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|---|---|---|---|---|
| **Laboratory** | **Delhi Test House, Plot No. 50, Phase-IV, Sector 57, HSIDC Industrial Area, Kundli, Sonipat, Haryana** | | | |
| **Accreditation Standard** | **ISO/IEC 17025: 2005** | | | |
| **Discipline** | **Electronics Testing** | **Issue Date** | **26.11.2014** | |
| **Certificate Number** | **T-3219** | **Valid Until** | **23.05.2016** | |
| **Last Amended on** | **09.11.2015** | **Page** | **1 of 31** | |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| **I.** | **ELECTRO MEDICAL EQUIPMENT** | | | |
| **1.** | **Medical Electrical Equipment** | Classification of ME Equipment and ME System | IEC 60601-1:2005 | Qualitative |
| | | ME Equipment Identification Marking and Documents | IEC 60601-1:2005 | Qualitative |
| | | Protection Against electrical Hazards from ME Equipment | IEC 60601-1: 2005 | 0 to 75 V<br>75 N |
| | | Requirement Related to power Sources | IEC 60601-1: 2005 | 0 to 500 V<br>0 to 1000 W<br>0 to 20 A |
| | | Classification of applied Parts | IEC 60601-1: 2005 | Qualitative |
| | | Limitation of Voltage Current of Energy | IEC 60601-1: 2005 | 0 to 250 V<br>0 to 5000 W<br>0 to 500 V |
| | | Separation of Parts | IEC 60601-1: 2005 | Qualitative |
| | | Insulation | IEC 60601-1: 2005 | 2 MΩ to 2 GΩ |
| | | Creepage Distance and air Clearance | IEC 60601-1: 2005 | 0 to 150 mm<br>0 to 25 mm |
| | | Components and Wiring | IEC 60601-1: 2005 | Qualitative |
| | | Protection Against Mechanical Hazards of ME Equipment and ME System | IEC 60601-1: 2005 | Qualitative |
| | | Mechanical Hazards of ME Equipment | IEC 60601-1: 2005 | Qualitative |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Medical Electrical Equipment** | Hazards associated with moving Parts | IEC 60601-1: 2005 | Qualitative |
| | | Hazards Associated With Surface Corners and edges | IEC 60601-1: 2005 | Qualitative |
| | | Instability Hazards | IEC 60601-1: 2005 | 0 to 20 ° |
| | | Hazards Associated with Support System | IEC 60601-1: 2005 | Qualitative |
| | | Protection Against Excessive Temperature and other Hazards | IEC 60601-1: 2005 | 0 to 400 °C |
| | | Excessive Temperature in ME Equipment | IEC 60601-1: 2005 | 0 to 400 °C |
| | | Fire Prevention | IEC 60601-1: 2005 | 0 to 100 %<br>0 to 400 °C |
| | | Constructional Requirements of Fire Enclosure of ME Equipment | IEC 60601-1: 2005 | Qualitative |
| | | Constructional Requirements of Fire Enclosure of ME Equipment | IEC 60601-1: 2005 | Qualitative |
| | | Hazardous Situations and fault conditions for ME Equipment | IEC 60601-1: 2005 | 0 to 999.9 W |
| | | Accuracy of controls and Instruments and protection against hazardous | IEC 60601-1: 2005 | Qualitative |
| | | Construction of ME Equipment | IEC 60601-1: 2005 | 20 cNm to 120 cNm,<br>1 Nm 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 |
|---|---|---|---|---|
| **II.** | **AUDIO/VIDEO COMPONENTS AND PRODUCTS** | | | |
| **1.** | **Audio, Video electronic apparatus** | Marking & Instruction | IS 616: 2010<br>IEC 60065: 2005 Clause. 5.0 | 0 to 1000 W<br>0 to 500 V<br>0 to 20 A |
| | | Hazardous Radiations | IS 616: 2010<br>IEC 60065: 2005 Clause. 6 | 0 to 5 mR/Hr |
| | | Heating under normal operating conditions | IS 616: 2010<br>IEC 60065: 2005 Clause. 7 | 25 °C to 200 °C |
| | | Heat Resistance of Insulating material | IS 616: 2010<br>IEC 60065: 2005 Clause. 7.2 | 0 to 200 °C<br>0 to 100 mm, |
| | | Construction requirement regard to protection against electric shock | IS 616: 2010<br>IEC 60065: 2005 Clause. 8 | 0 to 200 N<br>0 to 150 mm, |
| | | Determination of Hazardous live parts | IS 616: 2010<br>IEC 60065: 2005<br>Clause. 9.1.1.11 | 0 to 20 mA |
| | | Determination of Accessible parts | IS 616: 2010<br>IEC 60065: 2005<br>Clause. 9.1.1.2 | Qualitative |
| | | Opening of the enclosure | IS 616: 2010<br>IEC 60065: 2005 Clause. 9.13 | Qualitative |
| | | Terminals (Clause. 9.1.4) | IS 616: 2010<br>IEC 60065: 2005 Clause. 9.14 | Qualitative |
| | | Preset controls | IS 616: 2010<br>IEC 60065: 2005 Clause. 9.15 | Qualitative |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Audio, Video electronic apparatus** | Withdrawal of main plug | IS 616: 2010<br>IEC 60065: 2005 | 0 to 500 V<br>0 to 1000 V<br>0 to 25 MHz,<br>1.2 Micros to 50 s |
| | | Resistance to external forces | IS 616: 2010<br>IEC 60065: 2005 Clause. 9.17 | Qualitative |
| | | Humidity treatment | IS 616: 2010<br>IEC 60065: 2005 Clause. 10.2 | Up to 50 °C<br>Upto 98 % RH |
| | | Insulation resistance and dielectric strength | IS 616: 2010<br>IEC 60065: 2005 Clause. 10.3 | >2 MΩ<br>0 to 5 kV |
| | | Electric shock hazard | IS 616: 2010<br>IEC 60065: 2005 | 0 to 10 mA |
| | | Measurement of temperature rise | IS 616: 2010<br>IEC 60065: 2005 Clause. 11.2.1 | Ambient to 200 °C |
| | | Bump test | IS 616: 2010<br>IEC 60065: 2005 Clause. 12.1.1 | Qualitative |
| | | Impact test | IS 616: 2010<br>IEC 60065: 2005 Clause. 12.1.3 | (50±1) mm dia 500 gm. |
| | | Drop test | IS 616: 2010<br>IEC 60065: 2005<br>Clause. 12.1.14 | Hardwood 13 mm on<br>19 mm to 20 mm |
| | | Stress relief test | IS 616: 2010<br>IEC 60065: 2005 Clause. 12.1.5 | 0 to 400 °C |
| | | Fixing of actuating element | IS 616: 2010<br>IEC 60065: 2005 Clause. 12.2 | 20 cNm to 120 cNm,<br>1 Nm 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 |
|---|---|---|---|---|
| | **Audio, Video electronic apparatus** | Drawens | IS 616: 2010<br>IEC 60065: 2005 Clause. 12.4 | 0 to 200 N |
| | | Clearance & creepage distance Determination of operating voltages | IS 616: 2010<br>IEC 60065: 2005 Clause. 13.2 | 0 to 1000 V DC,<br>0 to 750 V AC,<br>0 to 150 mm, |
| | | Clearances | IS 616: 2010<br>IEC 60065: 2005 Clause. 13.3 | 0 to 150 mm<br>0 to 25 mm, |
| | | Creepage distance | IS 616: 2010<br>IEC 60065: 2005 Clause. 13.4 | 0 to 150 mm<br>0 to 25 mm, |
| | | Jointed insulation | IS 616: 2010<br>IEC 60065: 2005 Clause. 13.6 | 0 to 1000 °C<br>0 to 5 kV |
| | | Enclosed sealed parts | IS 616: 2010<br>IEC 60065: 2005 Clause. 13.7 | 0 to 100 °C<br>0 to 5 kV |
| | | Components | IS 616: 2010<br>IEC 60065: 2005 Clause. 14 | Data verification |
| | | Terminals | IS 616: 2010<br>IEC 60065: 2005 Clause. 15 | 20 cNm to 120 cNm,<br>1 Nm to 6 Nm |
| | | Provisions for protective earthing | IS 616: 2010<br>IEC 60065: 2005 Clause. 15.2 | 0 to 50 A.<br>0 to 99.9 V, |
| | | Terminals for external flexible | IS 616: 2010<br>IEC 60065: 2005 | 20 cNm to 120 CNm,<br>1 Nm to 6 Nm |
| | | Cords & for permanent connection to the mains supply | IS 616: 2010<br>IEC 60065: 2005 Clause. 15.3 | 20 cNm to 120 CNm,<br>1 Nm 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 |
|---|---|---|---|---|
| | **Audio, Video electronic apparatus** | Devices forming A part of the mains plug | IS 616: 2010<br>IEC 60065: 2005 Clause. 15.4 | 20 cNm to 120 cNm ,<br>1 Nm to 6 Nm |
| | | Normal Operating Condition | IS 616: 2010<br>IEC 60065: 2005 Clause. 4.2 | 62.5 Hz to 16 kHz<br>0 to 5000 W,<br>0 to 1000 W, |
| | | External flexible cords | IS 616: 2010<br>IEC 60065: 2005 Clause. 16 | Upto 10 kg<br>20 cNm to 120 cNm ,<br>1 Nm to 6 Nm,<br>0 to 150 mm |
| | | Electrical connections & mechanical fixing | IS 616: 2010<br>IEC 60065: 2005 Clause. 17 | 20 cNm to 120 cNm ,<br>1 Nm to 6 Nm, |
| | | Mechanical Strength of picture tubes and protection against the effects of implosion | IS 616: 2010<br>IEC 60065: 2005 Clause. 18 | 0 to 300 °C<br>0 to 200 gm |
| | | Stability & mechanical hazards | IS 616: 2010<br>IEC 60065: 2005 Clause. 19 | 0 to 90 ° |
| | | Wall or ceiling mounting means | IS 616: 2010<br>IEC 60065: 2005 Clause. 19.6 | 0 to 10 kg |
| | | Resistance to fire | IS 616: 2010<br>IEC 60065: 2005 Clause. 20 | 0 to 400 °C<br>0 to 60 min |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| **III.** | **INFORMATION TECHNOLOGY EQUIPMENTS** | | | |
| **1.** | **Information technology equipment - Visual Display unit, Laptop/ Notebook/ Tablets, Printer/ Plotters, Video monitor /LCD/LED/Plasma TVs, Automated data processing machine, Scanner, Wireless Keyboards, Set top boxes, Telephone answering machine, Power adaptors for IT equipment, Mobile Phones, Cash register, Point of sale terminals, Copying Machines/ Duplicators, Smart card readers, Mail processing machines/ Postage machines/ Franking machines, Passport reader, Power banks for use in portable applications** | Components | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005 Clause. 1.5 | Qualitative |
| | | Input current | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause. 1.6.2 | 0 to 20 A<br>0 to 500 V,<br>0 to 5000 W, |
| | | Marking and instructions | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005 Clause. 1.7 | Qualitative |
| | | Durability | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause. 1.7.11 | Qualitative |
| | | Access to energized parts | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005 | Qualitative |
| | | Access to ELV wiring | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause. 2.1.1.3 | 0 to 150 mm,<br>0 to 25 mm, |
| | | Energy hazard | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause. 2.1.1.5 | 60 V/60 A/300 W<br>0 to 20 µF,<br>0 to 500 V |
| | | Discharge of capacitors in equipment | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause -2.1.1.7 | 0 to 1000 V DC,<br>0 to 750 V AC,<br>0 to 25 MHz,<br>1.2 µs to 50 s |
| | | SELV circuits | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005 Clause. -2.2 | 0 to 1000 V DC<br>0 to 750 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 |
|---|---|---|---|---|
| | **Information technology equipment - Visual Display unit, Laptop/ Notebook/ Tablets, Printer/ Plotters, Video monitor /LCD/LED/Plasma TVs, Automated data processing machine, Scanner, Wireless Keyboards, Set top boxes, Telephone answering machine, Power adaptors for IT equipment, Mobile Phones, Cash register, Point of sale terminals, Copying Machines/ Duplicators, Smart card readers, Mail processing machines/ Postage machines/ Franking machines, Passport reader, Power banks for use in portable applications** | TNV circuits limits | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause. 2.3.1 | 0 to 1000 V DC,<br>0 to 750 V AC,<br>60 V/60 A/300 W |
| | | Connection of TNV circuits to other circuits | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause. 2.3.4 | 0 to 1000 V DC,<br>0 to 750 V AC,<br>60 V/60 A/300 W, |
| | | Limited current circuits limits values (Clause. 2.4.2) & limited power sources | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005 Clause. 2.5 | 60 V/60 A/300 W<br>0 to 999.9V,<br>0 to 20 A,<br>0.4 kW |
| | | Size of protective earthing & bonding conductor – | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause. 2.6.3.2/2.6.3.3) | 0 to 150 mm,<br>0 to 25 mm,<br>0 to 99 .9 V<br>0 to 50 A |
| | | Resistance of earthing conductors and their terminals | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause. 2.6.3.4 | 0 to 50 A. |
| | | Protection requirement for safety interlocks | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause. 2.8.2 | Qualitative |
| | | Humidity conditioning | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause. 2.9.2 | 0 to 50 °C ,<br>0 to 98 %RH |
| | | Clearances | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause. 2.10.3 | Upto 150 mm,<br>Upto 25 mm, |

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|---|---|---|---|---|
| | **Information technology equipment - Visual Display unit, Laptop/ Notebook/ Tablets, Printer/ Plotters, Video monitor /LCD/LED/Plasma TVs, Automated data processing machine, Scanner, Wireless Keyboards, Set top boxes, Telephone answering machine, Power adaptors for IT equipment, Mobile Phones, Cash register, Point of sale terminals, Copying Machines/ Duplicators, Smart card readers, Mail processing machines/ Postage machines/ Franking machines, Passport reader, Power banks for use in portable applications** | Creepage distance | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause. 2.10.4 | 0 to 150 mm,<br>0 to 25 mm, |
| | | Thermal conditioning | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause. 2.10.8.2 | 0 to 100 °C |
| | | Thermal cycling | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause. 2.10.9 | 0 to 100 °C |
| | | Wiring connections & supply | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005 Clause. 3.0 | 0 to 10 kg,<br>0 to 150 mm,<br>0 to 25 mm, |
| | | Stability | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005 Clause. 4.1 | 0 to 90 °,<br>0 to 250 N, |
| | | Mechanical Strength | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005 Clause. 4.2 | 0 to 250 N, |
| | | Steady force test | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause. 4.2.2, 4.2.3, 4.2.4 | 0 to 250 N, |
| | | Impact test | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause. 4.2.5 | 500 g weight 50 mm dia |
| | | Drop test | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause. 4.2.6 | 13 mm, hardwood on<br>19 mm on 20 mm |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Information technology equipment - Visual Display unit, Laptop/ Notebook/ Tablets, Printer/ Plotters, Video monitor /LCD/LED/Plasma TVs, Automated data processing machine, Scanner, Wireless Keyboards, Set top boxes, Telephone answering machine, Power adaptors for IT equipment, Mobile Phones, Cash register, Point of sale terminals, Copying Machines/ Duplicators, Smart card readers, Mail processing machines/ Postage machines/ Franking machines, Passport reader, Power banks for use in portable applications** | Stress relief test | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause. 4.2.7 | 0 to 400 °C, |
| | | Mechanical strength for Wall or ceiling mounted equipment | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause. 4.2.10 | 0 to 10 kg. |
| | | Design & construction for Handles & manual controls | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause. 4.3.2 | 0 to 250 N, |
| | | Protection against hazardous moving parts | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005 Clause. 4.4 | Qualitative |
| | | Temperature tests | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause. 4.5.2 | Ambient to 200 °C |
| | | Resistance to abnormal heat | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause. 4.5.5 | 0 to 400 °C,<br>20 N<br>0 to 150 mm, |
| | | Opening in enclosure | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005 Clause. 4.6 | 0 to 150 mm<br>0 to 25 mm, |
| | | Evaluation measures for larger opening | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005<br>Clause. 4.6.4.2 | Probe-1 mm dia<br>13 mm length |
| | | Resistance to fire | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005 Clause. 4.7 | 0 to 1000 °C<br>0 to 150 mm, |
| | | Touch current & protective conductor current | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005 Clause. 5.1 | 0.005 mA to 10 mA |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Information technology equipment - Visual Display unit, Laptop/ Notebook/ Tablets, Printer/ Plotters, Video monitor /LCD/LED/Plasma TVs, Automated data processing machine, Scanner, Wireless Keyboards, Set top boxes, Telephone answering machine, Power adaptors for IT equipment, Mobile Phones, Cash register, Point of sale terminals, Copying Machines/ Duplicators, Smart card readers, Mail processing machines/ Postage machines/ Franking machines, Passport reader, Power banks for use in portable applications** | Electric strength | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005 Clause. 5.2 | 0 to 5 kV |
| | | Protection from hazardous voltages | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005 Clause. 6.1.1 | 0 to 5mA |
| | | Separation of the telecommunication network from earthing | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005 Clause. 6.1.2 | 0 to 5 kV |
| | | Impulse test | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005 Clause. 6.2.2.1 | 0 to 8 kV |
| | | Steady state test | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005 Clause. 6.2.2.2 | 0 to 5 kV |
| | | Compliance criteria | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005 Clause 6.2.2.3 | 0 to 8 kV |
| | | Impulse test | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005 Clause. 7.4.3 | 0 to 8 kV |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| **IV.** | **SAFETY TESTING** | | | |
| **1.** | **Microwaves Oven** | Marking & Instruction | IS 302-2-25: 1994<br>IEC 60335–2-25 Clause. 7 | Qualitative |
| | | Protection against Electric shock & energy hazards | IS 302-2-25: 1994<br>IEC 60335–2-25 Clause. 8 | 4.5 V to 60 V |
| | | Starting of Motor operated Appliances | IS 302-2-25: 1994<br>IEC 60335–2-25 Clause. 9 | 20 mΩ to 2 kΩ |
| | | Input | IS 302-2-25: 1994<br>IEC 60335–2-25 Clause. 10 | 0 to 5000 watt<br>0 to 500 V<br>0 to 30 A |
| | | Temperature Rise | IS 302-2-25: 1994<br>IEC 60335–2-25 Clause. 11 | 0 to 200 °C<br>20 mΩ to 2 kΩ |
| | | Operation under overload condition | IS 302-2-25: 1994<br>IEC 60335–2-25 Clause. 12 | 0 to 500 V<br>0 to 50 A<br>0 to 999999 |
| | | Electrical Insulation and leakage current at operating temperature | IS 302-2-25: 1994<br>IEC 60335–2-25 Clause. 13 | 0 to 5 kV<br>0 to 250 mA<br>0 to 2000 µA |
| | | Moisture Resistance | IS 302-2-25: 1994<br>IEC 60335–2-25 Clause. 15 | Ambient 98 % RH<br>Ambient 50 °C |
| | | Insulation resistance and Electrical Strength (after Humidity treatment) | IS 302-2-25: 1994<br>IEC 60335–2-25 Clause. 16 | 0 to 5 kV<br>0 to 250 mA<br>0 to 2000 µA |
| | | Overload protection | IS 302-2-25: 1994<br>IEC 60335–2-25 Clause. 17 | 0 to 500 V<br>0 to 5000 W<br>0 to 30 A |

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|---|---|---|---|---|
| | **Microwaves Oven** | Endurance Test | IS 302-2-25: 1994<br>IEC 60335–2-25 Clause. 18 | 0 to 300 V,<br>0 to 1 A, |
| | | Abnormal Operation | IS 302-2-25: 1994<br>IEC 60335–2-25 Clause. 19 | 0 to 500 V,<br>0 to 5000 W,<br>0 to 99.9 °C, |
| | | Stability and Mechanical Hazards | IS 302-2-25: 1994<br>IEC 60335–2-25 Clause. 20 | Spring hammer (0.5 J)<br>500 gm Ball<br>(50 (±)1) mm |
| | | Mechanical Strength | IS 302-2-25: 1994<br>IEC 60335–2-25 Clause. 21 | Force 0 to 980 N,<br>LC: 0.2 N |
| | | Construction | IS 302-2-25: 1994<br>IEC 60335–2-25 Clause. 22 | 0 to 200 N,LC=0.1 N<br>(test finger nail)<br>0 to 150 mm,<br>LC=0.01 mm,<br>0 to 400 °C, LC=1 °C<br>Temp.75 (±)2 °C |
| | | Internal wiring | IS-302-2-25, 1994<br>IEC 60335–2-25 Clause. 23 | 0 to 25 mm,<br>0 to 150 mm,<br>0 to 5 kV<br>0 to 100 mA, |
| | | Components | IS 302-2-25: 1994<br>IEC 60335–2-25 Clause. 24 | Qualitative |
| | | Cord grip and cord guard | IS 302-2-25: 1994<br>IEC 60335–2-25 Clause. 25 | 0 to 25 mm,<br>0 to 150 mm,<br>0 to 5 kV<br>0 to 100 Ma,<br>100 N,<br>0.25 Nm, |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Microwaves Oven** | Terminals for external conductors | IS 302-2-25: 1994<br>IEC 60335–2-25 Clause. 26 | 0 to 25 mm,<br>0 to 150 mm,<br>0.2 Nm to 2.5 Nm |
| | | Provision for earthing | IS 302-2-25: 1994<br>IEC 60335–2-25 Clause. 27 | 0 to 99.9V,<br>0 to 50 A, |
| | | Screws and connections | IS 302-2-25: 1994<br>IEC 60335–2-25 Clause. 28 | 0 to 150 mm,<br>0.2 Nm to 2.5 Nm |
| | | Creepage Distances and Clearances | IS 302-2-25: 1994<br>IEC 60335–2-25 Clause. 29 | 0 to 150 mm,<br>0.05 mm to 1.00 mm |
| | | Resistance to heat, time and tracking | IS 302-2-25: 1994<br>IEC 60335–2-25 Clause. 30 | 0 to 400 °C,<br>20 N<br>0 to 1000 °C,<br>0 to 600 V<br>0 to 2.0 A rms |
| | | Resistance to rusting | IS 302-2-25: 1994 Clause. 31<br>IEC 60335–2-25 | 0 to 100 °C,<br>Relative Humidity 95 % |
| **2.** | **Clocks Main operated clocks with rated voltage not exceeding 250V, AC single Phase or DC. Alarm Clock, Clocks controlling radio receivers and like, Spring driven clocks with an electrically operated winding** | Marking & Instruction | IS 302-2-26: 1994 Clause. 7<br>IEC 60335–2-26 | Qualitative |
| | | Protection against Electric shock & energy hazards | IS 302-2-26: 1994 Clause. 8<br>IEC 60335–2-26 | 4.5 V to 60 V, |
| | | Starting of Motor operated Appliances | IS 302-2-26: 1994 Clause. 9<br>IEC 60335–2-26 | 20 mΩ to 2 kΩ |
| | | Input | IS 302-2-26: 1994 Clause. 10<br>IEC 60335–2-26 | 0 to 5000 W,<br>0 to 500 V,<br>0 to 30 A |
| | | Temperature Rise | IS 302-2-26: 1994 Clause. 11<br>IEC 60335–2-26 | 0 to 200 °C,<br>20 mΩ to 2 kΩ |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Clocks Main operated clocks with rated voltage not exceeding 250V, AC single Phase or DC. Alarm Clock, Clocks controlling radio receivers and like, Spring driven clocks with an electrically operated winding** | Operation under overload condition | IS 302-2-26: 1994 Clause. 12<br>IEC 60335–2-26 | 0 to 500 V,<br>0 to 50 A,<br>0 to 999999<br>0 to 1000 W, |
| | | Electrical Insulation and leakage current at operating temperature | IS 302-2-26: 1994 Clause. 13<br>IEC 60335–2-26 | 0 to 5 kV<br>0 to 250 mA,<br>0 to 2000 μA, |
| | | Moisture Resistance | IS 302-2-26: 1994 Clause. 15<br>IEC 60335–2-26 | Ambient 98 % RH,<br>Ambient 50 °C, |
| | | Insulation resistance and Electrical Strength<br>(after Humidity treatment) | IS 302-2-26: 1994 Clause. 16<br>IEC 60335–2-26 | 0 to 5 kV<br>0 to 250 mA,<br>2 MΩ |
| | | Overload protection | IS 302-2-26: 1994 Clause. 17<br>IEC 60335–2-26 | 0 to 500 V,<br>0 to 5000 W,<br>0 to 30 A, |
| | | Endurance Test | IS 302-2-26: 1994 Clause. 18<br>IEC 60335–2-26 | 0 to 300 V,<br>0 to 1 A |
| | | Abnormal Operation | IS 302-2-26: 1994 Clause. 19<br>IEC 60335–2-26 | 0 to 500 V,<br>0 to 5000 W,<br>0 to 99.9 °C |
| | | Stability and Mechanical Hazards | IS 302-2-26: 1994 Clause. 20<br>IEC 60335–2-26 | Spring hammer (0.5 J)<br>500 gm Ball<br>(50 (±)1) mm |
| | | Mechanical Strength | IS 302-2-26: 1994 Clause. 21<br>IEC 60335–2-26 | Force 0 to 980 N |
| | | Construction | IS 302-2-26: 1994 Clause. 22<br>IEC 60335–2-26 | Force: 200 N<br>(test finger nail)<br>0 to 150 mm |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Clocks Main operated clocks with rated voltage not exceeding 250V, AC single Phase or DC. Alarm Clock, Clocks controlling radio receivers and like, Spring driven clocks with an electrically operated winding** | Internal wiring | IS 302-2-26: 1994 Clause. 23<br>IEC 60335–2-26 | 0 to 25 mm<br>0 to 150 mm<br>0 to 5 kV<br>0 to 100 mA |
| | | Components | IS 302-2-26: 1994 Clause. 24<br>IEC 60335–2-26 | Qualitative |
| | | Supply connection and external flexible cables and cords | IS 302-2-26: 1994 Clause. 25<br>IEC 60335–2-26 | 0 to 25 mm,<br>0 to 150 mm,<br>0 to 5 kV<br>0 to 100 mA.<br>100 N,<br>1 Nm to 6 Nm |
| | | Terminals for external conductors | IS 302-2-26: 1994 Clause. 26<br>IEC 60335–2-26 | 0 to 25 mm,<br>0 to 150 mm,<br>0.2 Nm to 2.5 Nm |
| | | Provision for earthing | IS 302-2-26: 1994 Clause. 27<br>IEC 60335–2-26 | 0 to 99.9 V,<br>0 to 50 A, |
| | | Screws and connections | IS 302-2-26: 1994 Clause. 28<br>IEC 60335–2-26 | 0 to 150 mm,<br>0.2 Nm to 2.5 Nm, |
| | | Creepage Distances and Clearances | IS 302-2-26: 1994 Clause. 29<br>IEC 60335–2-26 | 0 to 150 mm,<br>0.05 mm to 1.00 mm |
| | | Resistance to heat, time and tracking | IS 302-2-26: 1994 Clause. 30<br>IEC 60335–2-26 | 0 to 400 °C,<br>20 N<br>0 to 1000 °C,<br>0 to 600 V<br>0 to 2.0 A |
| | | Resistance to rusting | IS 302-2-26: 1994 Clause. 31<br>IEC 60335–2-26 | 0 to 100 °C,<br>Relative Humidity: 95 % |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| **V.** | **ELECTRONIC COMPONENT & EQUIPMENT SUB ASSEMBLIES** | | | |
| **1.** | **AC supplied electronic ballasts for tubular florescent lamps** | Classification | IS 13021 (Part 1): 1991 Clause. 6<br>IEC 60928: 1990 | Qualitative |
| | | Marking | IS 13021 (Part 1): 1991 Clause. 7<br>IEC 60928: 1990 | Qualitative |
| | | Terminals | IS 13021 (Part 1): 1991 Clause. 8<br>IEC 60928: 1990 | Qualitative |
| | | Provision for earthing | IS 13021 (Part 1): 1991 Clause. 9<br>IEC 60928: 1990 | Qualitative |
| | | Creepage distances and clearances | IS 13021 (Part 1): 1991<br>Clause. 10<br>IEC 60928: 1990 | 0.05 mm to 1 mm<br>0 to 200 mm |
| | | Protection against accidental contact with live parts | IS 13021 (Part 1): 1991<br>Clause. 11<br>IEC 60928: 1990 | 0 to 75 V |
| | | Protection against electric shock | IS 13021 (Part 1): 1991<br>Clause. 12<br>IEC 60928: 1990 | 0 to 75 V |
| | | Moisture resistance and insulation | IS 13021 (Part 1): 1991<br>Clause. 13<br>IEC 60928: 1990 | 0 to 100 °C,<br>20 % to 100 % Rh<br>0 to ∞ MΩ |
| | | Electric Strength | IS 13021 (Part 1): 1991 Clause. 4<br>IEC 60928: 1990 | 0 to 5 kV |
| | | Abnormal Conditions | IS 13021 (Part 1): 1991<br>Clause. 15<br>IEC 60928: 1990 | 0 to 400 °C |

| 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** | Marking | IS 13021 (Part 2): 1991 Clause. 5<br>IEC 60929: 1990 | Qualitative |
| | | General Requirement | IS 13021 (Part 2): 1991 Clause. 6<br>IEC 60929: 1990 | Qualitative |
| | | Starting Conditions | IS 13021 (Part 2): 1991 Clause. 7<br>IEC 60929: 1990 | 0 to 200 s |
| | | Operating Conditions | IS 13021 (Part 2): 1991 Clause. 8<br>IEC 60929: 1990 | 0 to 600 V,<br>(-)1.00 to (+)1.00 |
| | | Circuit Power Factor | IS 13021 (Part 2): 1991 Clause. 9<br>IEC 60929: 1990 | (-)1.00 to (+)1.00 |
| | | Supply Current | IS 13021 (Part 2): 1991<br>Clause. 10<br>IEC 60929: 1990 | 0 to 20 A |
| | | Maximum Current in any lead to a cathode | IS 13021 (Part 2): 1991<br>Clause. 11<br>IEC 60929: 1990 | 0 to 20 A |
| | | Current Waveform | IS 13021 (Part 2): 1991<br>Clause. 12<br>IEC 60929: 1990 | 1 to $50^{th}$ Order |
| | | Magnetic Screening | IS 13021 (Part 2): 1991<br>Clause. 13<br>IEC 60929: 1990 | 0 to 20 A |
| | | Impedance of Audio Frequencies | IS 13021 (Part 2): 1991<br>Clause. 14<br>IEC 60929: 1990 | 50 Hz to 2 kHz |

| 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** | Mains Transient Over Voltage | IS 13021 (Part 2): 1991 Clause. 15 IEC 60929: 1990 | 0 to 4000 V |
| | | Operational Tests for Abnormal Conditions | IS 13021 (Part 2): 1991 Clause. 16 IEC 60929: 1990 | 0 to 400 °C |
| | | Endurance | IS 13021 (Part 2): 1991 Clause. 17 IEC 60929: 1990 | 0 to 5000 W<br>0 to 20 A<br>0 to 9999 h<br>0 to 9999 count |
| **3.** | **Ballasts for fluorescent lamps foe switch Start circuits** | General Design Construction and Workmanship | IS 1534 (Part 1): 1977 Clause. 3 IEC 60082: 1984 | Qualitative |
| | | Terminal for external wiring | IS 1534 (Part 1): 1977 Clause. 4 IEC 60082: 1984 | 0 to 25 mm |
| | | Screws, current-carrying parts and connections | IS 1534 (Part 1): 1977 Clause. 5 IEC 60082: 1984 | 0 to 6 Nm |
| | | Provision for earthing | IS 1534 (Part 1): 1977 Clause. 6 IEC 60082: 1984 | Qualitative |
| | | Creep age distances and clearances | IS 1534 (Part 1): 1977 Clause. 7 IEC 60082: 1984 | 0.05 mm to 1 mm<br>0 to 200 mm |
| | | Marking | IS 1534 (Part 1): 1977 Clause. 8 IEC 60082: 1984 | Qualitative |
| | | Protection against accidental contacts and electric shock | IS 1534 (Part 1): 1977 Clause. 9.5 IEC 60082: 1984 | 0 to 75 V |
| | | Voltage across capacitors | IS 1534 (Part 1): 1977 Clause. 9.6 IEC 60082: 1984 | 0 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 fluorescent lamps foe switch Start circuits** | Moisture resistance and insulation | IS 1534 (Part 1): 1977 Clause. 9.7<br>IEC 60082: 1984 | 0 to 100.0 °C,<br>20 to 100 %Rh<br>0 to 1 GΩ, 0 to 5 kV |
| | | Test for thermal endurance of windings | IS 1534 (Part 1): 1977 Clause. 9.8<br>IEC 60082: 1984 | 0 to 20 A, 0 to 199.9 °C<br>0 to 1999 Ω,<br>0 to 1 GΩ |
| | | Test for limitations of Ballast Heating | IS 1534 (Part 1): 1977 Clause. 9.9<br>IEC 60082: 1984 | 0 to 199.9 °C,<br>0 to 5 kV |
| | | Test for Mechanical Strength | IS 1534 (Part 1): 1977<br>Clause. 9.10<br>IEC 60082: 1984 | Qualitative |
| | | Resistance to heat | IS 1534 (Part 1): 1977<br>Clause. 9.11<br>IEC 60082: 1984 | 0 to 400 °C |
| | | Test for resistance to corrosion | IS 1534 (Part 1): 1977<br>Clause. 9.12<br>IEC 60082: 1984 | Qualitative<br>(Visual & Physical test) |
| | | Performance | IS 1534 (Part 1): 1977<br>Clause. 9.13<br>IEC 60082: 1984 | 0 to 600 V, 0 to 12 kW<br>0 to 20 A,<br>(-)1.00 to (+)1.00 |
| | | Test for Ballast losses | IS 1534 (Part 1): 1977 Clause. 9.14<br>IEC 60082: 1984 | 0 to 12 kW<br>0 to 20 A |
| **4.** | **DC or AC supplied electronic control gear for LED Modules** | Marking | IS 15885 (Part 2/Sec XIII): 2012<br>Clause. 7 | Visual |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **DC or AC supplied electronic control gear for LED Modules** | Protection against accidental contact with live parts | IS 15885 (Part 1): 2011 Clause. 8 | (0 to 100 V)<br>LC: 1 V |
| | | Terminals Clause | IS 15885 (Part 1): 2011 Clause. 9 | 0 to 150 mm, LC 0.01 mm<br>0 to 80 N |
| | | Provision for protective earthing | IS 15885 (Part 1): 2011 Clause. 10 | 0 to 25 A, LC 0.1 A<br>0 to 5 V, LC 0.01 V |
| | | Moisture Resistance | IS 15885 (Part 1): 2011 Clause. 11 | 0 to 96 %, LC:1 %<br>0 to 199.9 °C, LC: 0.1 °C |
| | | Electric Strength | IS 15885 (Part 1): 2011 Clause. 12 | 0 to 3 kV<br>LC: 0.1 kV |
| | | Thermal endurance test for winding of ballasts | IS 15885 (Part 1): 2011 Clause. 13 | 0 to 1000 °C, LC: 1 °C<br>0 to 200 V, LC: 1 V |
| | | Fault conditions | IS 15885 (Part 1): 2011 Clause. 14 | 0 to 600 V, 0 to 12 kW<br>0 to 20 A,<br>(-)1.00 to (+)1.00 |
| | | Transformer heating | IS 15885 (Part 1): 2011 Clause. 15 | 0 to 400 °C LC: 1 °C<br>0 to 50 A LC: 0.1 A |
| | | Construction | IS 15885 (Part 1): 2011 Clause. 16 | Qualitative |
| | | Creepage distance and clearances | IS 15885 (Part 1): 2011 Clause. 17 | 0 to 150 mm<br>LC: 0.01 mm |
| | | Screws, current-carrying parts and connections | IS 15885 (Part 1): 2011 Clause. 18 | 1 Nm to 6 Nm<br>20 cNm to 120 cNm |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **DC or AC supplied electronic control gear for LED Modules** | Resistance to heat, fire and tracking | IS 15885 (Part 1): 2011 Clause 19 | 0 to 1000 °C, LC:1 °C<br>0 to 200 V, LC:1 V |
| | | Resistance to corrosion | IS 15885 (Part 1): 2011 Clause 20 | 0 to 250 °C, LC:1 °C<br>Chemical |
| **5.** | **Cathode Ray Tube Colour Based Data Display Monitor**<br><br>**Cathode Ray Tube Monochrome Based Data Display Monitor** | Marking | IS13384 (Part 1): 1992 Clause 4<br>IS13384 (Part 2): 1997 Clause 11 | Qualitative |
| | | Safety Requirement | IS13384 (Part 1): 1992 Clause 6<br>IS13384 (Part 2): 1997 Clause 5 | 0 to 300 V, LC:1 V<br>0 to 5000 W, LC:1 W |
| | | Performance Requirement | IS13384 (Part 1): 1992 Clause 8<br>IS13384 (Part 2): 1997 Clause 7 | 0 to 300 V, LC:1 V<br>0 to 5000 W, LC:1 W |
| | | Environmental Tests | IS13384 (Part 1): 1992 Clause 11<br>IS13384 (Part 2): 1997 Clause 10 | (-)50 °C to (+)50 °C<br>LC 0.1 °C<br>20 % to 98 % LC-0.1 % |
| **6.** | **Household Electrical Appliance** | General Conditions for Measurements | IEC 62301: 2011 | Qualitative |
| | | Measurements | IEC 62301: 2011 | 0 to 500 V,LC=0.01<br>Upto 100 V,0.1 V<br>0 to 999.9 W, LC: 0.1 W<br>0 to 20 A, LC 0.01 A<br>0 to 50 Hz, LC 0.01 Hz<br>R=0 to 60 min<br>LC=0.01 s/ 1 s |
| | | Sampling Method | IEC 62301: 2011 | 0 to 500 V,LC: 0.01<br>Upto 100 V,0.1 V<br>0 to 999.9 W, LC0.1 W<br>0 to 20 A, LC 0.01 A<br>0 to 50 Hz, LC 0.01 Hz<br>R=0 to 60 min<br>LC=0.01 s/ 1 s |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Household Electrical Appliance** | Average reading method (Average power approach) | IEC 62301: 2011 | 0 to 500 V,LC: 0.01<br>Upto 100 V,0.1 V<br>0 to 999.9 W, LC: 0.1 W<br>0 to 20 A, LC 0.01 A<br>0 to 50 Hz, LC 0.01 Hz<br>R=0 to 60 min,<br>LC=0.01 s/ 1 s |
| | | Direct Meter Reading Method | IEC 62301: 2011 | 0to 500 V,LC: 0.01<br>Upto 100 V,0.1 V<br>0 to 999.9 W, LC0.1 W<br>0 to 20 A, LC 0.01 A<br>0 to 50 Hz, LC 0.01 Hz<br>R=0 to 60 min,<br>LC=0.01 s/ 1 s |
| **7.** | **Audio, video Equipment** | General Method of Measurement | IEC 62087: 2002 | 0 to 500 V , LC: 0.1 V<br>0 to 20 A, LC: 0.01 A<br>0 to 999.9 W, LC: 0.1 W<br>0 to 60 Min, LC=1 s |
| | | Measuring Condition for Television Receiver | IEC 62087: 2002 | RF Signal<br>1 kHz to 20 MHz<br>Sine wave 1 kHz<br>1 kHZ to 16 kHz<br>output Reading<br>(for flat Response)<br>20dB V (±)0.5 dB V<br>0 to 500 V,LC: 0.1 V<br>0 to 20 A, LC: 0.1 A<br>0 to 999.9 W,LC: 0.1 W |
| | | Measuring Conditions for Video Recording | IEC 62087: 2002 | RF Signal<br>0 to 500 V, LC: 0.1 V<br>0 to 20 A, LC: 0.01 A<br>0 to 999.9 W, LC: 0.1 W |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Household Electrical Appliance** | STB | IEC 62087: 2002 | RF Signal<br>1 kHz to 20 MHz<br>Sine wave 1 kHz<br>1 kHZ to 16 kHz<br>output Reading<br>(for flat Response)<br>20 dB V (±)0.5 dB V<br>0 to 500 V,LC: 0.1 V<br>0 to 20 A, LC: 0.1 A<br>0 to 999.9 W,LC: 0.1 W |
| | | Audio Equipment | IEC 62087: 2002 | RF Signal<br>1 kHz to 20 MHz<br>Sine wave 1 kHz<br>1 kHZ to 16 kHz<br>output Reading<br>(for flat Response)<br>20dB V (±)0.5 dB V<br>0 to 500 V,LC: 0.1 V<br>0 to 20 A, LC: 0.1 A<br>0 to 999.9 W,LC: 0.1 W |
| **8.** | **Information Technology Equipments Internal/ External AC-DC and DC-DC Power supplies** | Off mode | DTH-K/SOP/ ELECT/ 10 Issue No. 1, Issue Date 25.01.2016<br><br>DTH-K/SOP/ ELECT/ 11 Issue No. 1, Issue Date 25.01.2016<br>(Based on Energy Star, BEE Schedule 14 Version 2 & 5) | 0.1 Wh to 500 Wh<br>5 s to 10 min |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Information Technology Equipments Internal/ External AC-DC and DC-DC Power supplies** | Sleep Mode | DTH-K/SOP/ ELECT/ 10 Issue No. 1, Issue Date 25.01.2016<br>DTH-K/SOP/ ELECT/ 11 Issue No. 1, Issue Date 25.01.2016 (Based on Energy Star, BEE Schedule 14 Version 2 & 5) | 0.1 Wh to 500 Wh<br>5 s to 10 min |
| | | Idle State | DTH-K/SOP/ ELECT/ 10 Issue No. 1, Issue Date 25.01.2016<br>DTH-K/SOP/ ELECT/ 11 Issue No. 1, Issue Date 25.01.2016 (Based on Energy Star, BEE Schedule 14 Version 2 & 5) | 0.1 Wh to 500 Wh<br>5 s to 10 min |
| | | Active State | DTH-K/SOP/ ELECT/ 10 Issue No. 1, Issue Date 25.01.2016<br>DTH-K/SOP/ ELECT/ 11 Issue No. 1, Issue Date 25.01.2016(Based on Energy Star, BEE Schedule 14 Version 2 & 5) | 0.1 Wh to 500 Wh<br>5 s to 10 min |
| | | Idle State | DTH-K/SOP/ ELECT/ 10 Issue No. 1, Issue Date 25.01.2016<br>DTH-K/SOP/ ELECT/ 11 Issue No. 1, Issue Date 25.01.2016 (Based on Energy Star, BEE Schedule 14 Version 2 & 5) | 0.1 Wh to 500 Wh<br>5 s to 10 min |
| | | Full Load | DTH-K/SOP/ ELECT/ 10 Issue No. 1, Issue Date 25.01.2016<br>DTH-K/SOP/ ELECT/ 11 Issue No. 1, Issue Date 25.01.2016 (Based on Energy Star, BEE Schedule 14 Version 2 & 5) | 0.1 Wh to 500 Wh<br>5 s to 10 min |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Information Technology Equipments Internal/ External AC-DC and DC-DC Power supplies** | Active Mode power consumption for single Output power supply | DTH-K/SOP/ ELECT/ 10 Issue No. 1, Issue Date 25.01.2016<br>DTH-K/SOP/ ELECT/ 11 Issue No. 1, Issue Date 25.01.2016 (Based on Energy Star, BEE Schedule 14 Version 2 & 5)<br>Schedule 14 Version 2, Clause 6 | 0.1 Wh to 500 Wh<br>5 s to 10 min |
| | | Active Mode power consumption for multiple Output power supply | DTH-K/SOP/ ELECT/ 10 Issue No. 1, Issue Date 25.01.2016<br>DTH-K/SOP/ ELECT/ 11 Issue No. 1, Issue Date 25.01.2016 (Based on Energy Star, BEE Schedule 14 Version 2 & 5) | 0.1 Wh to 500 Wh<br>5 s to 10 min |
| | | Standby Mode Power consumption | DTH-K/SOP/ ELECT/ 10 Issue No. 1, Issue Date 25.01.2016<br>DTH-K/SOP/ ELECT/ 11 Issue No. 1, Issue Date 25.01.2016 (Based on Energy Star, BEE Schedule 14 Version 2 & 5) | 0.1 Wh to 500 Wh<br>5 s to 10 min |
| **VI.** | **POWER STABILISER AND UPS** | | | |
| **1.** | **Solid state invertors run from storage batteries** | High voltage test | IS 13314: 1992 Clause. 7.6 | 0 to 3 KV, LC 0.1KV |
| | | Insulation resistance test | IS 13314: 1992 Clause. 7.7 | 2 MΩ to ∞, LC 0.5 MΩ |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Solid state invertors run from storage batteries** | No-load test | IS 13314: 1992 Clause. 7.8 | 0 to 300 V, LC:1 V<br>0 to 5000 W, LC:1 W |
| | | Output test | IS 13314: 1992 Clause. 7.9 | 0 to 300 V, LC:1 V<br>0 to 5000 W, LC:1 W |
| | | Climatic tests | IS 13314: 1992 Clause. 7.10 | 0 to 96 %, LC:1 %<br>0 to 199.9 °C, LC: 0.1 °C |
| | | Harmonic contents test | IS 13314: 1992 Clause. 7.11 | 0 to $50^{th}$ harmonic |
| **2.** | **Uninterruptible power system (UPS)** | Marking | IS 16242 (Part 1): 2014<br>Clause. 4.7<br>IEC 62040-2: 2005 | Qualitative |
| | | Protection against access to live part | IS 16242 (Part 1): 2014<br>Clause. 7.4<br>IEC 62040-2: 2005 | 20 N |
| | | Power input and Current | IS 16242 (Part 1): 2014<br>Clause. 4.7.1<br>IEC 62040-2: 2005 | 0 to 5000 W, LC: 1 W<br>0 to 500 V, LC: 1 V<br>0 to 30 A, LC: 0.01 A |
| | | Heating | IS 16242 (Part 1): 2014<br>Clause. 7.7<br>IEC 62040-2: 2005 | 0 to 200 °C, LC=1 °C |
| | | Leakage current | IS 16242 (Part 1): 2014<br>Clause. 8.1<br>IEC 62040-2: 2005 | 0 to 250 mA, LC: 5 mA |
| | | Electrical strength | IS 16242 (Part 1): 2014<br>Clause. 8.2<br>IEC 62040-2: 2005 | 0 to 5 kV LC:0.1 kV |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Uninterruptible power system (UPS)** | Humidity test | IS 16242 (Part 1): 2014 Clause. 8.2 IEC 62040-2: 2005 | Ambient 98 %RH, LC: 0.1 %RH Ambient 50 °C, LC: 0.1 °C |
| | | Mechanical Strength (cord anchorage and strain relief) | IS 16242 (Part 1): 2014 Clause. 7 IEC 62040-2: 2005 | Force 0 to 980 N, LC: 0.2 N |
| | | Earthing contact resistance | IS 16242 (Part 1): 2014 Clause. 5.3 IEC 62040-2: 2005 | 0 to 30 A, LC: 0.01 A |
| | | Creep age distance, clearance and distances | IS 16242 (Part 1): 2014 Clause. 3.16 IEC 62040-2: 2005 | 0 to 150 mm, LC:0.01mm 0.05 mm to 1.00 mm |
| | | Ball pressure test | IS 16242 (Part 1): 2014 Clause. 3.10 IEC 62040-2: 2005 | 0 to 125 °C 5 mm, 20 N |
| **3.** | **Stationary cells and Batteries lead-acid type (with Tubular Positive Plate)** | Verification of Dimension | IS 6151: 1991 IS 6152: 1991 | 0 to 150 mm LC: 0.01 mm 0 to 1000 mm LC: 0.5 mm |
| | | Test for Capacity | IS 6151: 1991 IS 6152: 1991 | 0 to 199.9 °C, LC: 0.1 °C 0 to 500 V, LC: 0.01 V 0 to 60 min, LC: 0.01 s |
| | **Stationary cells and Batteries lead-acid type (with Planet positive Plates)** | Test for Voltage during discharge | IS 6151: 1991 IS 6152: 1991 | 0 to 199.9 °C, LC: 0.1 °C 0 to 500 V, LC: 0.01 V 0 to 60 min, LC: 0.01 s |
| | | Ampere hour and watt-hour Efficiency test | IS 6151: 1991 IS 6152: 1991 | 0 to 500 V, LC: 0.01 V 0 to 60 min, LC: 0.01 s |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Stationary cells and Batteries lead-acid type (with Tubular Positive Plate)** | Test for loss capacity of Storage | IS 6151: 1991<br>IS 6152: 1991 | 0 to 500 V, LC=0.01 V<br>0 to 60 min, LC=0.01 s |
| | | Endurance test | IS 6151: 1991<br>IS 6152: 1991 | 0 to 500 V, LC: 0.01 V<br>0 to 99999.9, LC: 0.1 V |
| | **Stationary cells and Batteries lead-acid type (with Planet positive Plates)** | Checking of Dimension and Terminal | IS 8144: 1997<br>IS 6303 | 0 to 150 mm<br>LC: 0.01 mm<br>0 to 1000 mm<br>LC: 0.5 mm |
| | | Initial Life test | IS 8144: 1997<br>IS 6303 | 0 to 99999.9 hr<br>LC: 0.1 hr |
| | | Delayed Life test under dry heat Condition | IS 8144: 1997<br>IS 6303 | 0 to 999999.9 hr<br>LC: 0.1 hr |
| | | Leakage test for Batteries Marked Leak Proof | IS 8144: 1997<br>IS 6303 | 0 to 500 V, LC=0.01 V |
| **4.** | **Secondary cells and batteries containing alkaline or other non-acid electrolytes** | Continuous Low Rate Charge | IS 16046: 2012 Clause. 4.2.1<br>IEC 62133: 2002 | 0 to 500 V, LC: 0.01 V<br>0 to 60 min LC: 0.01 s |
| | | Vibration | IS 16046: 2012 Clause. 4.2.2<br>IEC 62133: 2002 | 0 to 500 V, LC: 0.01 V<br>0 to 60 min LC: 0.01 s |
| | | Temperature cycling | IS 16046: 2012 Clause. 4.2.4<br>IEC 62133: 2002 | 0 to 500 V, LC: 0.01 V<br>0 to 60 min LC: 0.01 s |
| | | External short circuit | IS 16046: 2012 Clause. 4.3.2<br>IEC 62133: 2002 | 0 to 500 V, LC: 0.01 V<br>0 to 60 min LC: 0.01 s |
| | | Free fall | IS 16046: 2012 Clause. 4.3.3<br>IEC 62133: 2002 | 0 to 500 V, LC: 0.01 V<br>0 to 60 min LC: 0.01 s |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Secondary cells and batteries containing alkaline or other non-acid electrolytes** | Mechanical shock | IS 16046: 2012 Clause. 4.3.4<br>IEC 62133: 2002 | 0 to 10 Nm<br>LC: 0.01 Nm |
| | | Thermal abuse | IS 16046: 2012 Clause. 4.3.5<br>IEC 62133: 2002 | 0 to 500 V, LC: 0.01 V<br>0 to 60 min LC: 0.01 s |
| | | Crushing of cells | IS 16046: 2012 Clause. 4.3.6<br>IEC 62133: 2002 | 0 to 500 V, LC: 0.01 V<br>0 to 60 Min LC: 0.01 s |
| | | Low pressure | IS 16046: 2012 Clause. 4.3.7<br>IEC 62133: 2002 | 0 to 500 V, LC: 0.01 V<br>0 to 60 min, LC: 0.01 s |
| | | Overcharge for lithium systems | IS 16046: 2012 Clause. 4.3.9<br>IEC 62133: 2002 | 0 to 500 V, LC: 0.01 V<br>0 to 60 min, LC: 0.01 s |
| | | Forced discharge | IS 16046: 2012 Clause. 4.3.10<br>IEC 62133: 2002 | 0 to 500 V, LC: 0.01 V<br>0 to 60 min LC: 0.01 s |
| | | Cell protection against at high charging Rate | IS 16046: 2012 Clause. 4.3.11<br>IEC 62133: 2002 | 0 to 500 V, LC: 0.01 V<br>0 to 60 min, LC: 0.01 s |
| **VII.** | **ENVIRONMENTAL TEST FACILITY** | | | |
| **1.** | **Electronic/ Electrical Products** | Cold test | IS 9000 (Part 2/Sec I to IV): 1977<br>IEC 60068-2-1: 2007 | (-)30 °C – Ambient<br>LC: 0.1 °C |
| | | Dry Heat | IS 9000 (Part 3/Sec I to V): 1977<br>IEC 60068-2-2 : 2007 | Ambient to (+) 200 °C<br>LC:0.1 °C |
| | | Damp Heat | IS 9000 (Part 4): 2008<br>IS 9000 (Part 5/Sec I & II): 1981<br>IEC 60068-2-3: 1969<br>IEC 60068-2-4: 1960<br>IEC 60068-2-30: 2005<br>IEC 60068-2-38: 2009 | 20 °C to 90 °C<br>LC: 0.1 °C<br>20 % to 98 % RH |

| | | | |
|---|---|---|---|
| **Laboratory** | **Delhi Test House, Plot No. 50, Phase-IV, Sector 57, HSIDC Industrial Area, Kundli, Sonipat, Haryana** | | |
| **Accreditation Standard** | **ISO/IEC 17025: 2005** | | |
| **Discipline** | **Electronics Testing** | **Issue Date** | **26.11.2014** |
| **Certificate Number** | **T-3219** | **Valid Until** | **23.05.2016** |
| **Last Amended on** | **09.11.2015** | **Page** | **31 of 31** |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Electronic/ Electrical Products** | Change of temperature | IS 9000 (Part 14): 1988<br>IEC 60068-2-14: 2009 | (-)50 °C to (+) 200 °C<br>LC: 0.1 °C |
| | | Thermal Shock test | IS 9000 (Part 14): 1988<br>IEC 60068-2-14: 2009 | (-)50 °C to (+) 200 °C<br>LC: 0.1 °C |

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**Mandeep Kumar**
**Convenor**

**N. Venkateswaran**
**Program Manager**