Laboratory	**National Test House (N.R.), Kamla Nehru Nagar, Ghaziabad, Uttar Pradesh**			
Accreditation Standard	**ISO/IEC 17025: 2005**			
Discipline	**Electrical Testing**	**Issue Date**	**27.12.2013**	
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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. CABLES & WIRES				
1.	**CABLE TESTING as per IS 694:2010, Amd 2, IS 1554(Pt-1):1988 Amd 4, (RA 2005), IS 7098(Pt-1):1988 Amd 4 (RA 2005), IS 14255:1995 (RA 2005)**	1. Annealing test (Copper)	IS 10810 (Pt-1) 84 RA 2001	0.5 mm^2 to 10 mm^2
		2. Tensile test (Aluminum)	IS 10810 (Pt- 2) 84 RA 2001	0.5 mm^2 to 10 mm^2
		3. Wrapping test (Aluminum)	IS 10810 (Pt- 3) 84 RA 2001	Visual examination
		4. Conductor resistance test	IS 10810 (Pt- 5) 84 RA 2001	1μΩ to 100Ω
		5. Resistivity test of Armour wire and strip	IS 10810 (Pt 42) 84 RA 2001	1μΩ to 100Ω
		6. Tensile test for Armour	IS 10810 (Pt 37) 84 RA 2001	1 mm^2 to 6 mm^2
		7. Percentage elongation test	IS 10810 (Pt 37) 84 RA 2001	0 to 150 mm
		8. Winding test on galvanized steel strip on Armouring	IS 10810 (Pt 39) 84 RA 2001	Inspection
		9. Torsion test on Armour wire	IS 10810 (Pt 38) 84 RA 2001	Inspection
		10. Thickness of insulation and sheath	IS 10810 (Pt- 6) 84 RA 2001	0.001 mm to 50 mm

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		11. Tensile strength and percentage elongation	IS 10810 (Pt- 7) 84 RA 2001	0 to 500 N 0 to 150 mm
		12. Aging in air oven	IS 10810 (Pt-11) 84 RA 2001	27°C to 200°C
		13. Hot deformation test	IS 10810 (Pt-15) 84 RA 2001	0.01 mm to 150 mm
		14. Loss of mass in air oven	IS 10810 (Pt 10) 84 RA 2001	0.1 mg to 200 g
		15. Heat Shock Test	IS 10810 (Pt 10) 84 RA 2001	Inspection
		16. Insulation resistance test	IS 10810 (Pt 43) 84 RA 2001	1 MΩ to 1 TΩ
		17.High voltage A .C. test (water immersion test)	IS 10810 (Pt 45) 84 RA 2001	0 to 6 kV
		18. High voltage D.C. test (water immersion test)	IS 10810 (Pt-45) 84 RA 2001	0 to 2 kV
		19. Flammability test	IS 10810 (Pt-53) 84 RA 2001	0 to 150 mm
		20. Overall diameter	IS 10810 (Pt- 6) 84 RA 2001	0 to 150 mm
		21. Shrinkage test	IS 10810 (Pt-12) 84 RA 2001	0 to 300 mm

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		22. Hot set test	IS 10810 (Pt-30) 84 RA 2001	0 to 150 mm
		23. Water absorption (gravimetric)	IS 10810 (Pt-33) 84 RA 2001	0.1 mg to 200 gm
		24. Thermal stability test	IS 10810 (Pt-60) 84 RA 2001	Physical observation
II. CAPACITORS				
1.	**AC MOTOR CAPACITORS IS : 2993-1998, (RA 2006)**	a) Visual Examination	Clause No. 2.6	Visual Examination
		b) Checking marking	Clause No. 5.1	Visual Examination
		c) Check of dimension	Clause No. 2.10	0 to 250 mm
		d) Mechanical Test.	Clause No. 2.11	1 N to 20 N
		e) Sealing test	Clause No. 2.12	0 to 100ºC
		f) Endurance Test	Clause No. 2.13	100ºC, 1000V, 25A
		g) Soldering Test	Clause No. 2.11.2	Visual Examination
		h) Damp Heat test	Clause No. 2.14	0 to 95% Humidity At 40 °C
		j) Voltage test between terminals	Clause No. 2.7	0 to 1000 V

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		k) Voltage test between terminals &case	Clause No. 2.8	0 to 6 kV
		m) Self Healing test	Clause No. 2.15	0 to 1500 V
		n) Destruction test	Clause No. 2.16	Physical verification
		o) Measurement of Capacitance	Clause No. 2.16	1 µfd to 80 µfd
2.	**CAPACITOR FOR ELECTRIC FAN MOTORS IS: 1709- 1984 Amd 1 & 2, (RA 2006)**	a) Visual Examination	Clause No. 7.2	Visual Examination
		b) Checking marking	Clause No. 1.1, Appendix A	Visual Examination
		c) Check of dimension	Clause No. 7.7 to 7.11	0 to 250 mm
		d) Mechanical Test.	Clause No. 7.12	0 to 20 N
		e) Sealing test	Clause No. 7.13	0 to 100ºC
		f) Endurance Test	Clause No. 7.16	0 to 85ºC
		g) Soldering Test	Clause No. 7.6	Visual Examination
		h) Damp Heat test	Clause No. 7.15	0 to 95% Humidity At 40 °C
		i) Insulation Resistance (terminals & container)	Clause No. 7.3.1	1 M Ω to 1 TΩ
		j) Insulation Resistance between terminals	Clause No. 7.3.2	1 M Ω to 1 TΩ

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		k) Voltage test between terminals	Clause No. 7.4.1	0 to 1000 V
		l) Voltage test between terminals & case	Clause No. 7.4.2	0 to 6 kV
		m) Self Healing test	Clause No. 7.14	0 to 1500 V
		n) Destruction test	Clause No. 7.17	Physical verification
		o) Measurement of Capacitance & Tan δ	Clause No. 2.13	0 to 300 A 1 µfd to 80 µFd min 0.00001
3.	**CAPACITOR FOR FLUORESCENT LAMP (IS 1569-1976) RA 2001, Amd 1**	a) Visual Examination	Clause No. 5.4	Visual Examination
		b) Sealing & heating test	Clause No5.5	27 to 100ºC ±.5ºC
		c) Voltage proof test	Clause No5.6	0 to 1000V ±5% 0to 6 kV ±5%
		d) Voltage test between case	Clause No. 5.7	0 to 1000 V ±5% 0 to 6 kV ±5%
		e) Capacitance measurement test	Clause No. 5.8	0 to 1000V 1 µFd to 80 µFd
		f) Discharge resister test	Clause No.5.9	Qualitative test
		g) Thermal Stability test	Clause No.5.10	27 to 300 ºC

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		h) Self Healing test	Clause No. 5.11	0 to 1500 V
		j) Damp Heat test	Clause No. 5.12	0 to 98% Humidity At 40 °C
		k) Endurance	Clause No. 5.13	100ºC, 1000V, 50Hz
		l) Destruction test	Clause No. 5.14	Physical Observation
III. ENVIRONMENTAL TEST FACILITY				
1.	**DEGREES OF PROTECTION (IP) PROVIDED BY ENCLOSURES OF ELECTRICAL AND ELECTRONICS EQUIPMENTS**	IS 12063-1987 Reframed 1999 and IS 13947, Pt-1 : 1993 (Low voltage switch gear and control gear)	IS 12063 IS 13947 IEC60529 Degree of protection against ingress of dust & water	IP IX : 0 to 50 mm IP2X : 0 to 12 mm IP3X : 0 to 2.5 mm IP4X : 0 to 1.0 mm IP5X : 0 to 0.1 μm IP6X : 0 to 0.1 μm IPX1 : 0 to 0.4 mm IPX2 : 0 to 0.4 mm IPX3 : 0 to 0.5 mm IPX4 : 0 to 0.4 mm IPX5 : 0 to 6.3 mm IPX6 : 0 to 12.5 mm IPX7 : 0 to 1 m IPX8 : 0 to 1 m

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2.	**NOISE MEASUREMENT**	Determination of sound power levels of noise sources using sound pressure- Engineering method in an essentially free field over a reflecting plane	ISO 3744:1994(E)	130 dB (A)
			Central Pollution Control Board Notification 371(E) dated 17 May 2002 1/1/2005 (Effective from 15/1/2008) And Ministry of Environment and forests Notification GSR 742(E)	130 dB (A)
		Determination of sound pressure level reciprocating internal combustion engine driven alternating Current Generating Set Part -10 Measurement of Airborne Noise by the Enveloping surface Method	ISO 5828-10:1998(E) Central Pollution Control Board Notification 371(E) dated 17 May 2002 1/1/2005 (Effective from 15/1/2008) And Ministry of Environment and forests Notification GSR 742(E)	130 dB (A)
3.	**ELECTRONICS AND ELECTRICAL ITEMS (Photocopier, Printer, Projectors, Interactive Pads, Panels, Interactive Boards, Information Kiosks, Desk-Top Computers, Lap-Tops)**	Cold Test for non heating dissipating items with sudden change of temperature	IS -9000, Part II/Sec 2-1977 IS -9000, Part II/Sec 3-1977 IS -9000, Part II/Sec 4-1977	1 ºC to -40ºC Range of detection ±1ºC 3ºC /Min

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4.	**ELECTRONICS AND ELECTRICAL ITEMS**	Damp (Cyclic) Test Section 1: 16+8 Hrs Cycle Section 2: 12+12 Hrs Cycle	IS -9000, Part V/Sec 1& Sec 2	25 ºC to 80ºC Range of detection ±1ºC 3% / Min RH Upto 95%
5.	**ELECTRICAL AND ELECTRONICS EQUIPMENTS**	Dry Heat Test	As per IS: 9000 (Part-3/Sec1 to 5) 1977 RA 2007	0 to 300ºC
6.	**ELECTRONIC OFFICE EQPT (Photocopier, Printer, Projectors, Interactive Pads, I-Panel, Interactive Boards, Information Kiosks, Desktop Computers, Laptop etc.)**	Dry Heat Test	As per IS: 9000 (Part-3/Sec1 to 5) 1977 RA 2007 OR As per Customer specification & Facility Upto 300 °C	0 to 300ºC
		Cold Test	As per IS: 9000 (Part-3/Sec-1 to 5) 1977 RA 2007 OR As per Customer specification & Facility Upto -40 °C	0 to -40 °C
		Damp Heat Test	As per IS: 9000 (Part-3/Sec-1 to 5) 1977 RA 2007 OR As per Customer specification & Facility Upto 98% RH	0 to 100 °C Humidity : Upto 98% RH

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IV. SWITCHGEAR & PROTECTIVE EQUIPMENT				
1.	**CIRCUIT BREAKERS FOR OVER CURRENT PROTECTION FOR HOUSE HOLD & SIMILAR INSATALLATION As per IEC 60898:2002 (Upto 125A)**	1. Clearances & Creepage Distances (internal/External) parts	Clause No. 8.1.3	0 to 150 mm & 0 to 300 mm (0.02 mm)
		2. Inedibility of Marking	Clause No. 9.3	Visual Examination
		3. Reliability of screws, current carrying parts & connections	Clause No. 9.4	Torque test 0.1 to 2.0 Nm
		4. Reliability of screws type terminal for external conductor	Clause No. 9.4	Torque test 0.1 to 10.0 Nm
		5. Protection against electric shock	Clause No. 9.6	Indicating lamp voltage 60, 75 N force
		6. Resistance to heat	Clause No. 9 .14	25°C to 150°C
		7. Resistance to abnormal heat and to fire	Clause No. 9.15	650 ± 10°C, 960 ± 15°C
		8. Resistance to rusting	Clause No. 9.16	--
		9. Dielectric Properties	Clause No. 9.7	0 to 5 kV AC
		a) Resistance to humidity	Clause No. 9.7.1	T : 20°C to 30°C R.H.: 91 to 95 %

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		b) Insulation resistance of the main circuit	Clause No. 9.7.2	1 MΩ to 10 TΩ
		c) Dielectric strength of main circuit	Clause No. 9.7.3	0 to 5 kV AC
		d.) Dielectric strength of the auxiliary and control circuit	Clause No. 9.7.4	0 to 5 kV AC
		e) Verifications of impulse withstand voltage across the open contacts	Clause No. 9.7.6.1	1.5 to 10 kV T1- 1.2 µs to T2-50 µs
		f) Verifications of impulse withstand voltage for the parts in the close contacts	Clause No. 9.7.6.2	1.5 to 10 kV T1- 1.2 µs to T2-50 µs
		g) Verifications of leakage currents across open contacts		0 to 10 mA, 0 to 960 V AC
		10. Temperature rise	Clause No. 9.8	25 to 300°C
		11. 28 Day test	Clause No. 9.9	5A to 63 A, 25 A to 125 A
		12. Mechanical & Electrical Endurance	Clause No. 9.11	Operating cycles 240/120 0 to 125 A

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		13. Tripping Characteristics	Clause No. 9.10	B & C type 5 to 125 A D type 5 to 63 AC T. Range : 5-10-50- 800-1600A 0 to 9.99 s
		14. Resistance to Mechanical shock & Impact	Clause No. 9.13	Striking distance 100 mm, 1500 mm, 150 gm $\pm$1 gm
2.	**CIRCUIT BREAKERS FOR OVER CURRENT PROTECTION FOR HOUSEHOLD AND SIMILAR INSTALLATIONS As per IEC 60898-1(2002) (Upto 125A)**	1.Performance at reduced short circuit current	Clause No. 9.12.11.2.1	500 A or 10 times in 500-A-12 5 kA
		2.Short circuit test for verifying the suitability of circuit breaker for use in IT systems voltage across the open contacts	Clause No. 9.12.11.2.2	500 A or 1.2 times in not exceeding 2500A
		3. Verifications of the circuit breaker after short –circuits tests contacts	Clause No. 9.12.12	0 to 10 mA, 0 to 450V AC 0 to 2 kV
		4. Short –Circuit performance at 1500A	Clause No. 9.12.11.3	1500 A at P.F. 0.93 to 0.98
		5.Verifications of circuit – breaker after short circuit tests	Clause No. 9.12.12	0 to 10 mA, 0 to 450V AC 0 to 2 kV

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		6. Service Short –Circuit capacity	Clause No. 9.12.11.4.2	7.5 kA, Icn ≤ 6000A 6000 A ≤ Icn ≤ 10 kA
		7. Verification of circuit breaker after short circuit test	Clause No. 9.12.11.3	0 to 10 mA, 0 to 450V AC 0 to 2 kV
		8. Performance at rated short-circuit capacity	Clause No. 9.12.11.4.3	12.5 kA
		9. Verification of circuit breaker after short circuit test	Clause No. 9.12.12.2	0 to 10 mA, 0 to 450V AC 0 to 2 kV
V. INDUCTORS & TRANSFORMERS				
1.	**DISTRIBUTION & POWER DISTRIBUTION TRANSFORMERS, CURRENT TRANSFORMERS, POTENTIAL TRANSFORMERS**	Lighting Impulse Voltage Test	IS 2026 (Part –III) -1981, IS 2705-1992, IS 3156-1992, IEC 60076-3	20 kV to 1400 kV Peak (220 kV Class of Transformers)

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
VI. LAMPS, LUMINARIES & ACCESSORIES				
1.	**GENERAL PURPOSE LUMINAIRES FOR FLOURESCENT, INCANDESCENT , GLS , HIGH INTENSITY DISCHARGE (HID) SODIUM VAPOUR AND METAL HALIDE LAMPS**	1. Visual examination	Clause No. 12.2	Visual
		2.Protection against electric Shock	Clause No. 11	0 to 60 V
		3. Mechanical strength Test	Clause No. 12.3	0.35, 0.5, 0.7 Nm
		4. Endurance & thermal Test	Clause No. 12.4	0 to 300 °C
		5. Resistance to dust &moisture	Clause No. 12.5	----------
		6. Insulation resistance test & Electric strength	Clause No. 12.6	1 MΩ to 100 GΩ 0 to 4 kV
		7. Resistance to heat fire & tracking	Clause No. 12.7	0 to 150 mm (Ball Pressure Test)
		8. Photometric Test	Clause No. 12.8	0 to 20000 lux
2.	**RECESSED LUMINAIRES FOR FLOURESCENT, INCANDESCENT, GLS, HIGH INTENSITY DISCHARGE (HID), SODIUM VAPOUR AND METAL HALIDE LAMPS**	1. Visual examination	Clause No. 12.2	Visual examination
		2.Protection against electric Shock	Clause No. 11	0 to 60V
		3. Mechanical strength Test	Clause No. 12.3	0.35, 0.5, 0.7 Nm
		4. Endurance , test & thermal Test	Clause No. 12.4	0 to 300 °C
		5. Resistance to dust &moisture	Clause No. 12.5	----------

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		6. Insulation resistance test & Electric strength	Clause No. 12.6	1 MΩ to 100 GΩ 0 to 4 kV
		7. Resistance to heat ,fire & tracking	Clause No. 12.7	0 to 150 mm (Ball Pressure Test)
		8. Photometric Test	Clause No. 12.8	0 to 20000 lux
3.	**ROAD AND STREET LIGHTING LUMINAIRES FOR FLOURESCENT, INCANDESCENT, GLS, HIGH INTENSITY DISCHARGE (HID) SODIUM VAPOUR AND METAL HALIDE LAMPS**	1. Visual examination	Clause No. 13.2	Visual examination
		2.Protection against electric Shock	Clause No. 11.1	0 to 60 V
		3. Mechanical strength Test	Clause No. 13.3	0.35, 0.5, 0.7 Nm
		4. Endurance , test & thermal Test	Clause No. 13.4	0 to 300°C
		5. Resistance to dust &moisture	Clause No. 13.5	----------
		6. Insulation resistance test & Electric strength	Clause No. 13.6	1 MΩ to 100 GΩ 0 to 4 kV
		7. Resistance to heat ,fire & tracking	Clause No. 13.7	0 to 150 mm (Ball Pressure Test)
		8. Photometric Test	Clause No. 12.8	0 to 20000 lux
		9.Wind force test	Clause No. 6.3.1	1.5 kN /m² For height 8 m

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
4.	**PORTABLE GENERAL PURPOSE LUMINAIRES FOR FLOURESCENT, INCANDESCENT, GLS, HIGH INTENSITY DISCHARGE (HID) SODIUM VAPOUR AND METAL HALIDE LAMPS**	1. Visual examination	Clause No. 13.2	Visual examination
		2.Protection against electric Shock	Clause No. 11.1	0 to 60V
		3. Mechanical strength Test	Clause No. 13.3	0.35, 0.5, 0.7 Nm
		4. Endurance, test & thermal Test	Clause No. 13.4	0 to 300 °C
		5. Resistance to dust &moisture	Clause No. 13.5	----------
		6. Insulation resistance test & Electric strength	Clause No. 13.6	1 MΩ to 100 GΩ 0 to 4 kV
		7. Resistance to heat, fire & tracking	Clause No. 13.7	0 to 150 mm (Ball Pressure Test)
		8. Photometric Test	Clause No. 13.8	0 to 20000 lux
5.	**FLOOD- LIGHT LUMINAIRES FOR FLOURESCENT, INCANDESCENT, GLS , HIGH INTENSITY DISCHARGE (HID) SODIUM VAPOUE AND METAL HALIDE LAMPS (For Optical Distance Upto 24 m)**	1. Visual examination	Clause No. 13.2	Visual examination
		2. Protection against electric Shock	Clause No. 11.1	Indicating lamp voltage 60 V, 75 N force
		3. Mechanical strength Test	Clause No. 13.3	0.35, 0.5, 0.7 Nm
		4. Endurance, test & thermal Test	Clause No. 13.4	0 to 300°C
		5. Resistance to dust &moisture	Clause No. 13.5	----------
		6. Insulation resistance test & Electric strength	Clause No. 13.6	1 MΩ to 100 GΩ 0 to 4 kV

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		7. Resistance to heat ,fire & tracking	Clause No. 13.7	0 to 150 mm (Ball Pressure Test)
		8. Photometric Test	Clause No. 13.8	0 to 20000 lux
		9.Wind force test	Clause No. 6.5.1	Visual examination
6.	**BALLASTS FOR FLUORESCENT LAMPS IS 1534 (Pt-1) 1977 Amd 5**	1. Visual examination	Clause No. 9.4	Visual examination
		2. Test for terminals for external wiring	Clause No. 4	0.75 to 1.5 mm^2
		3. Test for screws, current carrying parts and connections	Clause No. 5	0 to 1 Nm
		4.Test for creepage distance & clearance	Clause No. 7	0 to 150 mm
		5. Protection against accidental contacts with live parts	Clause No. 9.5	Indicating lamp voltage 60V ,75 N force
		6.Test for moisture Resistance and insulation.	Clause No. 9.7	2 MΩ to 10 MΩ 0 to 500V
		7. Test for limitation of Ballast heating	Clause No. 9.9	70 to 195 °C
		8. Test for resistance to heat	Clause No. 9.11	0 to 150 mm
		9.Test for resistance to corrosion	Clause No. 9.12	No Rusting

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		10.Pre heating conditions	Clause No. 9.13.3	0.9 to 2.1 ratio 85% to 115%
		11.Power & current output	Clause No. 9.13.4	Max. ± 10 %
		12.Overall P.F.	Clause No. 9.13.5	0 to unity P.f
		13. Current delivered lamp.	Clause No. 9.13.6	0 to 10 A
		14.Current Waveform	Clause No. 9.13.7	0 to 10 A
		15. Test for mechanical strength	Clause 9.10	Visual examination
		16. Voltage across Capacitor	Clause 9.6	240V AC, 50 Hz
7.	**BALLASTS FOR HIGH PRESSURE MERCURY VAPOUR LAMPS AND SODIUM VAPOUR LAMPS (as per Guide Line of IS 6616 (Part- 1) 1982, Amd 1 (RA 2001)**	1. Visual examination	Clause No. 9.4	Visual examination
		2.Test for creepage distance & clearance	Clause 6	0 to 150 mm
		3. Protection against accidental contacts with live parts	Clause 7	0 to 60 V
		4.Test of terminals	Clause 9.5	0.04 to 2.5 mm^2
		5. Moisture resistance and insulation	Clause 9.6	1 MΩ to 10 GΩ 0 to 500V
		6.Test of power and out put current	Clause 9.7	---

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		7. Test of short circuit current	clause No. 9.8	---
		8.Test for open circuit Voltage	Clause No. 9.9	Visual examination
		9. Test for current wave shape	Clause No. 9.10	Less than 1.9 Peak/ RMS of 92% & 106% of 240 V
		10. Test for protection against magnetic influence	Clause No. 9.11	Visual examination
		11. Limitation of ballast heating	Clause 9.12	80 to 145 °C
		12. Test for resistance to corrosion and brittleness	Clause No. 9.13	27 ±5°C 100% Humidity
		13.Test for mechanical strength	Clause No. 9.14	Visual examination
8.	**BAYONET LAMPHOLDER**	1) Visual Examination	Clause No. 6, 7, 8	Visual examination
		2) Checking of Dimension	Clause No. 9	0 to 250 mm
		3) Protection against electric shock	Clause No. 10	1 MΩ to 1TΩ 0 to 4 kV
		4) Terminals	Clause No. 11	0.5 to 2.5 mm^2
		5) Construction requirements	Clause No. 13	20 N

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		6) Moisture Resistance , Insulation Resistance Electric Strength	Clause No. 15	91 to 95% 1 MΩ to 1TΩ 0 to 4 kV
		7) Mechanical Strength	Clause No. 16	0.35 Nm, 0.5Nm, 0.7 Nm
		8) Resistance to Heat Fire & Tracking.	Clause No. 20	650/850ºC
		9) Resistance to excessive residual stresses and to rusting	Clause No. 21	Visual examination
VII. DOMESTIC ELECTRICAL APPLIANCES				
1.	**ELECTRIC CEILING FAN IS:374-1979 (Amd 1 to 6), RA2005**	a) Air Delivery	Clause No. 10.3	200 to 1000 cu m/hr
		b) Temperature rise	Clause No. 10.4	0 to 150ºC
		c) Leakage Current	Clause No. 10.5	0 to 500 μA
		d) High Voltage	Clause No. 10.6	0 to 4 kV
		e) Insulation Resistance	Clause No. 10.7	1M Ω to 1 T Ω
		f) Starting	Clause No. 10.8	0 to 300 V
		g) Fan Speed & input	Clause No. 10.9	0 to 1000 watts 0 to 2000 rpm
		h) Earthing Connection	Clause No. 10.10	0 to 10 Ω

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		i) Protective against Electric shock	Clause No. 10.11	0 to 60V
		j) Moisture Resistance (for regulators only)	Clause No. 10.12	1 MΩ to 10 GΩ
		k) Mechanical Strength (for regulators only)	Clause No. 10.13	0.35, 0.5, 0.7 Nm
		l) Suspension System	Clause No. 10.14	0 to 1000 kN
		m) Creepage Distance & clearances	Clause No. 10.15	0 to 250 mm
		n) Mechanical Endurance (for regulators only)	Clause No. 10.16	1 to 10000 Operations
2.	**PROPELLER TYPE AC VENTILATING FANS (Upto 600 mm sweep IS 2312 – 1967 Amd -8 (RA 2005)**	1) Starting test	Clause No. 10.1	0 to 300 V
		2) Air delivery test	Clause No. 14.2	0 to 1000 cu m/hr
		3) Temperature rise	Clause No. 14.3	0 to 150 °C
		4) Power factor	Clause No. 14.4	0.1 to 1
		5) AC Leakage	Clause No. 14.7	0 to 500 μA
		6) High voltage	Clause No. 14.6	0 to 4 kV
		7) Insulation resistance	Clause No. 14.9	1 MΩ to 10 GΩ

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		8) Earth continuity	Clause No. 14.10	1μΩ to 1 Ω
		9) Electrical input	Clause No. 14.11	0 to 1000 w
		10) Fan speed	Clause No. 14.12	10 to 2000 rpm
		11) Moisture proof test (for regulators only)	Clause No. 14.4	0 to 4 kV 1 M Ω to 10 GΩ
3.	**SELF CONTAINED DRINKING WATER COOLER (up to 200 liters**	1.Insulation resistance test	Clause No. 6.7.1	1 MΩ to 1 TΩ
		2.High voltage test	Clause No. 6.7.2	0 to 4 kV
		3.Cooling capacity rating test	Clause No. 6.7.3	0 to 100 °C
		4. Maximum operating condition test	Clause No. 6.7.4	0 to 100 °C
		5.Storage capacity test	Clause No. 4.6.2	0 to 150 L
		6.Input Current	Clause No. 7.7.3	0 to 20 A
		7.Power Consumption	Clause No. 7.7.	0 to 5000W
4.	**HOT AIR FAN IS 4283-1981**	General	Clause No. 4, 5 & 7	Visual Inspection
		Hot air out put	Clause No. 8.4.1	5 to 500 cc m/h
		Input	Clause No. 8.4.2	0 to 500 W

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Temperature rise	Clause No. 8.4.3	0 to 150 ºC±1ºC
		Starting of fan motor	Clause No. 8.4.4	0 to 300V, 85% of rated voltage
		Earthing Connection	Clause No. 8.4.5	0.1μΩ to 100 mΩ
		Leakage current	Clause No. 8.4.6	0 to 1000 μA ±2%
		High Voltage	Clause No. 8.4.7	0 to 4 kV
		Insulation resistance	Clause No. 8.4.8	1M Ω to 1 T Ω ± 5%
		Protection against electric shock	Clause No. 8.4.9	0 to 60 V
		Moisture resistance test	Clause No. 8.4.10	0 to 2.5 kV, 50 Hz ±3%
		Mechanical Strength test & Stability	Clause No. 8.4.11	Visual Inspection
		Cord grip	Clause No. 8.4.12	Visual Inspection
		Performance of the thermostat and thermal cut out	Clause No. 8.4.13	Visual Inspection
		Thermostat and clearance	Clause No. 8.4.14	Visual Inspection

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
5.	**INSTANTANEOUS WATER HEATER IS – 8978-1992, Amd 2, RA 1999 along with IS 302-2-35 (1993), Amd 2, RA 2004**	Protection against electric shock	Clause No. 8 0f IS 302	Indicating lamp voltage 60V, 75N
		Input	Clause No. 10 of IS 302	4 kW
		Temperature rise	Clause No. 11	Ambient :150ºC /± 0.5ºC
		Operation under over load condition	Clause No. 12 of IS 302	0 to 250 mm ± 01mm
		Electrical Insulation and leakage current	Clause No. 13	1 to 2.5 kV, 50 Hz 1M Ω to 1 TΩ ±5% 0-1000µA, 300V
		Moisture resistance test	Clause No. 15 of IS 302	±1 %
		Endurance test	Clause No. 12.1 of IS 8978	0 to 250 mm ± 01 mm
		Abnormal operation test	Clause No. 19.2 of IS 302	0 to 5 kV
		Stability and mechanical Hazard	Clause No. 20 of IS 302	Visual examination
		Mechanical test	Clause No. 21 of IS 302	10 to 50 N
		Construction	Clause No. 22 of IS 302	0 to 100 mm
		Internal wiring	Clause No. 23 of IS 302	Visual examination
		Components	Clause No. 24 of IS 304	Visual examination

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Supply connection and flexible cord	Clause No. 25 of 302	(0 to 25 mm) LC ± 001 mm (0 to 150 mm) LC ± 0.01 mm
		External conductor	Clause No. 26	0-150mm
		Earthling Connection	Clause No. 27 IS 302	0.1Ω to 10 Ω
		Screw & connection, creep age distance, test resistance to heat & fire	Clause No. 28, 29, 30 of IS 302	30N, 20 N,100N
		Resistance to rusting	Clause No. 31 of 302	Visual examination
		Finish	Clause No. 10.1 of IS 8978	Visual examination
		Operation of Flow switch	Clause No. 11 of IS 8978	Visual examination
6.	**STATIONARY STORAGE TYPE ELECTRIC WATER HEATER IS – 2082-1993 Amd 5 along with IS 302-2-21 (2011)**	1) Protection against electric shock	Clause No. 8 0f IS 302	Indicating lamp voltage 60V, 75 N force
		2) Input	Clause No. 10 of IS: 302	4 kW
		3) Temperature rise	Clause No. 11 of IS: 302	Ambient :150ºC /± 0.5ºC
		4) Operation under over load condition	Clause No. 12 of IS 302	5 kW

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		5) Electrical Insulation and leakage current	Clause No. 13 of IS: 302	1 to 2.5 kV, 50 Hz 1M Ω to 1 TΩ ±5% 0-1000µA,300V
		6) Moisture resistance test	Clause No. 15 of IS 302	1 MΩ to 10 GΩ
		7) Insulation resistance and electric strength	Clause No. 16 of IS 302	1 to 2.5 kV, 50 Hz 1M Ω to 1 TΩ ±5% 0 to 1000µA, 300V
		8) Abnormal operation test	Clause No. 19.2 of IS 302	0 to 5 kV
		9) Stability and mechanical Hazard	Clause No. 20 IS 302	Visual examination
		10) Mechanical strength	Clause No. 21 of Is 302	0.35, 0.5, 0.7 Nm
		11) Construction	Clause No. 22 of IS 302	60V, 75 N force
		12) Internal wiring	Clause No. 23 of 302	Visual Inspection
		13) Components	Clause No. 24 of IS 302	Physical Observation
		14) Supply connection and flexible cord	Clause No. 25 of 302	(0 to 25mm) LC ±.001mm (0 to 150mm) LC 0.01mm
		15) Terminal for External conductor	Clause No. 26	0 to 150mm

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		16) Earthling Connection	Clause No. 27 IS 302	0 to 10 Ω
		17) Screw and connection	Clause No. 28 of IS 302	0 to 250 mm
		18) Test for resistance to heat and fire	Clause No. 31 of IS.302	150 mm (Ball Pressure Test)
		19) Creepage distance and clearance	Clause No. 30 of IS.302	0 to 250 mm
		20)Resistance to rusting	Clause No. 29 of IS 302	Physical Observation
		21) Capacity	Clause No. 15 of IS 2082	0 to 1000 L
		22) Standing Loss	Clause No. 16 of IS 2082	0 to 500 W
		23) Hot Water Output	Clause No. 17 of IS 2082	0 to 75°C
		24) Reheating Time	Clause No. 18 of IS 2082	0 to 30 min
		25) Mixing Factor	Clause No. 19 of IS 2082	Physical Verification
		26) Deviation of dial Calibration	Clause No. 20 of IS 2082	Physical Verification
		27) Cyclic Temperature Variation	Clause No. 21 of IS 2082	Physical Verification
		28) Finish	Clause No. 21 of IS 2082	Physical Verification
		29) Endurance	Clause No. 22 of IS 2082	1M Ω to 1 TΩ ±5% 0 to 1000µA,300V

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
7.	**ELECTRIC IMMERSION WATER HEATER IS –368-1992, Amd 1 , along with IS 302-2-201 (2008)**	1) Protection against electric shock	Clause No. 8 0f IS 302	0 to 60V ,75 N force
		2) Input	Clause No. 10 of IS: 302	0 to 4 KW
		3)Temperature rise	Clause No. 11	Ambient :150ºC /± 0.5ºC
		4)Operation under over load condition	Clause No. 12 of IS 302	0 to 5 KW
		5) Electrical Insulation and leakage current	Clause No. 13	1 to 2.5 KV, 50 Hz 1M Ω to 1 TΩ ±5% 0 to 1000µA, 300V
		6) Moisture resistance test	Clause No. 15 of IS 302	1 M Ω to 10 GΩ
		7) Insulation resistance and electric strength	Clause No. 16 of IS 302	1 to 2.5 kV, 50 Hz 1M Ω to 1 TΩ ±5% 0 to 1000µA,300V
		9) Abnormal operation test	Clause No. 19.2 of IS 302	0 to 5 kV
		10) Stability and mechanical Hazard	Clause No. 20 IS 302	Visual Inspection
		11) Mechanical strength	Clause No. 21 of IS 302	0.35, 0.5, 0.7 Nm
		12) Construction	Clause No. 22 of IS 302	Indicating lamp voltage 60V ,75 N force
		13) Internal wiring	Clause No. 23 of 302	Visual Inspection

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		14) Components	Clause No. 24 of IS 302	Physical Observation
		15) Supply connection and flexible cord	Clause No. 25 of 302	(0 to 25mm) LC ±.001mm (0 to 150mm) LC 0.01mm
		16) Terminal for External conductor	Clause No. 26	0 to 150mm
		17) Earthling Connection	Clause No. 27 IS 302	0 to 10 Ω
		18) Screw and connection,	Clause No. 28,29,30 of IS 302	0 to 250 mm
		19) Creepage distance and clearance	Clause No. 30 of IS.302	0 to 250 mm
		20) Test for resistance to heat and fire	Clause No. 31 of IS.302	150 mm (Ball Pressure Test)
		21) Resistance to rusting	Clause No. 31 Of 302	Physical Observation
		22) Endurance test	Clause No. 10 of IS 368:1992	1M Ω to 1 TΩ ±5% 0 to 1000µA, 300V
		23) Finish	Clause No. 11 of IS 368:1992	Physical Observation

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
VIII. WIRING ACCESSORIES				
1.	**CEILING ROSES**	1) Markings	Clause No. 9	Visual examination
		2) Checking of Dimensions	Clause No. 10	0 to 150 mm
		3) Accessibility of live parts	Clause No. 11	Standard Test Finger Inspection
		4) Terminals	Clause No.13	0 to 150 mm
		5) Construction	Clause No. 14	Visual examination
		6) Resistance to Humidity Insulation Resistance Electric Strength	Clause No. 15	45% to 98 % 1 MΩ to 1 TΩ 0 to 4 kV
		7) Temperature Rise	Clause No. 16	27°C to 200ºC
		8) Mechanical Strength.	Clause No. 17	Visual examination
		9) Resistance to Heat	Clause No. 18	27 °C to 200ºC
		10) Resistance to Abnormal Heat & Fire.	Clause No.19	Glow Wire Test Apparatus (850°C & 650°C)
		11) Screws, Current carrying parts & Connections	Clause No.20	Visual examination

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		12) Creepage distance, clearances & Distance through sealing compound	Clause No.21	0 to 150 mm
		13) Resistance to excessive residual stresses and to rusting	Clause No.22	No rusting
2.	**PLUGS & SOCKET OUTLETS 6A, 16A**	1.Rating	Clause No. 6	Visual examination
		2.Classification	Clause No. 7	Visual examination
		3.Marking	Clause No. 8	Visual examination
		4. Checking of Dimensions	Clause No. 9	0 to 150 mm GO Gauge
		5. Protection Against Electric shock	Clause No .10	Standard Test Finger Inspection
		6. Provision of earthling	Clause No. 11	Visual examination
		7. Terminals	Clause No. 12	Visual examination
		8. Constructional Requirements of fixed socket out let	Clause No. 13	Visual examination
		9. Constructional Requirements of portable socket out let	Clause No. 14	Visual examination

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		10.Interlocked Socket outlet	Clause No.15	-------
		11. Resistance to Aging	Clause No. 16.1	27 °C to 200ºC
		12.Resistance to harmful ingress of water	Clause No.16.2	Visual examination
		13. Resistance to Humidity	Clause No.16.3	Visual examination
		14. Insulation resistance & Electric Strength	Clause No.17	1 MΩ to 1 TΩ 0 to 4 kV
		15.Operation of Earthing Contact	Clause No18	---
		16. Temperature rise	Clause No19	27°C to 200ºC
		17. Making &braking capacity	Clause No20	0 to 63A, 264V ± 0.5 %
		18.Normal operation	Clause No21	-----
		19.Force Necessary to withdraw the plug	Clause No.22	Visual examination
		20.Flexible cable & their connection	Clause No. 23	Visual examination
		21.Mechanical strength	Clause No.24	Inspection 0 to 1500mm
		22.Resistance to heat	Clause No 25	27 °C to 200ºC

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		23 Screws ,current carrying parts &connection	Clause No.26	Visual examination
		24. Cree page distance, Clearance &distance through sealing compound	Clause No.27	0 to 150 mm
		25. Resistance of insulation material to abnormal heat,fire & tracking	Clause No.28	650 & 850ºC Glow wire Test apparatus
		26. Resistance to rusting	Clause No. 29	Visual examination
3.	**WIRING ACCESSORIES DOMESTIC SWITCHES (Upto 32 A)**	1. Checking of dimension.	Clause 9	0 to 150 mm
		2.Protection against electric shock	Clause No.10	Standard Test finger inspection
		3.Terminals	Clause No. 12	Inspection
		4.Constructional Requirements	Clause No. 13	Inspection
		5.Mechanism	Clause No. 14	Visual examination
		6. Resistance to Ageing.	Clause No. 15.1	27 °C to 200ºC
		7. Resistance to Harmful Ingress of water	Clause No. 15.2	----
		8.Resistance to Humidity	Clause No. 15.3	95%

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		9.Insulation Resistance & Electric Strength	Clause No. 16	0 to 4 kV 1 MΩ to 1 TΩ
		10.Temperature Rise	Clause No. 17	0 to 100º C
		11.Making & Breaking Capacity	Clause No. 18	20 A at 275 V
		12.Normal Operation	Clause No. 19	20 A, 250 V 0.6 p.f. (lag)
		13.Mechanical Strength	Clause No. 20	1.9 to 2.0 N
		14.Resistance to Heat	Clause No. 21	100 ºC± 5ºC
		15. Screws, Current carrying parts & Connections.	Clause No. 22	Visual examination
		16. Creepage distance, clearances & Distance through sealing compound.	Clause No. 23	0 to 150 mm
		17. Normal Operation for Fluorescent Lamp Circuit.	Clause No. 19.2	20A, 250Volts 0.3 p.f. (lag)
		18.Resistance to Abnormal Heat & Fire	Clause No.24.1	Glow Wire Test Apparatus (850°C & 650°C

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
IX. CONDUCTORS & CONDUCTING MATERIALS				
1.	**ENAMELED WIRE (All sizes)**		IS 13730 Pt-0-Sec1-1993 Amnd 1 RA 2003	
		1. Diameter	Clause No. 4.1	0 to 10 mm
		2. Resistance	Clause No. 5.0	1μΩ to 20 kΩ
		3. Elongation	Clause No. 6.0	0 to 300mm
		4. Springiness	Clause No. 7.0	0 to 360 °
		5. Mandrel winding	Clause No. 8.1	Max. 15 mm
		6. Jerk test	Clause No. 8.3	Min.175mm
		7. Peel test	Clause No. 8.4	Inspection
		8. Heat shock	Clause No.9.0	0 to 200°C
		9. Break down voltage	Clause No. 13.0	0 to 10 kV
		10. Continuity of covering	Clause No. 14.0	Visual Examination
		11. Resistance to solvent	Clause No. 18.0	Visual Examination

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
X. INSULATING MATERIALS & INSULATORS				
1.	**INSULATING MATS FOR ELECTRICAL PURPOSES IS 15652:2006 & IS 2584**	**DI Electric Measurements**		
		Insulation Resistance with Water	Clause No. 3.1 of IS 15652:2006 & IS 2584	Visual examination
		Leakage Current	Clause No. 3.2 of IS 15652:2006 & IS 2584	0 to 1000 µA, 300 V
		AC Dielectric Strength	Clause No. 3.3 of IS15652:2006& IS 2584	500 V to 6 kV, 50 Hz
		AC Proof Voltage	Cl 3.4 Of IS 15652:2006& IS 2584	inspection