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|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------|
| <b>Laboratory</b>             | <b>Sigma Test &amp; Research Centre, BA-15, Mangolpuri Industrial Area,<br/>Phase-II, New Delhi</b><br><b>Location 1: BA-15, Mangolpuri Industrial Area, Phase-II, New Delhi</b><br><b>Location 2: A-131, Mangolpuri Industrial Area, Phase-II, New Delhi</b> |                    |                   |
| <b>Accreditation Standard</b> | <b>ISO/IEC 17025: 2005</b>                                                                                                                                                                                                                                    |                    |                   |
| <b>Discipline</b>             | <b>Electronics Testing</b>                                                                                                                                                                                                                                    | <b>Issue Date</b>  | <b>10.03.2016</b> |
| <b>Certificate Number</b>     | <b>T-3844</b>                                                                                                                                                                                                                                                 | <b>Valid Until</b> | <b>30.03.2017</b> |
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| <b>S. No.</b> | <b>Product /<br/>Material of Test</b> | <b>Specific Test Performed</b> | <b>Test Method Specification<br/>against which tests are<br/>performed</b> | <b>Range of Testing /<br/>Limits of Detection</b> |
|---------------|---------------------------------------|--------------------------------|----------------------------------------------------------------------------|---------------------------------------------------|
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#### **LOCATION: 2**

#### **I. SAFETY TESTING**

|           |                                                                                      |                                                                                    |                                                    |                                                              |
|-----------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------|--------------------------------------------------------------|
| <b>1.</b> | <b>Audio, Video and<br/>Similar Electronic<br/>Apparatus Safety<br/>Requirements</b> | Normal Operating Condition                                                         | IS 616: 2010 (Clause 4.2)<br>IEC 60065: 2005       | 62.5 Hz to 16 kHz<br>Upto 1000 W                             |
|           |                                                                                      | Marking & Instructions                                                             | IS 616: 2010 (Clause 5.0)<br>IEC 60065: 2005       | Qualitative<br>(Visual Inspection using<br>petroleum ether ) |
|           |                                                                                      | Hazardous Radiations                                                               | IS 616: 2010 (Clause. 6)<br>IEC 60065: 2005        | Upto 5 $\mu$ Sv/h                                            |
|           |                                                                                      | Heating Under Normal Operating<br>Conditions                                       | IS 616: 2010 (Clause. 7.0)<br>IEC 60065: 2005      | 25 °C to 200 °C                                              |
|           |                                                                                      | Constructional Requirements<br>With Regard to Protection<br>Against Electric Shock | IS 616: 2010 (Clause. 8.0)<br>IEC 60065: 2005      | Upto 30 N                                                    |
|           |                                                                                      | Determination of Hazardous Live<br>Parts                                           | IS 616: 2010 (Clause. 9.1.1.11)<br>IEC 60065: 2005 | Upto 30 A                                                    |
|           |                                                                                      | Determination of Accessible<br>Parts                                               | IS 616: 2010 (Clause. 9.1.1.2)<br>IEC 60065: 2005  | Qualitative<br>(Visual Inspection using<br>test probe)       |
|           |                                                                                      | Opening of the Enclosure                                                           | IS 616: 2010 (Clause. 9.1.3)<br>IEC 60065: 2005    | Torque 0.2 Nm to 5 Nm                                        |
|           |                                                                                      | Terminals                                                                          | IS 616: 2010 (Clause. 9.1.4)<br>IEC 60065: 2005    | 20 mm ( $\pm$ ) 0.2 mm                                       |

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| <b>Accreditation Standard</b> | <b>ISO/IEC 17025: 2005</b>                                                                                                                                                                                                                                    |                    |                   |
| <b>Discipline</b>             | <b>Electronics Testing</b>                                                                                                                                                                                                                                    | <b>Issue Date</b>  | <b>10.03.2016</b> |
| <b>Certificate Number</b>     | <b>T-3844</b>                                                                                                                                                                                                                                                 | <b>Valid Until</b> | <b>30.03.2017</b> |
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| <b>S. No.</b> | <b>Product /<br/>Material of Test</b>                                                | <b>Specific Test Performed</b>                   | <b>Test Method Specification<br/>against which tests are<br/>performed</b> | <b>Range of Testing /<br/>Limits of Detection</b>      |
|---------------|--------------------------------------------------------------------------------------|--------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------|
|               | <b>Audio, Video and<br/>Similar Electronic<br/>Apparatus Safety<br/>Requirements</b> | Pre-Set Controls                                 | IS 616: 2010 (Clause 9.1.5)<br>IEC 60065: 2005                             | Qualitative<br>(Visual Inspection using<br>test probe) |
|               |                                                                                      | Withdrawal Of Mains Plug                         | IS 616: 2010 (Clause 9.1.6)<br>IEC 60065: 2005                             | Upto 1000 V<br>Upto 100 MHz<br>1.2 $\mu$ s to 50 s     |
|               |                                                                                      | Resistance to External Forces                    | IS 616: 2010 (Clause. 9.1.7)<br>IEC 60065: 2005                            | Upto 300 N                                             |
|               |                                                                                      | Humidity Treatment                               | IS 616: 2010 (Clause. 10.2)<br>IEC 60065: 2005                             | Upto 60 °C<br>Upto 99 % RH                             |
|               |                                                                                      | Insulation Resistance And<br>Dielectric Strength | IS 616: 2010 (Clause. 10.3)<br>IEC 60065: 2005                             | >2 M $\Omega$<br>Upto 5 kV                             |
|               |                                                                                      | Electric Shock Hazard                            | IS 616: 2010 (Clause. 11.1)<br>IEC 60065: 2005                             | Upto 30 A                                              |
|               |                                                                                      | Measurement of Temperature<br>Rise               | IS 616: 2010 (Clause. 11.2.1)<br>IEC 60065: 2005                           | Ambient to 200 °C                                      |
|               |                                                                                      | Impact Test                                      | IS 616: 2010 (Clause. 12.1.3)<br>IEC 60065: 2005                           | (50 $\pm$ 1) mm dia 500 g.                             |
|               |                                                                                      | Drop Test                                        | IS 616: 2010 (Clause. 12.1.4)<br>IEC 60065: 2005                           | Hardwood 13 mm on<br>19 mm to 20 mm                    |
|               |                                                                                      | Stress Relief Test                               | IS 616: 2010 (12.1.5)<br>IEC 60065: 2005                                   | Upto 200 °C                                            |

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| <b>Accreditation Standard</b> | <b>ISO/IEC 17025: 2005</b>                                                                                                                                                                                                                                    |                    |                   |
| <b>Discipline</b>             | <b>Electronics Testing</b>                                                                                                                                                                                                                                    | <b>Issue Date</b>  | <b>10.03.2016</b> |
| <b>Certificate Number</b>     | <b>T-3844</b>                                                                                                                                                                                                                                                 | <b>Valid Until</b> | <b>30.03.2017</b> |
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| <b>S. No.</b> | <b>Product /<br/>Material of Test</b>                                                | <b>Specific Test Performed</b>                                           | <b>Test Method Specification<br/>against which tests are<br/>performed</b> | <b>Range of Testing /<br/>Limits of Detection</b> |
|---------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------|
|               | <b>Audio, Video and<br/>Similar Electronic<br/>Apparatus Safety<br/>Requirements</b> | Fixing of Actuating Element                                              | IS 616: 2010 (Clause. 12.2)<br>IEC 60065: 2005                             | Torque: Upto 5 Nm                                 |
|               |                                                                                      | Remote Control Device Held in Hand                                       | IS 616: 2010 (Clause. 12.3)<br>IEC 60065: 2005                             | 5 rev/m                                           |
|               |                                                                                      | Drawens                                                                  | IS 616: 2010 (Clause. 12.4)<br>IEC 60065: 2005                             | Upto 200 N                                        |
|               |                                                                                      | Clearances & Creepage Distance<br>Determination of Operating<br>Voltages | IS 616: 2010 (Clause. 13)<br>IEC 60065: 2005                               | Upto 1000 V DC<br>Upto 750 V AC<br>Upto 150 mm    |
|               |                                                                                      | Enclosed Sealed Parts                                                    | IS 616: 2010 (Clause. 13.7)<br>IEC 60065: 2005                             | Upto 100 °C<br>Upto 5 kV                          |
|               |                                                                                      | Components                                                               | IS 616: 2010 (Clause. 14)<br>IEC 60065: 2005                               | Qualitative<br>(Data verification)                |
|               |                                                                                      | Terminals                                                                | IS 616: 2010 (Clause. 15)<br>IEC 60065: 2005                               | 0.2 Nm to 5 Nm                                    |
|               |                                                                                      | Provisions for Protective<br>Earthing                                    | IS 616: 2010 (Clause. 15.2)<br>IEC 60065: 2005                             | Upto 50 A<br>Upto 99.9 V                          |
|               |                                                                                      | Terminals for External Flexible                                          | IS 616: 2010<br>IEC 60065: 2005                                            | 0.2 Nm to 5 Nm                                    |
|               |                                                                                      | Cords & for Permanent<br>Connection to the Mains Supply                  | IS 616: 2010 (Clause. 15.3)<br>IEC 60065: 2005                             | 0.2 Nm to 5 Nm                                    |
|               |                                                                                      | Devices Forming a Part of the<br>Mains Plug                              | IS 616: 2010 (Clause. 15.4)<br>IEC 60065: 2005                             | 0.2 Nm to 5 Nm                                    |

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| <b>Accreditation Standard</b> | <b>ISO/IEC 17025: 2005</b>                                                                                                                                                                                                                                    |                    |                   |
| <b>Discipline</b>             | <b>Electronics Testing</b>                                                                                                                                                                                                                                    | <b>Issue Date</b>  | <b>10.03.2016</b> |
| <b>Certificate Number</b>     | <b>T-3844</b>                                                                                                                                                                                                                                                 | <b>Valid Until</b> | <b>30.03.2017</b> |
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| <b>S. No.</b> | <b>Product /<br/>Material of Test</b>                                                | <b>Specific Test Performed</b>                | <b>Test Method Specification<br/>against which tests are<br/>performed</b> | <b>Range of Testing /<br/>Limits of Detection</b> |
|---------------|--------------------------------------------------------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------|
|               | <b>Audio, Video and<br/>Similar Electronic<br/>Apparatus Safety<br/>Requirements</b> | External Flexible Cords                       | IS 616: 2010 (Clause. 16)<br>IEC 60065: 2005                               | Upto 10 kg<br>0.2 Nm to 5 Nm<br>Upto 150 mm       |
|               |                                                                                      | Electrical Connections &<br>Mechanical Fixing | IS 616: 2010 (Clause. 17)<br>IEC 60065: 2005                               | 0.2 Nm to 5 Nm                                    |
|               |                                                                                      | Stability & Mechanical Hazards                | IS 616: 2010 (Clause. 19)<br>IEC 60065: 2005                               | Upto 90°                                          |
|               |                                                                                      | Wall or Ceiling Mounting Means                | IS 616: 2010 (Clause. 19.6)<br>IEC 60065: 2005                             | Upto 10 kg                                        |
|               |                                                                                      | Resistance to Fire                            | IS 616: 2010 (Clause. 20)<br>IEC 60065 (Edition 7.1): 2005                 | Upto 960 °C                                       |
| <b>2.</b>     | <b>Information<br/>Technology<br/>Equipment safety</b>                               | Components                                    | IS 13252 (Part 1): 2010<br>(Clause. 1.5)<br>IEC 60950-1: 2005              | Qualitative<br>(Visual Inspection)                |
|               |                                                                                      | Power Interface                               | IS 13252 (Part 1): 2010<br>(Clause. 1.6.2)<br>IEC 60950-1: 2005            | Upto 20 A<br>Upto 600 V<br>Upto 1000 W            |
|               |                                                                                      | Marking And Instructions                      | IS 13252 (Part 1): 2010<br>(Clause. 1.7)<br>IEC 60950-1: 2005              | Qualitative<br>(Visual Inspection)                |
|               |                                                                                      | Durability                                    | IS 13252 (Part 1): 2010<br>(Clause. 1.7.11)<br>IEC 60950-1: 2005           | NA                                                |

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| <b>Accreditation Standard</b> | <b>ISO/IEC 17025: 2005</b>                                                                                                                                                                                                                                    |                    |                   |
| <b>Discipline</b>             | <b>Electronics Testing</b>                                                                                                                                                                                                                                    | <b>Issue Date</b>  | <b>10.03.2016</b> |
| <b>Certificate Number</b>     | <b>T-3844</b>                                                                                                                                                                                                                                                 | <b>Valid Until</b> | <b>30.03.2017</b> |
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| <b>S. No.</b> | <b>Product /<br/>Material of Test</b>                  | <b>Specific Test Performed</b>                                        | <b>Test Method Specification<br/>against which tests are<br/>performed</b>    | <b>Range of Testing /<br/>Limits of Detection</b>                       |
|---------------|--------------------------------------------------------|-----------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------|
|               | <b>Information<br/>Technology<br/>Equipment safety</b> | Access to Energized Parts                                             | IS 13252 (Part 1): 2010<br>IEC 60950-1: 2005                                  | 45 V to 60 V                                                            |
|               |                                                        | Access to ELV Wiring                                                  | IS 13252 (Part 1): 2010<br>(Clause. 2.1.1.3)<br>IEC 60950-1: 2005             | Upto 150 mm<br>Upto 25 mm                                               |
|               |                                                        | Energy Hazard                                                         | IS 13252 (Part 1): 2010<br>(Clause. 2.1.1.5)<br>IEC 60950-1: 2005             | 60V/60A/300 W<br>Upto 20 $\mu$ F<br>Upto 500 V                          |
|               |                                                        | Discharge of Capacitors in<br>Equipment                               | IS 13252 (Part 1): 2010<br>(Clause. 2.1.1.7)<br>IEC 60950-1: 2005             | Upto 1000 V DC,<br>Upto 750V AC,<br>Upto 25 MHz,<br>1.2 $\mu$ s to 50 s |
|               |                                                        | SELV Circuits                                                         | IS 13252 (Part 1): 2010<br>(Clause 2.2)<br>IEC 60950-1: 2005                  | 0 to 1000 V DC<br>Upto 750 V AC                                         |
|               |                                                        | TNV Circuits Limits                                                   | IS 13252 (Part 1): 2010<br>(Clause. 2.3.1)<br>IEC 60950-1: 2005               | Upto 1000 V DC,<br>Upto 750 V AC,<br>60 V/ 60 A/300 W                   |
|               |                                                        | Connection of TNV Circuits to<br>Other Circuits                       | IS 13252 (Part 1): 2010<br>(Clause. 2.3.4)<br>IEC 60950-1: 2005               | Upto 1000 V DC,<br>Upto 750 V AC,<br>60 V/60 A/300 W                    |
|               |                                                        | Limited Current Circuits Limits<br>Values) & Limited Power<br>Sources | IS 13252 (Part 1): 2010<br>(Clause. 2.4.2 & Clause. 2.5)<br>IEC 60950-1: 2005 | 60 V/60 A/ 300 W<br>Upto 999.9 V<br>Upto 20 A<br>0.4 kW                 |

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| <b>Accreditation Standard</b> | <b>ISO/IEC 17025: 2005</b>                                                                                                                                                                                                                                    |                    |                   |
| <b>Discipline</b>             | <b>Electronics Testing</b>                                                                                                                                                                                                                                    | <b>Issue Date</b>  | <b>10.03.2016</b> |
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| <b>S. No.</b> | <b>Product /<br/>Material of Test</b>                  | <b>Specific Test Performed</b>                           | <b>Test Method Specification<br/>against which tests are<br/>performed</b> | <b>Range of Testing /<br/>Limits of Detection</b>     |
|---------------|--------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------------------------|-------------------------------------------------------|
|               | <b>Information<br/>Technology<br/>Equipment safety</b> | Size of Protective Earthing &<br>Bonding Conductor       | IS 13252 (Part 1): 2010<br>(Clause. 2.6.3.2/2.6.3.3)<br>IEC 60950-1: 2005  | Upto 150 mm<br>Upto 25 mm<br>Upto 99.9 V<br>Upto 50 A |
|               |                                                        | Resistance of Earthing<br>Conductors and their Terminals | IS 13252 (Part 1): 2010<br>(Clause. 2.6.3.4)<br>IEC 60950-1: 2005          | Upto 50 A                                             |
|               |                                                        | Protection Requirement for<br>Safety Interlocks          | IS 13252 (Part 1): 2010<br>(Clause. 2.8.2 )<br>IEC 60950-1: 2005           | NA                                                    |
|               |                                                        | Humidity Conditioning                                    | IS 13252 (Part 1): 2010<br>(Clause. 2.9.2)<br>IEC 60950-1: 2005            | Upto 60 °C<br>0 to 98 % RH                            |
|               |                                                        | Clearances                                               | IS 13252 (Part 1): 2010<br>(Clause. 2.10.3)<br>IEC 60950-1: 2005           | Upto 150 mm<br>Upto 25 mm                             |
|               |                                                        | Creepage Distance                                        | IS 13252 (Part 1): 2010<br>(Clause. 2.10.4)<br>IEC 60950-1: 2005           | Upto 150 mm<br>Upto 25 mm                             |
|               |                                                        | Thermal Conditioning                                     | IS 13252 (Part 1): 2010<br>(Clause. 2.10.8.2)<br>IEC 60950-1: 2005         | Upto 100 °C                                           |
|               |                                                        | Thermal Cycling                                          | IS 13252 (Part 1): 2010<br>(Clause. 2.10.9)<br>IEC 60950-1: 2005           | Upto 100 °C                                           |

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| <b>Accreditation Standard</b> | <b>ISO/IEC 17025: 2005</b>                                                                                                                                                                                                                                    |                    |                   |
| <b>Discipline</b>             | <b>Electronics Testing</b>                                                                                                                                                                                                                                    | <b>Issue Date</b>  | <b>10.03.2016</b> |
| <b>Certificate Number</b>     | <b>T-3844</b>                                                                                                                                                                                                                                                 | <b>Valid Until</b> | <b>30.03.2017</b> |
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| <b>S. No.</b> | <b>Product /<br/>Material of Test</b>                  | <b>Specific Test Performed</b>                               | <b>Test Method Specification<br/>against which tests are<br/>performed</b>    | <b>Range of Testing /<br/>Limits of Detection</b> |
|---------------|--------------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------|
|               | <b>Information<br/>Technology<br/>Equipment safety</b> | Wiring Connections & Supply                                  | IS 13252 (Part 1): 2010<br>(Clause. 3.0)<br>IEC 60950-1: 2005                 | Upto 10 kg<br>Upto 150 mm<br>Upto 25 mm           |
|               |                                                        | Stability                                                    | IS 13252 (Part 1): 2010<br>(Clause. 4.1)<br>IEC 60950-1: 2005                 | Upto 90°<br>Upto 250 N                            |
|               |                                                        | Mechanical Strength                                          | IS 13252 (Part 1): 2010<br>(Clause. 4.2)<br>IEC 60950-1: 2005                 | Upto 250 N                                        |
|               |                                                        | Steady Force Test                                            | IS 13252 (Part 1): 2010<br>(Clause. 4.2.2, 4.2.3, 4.2.4)<br>IEC 60950-1: 2005 | Upto 250 N                                        |
|               |                                                        | Impact Test                                                  | IS 13252 (Part 1): 2010<br>(Clause. 4.2.5)<br>IEC 60950-1: 2005               | 500 g weight 50 mm dia                            |
|               |                                                        | Drop Test                                                    | IS 13252 (Part 1): 2010<br>(Clause. 4.2.6)<br>IEC 60950-1: 2005               | 13 mm, hardwood on<br>19 mm on 20 mm              |
|               |                                                        | Stress Relief Test                                           | IS 13252 (Part 1): 2010<br>(Clause. 4.2.7)<br>IEC 60950-1: 2005               | Upto 400 °C                                       |
|               |                                                        | Mechanical Strength for Wall or<br>Ceiling Mounted Equipment | IS 13252 (Part 1): 2010<br>(Clause. 4.2.10)<br>IEC 60950-1: 2005              | Upto 10 kg                                        |

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| <b>Accreditation Standard</b> | <b>ISO/IEC 17025: 2005</b>                                                                                                                                                                                                                                    |                    |                   |
| <b>Discipline</b>             | <b>Electronics Testing</b>                                                                                                                                                                                                                                    | <b>Issue Date</b>  | <b>10.03.2016</b> |
| <b>Certificate Number</b>     | <b>T-3844</b>                                                                                                                                                                                                                                                 | <b>Valid Until</b> | <b>30.03.2017</b> |
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| <b>S. No.</b> | <b>Product /<br/>Material of Test</b>                  | <b>Specific Test Performed</b>               | <b>Test Method Specification<br/>against which tests are<br/>performed</b> | <b>Range of Testing /<br/>Limits of Detection</b> |
|---------------|--------------------------------------------------------|----------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------|
|               | <b>Information<br/>Technology<br/>Equipment safety</b> | Design & Construction                        | IS 13252 (Part 1): 2010<br>(Clause. 4.3)<br>IEC 60950-1: 2005              | Upto 250 N                                        |
|               |                                                        | Edges & Corners                              | IS 13252 (Part 1): 2010<br>(Clause. 4.3.1)<br>IEC 60950-1: 2005            | Qualitative<br>(Visual Inspection)                |
|               |                                                        | Handles & Manual Controls                    | IS 13252 (Part 1): 2010<br>(Clause. 4.3.2)<br>IEC 60950-1: 2005            | Upto 250 N                                        |
|               |                                                        | Protection Against Hazardous<br>Moving Parts | IS 13252 (Part 1): 2010<br>(Clause. 4.4)<br>IEC 60950-1: 2005              | NA                                                |
|               |                                                        | Temperature Tests                            | IS 13252 (Part 1): 2010<br>(Clause. 4-5-2)<br>IEC 60950-1: 2005            | Ambient to 200 °C                                 |
|               |                                                        | Resistance to Abnormal Heat                  | IS 13252 (Part 1): 2010<br>(Clause. 4.5.5)<br>IEC 60950-1: 2005            | Qualitative<br>Upto 400 °C                        |
|               |                                                        | Opening in Enclosure                         | IS 13252 (Part 1): 2010<br>(Clause. 4.6)<br>IEC 60950-1: 2005              | Upto 150 mm<br>Upto 25 mm                         |
|               |                                                        | Evaluation Measures for Larger<br>Opening    | IS 13252 (Part 1): 2010<br>(Clause. 4.6.4.2)<br>IEC 60950-1: 2005          | Probe-1 mm dia 13 mm<br>length                    |

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| <b>Laboratory</b>             | <b>Sigma Test &amp; Research Centre, BA-15, Mangolpuri Industrial Area,<br/>Phase-II, New Delhi</b><br><b>Location 1: BA-15, Mangolpuri Industrial Area, Phase-II, New Delhi</b><br><b>Location 2: A-131, Mangolpuri Industrial Area, Phase-II, New Delhi</b> |                    |                   |
| <b>Accreditation Standard</b> | <b>ISO/IEC 17025: 2005</b>                                                                                                                                                                                                                                    |                    |                   |
| <b>Discipline</b>             | <b>Electronics Testing</b>                                                                                                                                                                                                                                    | <b>Issue Date</b>  | <b>10.03.2016</b> |
| <b>Certificate Number</b>     | <b>T-3844</b>                                                                                                                                                                                                                                                 | <b>Valid Until</b> | <b>30.03.2017</b> |
| <b>Last Amended on</b>        | <b>13.05.2016</b>                                                                                                                                                                                                                                             | <b>Page</b>        | <b>9 of 22</b>    |

| <b>S. No.</b> | <b>Product /<br/>Material of Test</b>                                                                                                              | <b>Specific Test Performed</b>                        | <b>Test Method Specification<br/>against which tests are<br/>performed</b> | <b>Range of Testing /<br/>Limits of Detection</b> |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------|
|               | <b>Information<br/>Technology<br/>Equipment safety</b>                                                                                             | Resistance to Fire                                    | IS 13252 (Part 1): 2010<br>(Clause. 4.7)<br>IEC 60950-1: 2005              | Upto 400 °C<br>Upto 60 min                        |
|               |                                                                                                                                                    | Touch Current & Protective<br>Conductor Current       | IS 13252 (Part 1): 2010<br>(Clause. 5.1)<br>IEC 60950-1: 2005              | Upto 70 mA                                        |
|               |                                                                                                                                                    | Electric Strength                                     | IS 13252 (Part 1): 2010<br>(Clause 5.2)<br>IEC 60950-1: 2005               | Upto 5 kV                                         |
|               |                                                                                                                                                    | Protection from Hazardous<br>Voltages                 | IS 13252 (Part 1): 2010<br>(Clause. 6.1.1)<br>IEC 60950-1: 2005            | Upto 5 mA                                         |
|               |                                                                                                                                                    | Steady-State Test                                     | IS 13252 (Part 1): 2010<br>(Clause. 6.2.2.2)<br>IEC 60950-1: 2005          | Upto 1.5 kV                                       |
| <b>3.</b>     | <b>Safety of<br/>Household and<br/>Similar Electrical<br/>Appliances<br/>Part 2 Particular<br/>Requirements<br/>Section 25<br/>Microwaves Oven</b> | Marking & Instructions                                | IS 302-2-25: 1994<br>(Clause. 7)<br>IEC 60335-2-25                         | Qualitative<br>(Visual Inspection)                |
|               |                                                                                                                                                    | Protection Against Electric Shock<br>& Energy Hazards | IS 302-2-25: 1994<br>(Clause. 8)<br>IEC 60335-2-25                         | 45 V to 60 V                                      |
|               |                                                                                                                                                    | Input                                                 | IS 302-2-25: 1994<br>(Clause. 10)<br>IEC 60335-2-25                        | Upto 5000 W<br>Upto 30 A                          |

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| <b>Accreditation Standard</b> | <b>ISO/IEC 17025: 2005</b>                                                                                                                                                                                                                                    |                    |                   |
| <b>Discipline</b>             | <b>Electronics Testing</b>                                                                                                                                                                                                                                    | <b>Issue Date</b>  | <b>10.03.2016</b> |
| <b>Certificate Number</b>     | <b>T-3844</b>                                                                                                                                                                                                                                                 | <b>Valid Until</b> | <b>30.03.2017</b> |
| <b>Last Amended on</b>        | <b>13.05.2016</b>                                                                                                                                                                                                                                             | <b>Page</b>        | <b>10 of 22</b>   |

| <b>S. No.</b> | <b>Product /<br/>Material of Test</b>                                                                                                              | <b>Specific Test Performed</b>                                                 | <b>Test Method Specification<br/>against which tests are<br/>performed</b> | <b>Range of Testing /<br/>Limits of Detection</b> |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------|
|               | <b>Safety of<br/>Household and<br/>Similar Electrical<br/>Appliances<br/>Part 2 Particular<br/>Requirements<br/>Section 25<br/>Microwaves Oven</b> | Temperature Rise                                                               | IS 302-2-25: 1994<br>(Clause. 11)<br>IEC 60335-2-25                        | Upto 200 °C                                       |
|               |                                                                                                                                                    | Electrical Insulation and Leakage<br>Current at Operating Temperature          | IS 302-2-25: 1994<br>(Clause. 13)<br>IEC 60335-2-25                        | Upto 5 kV<br>0 to 250 mA<br>Upto 2000 µA          |
|               |                                                                                                                                                    | Moisture Resistance                                                            | IS 302-2-25: 1994<br>(Clause. 15)<br>IEC 60335-2-25                        | Ambient to 98 % RH,<br>Ambient to 50 °C           |
|               |                                                                                                                                                    | Insulation Resistance and<br>Electrical Strength (After<br>Humidity Treatment) | IS 302-2-25: 1994<br>(Clause. 16)<br>IEC 60335-2-25                        | Upto 20 mA<br>Upto 99 µA                          |
|               |                                                                                                                                                    | Overload Protection                                                            | IS 302-2-25: 1994<br>(Clause. 17)<br>IEC 60335-2-25                        | Upto 500 V<br>Upto 5000 W<br>Upto 30 A            |
|               |                                                                                                                                                    | Endurance Test                                                                 | IS 302-2-25: 1994<br>(Clause. 18)<br>IEC 60335-2-25                        | Qualitative                                       |
|               |                                                                                                                                                    | Abnormal Operation                                                             | IS 302-2-25: 1994<br>(Clause. 19)<br>IEC 60335-2-25                        | Qualitative<br>Upto 400 °C                        |
|               |                                                                                                                                                    | Stability and Mechanical Hazards                                               | IS 302-2-25: 1994<br>(Clause. 20)<br>IEC 60335-2-25                        | Spring hammer<br>(0.5 J) 500g Ball<br>(50 ± 1) mm |

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| <b>Accreditation Standard</b> | <b>ISO/IEC 17025: 2005</b>                                                                                                                                                                                                                                    |                    |                   |
| <b>Discipline</b>             | <b>Electronics Testing</b>                                                                                                                                                                                                                                    | <b>Issue Date</b>  | <b>10.03.2016</b> |
| <b>Certificate Number</b>     | <b>T-3844</b>                                                                                                                                                                                                                                                 | <b>Valid Until</b> | <b>30.03.2017</b> |
| <b>Last Amended on</b>        | <b>13.05.2016</b>                                                                                                                                                                                                                                             | <b>Page</b>        | <b>11 of 22</b>   |

| <b>S. No.</b> | <b>Product /<br/>Material of Test</b>                                                                                                              | <b>Specific Test Performed</b>       | <b>Test Method Specification<br/>against which tests are<br/>performed</b> | <b>Range of Testing /<br/>Limits of Detection</b>                                                                 |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
|               | <b>Safety of<br/>Household and<br/>Similar Electrical<br/>Appliances<br/>Part 2 Particular<br/>Requirements<br/>Section 25<br/>Microwaves Oven</b> | Mechanical Strength                  | IS 302-2-25: 1994<br>(Clause. 21)<br>IEC 60335-2-25                        | Force Upto980 N,<br>LC: 0.2 N                                                                                     |
|               |                                                                                                                                                    | Construction                         | IS 302-2-25: 1994<br>(Clause. 22)<br>IEC 60335-2-25                        | Upto 200 N,<br>LC: 0.1 N<br>(test finger nail)<br>0 to150 mm,<br>LC: 0.01mm Upto400 °C,<br>LC: 1°C Temp.75(±)2 °C |
|               |                                                                                                                                                    | Internal Wiring                      | IS-302-2-25: 1994<br>(Clause. 23)<br>IEC-60335-2-25                        | Upto 25 mm,<br>Upto 150 mm,<br>Upto 5 kV,<br>Upto100 mA                                                           |
|               |                                                                                                                                                    | Components                           | IS 302-2-25: 1994<br>(Clause. 24)<br>IEC 60335-2-25                        | Qualitative<br>(Visual Inspection)                                                                                |
|               |                                                                                                                                                    | Cord Grip And Cord Guard             | IS 302-2-25: 1994<br>(Clause. 25)<br>IEC 60335-2-25                        | Upto 25 mm,<br>Upto 150 mm,<br>Upto 5 kV, Upto100 mA,<br>100 N,0.25 Nm                                            |
|               |                                                                                                                                                    | Terminals For External<br>Conductors | IS 302-2-25: 1994<br>(Clause. 26)<br>IEC 60335-2-25                        | Upto 25 mm,<br>Upto 150 mm,<br>0.2 Nm to 2.5 Nm                                                                   |
|               |                                                                                                                                                    | Provision For Earthing               | IS 302-2-25: 1994<br>(Clause. 27)<br>IEC 60335-2-25                        | Upto 99.9 V,<br>Upto50 A                                                                                          |

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| <b>Accreditation Standard</b> | <b>ISO/IEC 17025: 2005</b>                                                                                                                                                                                                                                    |                    |                   |
| <b>Discipline</b>             | <b>Electronics Testing</b>                                                                                                                                                                                                                                    | <b>Issue Date</b>  | <b>10.03.2016</b> |
| <b>Certificate Number</b>     | <b>T-3844</b>                                                                                                                                                                                                                                                 | <b>Valid Until</b> | <b>30.03.2017</b> |
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| <b>S. No.</b> | <b>Product /<br/>Material of Test</b>                                                                                                              | <b>Specific Test Performed</b>                        | <b>Test Method Specification<br/>against which tests are<br/>performed</b> | <b>Range of Testing /<br/>Limits of Detection</b>            |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------|
|               | <b>Safety of<br/>Household and<br/>Similar Electrical<br/>Appliances<br/>Part 2 Particular<br/>Requirements<br/>Section 25<br/>Microwaves Oven</b> | Screws And Connections                                | IS 302-2-25: 1994<br>(Clause. 28)<br>IEC 60335-2-25                        | Upto 150 mm,<br>0.2 Nm to 2.5 Nm                             |
|               |                                                                                                                                                    | Creepage Distances and<br>Clearances                  | IS 302-2-25: 1994<br>(Clause. 29)<br>IEC 60335-2-25                        | 0 to 150 mm,<br>0.05 mm to 1.00 mm                           |
|               |                                                                                                                                                    | Resistance to Heat, Time and<br>Tracking              | IS 302-2-25: 1994<br>(Clause. 30)<br>IEC 60335-2-25                        | Upto 400 °C, 20 N<br>Upto 1000 °C, Upto 600<br>Upto 2.0A rms |
|               |                                                                                                                                                    | Resistance to Rusting                                 | IS 302-2-25: 1994<br>(Clause. 31)<br>IEC 60335-2-25                        | Upto 100 °C, Relative<br>Humidity 95%                        |
|               |                                                                                                                                                    | Radiation, Toxicity and Similar<br>Hazards            | IS 302-2-25: 1994<br>(Clause. 32)<br>IEC 60335-2-25                        | Upto 100W/m <sup>2</sup>                                     |
| <b>4.</b>     | <b>Safety of<br/>Household and<br/>Similar Electrical<br/>Appliances<br/>Part 2 Particular<br/>Requirements<br/>Section 26 Clocks</b>              | Marking & Instruction                                 | IS 302-2-26: 1994<br>(Clause. 7)<br>IEC 60335-2-26                         | Qualitative<br>(Visual Inspection)                           |
|               |                                                                                                                                                    | Protection Against Electric Shock<br>& Energy Hazards | IS 302-2-26: 1994<br>(Clause. 8)<br>IEC 60335-2-26                         | Standard test finger<br>4.5 V to 60 V                        |
|               |                                                                                                                                                    | Starting Of Motor Operated<br>Appliances              | IS 302-2-26: 1994<br>(Clause. 9)<br>IEC 60335-2-26                         | 20 mΩ to 2 kΩ                                                |

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| <b>Accreditation Standard</b> | <b>ISO/IEC 17025: 2005</b>                                                                                                                                                                                                                                    |                    |                   |
| <b>Discipline</b>             | <b>Electronics Testing</b>                                                                                                                                                                                                                                    | <b>Issue Date</b>  | <b>10.03.2016</b> |
| <b>Certificate Number</b>     | <b>T-3844</b>                                                                                                                                                                                                                                                 | <b>Valid Until</b> | <b>30.03.2017</b> |
| <b>Last Amended on</b>        | <b>13.05.2016</b>                                                                                                                                                                                                                                             | <b>Page</b>        | <b>13 of 22</b>   |

| <b>S. No.</b> | <b>Product /<br/>Material of Test</b>                                                                                                 | <b>Specific Test Performed</b>                                                 | <b>Test Method Specification<br/>against which tests are<br/>performed</b> | <b>Range of Testing /<br/>Limits of Detection</b>      |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------|
|               | <b>Safety of<br/>Household and<br/>Similar Electrical<br/>Appliances<br/>Part 2 Particular<br/>Requirements<br/>Section 26 Clocks</b> | Input                                                                          | IS 302-2-26: 1994<br>(Clause. 10)<br>IEC 60335-2-26                        | Upto 5000 W<br>Upto 500 V<br>Upto 30 A                 |
|               |                                                                                                                                       | Temperature Rise                                                               | IS 302-2-26: 1994<br>(Clause. 11)<br>IEC 60335-2-26                        | Upto 200 °C,<br>20 mΩ to 2 kΩ                          |
|               |                                                                                                                                       | Operation Under Overload<br>Condition                                          | IS 302-2-26: 1994<br>(Clause. 12)<br>IEC 60335-2-26                        | Upto 500 V,<br>Upto 50 A,<br>Upto 999999<br>0 to 1000W |
|               |                                                                                                                                       | Electrical Insulation and Leakage<br>Current at Operating Temperature          | IS 302-2-26: 1994<br>(Clause. 13)<br>IEC 60335-2-26                        | Upto 5 kV,<br>Upto 250 mA,<br>Upto 2000 μA             |
|               |                                                                                                                                       | Moisture Resistance                                                            | IS 302-2-26: 1994<br>(Clause. 15)<br>IEC 60335-2-26                        | Ambient to 98 % RH,<br>Ambient to 50 °C                |
|               |                                                                                                                                       | Insulation Resistance and<br>Electrical Strength (After<br>Humidity Treatment) | IS 302-2-26: 1994<br>(Clause. 16)<br>IEC 60335-2-26                        | Upto 5 kV,<br>Upto 250 mA,<br>2 MΩ to ∞                |
|               |                                                                                                                                       | Overload Protection                                                            | IS 302-2-26: 1994<br>(Clause. 17)<br>IEC 60335-2-26                        | Upto 500 V,<br>Upto 5000 W,<br>Upto 30 A               |
|               |                                                                                                                                       | Endurance Test                                                                 | IS 302-2-26: 1994<br>(Clause. 18)<br>IEC 60335-2-26                        | Upto 300 V,<br>0 to 1 A                                |

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| <b>Accreditation Standard</b> | <b>ISO/IEC 17025: 2005</b>                                                                                                                                                                                                                                    |                    |                   |
| <b>Discipline</b>             | <b>Electronics Testing</b>                                                                                                                                                                                                                                    | <b>Issue Date</b>  | <b>10.03.2016</b> |
| <b>Certificate Number</b>     | <b>T-3844</b>                                                                                                                                                                                                                                                 | <b>Valid Until</b> | <b>30.03.2017</b> |
| <b>Last Amended on</b>        | <b>13.05.2016</b>                                                                                                                                                                                                                                             | <b>Page</b>        | <b>14 of 22</b>   |

| <b>S. No.</b> | <b>Product /<br/>Material of Test</b>                                                                                                 | <b>Specific Test Performed</b>                              | <b>Test Method Specification<br/>against which tests are<br/>performed</b> | <b>Range of Testing /<br/>Limits of Detection</b>                                  |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|               | <b>Safety of<br/>Household and<br/>Similar Electrical<br/>Appliances<br/>Part 2 Particular<br/>Requirements<br/>Section 26 Clocks</b> | Abnormal Operation                                          | IS 302-2-26: 1994<br>(Clause. 19)<br>IEC 60335-2-26                        | Qualitative<br>Upto 400 °C                                                         |
|               |                                                                                                                                       | Stability And Mechanical<br>Hazards                         | IS 302-2-26: 1994<br>(Clause. 20)<br>IEC 60335-2-26                        | Spring hammer (0.5 J)<br>500 gm Ball (50 ± 1)mm.                                   |
|               |                                                                                                                                       | Mechanical Strength                                         | IS 302-2-26: 1994<br>(Clause. 21)<br>IEC 60335-2-26                        | Force Upto 980 N                                                                   |
|               |                                                                                                                                       | Construction                                                | IS 302-2-26: 1994<br>(Clause. 22)<br>IEC 60335-2-26                        | Force: 200 N<br>(test finger nail)<br>0 to 150 mm                                  |
|               |                                                                                                                                       | Internal Wiring                                             | IS 302-2-26: 1994<br>(Clause. 23)<br>IEC 60335-2-26                        | Upto 25 mm,<br>0 to 150 mm<br>Upto 5 kV<br>0 to 100 mA                             |
|               |                                                                                                                                       | Components                                                  | IS 302-2-26: 1994<br>(Clause. 24)<br>IEC 60335-2-26                        | Qualitative<br>(Visual Inspection)                                                 |
|               |                                                                                                                                       | Supply Connection And External<br>Flexible Cables And Cords | IS 302-2-26: 1994<br>(Clause. 25)<br>IEC 60335-2-26                        | Upto 25 mm,<br>0 to 150 mm,<br>Upto 5 kV,<br>Upto 100 mA<br>100 N,<br>1 Nm to 6 Nm |

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| <b>Accreditation Standard</b> | <b>ISO/IEC 17025: 2005</b>                                                                                                                                                                                                                                    |                    |                   |
| <b>Discipline</b>             | <b>Electronics Testing</b>                                                                                                                                                                                                                                    | <b>Issue Date</b>  | <b>10.03.2016</b> |
| <b>Certificate Number</b>     | <b>T-3844</b>                                                                                                                                                                                                                                                 | <b>Valid Until</b> | <b>30.03.2017</b> |
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| <b>S. No.</b> | <b>Product /<br/>Material of Test</b>                                                                                                 | <b>Specific Test Performed</b>           | <b>Test Method Specification<br/>against which tests are<br/>performed</b> | <b>Range of Testing /<br/>Limits of Detection</b>               |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------|
|               | <b>Safety of<br/>Household and<br/>Similar Electrical<br/>Appliances<br/>Part 2 Particular<br/>Requirements<br/>Section 26 Clocks</b> | Terminals For External<br>Conductors     | IS 302-2-26: 1994<br>(Clause. 26)<br>IEC 60335-2-26                        | Upto 25 mm,<br>Upto 150 mm<br>0.2 Nm to 2.5 Nm                  |
|               |                                                                                                                                       | Provision For Earthing                   | IS 302-2-26: 1994<br>(Clause. 27)<br>IEC 60335-2-26                        | Upto 99.9 V<br>Upto 50 A                                        |
|               |                                                                                                                                       | Screws And Connections                   | IS 302-2-26: 1994<br>(Clause. 28)<br>IEC 60335-2-26                        | Upto 150 mm<br>0.2 Nm to 2.5 Nm                                 |
|               |                                                                                                                                       | Creepage Distances And<br>Clearances     | IS 302-2-26: 1994<br>(Clause. 29)<br>IEC 60335-2-26                        | 0 to150 mm<br>0.05 mm to1.00 mm                                 |
|               |                                                                                                                                       | Resistance To Heat, Time And<br>Tracking | IS 302-2-26: 1994<br>(Clause. 30)<br>IEC 60335-2-26                        | Upto 400 °C<br>20 N<br>0 to1000 °C,<br>Upto 600 V<br>Upto 2.0 A |
|               |                                                                                                                                       | Resistance To Rusting                    | IS 302-2-26: 1994<br>(Clause. 31)<br>IEC 60335-2-26                        | Upto100 °C,<br>Relative Humidity: 95 %                          |

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| <b>Accreditation Standard</b> | <b>ISO/IEC 17025: 2005</b>                                                                                                                                                                                                                                    |                    |                   |
| <b>Discipline</b>             | <b>Electronics Testing</b>                                                                                                                                                                                                                                    | <b>Issue Date</b>  | <b>10.03.2016</b> |
| <b>Certificate Number</b>     | <b>T-3844</b>                                                                                                                                                                                                                                                 | <b>Valid Until</b> | <b>30.03.2017</b> |
| <b>Last Amended on</b>        | <b>13.05.2016</b>                                                                                                                                                                                                                                             | <b>Page</b>        | <b>16 of 22</b>   |

| <b>S. No.</b> | <b>Product / Material of Test</b>                                                                                                                                                                                     | <b>Specific Test Performed</b>                              | <b>Test Method Specification against which tests are performed</b> | <b>Range of Testing / Limits of Detection</b>  |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------|
| <b>5.</b>     | <b>Secondary Cells and Batteries</b>                                                                                                                                                                                  |                                                             |                                                                    |                                                |
| <b>a.</b>     | <b>Secondary cells and Batteries Containing Alkaline or other Non- Acid Electrolytes- safety Requirements for Portable sealed Secondary Cells, and For Batteries made from them, for use in portable Applications</b> | General Safety Considerations                               | IS 16046 : 2015<br>IEC 62133 :2012 (Clause. 5)                     | Qualitative<br>(Visual Inspection)             |
|               |                                                                                                                                                                                                                       | Insulation & Wiring                                         | IS 16046 : 2015<br>IEC 62133 :2012 (Clause. 5.2)                   | 0.25 MΩ to 40 GΩ<br>Upto5 kV                   |
|               |                                                                                                                                                                                                                       | Charging Procedure For The Purposes                         | (Clause. 7.1)                                                      | Upto 10 )/0.01 A &<br>Upto 30 )/0.1 V          |
|               |                                                                                                                                                                                                                       | Continuous Low-Rate Charging (Cells)                        | (Clause. 7.2.1)                                                    | Upto10 A/0.01 A &<br>Upto30 V/0.1 V            |
|               |                                                                                                                                                                                                                       | Moulded Case Stress At High Ambient Temperature (Batteries) | (Clause. 7.2.3)                                                    | 5 °C to 200 °C/1 °C                            |
|               |                                                                                                                                                                                                                       | Temperature Cycling                                         | (Clause. 7.2.4)                                                    | ((-)40°C to 100 °C/0. 1 °C                     |
|               |                                                                                                                                                                                                                       | Reasonably Foreseeable Misuse                               | (Clause. 7.3)                                                      | 80 mΩ (±)20 mΩ<br>20 °C(±)5 °C<br>50 °C(±)5 °C |
|               |                                                                                                                                                                                                                       | Free Fall                                                   | (Clause. 7.3.3)                                                    | 1 m                                            |
|               |                                                                                                                                                                                                                       | Thermal Abuse (Cells)                                       | (Clause. 7.3.5)                                                    | 5 °C to 200 °C) 1 °C                           |
|               |                                                                                                                                                                                                                       | Crushing Of Cells                                           | (Clause. 7.3.6)                                                    | 13 kN (±) 2 kN                                 |
|               |                                                                                                                                                                                                                       | Low Pressure(Cells)                                         | (Clause. 7.3.7)                                                    | Upto 200 °C                                    |
|               |                                                                                                                                                                                                                       | Overcharge                                                  | (Clause. 7.3.8)                                                    | Upto 10 A/0.01 A &<br>Upto 30 V/0.1 V          |

|                               |                                                                                                                                                                                                                                                               |                    |                   |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------|
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| <b>Accreditation Standard</b> | <b>ISO/IEC 17025: 2005</b>                                                                                                                                                                                                                                    |                    |                   |
| <b>Discipline</b>             | <b>Electronics Testing</b>                                                                                                                                                                                                                                    | <b>Issue Date</b>  | <b>10.03.2016</b> |
| <b>Certificate Number</b>     | <b>T-3844</b>                                                                                                                                                                                                                                                 | <b>Valid Until</b> | <b>30.03.2017</b> |
| <b>Last Amended on</b>        | <b>13.05.2016</b>                                                                                                                                                                                                                                             | <b>Page</b>        | <b>17 of 22</b>   |

| <b>S. No.</b> | <b>Product /<br/>Material of Test</b>                                                                                                                                                                                                                                         | <b>Specific Test Performed</b>                              | <b>Test Method Specification<br/>against which tests are<br/>performed</b> | <b>Range of Testing /<br/>Limits of Detection</b>     |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------------------|-------------------------------------------------------|
|               | <b>Secondary cells<br/>and Batteries<br/>Containing<br/>Alkaline or other<br/>Non- Acid<br/>Electrolytes-<br/>safety<br/>Requirements for<br/>Portable sealed<br/>Secondary Cells,<br/>and For Batteries<br/>made from them,<br/>for use in<br/>portable<br/>Applications</b> | Forced Discharge(Cells)                                     | (Clause. 7.3.9)                                                            | Upto 10 A/0.01A &<br>Upto 30 V/0.1V                   |
|               |                                                                                                                                                                                                                                                                               | Charging Procedure For The<br>Purposes                      | (Clause. 8.1)                                                              | Upto10 A/0.01A &<br>Upto30 V/0.1V                     |
|               |                                                                                                                                                                                                                                                                               | Continuous Low-Rate Charging<br>(Cells)                     | (Clause. 8.2.1)                                                            | Upto 10 A/0.01A &<br>Upto 30 V/0.1V                   |
|               |                                                                                                                                                                                                                                                                               | Moulded Case Stress At High<br>Ambient Temperature(Battery) | (Clause. 8.2.3)                                                            | 5 °C to 200 °C                                        |
|               |                                                                                                                                                                                                                                                                               | Reasonably Foreseeable Misuse                               | (Clause. 8.3)                                                              | 80 mΩ (±)20 mΩ<br>20 °C(±)5 °C<br>50 °C(±)5 °C        |
|               |                                                                                                                                                                                                                                                                               | Free Fall                                                   | (Clause. 8.3.3)                                                            | 1 m                                                   |
|               |                                                                                                                                                                                                                                                                               | Thermal Abuse(Cells)                                        | (Clause. 8.3.4)                                                            | 5 °C to 200 °C                                        |
|               |                                                                                                                                                                                                                                                                               | Crushing Of Cells                                           | (Clause. 8.3.5)                                                            | 13 kN(±)2 kN                                          |
|               |                                                                                                                                                                                                                                                                               | Over-Charging Of Battery                                    | (Clause. 8.3.6)                                                            | Upto 10 A/0.01A &<br>Upto 30 V/0.1V                   |
|               |                                                                                                                                                                                                                                                                               | Forced Discharge(Cells)                                     | (Clause. 8.3.7)                                                            | Upto 10 A/0.01A &<br>Upto 30 V/0.1V                   |
|               |                                                                                                                                                                                                                                                                               | Forced Internal Short Circuit<br>(Cells)                    | (Clause. 8.3.9)                                                            | Upto 10 A/0.01A &<br>Upto 30 V/0.1V<br>5 °C to 200 °C |

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| <b>Accreditation Standard</b> | <b>ISO/IEC 17025: 2005</b>                                                                                                                                                                                                                                    |                    |                   |
| <b>Discipline</b>             | <b>Electronics Testing</b>                                                                                                                                                                                                                                    | <b>Issue Date</b>  | <b>10.03.2016</b> |
| <b>Certificate Number</b>     | <b>T-3844</b>                                                                                                                                                                                                                                                 | <b>Valid Until</b> | <b>30.03.2017</b> |
| <b>Last Amended on</b>        | <b>13.05.2016</b>                                                                                                                                                                                                                                             | <b>Page</b>        | <b>18 of 22</b>   |

| <b>S. No.</b>                             | <b>Product /<br/>Material of Test</b>              | <b>Specific Test Performed</b>                          | <b>Test Method Specification<br/>against which tests are<br/>performed</b> | <b>Range of Testing /<br/>Limits of Detection</b>     |
|-------------------------------------------|----------------------------------------------------|---------------------------------------------------------|----------------------------------------------------------------------------|-------------------------------------------------------|
|                                           |                                                    | Information For Safety                                  | (Clause. 9)                                                                | Qualitative<br>(Visual Inspection)                    |
|                                           |                                                    | Marking                                                 | (Clause. 10)                                                               | Qualitative<br>(Visual Inspection)                    |
| <b>II. POWER SUPPLIES AND STABILIZERS</b> |                                                    |                                                         |                                                                            |                                                       |
| <b>1.</b>                                 | <b>Uninterruptible<br/>Power Systems<br/>(UPS)</b> | Marking & Instructions, Power<br>Rating                 | IS 16242 (Part 1): 2014<br>(Clause. 4.7)<br>IEC 62040-1: 2008              | Qualitative<br>(Visual Inspection)                    |
|                                           |                                                    | Protection Against Electric Shock<br>and Energy Hazards | IS 16242 (Part 1): 2014<br>(Clause. 5.1)<br>IEC 62040-1: 2008              | Standard test finger<br>4.5 V to 60 V                 |
|                                           |                                                    | Protective Earthing & Bonding                           | IS 16242 (Part 1): 2014<br>(Clause. 5.3)<br>IEC 62040-1: 2008              | Upto 150 mm<br>Upto 25 mm<br>Upto 99.9 V<br>Upto 50 A |
|                                           |                                                    | AC & D.C. Power Isolation                               | IS 16242 (Part 1): 2014<br>(Clause. 5)<br>IEC 62040-1: 2008                | Qualitative<br>(Visual Inspection)                    |
|                                           |                                                    | Over Current and Earth Fault<br>Protection              | IS 16242 (Part 1): 2014<br>(Clause. 5.5)<br>IEC 62040-1: 2008              | Upto 200 °C                                           |
|                                           |                                                    | Protection of Personnel – Safety<br>Interlocks          | IS 16242 (Part 1): 2014<br>(Clause. 5.6)<br>IEC 62040-1: 2008              | Test finger (Fig-2A)                                  |

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| <b>Accreditation Standard</b> | <b>ISO/IEC 17025: 2005</b>                                                                                                                                                                                                                                    |                    |                   |
| <b>Discipline</b>             | <b>Electronics Testing</b>                                                                                                                                                                                                                                    | <b>Issue Date</b>  | <b>10.03.2016</b> |
| <b>Certificate Number</b>     | <b>T-3844</b>                                                                                                                                                                                                                                                 | <b>Valid Until</b> | <b>30.03.2017</b> |
| <b>Last Amended on</b>        | <b>13.05.2016</b>                                                                                                                                                                                                                                             | <b>Page</b>        | <b>19 of 22</b>   |

| <b>S. No.</b> | <b>Product /<br/>Material of Test</b>              | <b>Specific Test Performed</b>                                  | <b>Test Method Specification<br/>against which tests are<br/>performed</b> | <b>Range of Testing /<br/>Limits of Detection</b> |
|---------------|----------------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------|
|               | <b>Uninterruptible<br/>Power Systems<br/>(UPS)</b> | Clearance, Creepage Distance<br>and Distance through Insulation | IS 16242 (Part 1): 2014<br>(Clause. 5.7)<br>IEC 62040-1: 2008              | Upto 1000 V DC<br>Upto 750 V AC<br>Upto 150 mm    |
|               |                                                    | Wiring, Connection and Supply                                   | IS 16242 (Part 1): 2014<br>(Clause. 6)<br>IEC 62040-1: 2008                | Upto 10 kg<br>Upto 150 mm<br>Upto 25 mm           |
|               |                                                    | Connection to Power                                             | IS 16242 (Part 1): 2014<br>(Clause. 6.2)<br>IEC 62040-1: 2008              | < 2 mm<br>3Upto 100 N                             |
|               |                                                    | Wiring Terminals for External<br>Power Conductors               | IS 16242 (Part 1): 2014<br>(Clause. 6.3)<br>IEC 62040-1: 2008              | Qualitative<br>(Visual Inspection)                |
|               |                                                    | Stability                                                       | IS 16242 (Part 1): 2014<br>(Clause. 7.2)<br>IEC 62040-1: 2008              | Upto 90°<br>Upto 250 N                            |
|               |                                                    | Mechanical Strength                                             | IS 16242 (Part 1): 2014<br>(Clause. 7.3)<br>IEC 62040-1: 2008              | Upto 250 N                                        |
|               |                                                    | Resistance to Fire                                              | IS 16242 (Part 1): 2014<br>(Clause. 7.5)<br>IEC 62040-1: 2008              | Upto 400 °C<br>Upto 60 min                        |
|               |                                                    | Battery Location                                                | IS 16242 (Part 1): 2014<br>(Clause. 7.6)<br>IEC 62040-1: 2008              | Qualitative<br>(Visual Inspection)                |

|                               |                                                                                                                                                                                                                                                               |                    |                   |
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| <b>Accreditation Standard</b> | <b>ISO/IEC 17025: 2005</b>                                                                                                                                                                                                                                    |                    |                   |
| <b>Discipline</b>             | <b>Electronics Testing</b>                                                                                                                                                                                                                                    | <b>Issue Date</b>  | <b>10.03.2016</b> |
| <b>Certificate Number</b>     | <b>T-3844</b>                                                                                                                                                                                                                                                 | <b>Valid Until</b> | <b>30.03.2017</b> |
| <b>Last Amended on</b>        | <b>13.05.2016</b>                                                                                                                                                                                                                                             | <b>Page</b>        | <b>20 of 22</b>   |

| <b>S. No.</b> | <b>Product /<br/>Material of Test</b>              | <b>Specific Test Performed</b>             | <b>Test Method Specification<br/>against which tests are<br/>performed</b>  | <b>Range of Testing /<br/>Limits of Detection</b> |
|---------------|----------------------------------------------------|--------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------------------|
|               | <b>Uninterruptible<br/>Power Systems<br/>(UPS)</b> | Temperature Rise                           | IS 16242 (Part 1): 2014<br>(Clause. 7.7) & (Clause. 8)<br>IEC 62040-1: 2008 | Ambient to 200 °C                                 |
|               |                                                    | Electrical Strength                        | IS 16242 (Part 1): 2014<br>(Clause. 8.2)<br>IEC 62040-1: 2008               | Upto 5 kV,<br>Upto 250 mA,<br>2 MΩ to ∞           |
|               |                                                    | Abnormal Operating and Fault<br>Conditions | IS 16242 (Part 1): 2014<br>(Clause. 8.3)<br>IEC 62040-1: 2008               | Qualitative<br>Upto 400 °C                        |

### **III. LIGHTENING EQUIPMENT, LED DISPLAY BOARD CONTROLLER**

|           |                                                 |                                 |                                                                                      |                                                              |
|-----------|-------------------------------------------------|---------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------|
| <b>1.</b> | <b>Fixed General<br/>Purpose<br/>Luminaries</b> | Marking                         | IS 10322 (Part 1): 2014<br>IEC 60598 (Part 1)<br>(Edition 6.1): 2006-09<br>Section 3 | Qualitative<br>(Visual Inspection using<br>petroleum spirit) |
|           |                                                 | Constructions                   | Section 4                                                                            | Qualitative<br>(Visual Inspection)                           |
|           |                                                 | Creepage Distances & Clearances | Section 11                                                                           | Upto 150 mm                                                  |
|           |                                                 | Provision For Earthing          | Section 7                                                                            | Qualitative<br>(Visual Inspection)                           |
|           |                                                 | Terminals                       | Section 14-15                                                                        | Qualitative<br>(Visual Inspection)                           |
|           |                                                 | External & Internal Wiring      | Section 5                                                                            | Upto 150 mm                                                  |

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| <b>Accreditation Standard</b> | <b>ISO/IEC 17025: 2005</b>                                                                                                                                                                                                                                    |                    |                   |
| <b>Discipline</b>             | <b>Electronics Testing</b>                                                                                                                                                                                                                                    | <b>Issue Date</b>  | <b>10.03.2016</b> |
| <b>Certificate Number</b>     | <b>T-3844</b>                                                                                                                                                                                                                                                 | <b>Valid Until</b> | <b>30.03.2017</b> |
| <b>Last Amended on</b>        | <b>13.05.2016</b>                                                                                                                                                                                                                                             | <b>Page</b>        | <b>21 of 22</b>   |

| <b>S. No.</b> | <b>Product /<br/>Material of Test</b>           | <b>Specific Test Performed</b>                 | <b>Test Method Specification<br/>against which tests are<br/>performed</b> | <b>Range of Testing /<br/>Limits of Detection</b> |
|---------------|-------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------|
|               | <b>Fixed General<br/>Purpose<br/>Luminaries</b> | Protection Against Electric Shock              | Section 8                                                                  | Standard fingers<br>Upto 20 mA                    |
|               |                                                 | Thermal Tests                                  | Section 12                                                                 | Upto 200 °C                                       |
|               |                                                 | Insulation Resistance and Electric<br>Strength | Section 10                                                                 | 1 MΩ to 40 GΩ<br>Upto 5 kV                        |
|               |                                                 | Resistance to Heat, Fire &<br>Tracking         | Section 13                                                                 | Weight: 20 N (Fixed)<br>Upto 960 °C               |

#### **IV. ELECTRONIC COMPONENTS AND EQUIPMENT SUB ASSEMBLIES**

|           |                                                        |                                                          |                         |                                                                           |
|-----------|--------------------------------------------------------|----------------------------------------------------------|-------------------------|---------------------------------------------------------------------------|
| <b>1.</b> | <b>AC Supplied<br/>Electronic<br/>Ballasts for TFL</b> | Marking (Section 7)                                      | IS 13021 (Part 1): 1991 | Qualitative<br>(Visual Inspection)                                        |
|           |                                                        | Protection Against Accidental<br>Contact With Live Parts | (Section 11)            | Upto 990 μA<br>Upto 300 N                                                 |
|           |                                                        | Terminal                                                 | (Section 8)             | Upto 25 mm/0.01 mm<br>0.1 Nm to 1.5 Nm/ 0.25<br>Nm<br>1 Nm to 5 Nm/0.5 Nm |
|           |                                                        | Provision For Earthing                                   | (Section 9)             | Qualitative<br>(Visual Inspection)                                        |
|           |                                                        | Moisture Resistance & Insulation<br>Resistance           | (Section 13)            | Amb. to 100 °C<br>20 %RH to 95 %RH<br>1 MΩ to 40 GΩ                       |
|           |                                                        | Electric Strength                                        | (Section 14)            | 0.1 kV to 5 kV/0.01 kV<br>Upto 250 mA/1 mA                                |

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| <b>Accreditation Standard</b> | <b>ISO/IEC 17025: 2005</b>                                                                                                                                                                                                                                    |                    |                   |
| <b>Discipline</b>             | <b>Electronics Testing</b>                                                                                                                                                                                                                                    | <b>Issue Date</b>  | <b>10.03.2016</b> |
| <b>Certificate Number</b>     | <b>T-3844</b>                                                                                                                                                                                                                                                 | <b>Valid Until</b> | <b>30.03.2017</b> |
| <b>Last Amended on</b>        | <b>13.05.2016</b>                                                                                                                                                                                                                                             | <b>Page</b>        | <b>22 of 22</b>   |

| <b>S. No.</b> | <b>Product /<br/>Material of Test</b>                  | <b>Specific Test Performed</b>         | <b>Test Method Specification<br/>against which tests are<br/>performed</b> | <b>Range of Testing /<br/>Limits of Detection</b> |
|---------------|--------------------------------------------------------|----------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------|
|               | <b>AC Supplied<br/>Electronic<br/>Ballasts for TFL</b> | Creepage & Clearance Distance          | (Section 10)                                                               | 0 to 150 mm/0.02 mm                               |
|               |                                                        | Current Carrying Parts &<br>Connection | (Section 17)                                                               | Upto 150 mm/ 0.02 mm<br>Upto 30 A                 |
|               |                                                        | Resistance To Heat & Fire<br>Test      | (Section 18)                                                               | Upto 960 °C/1°C                                   |
|               |                                                        | Protection Against Electric Shock      | (Section 12)                                                               | Upto 200 MHz<br>Upto 300 V<br>(100:1) Probe       |

-X-X-X-X-X-X-X-X-X-X-X-X-X-