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|---|---|---|---|---|
| **Laboratory** | **Hi-Physix Laboratory, L-83, Sector-1, DSIDC Industrial Area, Bawana, Delhi** | | | |
| **Accreditation Standard** | **ISO/IEC 17025: 2005** | | | |
| **Discipline** | **Electrical Testing** | | **Issue Date** | **08.12.2014** |
| **Certificate Number** | **T-1488** | | **Valid Until** | **20.07.2016** |
| **Last Amended on** | **-** | | **Page** | **1 of 44** |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| **I.** | **DOMESTIC ELECTRICAL APPLIANCES** | | | |
| **1.** | **Electric Iron, Electric Immersion Water Heater, Mineral Filled Sheathed, Heating Elements, Electric Radiator, Stationary Storage Type Electric Water Heater, Electric Instantaneous Water Heaters, Microwave Oven, Clocks** | Safety Testing of Household Electric Appliances.<br><br>Marking & Instructions | IS 302-1: 2008 & IEC 60335-1: 2013 Clause No. 7<br>IS 302-2-3: 2007 & IEC 60335-2-3: 2012 Clause No. 7<br>IS 302-2-201: 2008 & IEC 60335-2-74: 2009 Clause No. 7<br>IS 4159:2002 Clause No. 7<br>IS 302-2-30: 2007 & IEC 60335-2-30: 2009 Clause No. 7<br>IS 302-2-21: 2011 & IEC 60335-2-21: 2012 Clause No. 7<br>IS 302-2-35: 2011 & IEC 60335-2-35: 2012 Clause No. 7<br>IS 302-2-25: 1994 & IEC 60335-2-25: 2014 Clause No. 7<br>IS 302-2-26: 1994 & IEC 60335-2-26: 2008 Clause No. 7 | Qualitative (Visual) |
| | | Protection Against Access to Live Parts | IS 302-1: 2008 & IEC 60335-1: 2013 Clause No. 8<br>IS 302-2-3: 2007 & IEC 60335-2-3: 2012 Clause No. 8<br>IS 302-2-201: 2008 & | 40 V to 75 V (AC) |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Electric Iron, Electric Immersion Water Heater, Mineral Filled Sheathed, Heating Elements, Electric Radiator, Stationary Storage Type Electric Water Heater, Electric Instantaneous Water Heaters, Microwave Oven, Clocks** | Protection Against Access to Live Parts | IEC 60335-2-74: 2009 Clause No. 8<br>IS 4159: 2002 Clause No. 8<br>IS 302-2-30: 2007 & IEC 60335-2-30: 2009 Clause No. 8<br>IS 302-2-21: 2011 & IEC 60335-2-21: 2012 Clause No. 8<br>IS 302-2-35: 2011 & IEC 60335-2-35: 2012 Clause No. 8<br>IS 302-2-25: 1994 & IEC 60335-2-25: 2014 Clause No. 8<br>IS 302-2-26: 1994 & IEC 60335-2-26: 2008 Clause No. 8 | 40 V to 75 V (AC) |
| | | Staring of Motor-Operated Appliances | IS 302-1: 2008 & IEC 60335-1: 2013 Clause No. 9<br>IS 302-2-25: 1994 & IEC 60335-2-25: 2014 Clause No. 9<br>IS 302-2-26: 1994 & IEC 60335-2-26: 2008 Clause No. 9 | 0 kW to 12.50 kW |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Electric Iron, Electric Immersion Water Heater, Mineral Filled Sheathed, Heating Elements, Electric Radiator, Stationary Storage Type Electric Water Heater, Electric Instantaneous Water Heaters, Microwave Oven, Clocks** | Power Input and Current | IS 302-1: 2008 & IEC 60335-1: 2013 Clause No. 10<br>IS 302-2-3: 2007 & IEC 60335-2-3: 2012 Clause No. 10<br>IS 302-2-201: 2008 & IEC 60335-2-74: 2009 Clause No. 10<br>IS 4159: 2002 Clause No. 10<br>IS 302-2-30: 2007 & IEC 60335-2-30: 2009 Clause No. 10<br>IS 302-2-21: 2011 & IEC 60335-2-21: 2012 Clause No. 10<br>IS 302-2-35: 2011 & IEC 60335-2-35: 2012 Clause No. 10<br>IS 302-2-25: 1994 & IEC 60335-2-25: 2014 Clause No. 10 | 0 kW to 12.50 kW |
| | | Heating | IS 302-1: 2008 & IEC 60335-1: 2013 Clause No. 11<br>IS 302-2-3: 2007 & IEC 60335-2-3: 2012 Clause No. 11<br>IS 302-2-201: 2008 & IEC 60335-2-74: 2009 Clause No. 11<br>IS 4159: 2002 Clause No. 11<br>IS 302-2-30: 2007 & | 0 to 400ºC |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Electric Electric Iron, Electric Immersion Water Heater, Mineral Filled Sheathed, Heating Elements, Electric Radiator, Stationary Storage Type Electric Water Heater, Electric Instantaneous Water Heaters, Microwave Oven, Clocks** | Heating | IEC 60335-2-30: 2009<br>Clause No. 11<br>IS 302-2-21: 2011 &<br>IEC 60335-2-21: 2012<br>Clause No. 11<br>IS 302-2-35: 2011 &<br>IEC 60335-2-35: 2012<br>Clause No. 11<br>IS 302-2-25: 1994 &<br>IEC 60335-2-25: 2014<br>Clause No. 11<br>IS 302-2-26: 1994 &<br>IEC 60335-2-26: 2008<br>Clause No. 11 | 0 to 400ºC |
| | | Leakage Current and Electric Strength at Operating Temperature<br>a)Leakage current<br>b)High Voltage | IS 302-1: 2008 &<br>IEC 60335-1: 2013<br>Clause No. 13<br>IS 302-2-3: 2007 &<br>IEC 60335-2-3: 2012<br>Clause No. 13<br>IS 302-2-201: 2008 &<br>IEC 60335-2-74: 2009<br>Clause No. 13<br>IS 4159: 2002<br>Clause No. 13<br>IS 302-2-30: 2007 &<br>IEC 60335-2-30: 2009<br>Clause No. 13<br>IS 302-2-21: 2011 &<br>IEC 60335-2-21: 2012<br>Clause No. 13<br>IS 302-2-35: 2011 &<br>IEC 60335-2-35: 2012<br>Clause No. 13<br>IS 302-2-25: 1994 & | 0 9mA to 199.9 mA<br>0 µA to 1999 µA<br>0 kV to 5 kV, 200mA<br>Upto 3.5 mA |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Electric Iron, Electric Immersion Water Heater, Mineral Filled Sheathed, Heating Elements, Electric Radiator, Stationary Storage Type Electric Water Heater, Electric Instantaneous Water Heaters, Microwave Oven, Clocks** | Leakage Current and Electric Strength at Operating Temperature<br>a)Leakage current<br>b)High Voltage | IEC 60335-2-25: 2014<br>Clause No. 13<br>IS 302-2-26: 1994 &<br>IEC 60335-2-26: 2008<br>Clause No. 13 | 0 9mA to 199.9 mA<br>0 µA to 1999 µA<br>0 kV to 5 kV, 200mA<br>Upto 3.5 mA |
| | | Transient Over Voltages | IS 302-1: 2008 &<br>IEC 60335-1: 2013<br>Clause No. 14<br>IS 302-2-3: 2007 &<br>IEC 60335-2-3: 2012<br>Clause No. 14<br>IS 302-2-201: 2008 &<br>IEC 60335-2-74: 2009<br>Clause No. 14<br>IS 4159: 2002<br>Clause No. 14<br>IS 302-2-30: 2007 &<br>IEC 60335-2-30: 2009<br>Clause No. 14<br>IS 302-2-21: 2011 &<br>IEC 60335-2-21: 2012<br>Clause No. 14<br>IS 302-2-35: 2011 &<br>IEC 60335-2-35: 2012<br>Clause No. 14<br>IS 302-2-25: 1994 &<br>IEC 60335-2-25: 2014<br>Clause No. 14<br>IS 302-2-26: 1994 &<br>IEC 60335-2-26: 2008<br>Clause No. 14 | 0 kV to 15 kV |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Electric Iron, Electric Immersion Water Heater, Mineral Filled Sheathed, Heating Elements, Electric Radiator, Stationary Storage Type Electric Water Heater, Electric Instantaneous Water Heaters, Microwave Oven, Clocks** | Moisture Resistance Test | IS 302-1: 2008 & IEC 60335-1: 2013 Clause No. 15<br>IS 302-2-3: 2007 & IEC 60335-2-3: 2012 Clause No. 15<br>IS 302-2-201: 2008 & IEC 60335-2-74: 2009 Clause No. 15<br>IS 4159: 2002 Clause No. 15<br>IS 302-2-30: 2007 & IEC 60335-2-30: 2009 Clause No. 15<br>IS 302-2-21: 2011 & IEC 60335-2-21: 2012 Clause No. 15<br>IS 302-2-35: 2011 & IEC 60335-2-35: 2012 Clause No. 15<br>IS 302-2-25: 1994 & IEC 60335-2-25: 2014 Clause No. 15<br>IS 302-2-26: 1994 & IEC 60335-2-26: 2008 Clause No. 15 | 0ºC to 100.0 ºC<br>20 %Rh to 99 %Rh |
| | | Leakage Current and Electric Strength<br>a)Leakage Current<br>b) High Voltage<br>c)Insulation Resistance | IS 302-1: 2008 & IEC 60335-1: 2013 Clause No. 16<br>IS 302-2-3: 2007 & IEC 60335-2-3: 2012 Clause No. 16<br>IS 302-2-201: 2008 & IEC 60335-2-74: 2009 Clause No. 16 | 0 µA to 1999 µA<br>0 mA to 199.9 mA<br>0 kV to 5 kV, 200 mA<br>1 MΩ to 2000 MΩ |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Electric Iron, Electric Immersion Water Heater, Mineral Filled Sheathed, Heating Elements, Electric Radiator, Stationary Storage Type Electric Water Heater, Electric Instantaneous Water Heaters, Microwave Oven, Clocks** | Leakage Current and Electric Strength<br>a)Leakage Current<br>b) High Voltage<br>c)Insulation Resistance | IS 4159: 2002<br>Clause No. 16<br>IS 302-2-30: 2007 &<br>IEC 60335-2-30: 2009<br>Clause No. 16<br>IS 302-2-21: 2011 &<br>IEC 60335-2-21: 2012<br>Clause No. 16<br>IS 302-2-35: 2011 &<br>IEC 60335-2-35: 2012<br>Clause No. 16<br>IS 302-2-25: 1994 &<br>IEC 60335-2-25: 2014<br>Clause No. 16<br>IS 302-2-26: 1994 &<br>IEC 60335-2-26: 2008<br>Clause No. 16 | 0 µA to 1999 µA<br>0 mA to 199.9 mA<br>0 kV to 5 kV,<br>200 mA<br>1 MΩ to 2000 MΩ |
| | | Overload Protection of Transformers and Associated Circuits | IS 302-1: 2008 &<br>IEC 60335-1: 2013<br>Clause No. 17<br>IS 302-2-3: 2007 &<br>IEC 60335-2-3: 2012<br>Clause No. 17<br>IS 302-2-201: 2008 &<br>IEC 60335-2-74: 2009<br>Clause No. 17<br>IS 4159: 2002<br>Clause No.17<br>IS 302-2-30: 2007 &<br>IEC 60335-2-30: 2009<br>Clause No. 17<br>IS 302-2-21: 2011 &<br>IEC 60335-2-21: 2012<br>Clause No. 17<br>IS 302-2-35: 2011 & | 0 to 400ºC |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Electric Iron, Electric Immersion Water Heater, Mineral Filled Sheathed, Heating Elements, Electric Radiator, Stationary Storage Type Electric Water Heater, Electric Instantaneous Water Heaters, Microwave Oven, Clocks** | Overload Protection of Transformers and Associated Circuits | IEC 60335-2-35: 2012 Clause No. 17<br>IS 302-2-25: 1994 & IEC 60335-2-25: 2014 Clause No. 17<br>IS 302-2-26: 1994 & IEC 60335-2-26: 2008 Clause No. 17 | 0 to 400ºC |
| | | Endurance Test | IS 302-1: 2008 & IEC 60335-1: 2013 Clause No.18<br>IS 302-2-3: 2007 & IEC 60335-2-3: 2012 Clause No.18<br>IS 302-2-201: 2008 & IEC 60335-2-74: 2009 Clause No.18<br>IS 4159: 2002 Clause No.18<br>IS 302-2-30: 2007 & IEC 60335-2-30: 2009 Clause No.18<br>IS 302-2-21: 2011 & IEC 60335-2-21: 2012 Clause No.18<br>IS 302-2-35: 2011 & IEC 60335-2-35: 2012 Clause No.18<br>IS 302-2-25: 1994 & IEC 60335-2-25: 2014 Clause No.18 | 0 kW to 12.50kW<br>0 Hr. to 9999 Hr. |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Electric Iron, Electric Immersion Water Heater, Mineral Filled Sheathed, Heating Elements, Electric Radiator, Stationary Storage Type Electric Water Heater, Electric Instantaneous Water Heaters, Microwave Oven, Clocks** | Abnormal Operation | IS 302-1: 2008 & IEC 60335-1: 2013 Clause No.19<br>IS 302-2-3: 2007 & IEC 60335-2-3: 2012 Clause No.19<br>IS 302-2-201: 2008 & IEC 60335-2-74: 2009 Clause No.19<br>IS 4159: 2002 Clause No.19<br>IS 302-2-30: 2007 & IEC 60335-2-30: 2009 Clause No.19<br>IS 302-2-21: 2011 & IEC 60335-2-21: 2012 Clause No.19<br>IS 302-2-35: 2011 & IEC 60335-2-35: 2012 Clause No.19<br>IS 302-2-25: 1994 & IEC 60335-2-25: 2014 Clause No.19<br>IS 302-2-26:1994 & IEC 60335-2-26: 2008 Clause No.19 | 0 to 400ºC |
| | | Stability and Mechanical Hazards | IS 302-1: 2008 & IEC 60335-1: 2013 Clause No. 20<br>IS 302-2-3: 2007 & IEC 60335-2-3: 2012 Clause No. 20<br>IS 302-2-201: 2008 & IEC 60335-2-74: 2009 Clause No. 20 | Inclination $0^o$ to $20^o$<br>1 Drops/min. to 30 Drops/min.<br>Weight 150g<br>Ext. Dia. 9 mm |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Electric Iron, Electric Immersion Water Heater, Mineral Filled Sheathed, Heating Elements, Electric Radiator, Stationary Storage Type Electric Water Heater, Electric Instantaneous Water Heaters, Microwave Oven, Clocks** | Stability and Mechanical Hazards | IS 4159: 2002<br>Clause No. 20<br>IS 302-2-30: 2007 &<br>IEC 60335-2-30: 2009<br>Clause No. 20<br>IS 302-2-21: 2011 &<br>IEC 60335-2-21: 2012<br>Clause No. 20<br>IS 302-2-35: 2011 &<br>IEC 60335-2-35: 2012<br>Clause No. 20<br>IS 302-2-25: 1994 &<br>IEC 60335-2-25: 2014<br>Clause No. 20<br>IS 302-2-26: 1994 &<br>IEC 60335-2-26: 2008<br>Clause No. 20 | Thickness 0.5mm<br>Inclination $0^o$ to $20^o$<br>1 Drops/min. to 30 Drops/min.<br>Weight 150g<br>Ext. Dia. 9 mm<br>Thickness 0.5mm |
| | | Mechanical Strength | IS 302-1: 2008 &<br>IEC 60335-1: 2013<br>Clause No. 21<br>IS 302-2-3: 2007 &<br>IEC 60335-2-3: 2012<br>Clause No. 21<br>IS 302-2-201: 2008 &<br>IEC 60335-2-74: 2009<br>Clause No. 21<br>IS 4159: 2002<br>Clause No. 21<br>IS 302-2-30: 2007 &<br>IEC 60335-2-30: 2009<br>Clause No. 21<br>IS 302-2-21: 2011 &<br>IEC 60335-2-21: 2012<br>Clause No. 21<br>IS 302-2-35: 2011 & | 0 to 9999 counts<br>10 kg to 20 kg<br>0 mm to 200 mm<br>0 mm to 25 mm |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Electric Iron, Electric Immersion Water Heater, Mineral Filled Sheathed, Heating Elements, Electric Radiator, Stationary Storage Type Electric Water Heater, Electric Instantaneous Water Heaters, Microwave Oven, Clocks** | Mechanical Strength | IEC 60335-2-35: 2012<br>Clause No. 21<br>IS 302-2-25: 1994 &<br>IEC 60335-2-25: 2014<br>Clause No. 21<br>IS 302-2-26: 1994 &<br>IEC 60335-2-26: 2008<br>Clause No. 21 | 0 to 9999 counts<br>10 kg to 20 kg<br>0 mm to 200 mm<br>0 mm to 25 mm |
| | | Construction | IS 302-1: 2008 &<br>IEC 60335-1: 2013<br>Clause No. 22<br>IS 302-2-3: 2007 &<br>IEC 60335-2-3: 2012<br>Clause No. 22<br>IS 302-2-201: 2008 &<br>IEC 60335-2-74: 2009<br>Clause No. 22<br>IS 4159: 2002<br>Clause No. 22<br>IS 302-2-30: 2007 &<br>IEC 60335-2-30: 2009<br>Clause No. 22<br>IS 302-2-21: 2011 &<br>IEC 60335-2-21: 2012<br>Clause No. 22<br>IS 302-2-35: 2011 &<br>IEC 60335-2-35:2012<br>Clause No. 22<br>IS 302-2-25: 1994 &<br>IEC 60335-2-25: 2014<br>Clause No. 22<br>IS 302-2-26: 1994 &<br>IEC 60335-2-26: 2008<br>Clause No. 22 | Qualitative (Visual) |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Electric Iron, Electric Immersion Water Heater, Mineral Filled Sheathed, Heating Elements, Electric Radiator, Stationary Storage Type Electric Water Heater, Electric Instantaneous Water Heaters, Microwave Oven, Clocks** | Internal Wiring | IS 302-1: 2008 & IEC 60335-1: 2013 Clause No. 23<br>IS 302-2-3: 2007 & IEC 60335-2-3: 2012 Clause No. 23<br>IS302-2-201: 2008 & IEC60335-2-74: 2009 Clause No. 23<br>IS 4159: 2002 Clause No. 23<br>IS 302-2-30: 2007 & IEC 60335-2-30: 2009 Clause No. 23<br>IS 302-2-21: 2011 & IEC 60335-2-21: 2012 Clause No. 23<br>IS 302-2-35: 2011 & IEC 60335-2-35: 2012 Clause No. 23<br>IS 302-2-25: 1994 & IEC 60335-2-25: 2014 Clause No. 23<br>IS 302-2-26: 1994 & IEC 60335-2-26: 2008 Clause No. 23 | Qualitative (Visual ) |
| | | Components | IS 302-1: 2008 & IEC 60335-1: 2013 Clause No. 24<br>IS 302-2-3: 2007 & IEC 60335-2-3: 2012 Clause No. 24<br>IS 302-2-201: 2008 & IEC 60335-2-74: 2009 Clause No. 24 | Qualitative (Verification) |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Electric Iron, Electric Immersion Water Heater, Mineral Filled Sheathed, Heating Elements, Electric Radiator, Stationary Storage Type Electric Water Heater, Electric Instantaneous Water Heaters, Microwave Oven, Clocks** | Components | IS 4159: 2002<br>Clause No. 24<br>IS 302-2-30: 2007 &<br>IEC 60335-2-30: 2009<br>Clause No. 24<br>IS 302-2-21: 2011 &<br>IEC 60335-2-21: 2012<br>Clause No. 24<br>IS 302-2-35: 2011 &<br>IEC 60335-2-35: 2012<br>Clause No. 24<br>IS 302-2-25: 1994 &<br>IEC 60335-2-25: 2014<br>Clause No. 24<br>IS 302-2-26: 1994 &<br>IEC 60335-2-26: 2008<br>Clause No. 24 | Qualitative (Verification) |
| | | Supply Connection and External Flexible Cords | IS 302-1: 2008 &<br>IEC 60335-1: 2013<br>Clause No. 25<br>IS 302-2-3: 2007 &<br>IEC 60335-2-3: 2012<br>Clause No. 25<br>IS 302-2-201: 2008 &<br>IEC 60335-2-74: 2009<br>Clause No. 25<br>IS 4159: 2002<br>Clause No. 25<br>IS 302-2-30: 2007 &<br>IEC 60335-2-30: 2009<br>Clause No. 25<br>IS 302-2-21: 2011 &<br>IEC 60335-2-21: 2012<br>Clause No. 25<br>IS 302-2-35: 2011 & | 0 to 99999 counts |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Electric Iron, Electric Immersion Water Heater, Mineral Filled Sheathed, Heating Elements, Electric Radiator, Stationary Storage Type Electric Water Heater, Electric Instantaneous Water Heaters, Microwave Oven, Clocks** | Supply Connection and External Flexible Cords | IEC 60335-2-35: 2012<br>Clause No. 25<br>IS 302-2-25: 1994 &<br>IEC 60335-2-25: 2014<br>Clause No. 25<br>IS 302-2-26: 1994 &<br>IEC 60335-2-26: 2008<br>Clause No. 25 | 0 to 99999 counts |
| | | Terminal for External Conductor | IS 302-1: 2008 &<br>IEC 60335-1: 2013<br>Clause No. 26<br>IS 302-2-3: 2007 &<br>IEC 60335-2-3: 2012<br>Clause No. 26<br>IS 302-2-201: 2008 &<br>IEC 60335-2-74: 2009<br>Clause No. 26<br>IS 4159: 2002<br>Clause No. 26<br>IS 302-2-30: 2007 &<br>IEC 60335-2-30: 2009<br>Clause No. 26<br>IS 302-2-21: 2011 &<br>IEC 60335-2-21: 2012<br>Clause No. 26<br>IS 302-2-35: 2011 &<br>IEC 60335-2-35: 2012<br>Clause No. 26<br>IS 302-2-25: 1994 &<br>IEC 60335-2-25: 2014<br>Clause No. 26<br>IS 302-2-26: 1994 &<br>IEC 60335-2-26: 2008<br>Clause No. 26 | 0 to 6 Nm<br>0 to 200 mm |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Electric Iron, Electric Immersion Water Heater, Mineral Filled Sheathed, Heating Elements, Electric Radiator, Stationary Storage Type Electric Water Heater, Electric Instantaneous Water Heaters, Microwave Oven, Clocks** | Provision for Earthing | IS 302-1: 2008 & IEC 60335-1: 2013 Clause No. 27<br>IS 302-2-3: 2007 & IEC 60335-2-3: 2012 Clause No. 27<br>IS 302-2-201: 2008 & IEC 60335-2-74: 2009 Clause No. 27<br>IS 4159: 2002 Clause No. 27<br>IS 302-2-30: 2007 & IEC 60335-2-30: 2009 Clause No. 27<br>IS 302-2-21: 2011 & IEC 60335-2-21: 2012 Clause No. 27<br>IS 302-2-35: 2011 & IEC 60335-2-35: 2012 Clause No. 27<br>IS 302-2-25: 1994 & IEC 60335-2-25: 2014 Clause No. 27<br>IS 302-2-26: 1994 & IEC 60335-2-26: 2008 Clause No. 27 | 0 V to 19.99 V<br>0 A to 50 A |
| | | Screws & Connections | IS 302-1: 2008 & IEC 60335-1: 2013 Clause No. 28<br>IS 302-2-3: 2007 & IEC 60335-2-3:2012 Clause No. 28<br>IS 302-2-201: 2008 & IEC 60335-2-74: 2009 Clause No. 28 | 0 to 6 Nm |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Electric Iron, Electric Immersion Water Heater, Mineral Filled Sheathed, Heating Elements, Electric Radiator, Stationary Storage Type Electric Water Heater, Electric Instantaneous Water Heaters, Microwave Oven, Clocks** | Screws & Connections | IS 4159: 2002<br>Clause No. 28<br>IS 302-2-30: 2007 &<br>IEC 60335-2-30: 2009<br>Clause No. 28<br>IS 302-2-21: 2011 &<br>IEC 60335-2-21: 2012<br>Clause No. 28<br>IS 302-2-35: 2011 &<br>IEC 60335-2-35: 2012<br>Clause No. 28<br>IS 302-2-25: 1994 &<br>IEC 60335-2-25: 2014<br>Clause No. 28<br>IS 302-2-26: 1994 &<br>IEC 60335-2-26: 2008<br>Clause No. 28 | 0 to 6 Nm |
| | | Clearances, Creepage Distances and Solid Insulation | IS 302-1: 2008 &<br>IEC 60335-1: 2013<br>Clause No. 29<br>IS 302-2-3: 2007 &<br>IEC 60335-2-3: 2012<br>Clause No. 29<br>IS 302-2-201: 2008 &<br>IEC 60335-2-74: 2009<br>Clause No. 29<br>IS 4159: 2002<br>Clause No. 29<br>IS 302-2-30: 2007 &<br>IEC 60335-2-30: 2009<br>Clause No. 29<br>IS 302-2-21: 2011 &<br>IEC 60335-2-21: 2012<br>Clause No. 29<br>IS 302-2-35: 2011& | 0.05 mm to 1 mm<br>Upto 200 mm |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Electric Iron, Electric Immersion Water Heater, Mineral Filled Sheathed, Heating Elements, Electric Radiator, Stationary Storage Type Electric Water Heater, Electric Instantaneous Water Heaters, Microwave Oven, Clocks** | Clearances, Creepage Distances and Solid Insulation | IEC 60335-2-35: 2012<br>Clause No. 29<br>IS 302-2-25: 1994 &<br>IEC 60335-2-25: 2014<br>Clause No. 29<br>IS 302-2-26: 1994 &<br>IEC 60335-2-26: 2008<br>Clause No. 29 | 0.05 mm to 1 mm<br>Upto 200 mm |
| | | Resistance to Heat and Fire | IS 302-1: 2008 &<br>IEC 60335-1: 2013<br>Clause No. 30<br>IS 302-2-3: 2007 &<br>IEC 60335-2-3: 2012<br>Clause No. 30<br>IS 302-2-201: 2008 &<br>IEC 60335-2-74: 2009<br>Clause No. 30<br>IS 4159:2002<br>Clause No. 30<br>IS 302-2-30: 2007 &<br>IEC 60335-2-30: 2009<br>Clause No. 30<br>IS 302-2-21: 2011 &<br>IEC 60335-2-21: 2012<br>Clause No. 30<br>IS 302-2-35: 2011 &<br>IEC 60335-2-35: 2012<br>Clause No. 30<br>IS 302-2-25: 1994 &<br>IEC 60335-2-25: 2014<br>Clause No. 30<br>IS 302-2-26: 1994 &<br>IEC 60335-2-26: 2008<br>Clause No. 30 | 0 to 400ºC<br>0 to 1350ºC<br>0 A to 1.999 A<br>0.5 lag to 0.5 lead |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Electric Iron, Electric Immersion Water Heater, Mineral Filled Sheathed, Heating Elements, Electric Radiator, Stationary Storage Type Electric Water Heater, Electric Instantaneous Water Heaters, Microwave Oven, Clocks** | Resistance to Rusting | IS 302-1: 2008 & IEC 60335-1: 2013 Clause No. 31<br>IS 302-2-3: 2007 & IEC 60335-2-3: 2012 Clause No. 31<br>IS 302-2-201: 2008 & IEC 60335-2-74: 2009 Clause No. 31<br>IS 4159: 2002 Clause No. 31<br>IS 302-2-30: 2007 & IEC 60335-2-30: 2009 Clause No. 31<br>IS 302-2-21: 2011 & IEC 60335-2-21: 2012 Clause No. 31<br>IS 302-2-35: 2011 & IEC 60335-2-35: 2012 Clause No. 31<br>IS 302-2-25: 1994 & IEC 60335-2-25: 2014 Clause No. 31<br>IS 302-2-26: 1994 & IEC 60335-2-26: 2008 Clause No. 31 | 0 to 400ºC<br>0 to 100.0ºC<br>20 % RH to 99 % RH |
| **2.** | **Microwave Oven** | Radiation Hazards | IS 302-2-25: 1994 & IEC 60335-2-25: 2014 Clause No. 32 | 0 to 19.99 $mW/cm^2$ |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| **3.** | **Electric Iron** | **Performance Tests** (Measurement of Heating Up Time | IS 366: 1991 & IEC 60311: 2009 Clause No. 10 | 0 to 30 minutes |
| | | (Measurement of Sole Plate Temperature | IS 366: 1991 & IEC 60311: 2009 Clause No. 11 | Upto 500°C |
| | | Measurement of Temperature Distribution | IS 366: 1991 & IEC 60311: 2009 Clause No. 12 | Upto 500°C |
| | | Measurement of Initial Overswing Temperature & Heating Up Excess Temperature. | IS 366: 1991 & IEC 60311: 2009 Clause No. 13 | Upto 500°C |
| | | Measurement of Cyclic Fluctuation of Temperature of Hottest Point | IS 366: 1991 & IEC 60311: 2009 Clause No. 14 | Upto 500°C |
| | | Measurement of Temp. Drop Under Load | IS 366: 1991 & IEC 60311: 2009 Clause No. 15 | Upto 500°C |
| | | Measurement of Thermostatic Stability. | IS 366: 1991 & IEC 60311: 2009 Clause No. 16 | Upto 9999 Hrs |
| | | Finish | IS 366: 1991 & IEC 60311: 2009 Clause No. 17 | Qualitative (Visual ) |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| **4.** | **Electric immersion Water Heaters** | **Performance Tests**<br>Endurance Test | IS 368: 2014<br>Clause No. 10 | Upto 12.50kW<br>Upto 9999 Hrs |
| | | Finish | IS 368: 2014<br>Clause No. 11 | Qualitative<br>(Visual ) |
| **5.** | **Mineral Filled Sheathed Heating Elements** | **Performance Tests**<br>Operation Under Overload Conditions of Appliances With Heating elements | IS 4159: 2002 &<br>IEC 60335-2-73: 2009<br>Clause No. 12 | Upto 12.50 kW |
| | | Leakage and Hydrostatic Strength (for immersion oil heating elements) | IS 4159: 2002 &<br>IEC 60335-2-73: 2009<br>Clause No. 102 | Upto 21 $kg/cm^2$ |
| **6.** | **Electric Radiator** | **Performance Tests**<br>Temperature Rise of surface on which the appliance is placed or supported | IS 369: 1992 &<br>IEC 60675: 1998<br>Clause No. 10 | Upto 400ºC |
| | | Endurance | IS 369: 1992 &<br>IEC 60675: 1998<br>Clause No. 11 | Upto 12.50 kW<br>Upto 9999 Hrs. |
| | | Finish | IS 369: 1992 &<br>IEC 60675: 1998<br>Clause No. 12 | Qualitative<br>(Visual & Physical Test) |
| **7.** | **Electric Ceiling Fan & Regulator** | **Performance Test**<br>General and Safety Requirements | IS 374: 1979<br>Clause No.7 | Upto 5000 rpm |
| | | Temperature Rise<br>By R-method<br>Resistance 0.001 kΩ to 10 kΩ<br>Temperature: 0°C to 110.0°C | IS 374: 1979<br>Clause No. 10.4 | 0 to 110.0°C |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Electric Ceiling Fan & Regulator** | Leakage Current | IS 374: 1979<br>Clause No. 10.5 | 0 mA to 199.9 mA |
| | | High Voltage | IS 374: 1979<br>Clause No. 10.6 | 0 to 5 kV, 200 mA |
| | | Insulation Resistance | IS 374: 1979<br>Clause No. 10.7 | 1 MΩ to 2000 MΩ |
| | | Starting | IS 374: 1979<br>Clause No. 10.8 | Qualitative<br>(Verification test) |
| | | Fan Speed & Input | IS 374: 1979<br>Clause No. 10.9 | 0 to 5000 rpm<br>0 to 250 W |
| | | Earthing Connection | IS 374: 1979<br>Clause No. 10.10 | 0 to 19.99 mV<br>0 to 50 A<br>Upto 0.4Ω |
| | | Protection Against Electric Shock (For Regulators only) | IS 374: 1979<br>Clause No. 10.11 | 40V to 75V (AC) |
| | | Moisture Resistance<br>(for Regulators Only) | IS 374: 1979<br>Clause No. 10.12 | 0°C to 100.0°C<br>20 %Rh to 99 % Rh |
| **8.** | **Electric Table Type Fans and Regulators** | **Performance Tests**<br>General & Safety Requirements | IS 555: 1979<br>Clause No. 7 | Upto 5000 rpm |
| | | Speed Regulators | IS 555: 1979<br>Clause No. 7.8 | Upto 5000 rpm |
| | | Temperature Rise Test<br>By R-Method<br>Resistance: 0.001 kΩ to 10 kΩ<br>Temperature: 0-110.0°C | IS 555: 1979<br>Clause No. 10.4 | 0 to 110.0°C |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Electric Table Type Fans and Regulators** | High Voltage test. | IS 555: 1979 Clause No. 10.6 | 0 kV to 5 kV, 200 mA |
| | | Insulation Resistance | IS 555: 1979 Clause No. 10.7 | 1 MΩ to 2000 MΩ |
| | | Starting | IS 555: 1979 Clause No. 10.8 | Qualification (Verification test) |
| | | Fan Speed & Input | IS 555: 1979 Clause No. 10.9 | 0 to 2000 W Upto 5000 rpm |
| | | Earthing Connection | IS 555: 1979 Clause No. 10.10 | 0 to 19.99 mV 0 to 50 A Upto 0.4 Ω |
| | | Protection against electric shock | IS 555: 1979 Clause No. 10.11 | 40V to 75V (AC) |
| | | Moisture resistance Test | IS 555: 1979 Clause No. 10.12 | 0 to 100°C 20 % to 99 % |
| | | Cord Grip Test | IS 555: 1979 Clause No. 10.14 | 1 N to 100 N |
| **9.** | **Propeller Type AC Ventilating Fans** | **Performance Test** Starting | IS 2312: 1967 & IEC 60665: 1980 Clause No. 10 | Qualitative (Visual ) |
| | | Interchangeability | IS 2312: 1967 & IEC 60665: 1980 Clause No. 11 | Qualitative (Visual ) |
| | | Silent Operation | IS 2312: 1967 & IEC 60665: 1980 Clause No.12 | Qualitative (Visual ) |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Propeller Type AC Ventilating Fans** | Marking | IS 2312: 1967 & IEC 60665: 1980 | Qualitative (Visual ) |
| | | Air Delivery Test (Square Duct) Sweepsize 450mm. | IS 2312: 1967 & IEC 60665: 1980 Clause No. 14.2 | 0 m/s to 20 m/s |
| | | Temperature Rise of Fan Motor and Regulator By R-method Resistance: 0.001 to 10kΩ Temperature: 0°C to 110.0°C | IS 2312: 1967 & IEC 60665: 1980 Clause No. 14.3 | 0°C to110.0°C |
| | | Moisture Proofness Test | IS 2312: 1967 & IEC 60665: 1980 Clause No. 14.4 | 0°C to 100.0°C 20 % Rh to 99% Rh |
| | | Power Factor | IS 2312 : 1967 & IEC 60665: 1980 Clause No. 14.6 | 0.5 lag to 0.5 lead |
| | | AC Leakage | IS 2312: 1967 & IEC 60665:1980 Clause No. 14.7 | 0 µA to 1999 µA 0 mA to 199.9 mA |
| | | High Voltage Test | IS 2312: 1967 & IEC 60665: 1980 Clause No. 14.8 | 0 kV to 5 kV, 200 mA |
| | | Insulation Resistance Test | IS 2312: 1967 & IEC 60665: 1980 Clause No. 14.9 | 1 MΩ to 2000 MΩ |
| | | Earthing Continuity Test | IS 2312: 1967 & IEC 60665: 1980 Clause No. 14.10 | 0 V to 19.99 V 0 A to 50 A Upto 0.4 Ω |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Propeller Type AC Ventilating Fans** | Electrical Inputs | IS 2312: 1967 & IEC 60665: 1980 Clause No. 14.11 | 0 to 2000 W |
| | | Measurement of Fan Speed | IS 2312: 1967 & IEC 60665: 1980 Clause No. 14.12 | Upto 5000 rpm |
| | | Flash Test | IS 2312: 1967 & IEC 60665: 1980 Clause No. 14.13 | 0 to 5 kV ,200 mA |
| **10.** | **Stationary Storage Type Electric water Heaters** | **Performance Test** Verification of the Rated Capacity | IS 2082: 1993 & IEC 60379: 1987 Clause No. 15 & 13 | By measuring cans of 1 L and 5 L |
| | | Standing Loss per 24 Hrs | IS 2082: 1993 & IEC 60379: 1987 Clause No. 16 & 14 | Upto 9999.9 kWh |
| | | Hot Water Output | IS 2082: 1993 & IEC 60379: 1987 Clause No. 17 & 15 | Upto 400 ºC |
| | | Reheating Time | IS 2082: 1993 & IEC 60379: 1987 Clause No. 18 & 16 | Upto 400 ºC |
| | | Mixing Factor | IS 2082: 1993 & IEC 60379: 1987 Clause No. 19 &17 | Upto 400 ºC |
| | | Deviation from Dial Calibration | IS 2082: 1993 & IEC 60379: 1987 Clause No. 20 & 18 | Upto 400 ºC |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Stationary Storage Type Electric water Heaters** | Cyclic Temperature Variation (Differential) | IS 2082: 1993 & IEC 60379: 1987 Clause No. 21 & 19 | Upto 400 ºC |
| | | Finish | IS 2082: 1993 & IEC 60379: 1987 Clause No. 22 | Qualitative (Visual & Physical Test) |
| | | Endurance | IS 2082: 1993 & IEC 60379: 1987 Clause No. 23 | Upto 12.50 kW Upto 9999 h |
| **11.** | **Electric Instantaneous Water Heaters** | **Performance test** Finish | IS 8978: 1992 Clause No. 10 | Qualitative (Visual ) |
| **II.** | **ROTATING ELECTRICAL MACHINES** | | | |
| **1.** | **Single Phase Small AC Motors** | **Performance Test** Dimensions | IS 996: 2009 Clause No. 7 | 0 to 200 mm |
| | | Duty & Rating | IS 996: 2009 Clause No. 8 | Qualitative (Visual) |
| | | General Construction | IS 996: 2009 Clause No. 9 | Qualitative (Visual) |
| | | Type of Enclosures | IS 996: 2009 Clause No. 10 | IP 20 to IP 55 (Pressure Upto 100 kPa, Water Discharge 100 l/min & Vacuum Upto 0.1 bar) |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Single Phase Small AC Motors** | Methods of Cooling | IS 996: 2009 Clause No.11 | Qualitative (Visual ) |
| | | General Characteristics | IS 996:2009 Clause No. 12 | Upto 10 Nm |
| | | Torques | IS 996 : 2009 Clause No. 12.1 | Upto 10 Nm |
| | | Temperature Rise: By R-Method Resistance: 0.001 to 10kΩ Temperature: 0-110.0°C | IS 996: 2009 Clause No.12.2 | 0 to 110.0°C |
| | | Short Time Rating | IS 996: 2009 Clause No.12.3 | 0 to 100 A |
| | | Test for Full Load Performance at Rated Voltage & Frequency | IS 996: 2009 Clause No.12.5.1 | Upto 5000 rpm 45 Hz to 60 Hz, 0.2 leading to 0.2 lagging pf |
| | | Limits of Vibration Severity | IS 996: 2009 Clause No.12.6 | 0 to 2000 µ |
| | | Insulation Resistance | IS 996: 2009 Clause No.12.7 | 1 MΩ to 2000 MΩ |
| | | High Voltage Test | IS 996: 2009 Clause No.13 | 0 to 5kV,200 mA |
| | | Moisture Proofness | IS 996: 2009 Clause No. 13.2 | 0 to 100.0°C 20 % to 99 % Rh |
| | | Leakage Current | IS 996: 2009 Clause No. 13.3 | 0 mA to 199.9 mA 0 µA to 1999 µA |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Single Phase Small AC Motors** | Terminal Marking | IS 996: 2009 Clause No. 14 | Qualitative (Visual ) |
| | | Criteria for Labeling Environment Friendly Products | IS 996: 2009 Clause No. 15 | Qualitative (Visual ) |
| | | Marking & Diagram of Connections | IS 996: 2009 Clause No. 16 | Qualitative (Visual ) |
| **III.** | **SAFETY TESITNG** | | | |
| **1.** | **Degrees of Protection Provided by Enclosures for Rotating Electrical Machinery** | Marking | IS/IEC 60034 (Part 5): 2006 Clause No. 6 | Qualitative (Visual) |
| | | Tests for first Characteristic Numeral | IS/IEC 60034 (Part 5): 2006 Clause No. 8, Table 4 | Qualitative |
| | | First Characteristic Numeral 0 | IS/IEC 60034 (Part 5): 2006 | Qualitative |
| | | First Characteristic Numeral 1 | IS/IEC 60034 (Part 5): 2006 | Qualitative (Visual ) |
| | | First Characteristic Numeral 2 | IS/IEC 60034 (Part 5): 2006 | Qualitative (Visual ) |
| | | First Characteristic Numeral 3 | IS/IEC 60034 (Part 5): 2006 | Qualitative (Visual ) |
| | | First Characteristic Numeral 4 | IS/IEC 60034 (Part 5): 2006 | Qualitative (Visual ) |
| | | First Characteristic Numeral 5 | IS/IEC 60034 (Part 5): 2006 | Vacuum Upto 20m bar |
| | | First Characteristic Numeral 6 | IS/IEC 60034 (Part 5): 2006 | Vacuum Upto 20 m bar |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Degrees of Protection Provided by Enclosures for Rotating Electrical Machinery** | Tests for Second Characteristic Numeral | IS/IEC 60034 (Part 5): 2006 Clause No. 9 Table 5 | Qualitative |
| | | Second Characteristic Numeral 0 | IS/IEC 60034 (Part 5): 2006 | Qualitative |
| | | Second Characteristic Numeral 1 | IS/IEC 60034 (Part 5): 2006 | Upto 5 mm of water/min. |
| | | Second Characteristic Numeral 2 | IS/IEC 60034 (Part 5): 2006 | Upto 5 mm of water/min. Upto 15° |
| | | Second Characteristic Numeral 3 | IS/IEC 60034 (Part 5): 2006 | 80 kPa to 100 kPa 10(±)0.5 l/m |
| | | Second Characteristic Numeral 4 | IS/IEC 60034 (Part 5): 2006 | 80 kPa to 100 kPa 10(±)0.5 l/m |
| **2.** | **Degrees of Protection Provided by Enclosures of Electrical Equipment (IP Code)** | Marking | IS/IEC 60529: 2001 Clause No. 10 | Qualitative (Visual) |
| | | Tests for First Characteristic Numeral | IS/IEC 60529: 2013 Clause No. 5, Table 1 & 2 Clause No. 7 | Qualitative (Visual) |
| | | First Characteristic Numeral 0 | IS/IEC 60529: 2013 Clause No. 7.0 | Qualitative |
| | | First Characteristic Numeral 1 | IS/IEC 60529: 2013 | Qualitative (Visual ) |
| | | First Characteristic Numeral 2 | IS/IEC 60529: 2013 | Qualitative (Visual ) |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Degrees of Protection Provided by Enclosures of Electrical Equipment (IP Code)** | First Characteristic Numeral 3 | IS/IEC 60529: 2013 | Qualitative (Visual ) |
| | | First Characteristic Numeral 4 | IS/IEC 60529: 2013 | Qualitative (Visual ) |
| | | First Characteristic Numeral 5 | IS/IEC 60529: 2013 | Vacuum Upto 20 m bar |
| | | First Characteristic Numeral 6 | IS/IEC 60529: 2013 | Vacuum Upto 20 m bar |
| | | Tests for Second Characteristic Numeral | IS/IEC 60529: 2013 Clause No. 6,Table 3 Clause No. 8 | Qualitative |
| | | Second Characteristic Numeral 0 | IS/IEC 60529: 2013 | Qualitative |
| | | Second Characteristic Numeral 1 | IS/IEC 60529: 2013 | Upto 5 mm of water/min. |
| | | Second Characteristic Numeral 2 | IS/IEC 60529: 2013 | Upto 5 mm of water/min. Upto 15° |
| | | Second Characteristic Numeral 3 | IS/IEC 60529: 2013 | 80 kPa to 100 kPa 10 (±)0.5 l/min. |
| | | Second Characteristic Numeral 4 | IS/IEC 60529: 2013 | 80 kPa to 100 kPa 10 (±)0.5 l/min. |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| **IV.** | **LAMPS, LUMINARIES AND ACCESSORIES** | | | |
| **1** | **Ballasts for Fluorescent Lamps Part-1 For Switch Start Circuits** | General Design Construction and Workmanship | IS 1534 (Part 1): 1977 & IEC 60920: 1990 Clause No. 3 | Qualitative (Visual ) |
| | | Terminal for External Wiring | IS 1534 (Part 1): 1977 IEC 60920: 1990 Clause No. 4 | 0 to 25 mm |
| | | Screws, Current-Carrying Parts and Connections | IS 1534 (Part 1): 1977 & IEC 60920: 1990 Clause No. 5 | 0 to 6 Nm |
| | | Provision for Earthing | IS 1534 (Part 1): 1977 & IEC 60920: 1990 Clause No. 6 | Qualitative (Visual) |
| | | Creepage Distances and Clearances | IS 1534 (Part 1): 1977 & IEC 60920: 1990 Clause No. 7 | 0.05 mm to 1 mm<br>0 to 200 mm |
| | | Marking | IS 1534 (Part 1): 1977 & IEC 60920: 1990 Clause No. 8 | Qualitative (Visual) |
| | | Visual Examination | IS 1534 (Part 1): 1977 & IEC 60920: 1990 Clause No. 9.4 | Qualitative (Visual) |
| | | Protection Against Accidental Contacts and Electric Shock | IS 1534 (Part 1): 1977 IEC 60920: 1990 Clause No. 9.5 | 0 V to 75 V<br>Qualitative (Visual ) |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Ballasts for Ballasts for Fluorescent Lamps Part-1 For Switch Start Circuits** | Voltage Across Capacitors | IS 1534 (Part 1): 1977 & IEC 60920: 1990 Clause No.9.6 | 0.1000 V |
| | | Moisture Resistance and Insulation | IS 1534 (Part 1): 1977 & IEC 60920: 1990 Clause No. 9.7 | 0°C to 100.0°C, 20 % RH to 100 % RH 0 GΩ to 1 GΩ 0 kV to 5 kV |
| | | Test for Thermal Endurance of Windings | IS 1534 (Part 1): 1977 & IEC 60920: 1990 Clause No. 9.8 | 0 A to 20A, 0°C to 199.9°C 0 Ω to 1999 Ω, 0 GΩ to 1 GΩ |
| | | Test for Limitations of Ballast Heating | IS 1534 (Part 1): 1977 & IEC 60920: 1990 Clause No. 9.9 | 0°C to 199.9°C, 0 kV to 5 kV |
| | | Test for Mechanical Strength | IS 1534 (Part 1): 1977 & IEC 60920: 1990 Clause No. 9.10 | Qualitative (Visual) |
| | | Resistance to Heat | IS 1534 (Part 1): 1977 & IEC 60920: 1990 Clause No. 9.11 | 0°C to 400°C |
| | | Test for Resistance To Corrosion | IS 1534 (Part 1): 1977 & IEC 60920: 1990 Clause No. 9.12 | Qualitative (Visual) |
| | | (xvi) Performance | IS 1534 (Part 1): 1977 & IEC 60920: 1990 Clause No. 9.13 | 0 V to 600V, 0 kW to 12kW 0 A to 20 A, (-)1 to +1 1st Order to 50th Order |
| | | (xvii) Test for Ballast Losses | IS 1534 (Part 1): 1977 & IEC 60920: 1990 Clause No. 9.14 | 0 kW to 12 kW 0 A to 20 A |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| **2.** | **Ac Supplied Electronic Ballasts for Tubular Fluorescent Lamps Part 1 General & Safety Requirements** | Classification | IS 13021 (Part 1): 1991 / IEC 61347-2-10: 2000 Clause No. 6 | Qualitative (Visual) |
| | | Marking | IS 13021 (Part 1): 1991 / IEC 61347-2-10: 2000 Clause No. 7 | Qualitative |
| | | Terminals | IS 13021 (Part 1): 1991 / IEC 61347-2-10: 2000 Clause No. 8 | Qualitative (Visual) |
| | | Provision for Earthing | IS 13021 (Part 1): 1991 / IEC 61347-2-10: 2000 Clause No. 9 | Qualitative |
| | | Creepage Distances and Clearances | IS 13021 (Part 1): 1991 / IEC 61347-2-10: 2000 Clause No. 10 | 0.05 mm to 1 mm<br>0 mm to 200 mm |
| | | Protection Against Accidental Contact With Live Parts | IS 13021 (Part 1): 1991 / IEC 61347-2-10: 2000 Clause No. 11 | 0 to 75 V |
| | | Protection against electric shock | IS 13021 (Part 1): 1991 / IEC 61347-2-10: 2000 Clause No. 12 | 0 to 75 V |
| | | Moisture resistance and insulation | IS 13021 (Part 1): 1991 / IEC 61347-2-10: 2000 Clause No. 13 | 0°C to 100°C,<br>20 % max RH<br>0 MΩ to ∞ MΩ |
| | | Electric Strength | IS 13021 (Part 1): 1991/ IEC 61347-2-10: 2000 Clause No. 14 | 0 kV to 5 kV |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **AC Supplied Electronic Ballasts for Tubular Fluorescent Lamps Part 1 General & Safety Requirements** | Abnormal Conditions | IS 13021 (Part 1): 1991/ IEC 61347-2-10: 2000 Clause No. 15 | 0 to400°C |
| | | Fault Conditions | IS 13021 (Part 1): 1991/ IEC 61347-2-10: 2000 Clause No. 16 | 0 to 700 V |
| | | Current Carrying Arts and Connections | IS 13021 (Part 1): 1991 / IEC 61347-2-10: 2000 Clause No. 17 | Qualitative (Visual) |
| | | Resistance to Heat and Fire | IS 13021 (Part 1): 1991 / IEC 61347-2-10: 2000 Clause No. 18 | 0 to 1350°C |
| | | Resistance To Corrosion | IS 13021 (Part 1): 1991 / IEC 61347-2-10: 2000 Clause No. 19 | Qualitative (Visual) |
| **3.** | **AC Supplied Electronic Ballasts for Tubular Fluorescent Lamps Part 2 Performance Requirements** | Marking | IS 13021 (Part 2): 1991/ IEC 60929: 2011 Clause No. 5 | Qualitative (Visual) |
| | | (ii) General Statement | IS 13021 (Part 2): 1991 / IEC 60929: 2011 Clause No. 6 | Qualitative (Visual) |
| | | (iii) Starting Conditions | IS 13021 (Part 2): 1991 / IEC 60929: 2011 Clause No. 7 | 0 to 200 s |
| | | (iv) Operating Conditions | IS 13021 (Part 2): 1991 / IEC 60929: 2011 Clause No. 8 | 0 to 600 V, 1.00 to +1.00 |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **AC Supplied Electronic Ballasts for Tubular Fluorescent Lamps Part 2 Performance Requirements** | Circuit Power Factor | IS 13021 (Part 2): 1991 / IEC 60929: 2011 Clause No. 9 | 1.00 to +1.00 |
| | | Supply Current | IS 13021 (Part 2): 1991 / IEC 60929: 2011 Clause No. 10 | 0 to 20 A |
| | | Maximum Current in Any Lead To a Cathode | IS 13021 (Part 2): 1991 / IEC 60929: 2011 Clause No. 11 | 0 to 20 A |
| | | Current Waveform | IS 13021 (Part 2): 1991 / IEC 60929: 2011 Clause No. 12 | 1$^{st}$ Order to 50$^{th}$ Order |
| | | Magnetic Screening | IS 13021 (Part 2): 1991 / IEC 60929: 2011 Clause No. 13 | 0A to 20 A |
| | | Impedance of Audio Frequencies | IS 13021 (Part 2): 1991 / IEC 60929: 2011 Clause No. 14 | 50 kHz to 2 kHz |
| | | Mains Transient Over Voltage | IS 13021 (Part 2): 1991 / IEC 60929: 2011 Clause No. 15 | 0 to 15 kV (0 to 4000V) |
| | | Operational Tests for Abnormal Conditions | IS 13021 (Part 2): 1991 / IEC 60929: 2011 Clause No. 16 | 0 to 400°C |
| | | Endurance | IS 13021 (Part 2): 1991 / IEC 60929: 2011 Clause No. 17 | 0 to 5000 W<br>0 to 20 A<br>0 to 9999 h<br>0 to 9999 count |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| **4.** | **Ballasts for Discharge Lamps (Excluding Tubular Fluorescent Lamps)** | **Performance** Marking | IS 15882: 2009 IEC 60923: 2006 Clause No. 5 | Qualitative (Visual) |
| | | Ballast Designed to Operate at Various Supply Voltages | IS 15882: 2009 IEC 60923: 2006 Clause No. 6 | Qualitative (Visual) |
| | | Circuit Power Factor | IS 15882: 2009 IEC 60923: 2006 Clause No. 7 | 0.1 to (+)1.00 |
| | | Supply Current | IS 15882: 2009 IEC 60923: 2006 Clause No. 8 | 0 A to 20 A |
| | | Current Waveform | IS 15882: 2009 IEC 60923: 2006 Clause No. 9 | 1st Order to 50th Order |
| | | Magnetic Screening | IS 15882: 2009 IEC 60923: 2006 Clause No. 10 | Qualitative (Visual) |
| | | Igniters | IS 15882: 2009 IEC 60923: 2006 Clause No. 11 | Qualitative (Visual) |
| | | Electrical Requirements for Ballasts for High –Pressure Mercury Vapour Lamps | IS 15882: 2009 IEC 60923: 2006 Clause No. 12 | 0 A to 20 A<br>0 V to 1000 V |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Ballasts for Discharge Lamps (Excluding Tubular Fluorescent Lamps)** | ix) Electrical Requirements for Ballasts for Low –Pressure Sodium Vapour Lamps | IS 15882: 2009<br>IEC 60923: 2006<br>Clause No. 13 | 0 to 20 A<br>0 to 1000 V |
| | | x) Electrical Requirements for Ballasts for Metal Halide Lamps | IS 15882: 2009<br>IEC 60923: 2006<br>Clause No. 14 | 0 to 20 A<br>0 to 1000 V |
| | | xi) Electrical Requirements for Ballasts for High –Pressure Sodium Vapour Lamps | IS 15882: 2009<br>IEC 60923: 2006<br>Clause No. 15 | 0 to 20A<br>0 to 1000 V |
| | | **Safety**<br>Classification | IS 15885 (Part 2/ Sec IX): 2011<br>IEC 61347-2-9: 2012<br>Clause No. 6 | Qualitative<br>(Visual) |
| | | Marking | IS 15885 (Part 2/ Sec IX): 2011<br>IEC 61347-2-9: 2012<br>Clause No. 7 | Qualitative<br>(Visual) |
| | | Protection Against Accidental Contact With Live Parts | IS 15885 (Part 2/ Sec IX): 2011<br>IEC 61347-2-9: 2012<br>Clause No. 8 | 0 to 75 V |
| | | Terminals | IS 15885 (Part 2/ Sec IX): 2011<br>IEC 61347-2-9: 2012<br>Clause No. 9 | Qualitative<br>(Visual) |
| | | Provisions for Earthing | IS 15885 (Part 2/ Sec9): 2011<br>IEC 61347-2-9: 2012<br>Clause No. 10 | 0 to 50A,<br>0 to 19.99 V |
| | | Moisture Resistance and Insulation | IS 15885 (Part 2/ Sec IX): 2011<br>IEC 61347-2-9: 2012<br>Clause No. 11 | 0°C to 100.0°C,<br>20 % Rh to 100 % RH,<br>0 MΩ to ∞ MΩ |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Ballasts for Discharge Lamps (Excluding Tubular Fluorescent Lamps)** | Electric Strength | IS 15885 (Part 2/ Sec IX): 2011<br>IEC 61347-2-9: 2012<br>Clause No. 12 | 0 to 5 kV |
| | | Thermal Endurance Test for Windings of Ballasts | IS 15885 (Part 2/ Sec IX): 2011<br>IEC 61347-2-9: 2012<br>Clause No. 13 | 0 to 400°C |
| | | Ballast Heating | IS 15885 (Part 2/ Sec9): 2011<br>IEC 61347-2-9: 2012<br>Clause No. 14 | 0 to 400°C |
| | | High Voltage Impulse Testing | IS 15885 (Part 2/ Sec IX): 2011<br>IEC 61347-2-9: 2012<br>Clause No. 15 | 0 to 15 kV |
| | | Construction | IS 15885 (Part 2/ Sec IX): 2011<br>IEC 61347-2-9: 2012<br>Clause No. 17 | Qualitative (Visual) |
| | | Creepage Distances and Clearances | IS 15885 (Part 2/ Sec IX): 2011<br>IEC 61347-2-9: 2012<br>Clause No. 18 | 0.05 mm to 1mm,<br>0 mm to 200mm |
| | | Screws, Current- Carrying Parts and Connections | IS 15885 (Part 2/ Sec IX): 2011<br>IEC 61347-2-9: 2012<br>Clause No. 19 | Qualitative (Visual) |
| | | Resistance to Heat and Fire and Tracking | IS 15885 (Part 2/ Sec IX): 2011<br>IEC 61347-2-9: 2012<br>Clause No. 20 | 0°C to 1350°C |
| | | Resistance to Corrosion | IS 15885 (Part 2/ Sec IX): 2011<br>IEC 61347-2-9: 2012<br>Clause No. 21 | Qualitative (Visual) |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| 5. | **Self Ballasted Lamps For General Lighting Services** | **Safety Requirements** Marking | IS 15111 (Part 1): 2002 IEC 60968: 2012 Clause No. 6 | Qualitative (Visual) |
| | | Interchangeability | IS 15111 (Part 1): 2002 IEC 60968: 2012 Clause No. 7 | Gauges for Interchange Ability, Retention, Go & Not Go |
| | | Protection Against Electric Shock | IS 15111 (Part 1): 2002 IEC 60968: 2012 Clause No. 8 | 40V to 75 V(AC) |
| | | Insulation Resistance and Electric Strength After Humidity Treatment | IS 15111 (Part 1): 2002 IEC 60968: 2012 Clause No. 9 | 1 MΩ to2000 MΩ 0 kV to 5 kV, 200 mA |
| | | Mechanical Strength | IS 15111 (Part 1): 2002 IEC 60968: 2012 Clause No. 10 | 0 to 6 Nm |
| | | Cap Temperature Rise | IS 15111 (Part 1): 2002 IEC 60968: 2012 Clause No. 11 | 0 to 400ºC |
| | | Resistance to Heat | IS 15111 (Part 1): 2002 IEC 60968: 2012 Clause No. 12 | 0 to 400ºC |
| | | Resistance to Flame and Ignition | IS 15111 (Part 1): 2002 IEC 60968: 2012 Clause No. 13 | 0 1350ºC |
| | | Fault Conditions | IS 15111 (Part 1): 2002 IEC 60968: 2012 Clause No. 14 | 3V to 700V |

| S.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 for General Lighting Services** | **Performance test**<br>Dimensions | IS 15111 (Part 2): 2002<br>IEC 60969: 2001<br>Clause No. 6 | 0 to 200mm<br>0 to 25 mm |
| | | Starting and Run-up Test | IS 15111 (Part 2): 2002<br>IEC 60969: 2001<br>Clause No. 8 | 0 to 200 s |
| | | Lamp Wattage | IS 15111 (Part 2): 2002<br>IEC 60969: 2001<br>Clause No. 9 | 0 to 250 W |
| | | Luminous Flux | IS 15111 (Part 2): 2002<br>IEC 60969: 2001<br>Clause No. 10 | 1 lm to 99999 lm |
| | | Colour | IS 15111 (Part 2): 2002<br>IEC 60969: 2001<br>Clause No. 11 | 1500 K to 25,000 K |
| | | Lumen Maintenance | IS 15111 (Part 2): 2002<br>IEC 60969: 2001<br>Clause No. 12 | 1 lm to 99999 lm |
| | | Life | IS 15111 (Part 2): 2002<br>IEC 60969: 2001<br>Clause No. 13 | 0 hrs to 9999 hrs |
| | | Harmonics | IS 15111 (Part 2): 2002<br>IEC 60969: 2001<br>Clause No. 14 | Upto 50th Order |
| | | Power Factor | IS 15111 (Part 2): 2002<br>IEC 60969: 2001<br>Clause No. 16 | 0.5 lag to 0.5 lead |
| | | Marking | IS 15111 (Part 2): 2002<br>IEC 60969: 2001<br>Clause No. 18 | Qualitative<br>(Visual ) |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| **6.** | **Single Capped Fluorescent Lamps** | **Safety Requirements** General & Marking | IS 15687 (Part 1): 2006<br>IEC 61199: 2014<br>Clause No. 2.1, 2.2, 4.1 & 4.2 | Qualitative (Visual ) |
| | **Single Capped Fluorescent Lamps** | Mechanical Requirements for Caps | IS 15687 (Part 1): 2006<br>IEC 61199: 2014<br>Clause No. 2.3 & 4.3 | 0 to 200 mm,<br>0 to 25 mm |
| | | Insulation Resistance | IS 15687 (Part 1): 2006<br>IEC 61199: 2014<br>Clause No. 2.4 & 4.4 | 1 MΩ to 2000 MΩ |
| | | Electric Strength | IS 15687 (Part 1): 2006<br>IEC 61199: 2014<br>Clause No. 2.5 & 4.5 | 0 to 5kV,<br>200 mA<br>1 MΩ to 2000 MΩ |
| | | Parts Which Can Become Accidentally Live | IS 15687 (Part 1): 2006<br>IEC 61199: 2014<br>Clause No. 2.6 & 4.6 | 40 V to 75 V (AC) |
| | | Resistance to Heat & Fire | IS 15687 (Part 1): 2006<br>IEC 61199: 2014<br>Clause No. 2.7 & 4.7 | 0 to 400ºC<br>0 to 1350ºC<br>0 to 999.9 hrs<br>0 to 200 mm |
| | | Creepage Distances for Caps | IS 15687 (Part 1): 2006<br>IEC 61199: 2014<br>Clause No. 2.8 & 4.8 | 0 to 200 mm |
| | | Lamp Cap Temperature Rise | IS 15687 (Part 1): 2006<br>IEC 61199: 2014<br>Clause No. 2.9 & 4.9 | 0 to 400 ºC |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Single Capped Fluorescent Lamps** | Radio Interference Suppression Capacitors | IS 15687 (Part 1): 2006<br>IEC 61199: 2014<br>Clause No. 2.10 & 4.10 | 0 to 100 ºC<br>20 % Rh to 99 % RH<br>0 hrs to 24 hrs |
| | **Single Capped Fluorescent Lamps** | **Performance Requirements** (Caps | IEC 60901: 2001<br>Clause No. 1.5.2 | 0 to 200mm,<br>0 to 25 mm |
| | | Dimensions | IEC 60901: 2001<br>Clause No. 1.5.3 | 0 to 200 mm,<br>0 to 25 mm |
| | | Starting Characteristics | IEC 60901: 2001<br>Clause No. 1.5.4 | 0 to 200 s |
| | | Electrical & Cathode Characteristics | IEC 60901: 2001<br>Clause No. 1.5.5 | 0 to 250 W |
| | | Photometric Characteristics | IEC 60901: 2001<br>Clause No. 1.5.6 | 1 lm to 9999 lm<br>1500 K to 25,000 K |
| | | Lumen Maintenance | IEC 60901: 2001<br>Clause No. 1.5.7 | 1 lm to 99999 lm<br>0hrs to 9999 hrs |
| | | Marking | IEC 60901: 2001<br>Clause No. 1.5.9 | Qualitative<br>(Visual & Physical Test) |
| 7. | **Double Capped Fluorescent Lamps** | **Safety Requirements** General & Marking | IEC 61195: 2014<br>Clause No. 2.1& 2.2 | Qualitative<br>(Visual & Physical Test) |
| | | Mechanical Requirements for Caps | IEC 61195: 2014<br>Clause No. 2.3 | 0 to 200mm |
| | | Insulation Resistance | IEC 61195: 2014<br>Clause No. 2.4 | 1 MΩ to 2000 MΩ |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Double Capped Fluorescent Lamps** | Electric Strength | IEC 61195: 2014 Clause No. 2.5 | 0 to 5kV, 200 mA 1 MΩ to 2000 MΩ |
| | | Parts Which Can Become Accidentally Live | IEC 61195: 2014 Clause No. 2.6 | 40 V to 75 V (AC) |
| | | Resistance to Heat & Fire | IEC 61195: 2014 Clause No. 2.7 | 0 to 400 ºC<br>0 to 1350 ºC<br>0 to 999.9 hr<br>0 to 200 mm |
| | | Creepage Distances for Caps | IEC 61195: 2014 Clause No. 2.8 | 0 to 200 mm |
| | | Lamp Cap Temperature Rise | IEC 61195: 2014 Clause No. 2.9 | 0 to 400ºC |
| | | Radio Interference Suppression Capacitors | IEC 61195: 2014 Clause No. 2.10 | 0 to 100.0ºC<br>20 % RH to 99 % RH<br>0 to 24 hrs |
| | | **Performance Requirements** Caps | IEC 60081: 2002 Clause No. 1.5.2 | 0 to 200mm<br>0 to 25 mm |
| | | Dimensions | IEC 60081: 2002 Clause No. 1.5.3 | 0 to 200mm |
| | | Starting Characteristics | IEC 60081: 2002 Clause No. 1.5.4 | 0 to 200 s |
| | | Electrical & Cathode Characteristics | IEC 60081: 2002 Clause No. 1.5.5 | 0 to 250 W |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Double Capped Fluorescent Lamps** | Photometric Characteristics | IEC 60081: 2002<br>Clause No. 1.5.6 | 1 lm to 99999 lm<br>1500 K to 25,000 K |
| | | Lumen Maintenance | IEC 60081: 2002<br>Clause No. 1.5.7 | 1 lm to 99999 lm<br>0 to 9999 hrs |
| | | Marking | IEC 60081: 2002<br>Clause No. 1.5.8 | Qualitative<br>(Visual) |
| **8.** | **Tungsten Filament Lamps for Domestic and Similar General Lighting Purposes** | Characteristics & Tolerances of Initial Readings | IS 418: 2004<br>Clause No. 8 | 0 to 300 V<br>0 to 1 A<br>0 to 250 W<br>0 to 99999 lm |
| **9.** | **Tubular Fluorescent Lamps for General Lighting Service Part 1 Requirements & Tests** | Test for Electrical Luminous & Colour Characteristics | IS 2418 (Part 1): 1977<br>Clause No. 6.8 | 1 to 99999 lm<br>1500 K to 25000 K |
| **10.** | **High Pressure Mercury Vapour Lamps Part 1 Requirements & Tests** | Requirements & Conditions of Test for Electrical & Luminous Characteristics | IS 9900 (Part 1): 1981<br>Clause No. 7 | Qualitative<br>(Visual ) |
| | | Position of Operation During Ageing & Testing | IS 9900 (Part 1): 1981<br>Clause No. 7.1 | |
| | | Ageing | IS 9900 (Part 1): 1981<br>Clause No. 7.2 | 0 to 500V<br>0 to 99999 hrs |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **High Pressure Mercury Vapour Lamps Part 1 Requirements & Tests** | Lamp Voltage & Wattage | IS 9900 (Part 1): 1981 Clause No. 7.3 | 0 - 300 V<br>0 A to 10 A<br>0 kW to 12.5 kW |
| | | (Luminous Flux | IS 9900 (Part 1): 1981 Clause No. 7.4 | 0 lm to 99999 lm |
| **11.** | **High Pressure Sodium Vapour Lamps Part 1 General Requirements & Tests** | Lamp Electrical Characteristics (a) Luminous Flux | IS 9974 (Part 1): 1981 Clause No. 7.4 | 0 lm to 99999 lm |

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