| | | | |
|---|---|---|---|
| **Laboratory** | **Kailtech Test and Research Centre Private Limited, 141-C, Electronic Complex Industrial Area, Pardesipura, Indore, Madhya Pradesh** | | |
| **Accreditation Standard** | **ISO/IEC 17025: 2005** | | |
| **Discipline** | **Electronics Testing** | **Issue Date** | **18.09.2016** |
| **Certificate Number** | **T-3484** | **Valid Until** | **17.09.2018** |
| **Last Amended on** | **07.11.2016** | **Page** | **1 of 8** |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| **I.** | **SAFETY TESTING FACILITY** | | | |
| **1.** | **Information Technology Equipment** | Power Interface | IS 13252 (Part 1): 2010<br>(Amd. 1: 2013, Amd. 2: 2015)<br>IEC 60950-1: 2005 (Cl. 1.6) | 0.1 A to 15 A<br>0 to 300 VAC<br>1 W to 5000 W |
| | | Markings and Instructions | IS 13252 (Part 1): 2010 (Cl. 1.7)<br>(Amd. 1: 2013, Amd. 2: 2015) | Qualitative |
| | | Access to energized part | IS 13252 (Part 1): 2010<br>(Amd. 1: 2013, Amd. 2: 2015)<br>IEC 60950-1: 2005 (Cl. 2.1.1.1) | Qualitative |
| | | Provisions for earthing and bonding | IS 13252 (Part 1): 2010<br>(Amd. 1: 2013, Amd. 2: 2015)<br>IEC 60950-1: 2005<br>(Cl. 2.6.1, 2.6.2, 2.6.3, 2.6.4, 2.6.5) | 0.01 VAC to 9.99 VAC<br>0.01 A to 50 A<br>0.01 Ω to 1 Ω |
| | | Over current and earth fault protection in Primary circuits | IS 13252 (Part 1): 2010<br>(Amd. 1: 2013, Amd. 2: 2015)<br>IEC 60950-1: 2005(Cl. 2.7) | Qualitative |
| | | Electrical Insulation | IS 13252 (Part 1): 2010<br>(Amd. 1: 2013, Amd. 2: 2015)<br>IEC 60950-1: 2005 (Cl. 2.9) | 11 MΩ to 1 TΩ<br>2 MΩ to 2 GΩ |
| | | Clearance | IS 13252 (Part 1): 2010<br>(Amd. 1: 2013, Amd. 2: 2015)<br>IEC 60950-1: 2005<br>(Cl. 2.10.3.1 to 2.10.3.9(a)) | 0.01 mm to 300 mm, |
| | | Creepage | IS 13252 (Part 1): 2010<br>(Amd. 1: 2013, Amd. 2: 2015)<br>IEC 60950-1: 2005 (Cl. 2.10.4) | 0.01 mm to 300 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** | Stability | IS 13252 (Part 1): 2010<br>(Amd. 1: 2013, Amd. 2: 2015)<br>IEC 60950-1: 2005 (Cl. 4.1) | Qualitative |
| | | Mechanical Strength | IS 13252 (Part 1): 2010<br>(Amd. 1: 2013, Amd. 2: 2015)<br>IEC 60950-1: 2005<br>(Cl. 4.2.1 to 4.2.7) | Qualitative |
| | | Thermal Requirements | IS 13252 (Part 1): 2010<br>(Amd. 1: 2013, Amd. 2: 2015)<br>IEC 60950-1: 2005 (Cl. 4.5) | Ambient to 400 °C |
| | | Resistance to fire | IS 13252 (Part 1): 2010<br>(Amd. 1: 2013, Amd. 2: 2015)<br>IEC 60950-1: 2005 (Cl. 4.7) | Qualitative |
| | | Touch Current & Protective conductor Current | IS 13252 (Part 1): 2010<br>(Amd. 1: 2013, Amd. 2: 2015)<br>IEC 60950-1: 2005 (Cl. 5.1) | 0 to 4 mA |
| | | Electric Strength | IS 13252 (Part 1): 2010<br>(Amd. 1: 2013, Amd. 2: 2015)<br>IEC 60950-1: 2005 (Cl. 5.2) | Qualitative<br>0.01 kV to 10 kV ,<br>LC. 0.01 kV |
| 2. | **Self Ballasted Led Lamps For General Lighting Services** | Marking | IS 16102 (Part 1): 2012 (Cl. 5) | Qualitative |
| | | Interchangeability | IS 16102 (Part 1): 2012 (Cl. 6) | Qualitative<br>(Torque. Upto 10 Nm) |
| | | Protection Against Accidental Contact with Live Parts | IS 16102 (Part 1): 2012 (Cl. 7) | Qualitative<br>(Force Upto 500 N) |

| 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 Led Lamps For General Lighting Services** | Insulation Resistance And Electric Strength After Humidity Treatment | IS 16102 (Part 1): 2012 (Cl. 8) | Qualitative<br>( Temp 10 °C to 50 °C, Upto 95 % RH, 11 MΩ to 1 TΩ, 2 MΩ to 2 GΩ, 0.01 kV to 10 kV) |
| | | Mechanical Strength | IS 16102 (Part 1): 2012 (Cl. 9) | Qualitative<br>(Torque Upto 10 Nm) |
| | | Cap Temperature Rise | IS 16102 (Part 1): 2012 (Cl. 10) | Upto 300 °C |
| | | Resistance to heat | IS 16102 (Part 1): 2012 (Cl. 11) | Qualitative |
| | | Resistance to flame and ignition | IS 16102 (Part 1): 2012 (Cl. 12) | Qualitative |
| | | Fault Condition | IS 16102 (Part 1): 2012 (Cl. 13) | Qualitative |
| | | Creepage distances and clearances | IS 16102 (Part 1): 2012 (Cl. 14) | 0.01 mm to 300 mm |
| **3.** | **Lamp Control gear** | Marking | IS 15885 (Part 1): 2011 (Cl. 7) Amd. 1: 2015<br>IS 15885 (Part 2/Sec XIII): 2012 (Cl. 7)<br>IS 15885 (Part 2/Sec III): 2011 (Cl. 7) | Qualitative<br>(Durability Test) |
| | | Protection Against Accidental Contact with Live Parts | IS 15885 (Part 1): 2011 (Cl. 10) Amd. 1: 2015<br>IS 15885 (Part 2/Sec XIII): 2012 (Cl. 8)<br>IS 15885 (Part 2/Sec III): 2011 (Cl. 8) | Qualitative<br>(Force Upto 500 N) |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Lamp Control gear** | Provision for Protective Earthing | IS 15885 (Part 1): 2011 (Cl. 9) Amd. 1: 2015<br>IS 15885 (Part 2/Sec XIII): 2012 (Cl. 10)<br>IS 15885 (Part 2/Sec III): 2011 (Cl. 10) | 0.01 VAC to 9.99 VAC<br>0.01 A to 50 A<br>Upto 300 mm<br>0.01 Ω to 1 Ω |
| | | Moisture Resistance And Insulation | IS 15885 (Part 1): 2011 (Cl. 11) Amd. 1: 2015<br>IS 15885 (Part 2/Sec XIII): 2012 (Cl. 11)<br>IS 15885 (Part 2/Sec III): 2011 (Cl. 11) | Qualitative (10 °C to 50 °C, Upto 95 % RH, 11 MΩ to 1 TΩ, 2 MΩ to 2 GΩ) |
| | | Electric Strength | IS 15885 (Part 1): 2011 (Cl. 12) Amd. 1: 2015<br>IS 15885 (Part 2/Sec XIII): 2012 (Cl. 12)<br>IS 15885 (Part 2/Sec III): 2011 (Cl. 12) | Qualitative (0.01 kV to 10 kV) |
| | | Creepage distances and clearances | IS 15885 (Part 1): 2011 (Cl. 16) Amd. 1: 2015<br>IS 15885 (Part 2/Sec XIII): 2012 (Cl. 17)<br>IS 15885 (Part 2/Sec III): 2011 (Cl. 18) | 0.01 mm to 300 mm |
| | | Resistance to Heat, Fire and Tracking | IS 15885 (Part 1): 2011 (Cl. 18) Amd. 1: 2015<br>IS 15885 (Part 2/Sec XIII): 2012 (Cl. 19)<br>IS 15885 (Part 2/Sec III): 2011 (Cl. 20) | Qualitative |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| **4.** | **Audio Video And Similar Electronic Apparatus** | Markings and Instructions | IS 616: 2010<br>IEC 60065: 2014 (Cl. 5) | Qualitative |
| | | Heating Under Normal Operating Conditions | IS 616: 2010<br>IEC 60065: 2014 (Cl. 7.1) | Ambient to 400 °C |
| | | Electric Shock Hazard Under Normal Operating Conditions | IS 616: 2010<br>IEC 60065: 2014 (Cl. 9) | Qualitative<br>(Upto 1000 VAC, Upto 1000 VDC, Upto 500 N) |
| | | Insulation requirements | IS 616: 2010<br>IEC 60065: 2014 (Cl. 10) | 11 MΩ to 1 TΩ<br>2 MΩ to 2 GΩ<br>0 to 10 kVAC<br>10 °C to 50 °C<br>Upto 95 % RH |
| | | Mechanical Strength | IS 616: 2010<br>IEC 60065: 2014 (Cl. 12) | Qualitative<br>(Force up to 500N) |
| | | Clearance | IS 616: 2010<br>IEC 60065: 2014<br>(Cl. 13.3.1 to 13.3.4(a)) | 0 to 300 mm |
| | | Creepage | IS 616: 2010<br>IEC 60065: 2014 (Cl. 13.4) | 0 to 300 mm |
| | | Provision for Protective Earthing | IS 616: 2010 /<br>IEC 60065: 2014 (Cl. 15.2) | 0.01 VAC to 9.99 VAC<br>0.01 A to 50A<br>0.01 Ω to 1 Ω |
| | | Device Formatting a Part of the Mains Plug | IS 616: 2010<br>IEC 60065: 2014 (Cl. 15.4) | Qualitative<br>(Torque Upto 10 Nm<br>Hot Air Oven up 300 °C) |
| | | Stability & Mechanical Hazard | IS 616: 2010<br>IEC 60065: 2014 (Cl. 19.1 to 19.4) | Qualitative<br>(Force Upto 500 N) |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| **II.** | **ENVIRONMENTAL TEST FACILITY** | | | |
| **1.** | **Electronic items/ Electrical Items/ Automotive items/ Equipments/ Microcircuits/** | Cold test | IS 9000 (Part 2/Sec I to 4): 1977 (RA 2007) | Qualitative<br>(6 Feet x 4 Feet x 4 Feet Ambient to (-)25 °C) |
| | | Dry Heat test | IS 9000 (Part 3/Sec I to V): 1977 (RA 2007) | Qualitative<br>(6 Feet x 4 Feet x 3 Feet Ambient to 300 °C) |
| | | Change of Temperature | IS 9000 (Part 14/Sec I to III): 1988 (RA 2009)<br>IS/IEC 61196-1-206: 2005 | Qualitative<br>(6 Feet x 4 Feet x 4 Feet Ambient to (-)25 °C<br>6 Feet x 4 Feet x 3 Feet Ambient to 300 °C) |
| | | Damp Heat (Steady State) Test | IS 9000 (Part 4): 2008<br>IEC 60068-2-78: 2012 | Qualitative<br>(6 Feet x 4Feet x 4Feet<br>25 °C to 50 °C<br>40 % RH to 95 % RH) |
| | | Damp Heat (Cyclic) Test | IS 9000 (Part 5/Sec I & II): 1981 (RA 2007) | Qualitative<br>(6 Feet x 4 Feet x 4 Feet<br>25 °C to 50 °C<br>40 % RH to 95 % RH) |
| | | Salt Mist Test | IS 9000 (Part 11): 1983 (RA 2007)<br>IS 9844: 1981 (RA 2010) | Qualitative<br>(760 mm x 760 mm x 760 mm, 35 °C , Spray of 5 % NaCl storage) |
| | | Dust Test | IS 9000 (Part 12): 1981 (RA 2007) | Qualitative<br>(900 mm x 600 mm x 940 mm) |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Electronic items/ Electrical Items/ Automotive items/ Equipments/ Microcircuits/** | Composite Temperature & Humidity Test | IS 9000 (Part 6): 1978 (RA 2007) | Qualitative<br>(6 Feet x 4 Feet x 4 Feet<br>Ambient to (-)25 °C<br>6 Feet x 4 Feet x 4 Feet<br>25 °C to 65 °C<br>40 % RH to 95 % RH) |
| | | Vibration Test | IS 9000 (Part 8): 1981 (RA 2009) | Qualitative<br>(5 Hz to 7 kHz,<br>Force Upto 600 kgf) |
| | | Mechanical Shock Test | IS 9000 (Part 7/Sec I): 1979 (RA 2007) | Qualitative |
| | | Drop & Topple Test | IS 9000 (Part 7/Sec III):1979 (RA 2007) | Qualitative<br>(Drop height 25, 50, 100, 250, 500 mm) |
| | | Free fall Test | IS 9000 (Part 7/Sec 4): 1979 (RA 2007) | Qualitative<br>(Drop height 25, 50,100, 250, 500, 1000 mm) |
| | | Free fall Repeated | IS 9000 (Part 7/Sec 5): 1979 (RA 2007) | Qualitative<br>(Number of fall : 50, 100 200, 500, 1000) |
| | | Low Air Pressure Test/ Altitude Test | IS 9000 (Part 13): 1981 (RA 2007) | Qualitative<br>(2.66 kPa to 99.99 kPa) |
| | | Robustness of Terminations Test | IS 9000 (Part 19/Sec I to V): 1986 (RA 2007) | Qualitative |
| | | Resistance to Cleaning Solvents and permanence of Markings | IS 9000 (Part 20): 1979 (RA 2007) | Qualitative |

| | | | |
|---|---|---|---|
| **Laboratory** | **Kailtech Test and Research Centre Private Limited, 141-C, Electronic Complex Industrial Area, Pardesipura, Indore, Madhya Pradesh** | | |
| **Accreditation Standard** | **ISO/IEC 17025: 2005** | | |
| **Discipline** | **Electronics Testing** | **Issue Date** | **18.09.2016** |
| **Certificate Number** | **T-3484** | **Valid Until** | **17.09.2018** |
| **Last Amended on** | **07.11.2016** | **Page** | **8 of 8** |

| S. No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|---|---|---|---|---|
| | **Electronic items/ Electrical Items/ Automotive items/ Equipments/ Microcircuits/** | Fine Mist Test | IS 9000 (Part 22): 1983<br>(RA 2007) | Qualitative |
| | | Degrees of Protection Provided by Enclosures (IP Code) | IS/IEC 60529: 1989<br>(Amd. 1: 1999, Amd. 2: 2013) | Qualitative |

**-X-X-X-X-X-X-X-X-X-X-X-X-X-X-**

**Nikhil Kumar**
**Convenor**

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