighting services	Shock	IEC 60968 Clause. 7	1 N to 200 N Upto 6.0 Nm
				DC: 200 mV to 1000 V AC: 200 mV to 750 V
		Insulation Resistance and Electric Strength After Humidity Treatment	IS 15111 (Part 1) Clause 9 IEC 60968 Clause 8	Upto 45 °C (temp.) Upto 95 % (RH)
				Upto $50 \text{ G}\Omega$ , 0 to $1000 \text{ VDC}$
				0.05 mA to 20 mA
				Upto 5 kV AC Upto 6 kV DC
		Mechanical Strength	IS 15111 (Part 1) Clause. 10 IEC 60968 Clause. 9	0.01 Nm to 20 Nm
		Cap Temperature Rise	IS 15111 (Part 1) Clause. 11	Upto 200 °C
			IEC 60968 Clause. 10	0.1 V to 300V AC 0.01 A to 12.5 A 0.01 W to 3000 W
		Resistance to the Heat	IS 15111 (Part 1) Clause. 12 IEC 60968 Clause. 11	Qualitative (0.1°C to 80°C) 0 to 200 mm
		Resistance to Flame and Ignition	IS 15111 (Part 1) Clause. 13 IEC 60968 Clause. 12)	Qualitative (5 mm 20 N Upto 25 mm Upto 960 °C 0.1 s to 999 s)

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	Self- ballasted lamps for general lighting services	Fault Conditions	IS 15111 (Part 1) Clause. 14 IEC 60968 Clause. 13	Upto 200 °C  0.1 V to 300V AC 0.01 A to 12.5 A 0.01 W to 3000 W  Upto 2 GΩ, 100 V 1000 V DC
7.	Uninterruptible power systems	Power Interfaces	IEC-62040-1 (Edition 1.1): 2013 Clause. 4.6 IEC-60950-1 (Edition 2.0): 2005 / IS 13252 (Part 1) Clause. 1.6	0.1 V to 300V ac 0.01 A to 12.5 A 0.01 W to 3000 W
		Durability of Markings	IEC-62040-1 (Edition 1.1): 2013 Clause. 4.7.16 IEC-60950-1 (Edition 2.0): 2005 / IS 13252 (Part 1) Clause. 1.7.11	Petroleum Sprit
		Power Rating	IEC-62040-1 (Edition 1.1): 2013 Clause. 4.7.2 IEC-60950–1 (Edition 2.0): 2005 / IS 13252 (Part 1) Clause. 1.7.1	By inspection
		High Leakage Current	IEC-62040-1 (Edition 1.1): 2013 Clause. 4.7.13 IEC-60950-1 (Edition 2.0): 2005 / IS 13252 (Part 1) Clause 5.1	0.05 mA to 20 mA

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S. No. Product / Material of Test	Specific Test Performed	Test Method Specificatio against which tests are performed		of Testing / of Detection
Uninterruptible power systems	Battery	IEC-62040-1 (Edition 1.1): 2013 Clause. 4.7.20) IEC-60950-1 (Edition 2.0): 2005 / IS 13252 (Part 1) Clause. 2.1.1.5	Variable r	esistive load
	Protection Against Electric Shock and Energy Hazards	IEC-62040-1 (Edition 1.1): 2013 Clause. 5.1.1,5.1.2,5.1.3, 5.1.4,5.1.5 IEC-60950-1 (Edition 2.0): 2005 / IS 13252 (Part 1) Clause. 2.1.	0.01 V to 10 nS to 5 1.0 kHz	
	Limited Current Circuits	IEC-62040-1 (Edition 1.1): 2013 Clause. 5.2.3 IEC-60950-1 (Edition 2.0): 2005 / IS 13252 (Part 1) Clause. 2.4	acV: 200 points	mV to 1000 V mV to 750 V to 10 μF at 1 kHz
			$0.1~\Omega$ to $1$	$M\Omega$ at 1 kHz
	Limited Power Source	IEC-62040-1 (Edition 1.1): 2013 Clause. 5.2.5 IEC-60950-1 (Edition 2.0): 2005 / IS 13252 (Part 1) Clause. 2.5		mV to 1000 V mV to 750 V

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No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Uninterruptible power systems	Protective Earthing	IEC-62040-1 (Edition 1.1): 2013 Clause. 5.3.2 IEC-60950–1 (Edition 2.0):	dcV: 200 mV to 1000 V acV: 200 mV to 750 V
			2005 / IS 13252 (Part 1)	0 to 200 mm
			Clause. 2.10,4.2,2.6.1,5.2	$10~A~\&~25~A$ Upto $12~V_{max}$ $0~to~200~mm$ Upto $600~V~rms$ Upto $2.0~A~rms$ $0.01~s~to~60~min$ Upto $50~G\Omega$ , $0~to~1000~VDC$ $0~to~200~mm$
		Clearances ,Creepage	IEC-62040-1 (Edition 1.1):	0 to 200 mm
		Distances and Distance Through Insulation	2013 Clause. 5.7 IEC-60950–1 (Edition 2.0): 2005 / IS 13252 (Part 1) Clause. 2.10	Upto 2.0 A rms
		General Provisions for Connection to Power	IEC-62040-1 (Edition 1.1): 2013 Clause.6.2.1 IEC-60950-1 (Edition 2.0): 2005 / IS 13252 (Part 1) Clause.3.2	0 to 200 mm
		Stability	IEC-62040-1 (Edition 1.1): 2013 Clause.7.2 IEC-60950-1 (Edition 2.0): 2005 / IS 13252 (Part 1) Clause. 4.1	0 to 200 mm
		Mechanical Strength	IEC-62040-1 (Edition 1.1): 2013 Clause.7.3 IEC-60950-1 (Edition 2.0): 2005 / IS 13252 (Part 1) Clause. 4.2	0 to 200 mm Upto 250N 0.2Nm tp 1Nm

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6. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Uninterruptible power systems	Construction Details	IEC-62040-1 (Edition 1.1): 2013 Clause.7.4	Upto 200N
			IEC-60950–1 (Edition 2.0): 2005 /	0.1 mR/H to 100mR/H
			IS 13252 (Part 1) Clause. 4.3	
		Resistance to Fire	IEC-62040-1 (Edition 1.1): 2013 Clause.7.5 IEC-60950-1 (Edition 2.0): 2005 /	0.01 s to 60 min
			IS 13252 (Part 1) Clause. 4.7	
		Temperature Rise	IEC-62040-1 (Edition 1.1): 2013 Clause.7.7 IEC-60950–1 (Edition 2.0): 2005 /	0.1 V to 300V AC 0.01 A to 12.5 A 0.01 W to 3000 W
			IS 13252 (Part 1) Clause. 4.5	Variable resistive load
			, ,	$3~\text{m}\Omega$ to $30~\text{k}\Omega$
				Upto 200 °C
		General Provision for Earth Leakage	IEC-62040-1 (Edition 1.1): 2013 Clause.8.1 IEC-60950-1 (Edition 2.0): 2005 / IS 13252 (Part 1) Clause. 5.1	0.05 mA to 20 mA
		Electric Strength	IEC-62040-1 (Edition 1.1): 2013 Clause.8.2	Upto 5 kV AC
			IEC-60950–1 (Edition 2.0): 2005 / IS 13252 (Part 1) Clause. 5.2	Upto 6 kV DC

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> IEC 60227-2: 1997 Clause. 1.11

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. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Uninterruptible power systems	Electrical Resistance of Conductor	IS 694: 2010 Clause. 4.2 IEC 60227-2: 1997 Clause. 2.1 (Test Bench)	$3 \text{ m}\Omega$ to $30 \text{ k}\Omega$ Upto $200 ^{\circ}\text{C}$ Upto $1000  \text{mm}$
		Voltage Test Carried Out on Completed Cables	IS 694: 2010 Clause. 10.2, 103 IEC 60227-2: 1997 Clause. 2.2	Upto 5 kV AC
		Voltage Test Carried Out on Cores	IS 694:2010 Clause. 10.1 IEC 60227-2: 1997 Clause. 2.3	Upto 5 kV AC
		Insulation Resistance	IS 694: 2010 Table 1	Upto 90 °C
			IEC 60227-2: 1997 Clause. 2.4 (Water Bath)	Upto 50 G $\Omega$ , Upto 1000 V bDC
		Flexing Test	IS 694: 2010 Table 1 IEC 60227-2: 1997 Clause. 3.1	Qualitative (Upto 35A/ mm <sup>2</sup> 500 g to 3 kg)
		Bending Test	IEC 60227-2: 1997 Clause. 3.2	Qualitative (500 g)
		Snatch Test	IEC 60227-2: 1997 Clause. 3.3	Qualitative (100 g to 3 kg)
		Test for Separation of Cores	IS 694: 2010 Clause. 11 -14 IEC 60227-2: 1997 Clause. 3.4	Qualitative
		Loss of Mass	IS 694: 2010 Table 1 IEC 60811-3-2	Upto 100 g
			Sub Clause 8.1	Upto 200 mm
		Pressure Test at High Temperature for Insulation and Sheath.	IS 694: 2010 Table 1 IEC 60811-3-1 Sub Clause 8.1	Qualitative (Upto 90 °C Upto 200 mm)

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No. Produc Materia	ct / al of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
Uninteri power sy	_	Cold Bending Test for Insulation & Sheath.	IS 694, 2010 Table 1 IEC 60811-1-4 Sub Clause 8.1 & Sub Clause 8.2	Qualitative ((-)15 °C 100 g to 2 kg)
		Cold Elongation Test for Insulation.	IEC 60811-1.4 Sub Clause 8.4	Qualitative ((-)15 °C (temp.) Upto 200 mm)
				Cold elongation jig
		Impact Test for Insulation & Sheath	IS 694: 2010 Table 1	(-)15 °C (temp.)
		(Impact Tester with suitable mass)		100 g to 2 kg
		Heat Shock Test for Insulation and Sheath	IS 694: 2010 Table 1 IEC 60811-3-1	Upto 200 mm
		and Sheath	Sub Clause 9.1& Sub Clause 9.2	Upto 150 °C
		Test of Flame Retardance.	IS 694: 2010 Table 1	Upto 200 mm
			IEC 60332-1	0.5 mm to 9.5 mm 0.01 s to 60 min
			Upto 1000 mm	
				Upto 200 °C
		Long Term Resistance of Insulation to D.C.	IEC 60227-5 & Table 4 Ref. No.1.4	Upto 90 °C (Water Bath)

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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
8.	Self-ballast Edition L Edition lamps for general lighting services	Marking	IS 16102 (Part 1): 2002 Clause. 6 IEC 62560 (Edition 2.0): 2012 Clause. 5	Qualitative
		Interchangeability	IS 16102 (Part 1): 2002 Clause. 7 IEC 62560 (Edition 2.0): 2012 Clause 6	Uptoto 200 mm
		Protection Against Electric Shock	IS 16102 (Part 1): 2002 Clause. 8)	Upto 200 mm
		(Standard Test Finger)	IEC 62560 (Edition 2.0): 2012 Clause 7	1 N to 200 N
			Clause /	Upto 6.0 Nm
				DC V: 200 mV to 1000 V AC V: 200 mV to 750 V
		Insulation Resistance and Electric Strength After Humidity Treatment	IS 16102 (Part 1): 2002 Clause 9 IEC 62560 (Edition 2.0): 2012	Upto 45°C (temp.) Upto 95 % (RH)
		numenty Treatment	Clause 8	Upto 50 G $\Omega$ , Upto 1000 VDC
				$(\pm)0.16~\mu A$ at 0.099 mA $(\pm)0.4~mA$ at 3.5 mA
				Upto 5 kV AC Upto 6 kV DC
		Mechanical Strength	IS 16102 (Part 1): 2002 Clause 10 IEC 62560 (Edition 2.0): 2012 Clause 9	0.01 Nm to 20 Nm

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No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Self-ballast Edition L Edition lamps for	Cap Temperature Rise	IS 16102 (Part 1): 2002 Clause 11	Upto 200 °C
	general lighting		IEC 62560 (Edition 2.0): 2012	0.1 V to 300V ac
	services		Clause. 10	0.01 A to 12.5 A
				0.01 W to 3000 W
		Resistance to the Heat	IS 16102 (Part 1): 2002 Clause 12	0.1 °C to 80 °C
			IEC 62560 (Edition 2.0): 2012 Clause 11	Upto 200 mm
		Resistance to Flame and	IS 16102 (Part 1): 2002	5 mm
		Ignition	Clause 13 IEC 62560 (Edition 2.0): 2012	20 N
			Clause 12	Upto 25 mm
				Upto 960 °C
				0.1 s to 999 s
		Fault Conditions	IS 16102 (Part 1): 2012 Clause 14	$0.1~^{\circ}\mathrm{C}$ to 200 $^{\circ}\mathrm{C}$
			IEC 62560: 2011 (2012)	0.1 V to 300V AC
		Clause 13	0.01 A to 12.5 A	
				0.01 W to 3000 W
				Upto 2 $G\Omega$ ,
				100 V to 1000 VDC
				Upto 1000 V DC

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S. No. Product / Specific Test Performed Test Method Specification Range of Testing / against which tests are performed performed

## II. MEASURING INSTRUMENTS- ELECTRICAL AND ELECTRONIC (STATIC) ENERGY METERS

1.	Static Energy Meters for Active Energy	Functional Test	IS 13779: 1999 (RA 2004) Classes 1 & 2, IEC/AS 62052-11: 2003/	30 V to 300 V 1 mA to 120 A
		Impulse Voltage Test	IEC/AS 62052-11: 2005, IEC/AS 62053-21: 2003/ IEC/AS 62053-21: 2005, Classes 1 & 2	Qualitative (Upto 12 kV 50 $\Omega$ & 500 $\Omega$ Upto 6 kV 2 $\Omega$ & 12 $\Omega$ )
		AC Voltage Test		50 V to 5 kV
		Insulation Test		Upto 1000 M $\Omega$
		Test on Limit of error		30 V to 300 V 1 mA to 120 A
		Test of Meter Constant		30 V to 300 V 1 mA to 120 A
		Test of Starting Condition		30 V to 300 V 1 mA to 120 A

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No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Static Energy Meters for	Test of no Load Condition	IS 13779: 1999 (RA 2004) Classes 1 & 2,	Qualitative 30 V to 300 V
	<b>Active Energy</b>		IEC/AS 62052-11: 2003/	
		Test of Ambient Temperature	IEC/AS 62052-11: 2005,	30 V to 300 V
		influence	IEC/AS 62053-21: 2003/ IEC/AS 62053-21: 2005,	1 mA to 120 A
		Test of Repeatability of Error	Classes 1 & 2	30 V to 300 V
		1450 01 10000000000000000000000000000000	Classes I & 2	1 mA to 120 A
		Tests of Influence Quantities		30 V to 300 V
			1 mA to 120 A	
			45 Hz to 65 Hz,	
				Harmonics
				Upto 21st
				(Amplitude 40 % max.)
		Test of Power Consumption Test		25 mW to 200 kW $_{PK}$
		Test of influence of Supply Voltage		30 V to 300 V
		Test of influence of Short Time Over Currents		20 A to 4000 A
		Test of Influence of Self		30 V to 300 V
		Heating		1 mA to 120 A
		Test of Influence of Heating		Upto to 200 °C
		Test of Influence of Immunity		30 V to 300 V
		to Earth Fault		1 mA to 120 A
		Radio Interference		Upto 10 A for 1 phase
		Measurement		Upto 32 A for 3 phase
		Conduced emission Radiated Power		Cable diameter:1 cm

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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
	Static Energy Meters for Active Energy	Radio interference suppression Conducted emission Radiated emission	IS 13779: 1999 (RA 2004) Classes 1 & 2, IEC/AS 62052-11: 2003/ IEC/AS 62052-11: 2005, IEC/AS 62053-21: 2003/	Upto 10 A for 1 phase Upto 32 A for 3 phase 3 m distances 30 MHz to 6 GHz
		Fast transient burst Test	IEC/AS 62053-21: 2005, Classes 1 & 2	Qualitative (Upto 16 A for 1 phase Upto 32 A for 3 phase)
		Damped Oscillatory waves immunity Test		Qualitative (For Damp Edition oscillation 16 A per phase)
		Immunity to Electromagnetic RF fields		Qualitative Frequency range 80 MHz to 2000 MHz, Field: 10 V/m &30 V/m
		Immunity to Electrostatic Discharge		Qualitative (Upto 15 kV Air, 8 kV Contact)
		Surge Immunity Test		Qualitative (Upto 16 A for 1 phase Upto 32 A for 3 phase Max amplitude : 4 kV)
		Dry Heat Test		Qualitative (40 °C to 200 °C)
		Cold Test		Qualitative ((-)70 °C to 10 °C)
		Damp Heat Test (Cycle)		Qualitative (40 °C, 55 °C, 65 °C) R.H.: Ambient to 95 %

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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
	Static Energy Meters for Active Energy	Vibration Test	IS 13779: 1999 (RA 2004) Classes 1 & 2, IEC/AS 62052-11: 2003/ IEC/AS 62052-11: 2005, IEC/AS 62053-21: 2003/ IEC/AS 62053-21: 2005,	Qualitative (5000 kgf (Peak Sine) 5000 kgf (RMS Random) 5 Hz to 2 kHz 50.0 mm (P-P))
		Shock Test	Classes 1 & 2	Qualitative (Acc: 150 m/s² to 15000 m/s² Duration of Pulse: 0.5 m/s to 18 m/s Pulse shape Half sine, Saw tooth, Triangular & Trapezoidal)
		Spring Hammer Test		Qualitative (0.22 Nm, 0.5 Nm)
		Protection against Penetration of Dust and Water		Qualitative (Upto IP 56 500 mm x 300 mm x 300 mm
		Resistance to Heat & Fire		Qualitative (Upto 960 °C)
		General and Constructional Requirements		0.02 mm to 200 mm
		Marking of Meters		Qualitative Test
		Climatic Conditions		Qualitative (40 °C to 200 °C (-)70 °C to 10 °C 40 °C, 55 °C, 65 °C R.H. Ambient to 95 %)
		Electrical Requirements		Qualitative Test

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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
	Static Energy Meters for Active Energy	Functional Test	IS 14697: 1999 (RA 2004) & IS 15707: 2006 Classes 0.2 S, 0.5 S & 1.0 S,	30 V to 300 V & 1 mA to 120 A
	Active Energy	Impulse Voltage Test	Classes 0.2 5, 0.3 5 & 1.0 5, CBIP 304: 2008 Classes 0.2, 0.5 & 1.0, IEC/AS 62052-11: 2003/ IEC/AS 62053-21: 2005, IEC/AS 62053-22: 2003/ IEC/AS 62053-22: 2005,	Qualitative Upto 12 kV, Source Impedance 50 $\Omega$ & 500 $\Omega$ & Upto 6 kV Source Impedance: 2 $\Omega$ & 12 $\Omega$
		AC Voltage Test	Classes 0.2 S & 0.5 S & NMI-M6	50 V to 5 kV
		Insulation Test	Classes 0.2,0.5,1 &1.5	0 to 250/1000 M $\Omega$
		Test on Limit of Error		30 V to 300 V 1 mA to 120 A
		Test of Meter Constant		30 V to 300 V 1 mA to 120 A
		Test of Starting Condition		30 V to 300 V 1 mA to 120 A
		Test of no load Condition		Qualitative (30 V to 300 V)
		Test of Ambient Temperature influence		30 V to 300 V 1 mA to 120 A
		Test of Repeatability of Error		30 V to 300 V 1 mA to 120 A
		Tests of Influence Quantities		30 V to 300 V 1 mA to 120 A 45 Hz to 65 Hz, Harmonics Upto 21 <sup>st</sup> (Amplitude 40 % max.)

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No. Product / Material of Tes	Specific Test Performed t	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
Static Energy Meters for Active Energy	Test of Power Consumption Test	IS 14697: 1999 (RA 2004) & IS 15707: 2006 Classes 0.2 S, 0.5 S & 1.0 S,	25 mW to 200 kW <sub>PK</sub>
6,0	Test of influence of Supply Voltage	CBIP 304: 2008 Classes 0.2, 0.5 & 1.0, IEC/AS 62052-11: 2003/	Qualitative (30 V to 300 V)
	Test of influence of short Time over Currents	IEC/AS 62052-11: 2005, IEC/AS 62053-22: 2003/ IEC/AS 62053-22: 2005,	Upto 4000 A
	Test of Influence of Self Heating	Classes 0.2 S & 0.5 S & NMI-M6 Classes 0.2,0.5,1 &1.5	30 V to 300 V
	Test of Influence of Heating	Classes 0.2,0.5,1 &1.5	Upto 200 °C
	Test of Test of Influence of Immunity to Earth Fault		30 V to 300 V & 1 mA to 120 A
	Radio Interference Measurement Conducted Emission Radiated Power		Upto 10 A for 1 phase Upto 32 A for 3 phase Cable diameter:1 cm
	Fast Transient Burst Test		Qualitative (Upto 16 A for 1 phase Upto 32 A for 3 phase)
	Damped Oscillatory Waves Immunity Test		Qualitative For Damp Edition oscillation 16 A per phase
	Immunity to Electromagnetic RF Fields		Qualitative (80 MHz to 1000 MHz 10 V/m)

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	Static Energy Meters for Active Energy	Immunity to Conducted Disturbances Induced by Radio-Frequency Fields	CDN Method Only	Qualitative (32 A, 1 Phase 32 A, 3 Phase 150 kHz to 80 MHz Level 1,3 V,10 V
		Immunity to Electrostatic Discharge		Qualitative (Upto 15 kV Air, 8 kV Contact)
		Surge Immunity Test		Qualitative (Upto 16A for 1phase Upto 32 A for 3 phase Max amplitude : 4 kV)
		Dry Heat Test		Qualitative (40 °C to 200 °C)
		Cold Test		Qualitative ((-)70 °C to 10 °C)
		Damp Heat Test (Cycle)		Qualitative (40 °C, 55 °C, 65 °C R.H. Ambient to 95 %)
		Vibration Test		Qualitative (5000 kgf (Peak Sine) 5 Hz to 2 kHz 50.0 mm (P-P))
		Shock Test		Qualitative Acc: 150 m/s <sup>2</sup> to 15000 m/s Duration of Pulse: 0.5 m/s 18 m/s Pulse shape: Half sine, Saw tooth, Triangular & Trapez

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S. No.	Product / Material of Test	Specific Test Performed	Test Method Specificatio against which tests are performed		of Testing / of Detection	
	Static Energy Meters for	Spring Hammer Test	CDN Method Only	Qualitativ (0.22 Nm		
	Active Energy	Protection Against Penetration of Dust and Water		(Upto IP :	Qualitative (Upto IP 56 500 mm x 300 mm x 300 mm)	
		Resistance to Heat & Fire		Qualitativ (Upto 960		
		General and Constructional Requirements		0.02 mm	to 200 mm	
		Marking of Meters		Qualitativ	re Test	
		Climatic Conditions		Qualitativ 40 °C to 2 (-)70 °C to 40 °C, 55 R.H. Amb	000 °C o 10 °C	
		Electrical Requirements		Qualitativ	re Test	
2.	Static Energy Meters for Reactive Energy	Functional Test	IS 14697: 1999 (RA 2004) & IS 15707: 2006 Classes 0.2S,0.5 S & 1.0S,	30 V to 30 1 mA to 1		
	Reactive Energy	Impulse Voltage Test	CBIP 88& 304: 2008 Classes 0.2, 0.5 & 1.0, IEC/AS 62052-11: 2003/ IEC/AS 62053-21: 2005, IEC/AS 62053-23: 2003/ IEC/AS 62053-23: 2005,	Impedanc	kV, Source e: 50 Ω & 500 Ω & / Source Impedance: 2	
		AC Voltage Test	Classes 0.2 S & 0.5 S, & NMI-M6 (2 <sup>nd</sup> Edition) (3 <sup>rd</sup> Revision): 2011 Classes 0.2,0.5,1 &1.5	50 V to 5	kV	

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	Static Energy Meters for	Insulation Test	IS 14697: 1999 (RA 2004) & IS 15707: 2006	Upto 1000 M $\Omega$
	Reactive Energy	Test on Limit of Error	Classes 0.2S,0.5 S & 1.0S,	30 V to 300 V
			CBIP 88& 304: 2008	1 mA to 120 A
		Test of Meter Constant	Classes 0.2, 0.5 & 1.0, IEC/AS 62052-11: 2003/	30 V to 300 V 1 mA to 120 A
			IEC/AS 62052-11: 2005/ IEC/AS 62052-11: 2005, ,	1 IIIA to 120 A
		Test of Starting Condition	IEC/AS 62052-11. 2003, , IEC/AS 62053-23: 2003/	30 V to 300 V
			IEC/AS 62053-23: 2005, ,	1 mA to 120 A
			Classes 0.2 S & 0.5 S,	
		Test of no Load Condition	& NMI-M6 (2 <sup>nd</sup> Edition)	Qualitative
			(3 <sup>rd</sup> Revision): 2011	(30 V to 300 V)
		T	Classes 0.2,0.5,1 &1.5	20 11 . 200 11
		Test of Ambient Temperature		30 V to 300 V
		Influence		1 mA to 120 A
	Test of Repeatability of Error		30 V to 300 V	
		1		1 mA to 120 A
		Tests of Influence Occupation		20 M += 200 M
		Tests of Influence Quantities		30 V to 300 V 1 mA to 120 A
				45 Hz to 65 Hz,
				Harmonics Upto 21st
				(Amplitude 40 % max.)
				(Ampittude 40 /0 max.)
		Test of Power Consumption Test		25 mW to 200 kW <sub>PK</sub>
		Test of Influence of Supply Voltage		30 V to 300 V
		Test of Influence of Short Time Over Currents		Upto 4000 A
		Test of Influence of Self Heating		30 V to 300 V

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. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Static Energy Meters for	Test of Influence of Heating	IS 14697: 1999 (RA 2004) & IS 15707: 2006	0 °C to 200 °C
	Reactive Energy	Test of Test of Influence of Immunity to Earth Fault  Radio Interference	Classes 0.2S,0.5 S & 1.0S, CBIP 88& 304: 2008 Classes 0.2, 0.5 & 1.0, IEC/AS 62052-11: 2003/	30 V to 300 V & 1 mA to 120 A
		Measurement	IEC/AS 62052-11: 2005, IEC/AS 62052-11: 2005, IEC/AS 62053-23: 2003/	Current limitation of 10 A for 1 phase
		Conducted Emission	IEC/AS 62053-23: 2005, , Classes 0.2 S & 0.5 S,	32 A for 3 phase
		Radiated Power	& NMI-M6 (2 <sup>nd</sup> Edition) (3 <sup>rd</sup> Revision): 2011	Cable diameter:1 cm
		Radio Interference Suppression Conducted Emission	Classes 0.2,0.5,1 &1.5	Upto 10 A for 1 phase Upto 32 A for 3 phase 3 m distances
		Radiated Emission		30 MHz to 6 GHz
		Fast Transient Burst Test		Qualitative (Upto 16 A for 1 phase Upto 32 A for 3 phase)
		Damped Oscillatory Waves Immunity Test		Qualitative (For Damp Edition Oscillation16 A per phase
		Immunity to Electromagnetic RF Fields		Qualitative Frequency range 80 MHz to 1000 MHz, Field: 10 V/m

Laboratory Electronics Regional Test Laboratory (North), Okhla Industrial Area, Phase- II, New Delhi **Accreditation Standard** ISO/IEC 17025: 2005 Discipline **Electrical Testing Issue Date** 18.03.2015 **Certificate Number** Valid Until T-1572 17.03.2017 Last Amended on 24.04.2015 **Page** 34 of 58 Range of Testing / S. No. Product / **Specific Test Performed Test Method Specification Limits of Detection Material of Test** against which tests are performed **Static Energy** Immunity to Conduct edition IS 14697: 1999 (RA 2004) & Qualitative **Meters for** disturbances Induct edition by IS 15707: 2006 32 A, 1 Phase Radio-Frequency Fields **Reactive Energy** Classes 0.2S,0.5 S & 1.0S, 32 A,3 Phase Freq Range: 150 kHz to CBIP 88& 304: 2008 Classes 0.2, 0.5 & 1.0, 80 MHz IEC/AS 62052-11: 2003/ LEVEL 1 V, 3 V, 10 V Cdn Method Only IEC/AS 62052-11: 2005, , IEC/AS 62053-23: 2003/ Immunity to Electrostatic IEC/AS 62053-23: 2005, Qualitative Discharge Classes 0.2 S & 0.5 S, Upto 15 kV Air, & NMI-M6 (2<sup>nd</sup> Edition) 8 kV Contact (3<sup>rd</sup> Revision): 2011 Parameter Classes 0.2,0.5,1 &1.5 Surge Immunity Test Qualitative (Upto 16 A for 1 phase Upto 32 A for 3 phase Max amplitude: 4 kV) Dry Heat Test Qualitative (40 °C to 200 °C)

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Cold Test

(Cycle)

Damp Heat Test

Vibration Test

Qualitative (-)70 °C to 10 °C

Qualitative

Oualitative

(40°C, 55°C, 65°C R.H: Ambient to 95 %)

(5000 kgf (Peak Sine) 5 Hz to 2 kHz 50.0 mm (P-P))

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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
	Static Energy Meters for Reactive Energy	Shock Test	IS 14697: 1999 (RA 2004) & IS 15707: 2006 Classes 0.2S,0.5 S & 1.0S, CBIP 88& 304: 2008 Classes 0.2, 0.5 & 1.0, IEC/AS 62052-11: 2003/ IEC/AS 62052-11: 2005, , IEC/AS 62053-23: 2003/	Qualitative (Acc: 150 m/s² to 15000 m/s² Duration of Pulse: 0.5 m/s to 18 m/s Pulse shape: Half sine, Saw tooth, Triangular & Trapezoidal)
		Spring Hammer Test	IEC/AS 62053-23: 2005, Classes 0.2 S & 0.5 S, & NMI-M6 (2 <sup>nd</sup> Edition)	Qualitative (0.22 Nm, 0.5 Nm)
		Protection Against Penetration of Dust and Water	(3 <sup>rd</sup> Revision): 2011 Classes 0.2,0.5,1 &1.5	Qualitative (Upto IP 56 500 mm x 300 mm x 300 mm
		Resistance to Heat & Fire		Qualitative (Upto 960 °C)
		General and Constructional Requirements		0.02 mm to 200 mm
		Marking of Meters		Qualitative Test
		Climatic Conditions		Qualitative (40 °C to 200 °C (-)70 °C to 10 °C 40 °C, 55 °C, 65 °C R.H. Ambient to 95 %)
		Electrical Requirements		Qualitative Test

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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
3.	Electro-Mechanical Energy Meters for Active Energy	Functional Test	IEC/AS 62052-11: 2003/ IEC/AS 62052-11: 2005, IEC/AS 62053-11: 2003	30 V to 300 V 1 mA to 120 A
	retive Energy	Impulse Voltage Test	Classes 0.5, 1.0 & 2.0	Qualitative (Upto 12 kV, Source Impedance: $50 \Omega \& 500 \Omega \&$ Upto 6 kV Source Impedance: $\Omega \& 12 \Omega$ )
		AC Voltage Test		50 V to 5 kV
		Insulation Test		Upto $1000~\mathrm{M}\Omega$
		Test on Limit of Error		30 V to 300 V
				1 mA to 120 A
		Test of Meter Constant		30 V to 300 V
				1 mA to 120 A
		Test of Starting Condition		30 V to 300 V
		Ü		1 mA to 120 A
		Test of no Load Condition		Qualitative
				(30 V to 300 V
				1 mA to 120 A)
		Test of Ambient Temperature		30 V to 300 V
		Influence		1 mA to 120 A
		Tests of Influence Quantities		(30 V to 300 V
				1 mA to 120 A
				45 Hz to 65 Hz,
				Harmonics Upto 21st
				(Amplitude 40 % max.))

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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	
	Electro-Mechanical Energy Meters for Active Energy	Test of Power Consumption Test	IEC/AS 62052-11: 2003/ IEC/AS 62052-11: 2005, IEC/AS 62053-11: 2003	25 mW to 200 kW <sub>PK</sub>	
	neuve Energy	Test of Influence of Supply Voltage	Classes 0.5, 1.0 & 2.0	30 V to 300 V	
	Test of Influence of Short Time Over Currents		Upto 4000 A		
		Test of Influence of Self Heating		30 V to 300 V	
	Test of Influence of Heating		Upto 200 °C		
		Test of Test of Influence of Immunity to Earth Fault		30 V to 300 V 1 mA to 120 A	
		Range of Adjustment		30 V to 300 V 1 mA to 120 A	
		Dry Heat Test		Qualitative (40 °C to 200 °C)	
		Cold Test		Qualitative ((-)70 °C to 10 °C)	
		Damp Heat Test (Cycle)		Qualitative (40°C, 55°C, 65°C R.H. Ambient to 95 %)	
		Vibration Test		Qualitative (Max. force: 5000 kgf (Peak Sine) 5000 kgf (RMS Random) Freq: 5 Hz to 2 kHz Displacement: 50.0 mm (F	

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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
	Electro-Mechanical Energy Meters for Active Energy	Shock Test	IEC/AS 62052-11: 2003/ IEC/AS 62052-11: 2005, IEC/AS 62053-11: 2003 Classes 0.5, 1.0 & 2.0	Qualitative (Acc: 150 m/s² to 15000 m/s² Duration of Pulse: 0.5 m/s to 18 m/s Pulse shape: Half sine, Saw tooth, Triangular & Trapezoidal)
		Spring Hammer Test		Qualitative (0.22 Nm, 0.5 Nm)
		Protection Against Penetration of Dust and Water		Qualitative (Upto IP 56 500 mm x 300 mm x 300 mm
		Resistance to Heat & Fire		Qualitative (Upto 960 °C)
		General and Constructional Requirements		0.02 mm to 200 mm
		Functional Test	IS 13010: 2002	30 V to 300 V 1 mA to 120 A
		Insulation Resistance		Upto 1000 M $\Omega$
		Running With no Load		30 V to 300 V
		Starting Limit of Error & Interpretation of Test Results		30 V to 300 V 1 mA to 120 A
		Test of Meter Constant		30 V to 300 V 1 mA to 120 A

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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
	Electro-Mechanical Energy Meters for	Power Loss	IS 13010: 2002	25 mW to 200 k
	Active Energy	Heating		Upto 200 °C
		Impulse Voltage		Qualitative (Upto 12 kV, Source Impedence: $500 \Omega \& Upto 6 kV Source Impedence 2 \Omega \& 12 \Omega)$
		AC Voltage Test		Qualitative 50 V to 5 kV
		Effect of Influence Quantities		30 V to 300 V 1 mA to 120 A
		Effect of Short Time Over Currents		Upto 3000 A
		Effect of Self Heating		200 mV to 1000 V
		AC Voltage Test		50 V to 5 kV
		Effect of Influence quantities		30 V to 300 V 1 mA to 120 A
		Effect of Short Time over Currents		Upto 3000A
		Effect of Self Heating		30 V to 300 V 1 mA to 120 A
		Range of Adjustment		30 V to 300 V 1 mA to 120 A

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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
	Electro-Mechanical Energy Meters for Active Energy	Independence of adjustment at low load	IS 13010: 2002	30 V to 300 V 1 mA to 120 A
	Active Energy	Sustain Edition accuracy Test		30 V to 300 V & 1 mA to 120 A
		Running at Low load		30 V to 300 V 1 mA to 120 A
		Repeatability Error		30 V to 300 V 1 mA to 120 A
		Shock Test		Qualitative (Acc: 150 m/s² to 15000 m/s² Duration of Pulse: 0.5 m/s to 18 m/s Pulse shape: Half sine, Saw tooth, Triangular & Trapezoidal)
		Vibration Test		Qualitative (5000 kgf (Peak Sine) 5000 kgf (RMS Random) Freq: 5 Hz to 2 kHz Displacement: 50.0 mm (P-P))
		Test of Material Us Edition In Dial		Qualitative
		Protection Against Penetration of Dust and Water		Qualitative (Upto IP 56 500 mm x 300 mm x 300 mm
		Mechanical Test of Meter Case		Qualitative (0.22 Nm, 0.5 Nm)

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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
	Electro-Mechanical Energy Meters for	Driving Torque Measurement	IS 13010: 2002	2 g
	Active Energy	General and Constructional Requirements		0.02 mm to 200 mm
		Speedition of Rotation		Qualitative
		Marking of Meters		Qualitative
4.	Direct Acting Indicating Analogue Electrical Measuring Instruments (Ammeter, Voltmeter, Wattmeter,	Intrinsic Error Variation Due to Ferromagnetic Support, Variation Due to Position, Variation Due to Voltage / Current Component of Ac Measure edition, DC Measure edition quantities	IS 1248: 2003	0.5 V to 600 V 0 Hz & 45 Hz to 65 Hz 0.05 A to 100 A Upto 24 kW
	Frequency Meter, Power Factor Meter)	Variation Due to p.f, Variation Due to Ambient Temperature & Humidity		(±) 0.000 to (±) 1.000 (-)70 °C to 100 °C 40 °C, 55 °C, 65 °C
		Variation Due to Battery Voltage, Unbalance Current, Conductive Support, Simultaneous Influence of Voltage and PF, Interaction Between Measuring Elements of Poly- Phase Instruments, Auxiliary Supply Voltage, Frequency, Limit Value of Temperature, Damping, Deviation From Zero, Permissible Overload,	IS 1248: 2003	0.5 V to 600 V 0 Hz & 45 Hz to 65 Hz 0.05 A to 100 A Upto 24 kW (±)0.000 to (±)1.000 40 °C to 200 °C (-)70 °C to 10 °C 40 °C, 55 °C, 65 °C Qualitative Acc: 150m/s² to 15000 m/s² Duration of Pulse: 0.5 m/s to 18 m/s Pulse shape: Half sine, Saw tooth, Triangular & Trapezoid

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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
	Direct Acting Indicating Analogue Electrical Measuring Instruments (Ammeter, Voltmeter, Wattmeter, Frequency Meter,	Overload of Short Duration on Instrument and Accessories, Overload Continuous on Instrument and Accessories, Current Circuit Continuity After High Current, Effect of Vibration and Shock, Self Heating	IS 1248: 2003	Qualitative (Max. force: 5000 kgf (Peak Sine) 5000 kgf (RMS Random) Freq: 5 Hz to 2 kHz Displacement: 50.0 mm (P-P) (1 s to 1 hr))
	Power Factor Meter)	Intrinsic Error Influence Error Influence Error Ambient Temperature Influence Error Relative Humidity Influence Error Change In Position Influence Error Supply Voltage Mechanical Load	IS 13875: 1993 (RA 2006)	Voltage: 0.5 V to 600 V, Frequency: DC & 45 Hz to 65 Hz Current: 0.05 A to 100 A Power: Upto 24 kW Power factor: (±)0.000 to (±)1.000 40 °C to 200 °C (-)70 °C to 10 °C 40 °C, 55 °C, 65 °C
		( Vibration and Shock)		Qualitative Acc: 150m/s² to 15000 m/s² Duration of Pulse: 0.5 m/s to 18 m/s Pulse shape: Half sine, Saw tooth, Triangular,& Trapezoidal
				Qualitative Max. force: 5000 kgf (Peak Sine) 5000 kgf (RMS Random) Freq: 5 Hz to 2 kHz Displacement: 50.0 mm (P-P)

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S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are	Range of Testing / Limits of Detection
			performed	

## AT SITE

## I. MEASURING INSTRUMENTS- ELECTRICAL AND ELECTRONIC (STATIC) ENERGY METERS

1.	Static Energy	Parameter	IS 13779: 1999 (RA 2004),	
	Meters for Active/Reactive	Functional Test	IS 14697: 1999 (RA 2004) CBIP 88& 304: 2008,	30 V to 300 V &
	Energy	runctional Test	IS 15707: 2006,	1 mA to 120 A
	Energy		IEC62052-11: 2003,	1 IIIA to 120 A
		Impulse Voltage Test	IEC-62053-21*: 2003,	Qualitative
		r	IEC-62053-22*: 2003 &	Upto 12 kV, Source Impedance:
			IEC-62053-23*: 2003	50 Ω & 500 Ω &
				Upto 6 kV Source Impedance:
				2 Ω & 12 Ω
		Ac Voltage Test		Qualitative
		-		50 V to 5 kV
		Insulation Test		0 to 250/1000 $M\Omega$
		Test on Limit of Error		30 V to 300 V &
				1 mA to 120 A
		Parameter	IS 13779: 1999 (RA 2004),	
			IS 14697: 1999 (RA 2004)	
		Test of Meter Constant	CBIP 88& 304: 2008,	30 V to 300 V &
			IS 15707: 2006,	1 mA to 120 A
		<b>T</b>	IEC 62052-11: 2003,	20 11 . 200 11 0
		Test of Starting Condition	IEC 62053-21*: 2003,	30 V to 300 V &
			IEC 62053-22*: 2003 & IEC 62053-23*: 2003	1 mA to 120 A
		Test of no Load Condition		Qualitative
				30 V to 300 V
		Test of Repeatability of Error		30 V to 300 V &
				1 mA to 120

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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
	Static Energy Meters for	Test of Power Consumption Test		25 mW to 200 kW $_{PK}$
	Active/Reactive Energy	Test of Influence of Self Heating		30 V to 300 V
		Test of Influence of Heating		0 to 200 °C
		Test of Influence of Immunity to Earth Fault		30 V to 300 V & 1 mA to 120 A
2.	Electro-Mechanical	Parameter	IS 13010: 2002	
	<b>Energy Meter For active Energy</b>	Functional Test		30 V to 300 V & 1 mA to 120 A
		Insulation Resistance		0 to 250/1000 $M\Omega$
		Running With no Load		Qualitative 30 V to 300 V
		Starting Limit of Error & Interpretation of Test Results		30 V to 300 V & 1 mA to 120 A
		Test of Meter Constant		30 V to 300 V & 1 mA to 120 A
		Power Loss		25 mW to 200 kW $_{PK}$
		Heating		0 °C to 200 °C
		Impulse Voltage		Qualitative Upto 12 kV, Source Imped 50 $\Omega$ & 500 $\Omega$ & Upto 6 kV Source Impedar 2 $\Omega$ & 12 $\Omega$
		Ac Voltage Test		Qualitative 50 V to 5 kV

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. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed		of Testing / of Detection	
	Electro-Mechanical	Parameter	IS 13010: 2002			
	Energy Meter For active Energy	Effect of Self Heating		30 V to 30	00 V	
		Range of Adjustment		30 V to 30	00 V	
		Independence of Adjustment at Low Load		30 V to 30 1 mA to 1		
		Running at Low Load		30 V to 30 1 mA to 1		
		Repeatability Error		30 V to 30 1 mA to 1		
II.	LAMPS, LUMINAR	IES AND ACCESSORIES				
l <b>.</b>	Self Ballast Edition Fluorescent Lamps	Dimensions	IS 15111 (Part 2): 2002 (RA 2007) IEC 60969 (Edition 1.2)	0.01 mm t 0.001 mm	o 200 mm to 25 mm	
		Starting and Run-Up		0.01 s to 5	9 m 99 s	
		Lamp Wattage		Power: 25 mW to	100 W <sub>pk</sub>	
		Luminous Flux		0.1 Lm to	199990 Lm	
		Color		5SDCM		
		Lamp Life & Lumen Maintenance			hr to 99999.9 h o 199990 Lm)	
		Harmonics		Harmonic	s Upto 99 <sup>th</sup>	
		Power Factor		Upto (±)1		
		Radiatedition & Conducteditionemission		9 kHz to 3	60 MHz	

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S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed		of Testing / of Detection		
2.	Fire Alarm Control	Parameter	IS 2189: 1999 (RA 2004)				
	Panel (Except Detection System)	General and Performance Test		Qualitativ	e Test		
		Test Environments		Qualitativ	e Test		
		Inspection and Performance Requirements		Qualitativ	e Test		
		Operational Test		Qualitativ	e Test		
3.	Electronic Ballast	Marking	IS 13021(Part II)- 91 (RA 2005)	Qualitativ	e Test		
		General Requirement	IEC 60929 Edition 3	Qualitativ	e Test		
		Starting Conditions		0.5 V to 6	00 V		
		Operating Conditions		20 μA to 3	30 A		
		Circuit Power Factor		0.5 V to 6 Upto (±)1			
		Supply Current		DC & 45	kHz to 65 kHz		
		Max. Current In Any Lead of A Cathode		0.05A to 1	00A		
		Current Waveform		Upto 99th	harmonic		
		Magnetic Screening		0.5 V to 6 20 μA to 3			
		Lumen Factor		0.1 Lm to	199990 Lm		

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Clause. 4.4.4

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. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Double-capp Edition fluorescent lamps	Voltage Across Lamp holders	IS 10322 (Part 1) IEC 60598-1 : 2008 (Edition 7.0) Clause. 4.4.5	dcV: 200 mV to 1000 V acV: 200 mV to 750 V
		Electro-Mechanical Contact System	IS 10322 (Part 1) IEC 60598-1: 2008 (Edition 7.0) Clause. 4.11.6	dcV: 200 mV to 1000 V acV: 200 mV to 750 V
		Screws and Connections (Mechanical) and Glands Testing	IS 10322 (Part 1) IEC 60598-1 : 2008 (Edition 7.0) Clause. 4.12.1/4.12.5	Test Rods Upto 6.0 Nm
		Mechanical Strength Tests	IS 10322 (Part 1) IEC 60598-1: 2008 (Edition 7.0)	0.22 Nm to 2.0 Nm (Adj. Spring Hammer)
			Clause. 4.13.1/4.13.44.13.6/ 4.21.4	0 to 200 mm
				Upto 200 N
				500 gm
				Ø 50 mm 2.1 Nm to 3.5 Nm
		Adjusting Devices Testing	IS 10322 (Part 1) IEC 60598-1: 2008 (Edition 7.0) Clause. 4.14.1/4.14.2/4.14.3	0 to 12 kg

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Clause, 4.20

IS 10322 (Part 1)

IS 10322 (Part 1)

IS 10322 (Part 1)

IEC 60598-1: 2008 (Edition 7.0) Clause. 4.26

IEC 60598-1: 2008 (Edition 7.0)

Clause. 4.24/Annexure P

IEC 60598-1: 2008 (Edition 7.0) Clause. 4.22

Attachment to Lamps

**UV** Radiation

Protective Measures Against

**Short Circuit Protection Test** 

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0 to 12 kg

0 to 12 kg

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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
	Double-capp Edition fluorescent	Pull and Torque Tests on Cord Anchorage	IS 10322 (Part 1) IEC 60598-1: 2008	0 to 200 mm
	lamps	•	(Edition 7.0) Clause. 5.2.10.1	0 to 12 kg
				Upto 0.25 Nm
		Internal Wiring Dimensions	IS 10322 (Part 1) IEC 60598-1: 2008	0 to 200 mm
			(Edition 7.0) Clause. 5.3	0 to 25 mm
		Earth Continuity Test	IS 10322 (Part 1) IEC 60598-1: 2008 (Edition 7.0) Clause. 7.2.3	10 A & 25 A Upto 12 V <sub>max</sub>
		Protection Against Electric Shock Tests / Capacitor Discharge	IS 10322 (Part 1) IEC 60598-1: 2008 (Edition 7.0) Clause. 8.2.5/ 8.2.7	0 to 200 mm {Standard Test finger (figure 6), Straight unjoint Edition Test finger, Test hook (figure 7)} 0 to 25 mm Voltage: 0 to 100 V Time: 10 nS to 500 mS Freq. 0 to 1.0 kHz
		Solid Object Proof Luminaries Testing	IS 10322 (Part 1) IEC 60598-1: 2008 (Edition 7.0) Clause. 9.2.0	0 to 200 mm {Standard Test finger (figure 6), straight unjoint EditionTest finger, Test hook (figure 7)}
		Dust Proof Luminaries Tests	IS 10322 (Part 1) IEC 60598-1: 2008(Edition 7.0) Clause. 9.2.1/9.2.2	Upto IP facilities Upto IP5X

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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
	Double-capp Edition fluorescent lamps	Water Proof Luminaires Testing	IS 10322 (Part 1) IEC 60598-1: 2008 (Edition 7.0) Clause. 9.2.3,4,5,6,7, 8,9	Upto IP facilities Upto IPX7
		Humidity Tests	IS 10322 (Part 1) IEC 60598-1: 2008 (Edition 7.0) Clause.9.3.1	Temperature: 0 °C to 45 °C, Relative Humidity: 95 %
		Insulation Resistance Tests	IS 10322 (Part 1) IEC 60598-1: 2008 (Edition 7.0) Clause. 10.2.1	Upto 50 GΩ, 0 V to 1000 VDC
		Electric Strength Tests	IS 10322 (Part 1) IEC 60598-1: 2008 (Edition 7.0) Clause. 10.2.2	Upto 5 kV ac Upto 6 kV dc
		Leakage Current Testing	IS 10322 (Part 1) IEC 60598-1: 2008 (Edition 7.0) Clause. 10.3.1	0.05 mA to 20 mA
		Creepage Distances and Clearances Measurements	IS 10322 (Part 1) IEC 60598-1: 2008 (Edition 7.0) Clause. 11.2.1	0 to 200 mm
		Endurance Tests	IS 10322 (Part 1) IEC 60598-1: 2008 (Edition 7.0) Clause. 12.3.1	Temp:0 to 35 °C Upto 200 °C 0.1 V to 300V AC 0.01 A to 12.5 A 0.01 W to 3000 W

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No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Double-capp Edition fluorescent	Thermal Tests	IS 10322 (Part 1) IEC 60598-1: 2008	Temp:0 °C to 35 °C
	lamps		(Edition 7.0) Clause. 12.4.1	Upto 200 °C
				0.1 V to 300V AC
				0.01 A to 12.5 A
				0.01 W to 3000 W
		Abnormal Operation Testing	IS 10322 (Part 1) IEC 60598-1: 2008	Temp.0 to 180 °C
			(Edition 7.0)	0.1 V to 300V ac
			Clause. 12.5.1e)	0.01 A to 12.5 A
			Annexure C Fig. C3	0.01 W to 3000 W
		Resistance to Heat Test	IS 10322 (Part 1) IEC 60598-1: 2008	Upto 180 °C
			(Edition 7.0) Clause. 13.2.1	5 mm (Ball Pressure) 20 N
		Resistance to Flame Test	IS 10322 (Part 1)	0.5 mm to 9.5 mm
			IEC 60598-1: 2008 (Edition 7.0) Clause. 13.3.1	0.01 s to 60 min
		Resistance to Flame Test	IS 10322 (Part 1)	0.5 mm to 9.5 mm
			IEC 60598-1: 2008 (Edition 7.0) Clause. 13.3.1	0.01 s to 60 min
		Resistance to Ignition Testing	IS 10322 (Part 1) IEC 60598-1: 2008	Upto 960 °C
			(Edition 7.0) Clause. 13.3.2	0.01 s to 60 min

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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
	Double-capp Edition fluorescent lamps	Resistance to Tracking Test	IS 10322 (Part 1) IEC 60598-1: 2008 (Edition 7.0) Clause. 13.4.1	Upto 600 V rms Upto 2.0 A rms 0.01 s to 60 min
		Screw Terminals	IS 10322 (Part 1) IEC 60598-1: 2008	$3~\text{m}\Omega$ to $30~\text{k}\Omega$
			(Edition 7.0) Clause. 14	1 N to 200 N
			Clause. 14	Upto 6.0 Nm
		Screwless Terminals	IS 10322 (Part 1)	$3~\text{m}\Omega$ to $30~\text{k}\Omega$
			IEC 60598-1: 2008 (Edition 7.0) Clause. 15	Temp:0 °C to 180 °C
				Upto 6.0 Nm
				Force: 200N (Pull)
				0.01 s to 60 min
		Photometric Test	IS 10322 (Part 5/Sec 1): 2012 16 IEC 60598-2-1, Edition 2.1 (1997)	NA
5.	Luminaries for Road and Street lighting	Static Load Test (Wind force Test)	IS 10322 (Part 5/Sec III): 2012 IEC 60598-2-3: 2002, (Edition 3) Amd. 1: 2011 Clause. 3.6.3	Qualitative
		Glass Cover Shattering	IS 10322 (Part 5/Sec III): 2012 IEC 60598-2-3: 2002 (Edition 3) Amd. 1: 2011 Clause. 3.6.5.1	Qualitative

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S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed		of Testing / of Detection
	Luminaries for Road and Street lighting	Glass Cover Shattering	IS 10322 (Part 5/Sec III): 201 IEC 60598-2-3: 2002, (Edition 3) – Amd. 1: 2011 Clause. 3.6.5.2	2 Qualitativ	e
6.	Portable general purpose luminaires	Overturning Test	IS 10322 (Part 5/Sec IV): 198' Clause. 6.4 IEC 60598-2-1 (Edition 2.1): 1997 Clause. 4.6.3 / 4.12	7 Upto 200	mm
7.	Floodlights		IS 10322 (Part 5/Sec V): 1987 Clause. 6.5.1 IEC 60598-2-5 (Edition 2.0):1998 Clause. 5.6.5	Qualitativ	e
			IS 10322 (Part 5/Sec V): 1987 IEC 60598-2-5 (Edition 2.0): 1998 Clause. 5.6.8	Qualitativ	e
III.	POWER STABILIZE	ERS AND UPS			
1.	Solid state Inverter	Visual Examination	IS 13314: 1992 (RA 2003)	Qualitativ	e
		High Voltage Test		Qualitativ (50 V to 5	
		Insulation Resistance		Upto 1000	) ΜΩ
		No Load Test		20 mA to	30 A
		Output Test		30 V to 27	70 V
		Dry Heat Test		Qualitativ (40 °C to 2	

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S. No.	Product / Material of Test	Specific Test Performed	Test Method Specificatio against which tests are performed		of Testing / of Detection
	Solid state Inverter	Damp Heat Test (Cycle)	IS 13314: 1992 (RA 2003)	Qualitativ (0 , 55 °C, R.H. Amb	
		Cold Test		Qualitativ ((-)70 °C	
		Harmonic Contents		DC to 99	th Fundamental
		Marking		Qualitativ	re
2.	Automatic Line Voltage Corrector (Step Type)	Physical Examination	IS 8448: 1989 (RA 2003)	Qualitativ	re
		Output Voltage		0 to 300 V	/ & 0 to 120 A
		High Voltage Test		Qualitativ 50 V to 5	
		Insulation Test		Upto 1000	Ο ΜΩ
		No Load Current		Upto 300 Upto 120	
		Protection Against Electric Shock		Qualitativ (5 N to 20 0.1 mA to 0 to 25 A, 200 mV to 50 V to 5 0.01 mm to	00 N 0 20 mA 12 V 0 1000 V
		Stability		Qualitativ 5 N to 200	
		Mechanical Strength		Qualitativ (Upto 200 (Upto 5 N	) N)

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Laboratory Electronics Regional Test Laboratory (North), Okhla Industrial Area, Phase- II, New Delhi ISO/IEC 17025: 2005 **Accreditation Standard Issue Date** Discipline **Electrical Testing** 18.03.2015 **Certificate Number** Valid Until T-1572 17.03.2017 Last Amended on 24.04.2015 **Page** 56 of 58 S. No. Product / **Specific Test Performed Test Method Specification** Range of Testing / **Limits of Detection Material of Test** against which tests are performed IS 8448: 1989 (RA 2003) **Automatic Line Provision for Earthing** Upto 25 A Voltage Corrector Upto 12 V (Step Type) Screws and Connections Qualitative (0.4 Nm to 50 Nm) Temperature Rise Upto 300 V & Upto 120 A Upto 1000 °C Leakage Current 0.001 mA to 20 mA Creepage Distances and Upto 200 mm Clearances Induced Voltage Qualitative (Upto 1000 V Upto 120 Hz) Damp Heat **Oualitative** (40°C, 55°C, 65°C R.H. Ambient to 95 %) Stability Test for Relay Upto 300 V Operation Continuous Operation 0.250 kVA to 5 kVA, Upto 300 V Physical Examination IS 9815: 1994 (RA 2004) 3. **Automatic Line** Qualitative Voltage Corrector (servo motor High Voltage Test **Oualitative** operated) 50 V to 5 kV

**Insulation Test** 

0 to 250/1000 M $\Omega$ 

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Insulation Resistance

Harmonic Contents

No Load Test

Output Test

DC to 99<sup>th</sup> Fundamental

0 to  $250/1000 \text{ M}\Omega$ 

20 mA to 30 A 10 V to 270 V

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S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed		of Testing / of Detection		
7.	Automatic Line	Physical Examination	IS 9815: 1994 (RA 2004)	Qualitativ	e Tests		
	Voltage Corrector (servo motor operatEdition)	High Voltage Test		Qualitativ 50 V to 5			
		Insulation Test		0 to 250/1	$000~\mathrm{M}\Omega$		
		Provision for Earthing		0 to 25 A,	12 V		
		Output Voltage		10 V to 30	00 V		
		No Load Current		Upto 100	A		
		No Load Losses		25 mW to	$200\;kW_{PK}$		
		Load Loss Test and Efficiency		25 mW to	$200\;kW_{PK}$		
8.	Reciprocating Internal Combustion Engine Driven Alternator Current Generating Sets	Sound Power Level	ISO 3744: 1981 ISO 8528-10 (Part 10)	Upto 140	dB		