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| Laboratory | Honeywell Technology Solutions, Bangalore-EMC Lab, 19/2, Devarabisanahalli Village, K.R. Puram, Varthur Hobli, Bangalore, Karnataka | | |
| Accreditation Standard | ISO/IEC 17025: 2005 | | |
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| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|--------------|--|--------------------------------|--|--|
| I. | EMC Test Facility | | | |
| 1. | Electrical and Electronic Products, Process Control Devices, Lighting Control Products, Sensing and Control Devices, Electromechanical Products, RF and Wireless Devices, Networking Products | Conducted Emission | CISPR 11: 2010 BS EN 55011: 2009 + A1: 2010 CISPR 22: 2009 BS EN 55022: 2010 CISPR 15: 2013 BS EN 55015: 2006+A2: 2009 FCC (Part 15 B&C): 2006 IEC60669-2-1: 2004 , 2009-01 Clause. 26 BS EN 60669-2-1: 2004+ A12: 2010 IEC 61326-1: 2006 (2012) BSEN 61326-1: 2006 (2013) BS EN 50270: 2006 IEC/EN 61131-2: 2007 IEC61000-6-3: 2011 BS EN 61000-6-3: 2007+ A1: 2011 IEC 61000-6-4: 2007 (2011) BS EN 61000-6-4: 2007+ A1: 2011 ETSI EN 301 489-1: 2011 ANSI C63.4: 2014 ICES -003 Issue5: 2012 | 9 kHz to 30 MHz – using LISN and ISN 9 kHz to 30 MHz – using Voltage Probe 9 kHz to 30 MHz – using Current clamp 15 dBuV to 107 dBuV |

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|--------------|--|--|---|---|
| | Electrical and Electronic Products, Process Control Devices, Lighting Control Products, Sensing and Control Devices, Electromechanical Products, RF and Wireless Devices, Networking Products | Radiated Emission (3 mt. Semi Anechoic Chamber) | CISPR 11: 2010 BS EN 55011: 2009+ A1: 2010 CISPR 22: 2009 BS EN 55022: 2010 FCC (Part 15) B&C: 2006 ETSI EN 301 489-1: 2011 IEC 61326-1: 2006 (2012) BSEN 61326-1: 2006 (2013) BS EN 50270: 2006 IEC/EN 61131-2: 2007 IEC61000-6-3: 2011 BS EN 61000-6-3: 2007+ A1: 2011 IEC 61000-6-4: 2007 (2011) BS EN 61000-6-4: 2007+ A1: 2011 IEC 60669-2-1: 2009-01 Clause. 26 BS EN 60669-2-1 A12: 2010 ANSI C63.4: 2014 ANSI C63.10: 2013 ICES -003 Issue 5: 2012 | 9 kHz to 1 GHz 15 dBuV to 107 dBuV 1 GHz to 18 GHz 15 dBuV to 107 dBuV |

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|--------------|--|--------------------------------|--|--|
| | Electrical and Electronic Products, Process Control Devices, Lighting Control Products, Sensing and Control Devices, Electromechanical Products, RF and Wireless Devices, Networking Products | Radiated Susceptibility | IEC 61000-4-3: 2010 BS EN 61000-4-3: 2010 IEC 60669-2-1: 2009-01 Clause. 26 BS EN 60669-2-1: 2004+ A12: 2010 IEC 61326-1: 2006: 2012 BSEN 61326-1: 2006 (2013) BS EN 50270: 2006 IEC/EN 61131-2: 2007 IEC 61000-6-1: 2005 BS EN 61000-6-1: 2007 IEC 61000-6-2: 2005 BS EN 61000-6-2: 2005 IEC 61547: 1995 BS EN 61547: 1996 ETSI EN 301 489-1: 2011 EN12405: 2010 | 80 MHz to 1 GHz 1 GHz to 2.7 GHz 1 V/m to 10 V/m Sine, Pulse & Square |

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|--------------|--|--------------------------------|---|---|
| | Electrical and Electronic Products, Process Control Devices, Lighting Control Products, Sensing and Control Devices, Electromechanical Products, RF and Wireless Devices, Networking Products | Electrical Fast Transients | IEC 61000-4-4: 2010 (2012) BS EN 61000-4-4: 2010: 2012 IEC 60669-2-1: 2009-01 Clause. 26 BS EN 60669-2-1: 2004+ A12: 2010 IEC 61326-1: 2006: 2012 BSEN 61326-1: 2006 (2013) BS EN 50270: 2006 IEC/EN 61131-2: 2007 IEC 61000-6-1: 2005 BS EN 61000-6-1: 2007 IEC 61000-6-2: 2005 BS EN 61000-6-2: 2005 IEC 61547: 1995 IEC61326-3-1: 2008 BS EN 61547: 1996 ETSI EN 301 489-1: 2011 EN12405: 2010 | 0.25 KV – 4 kV (1 Phase & 3 Phase) |

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| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|--------------|--|--------------------------------|--|---|
| | Electrical and Electronic Products, Process Control Devices, Lighting Control Products, Sensing and Control Devices, Electromechanical Products, RF and Wireless Devices, Networking Products | High Energy Surge | IEC 61000-4-5: 2005 BS EN 61000-4-5: 2006 IEC 60669-2-1: 2009-01 Clause. 26 BS EN 60669-2-1: 2004+ A12: 2010 IEC 61326-1: 2006 (2012) BSEN 61326-1: 2006 (2013) BS EN 50270: 2006 IEC/EN 61131-2: 2007 IEC 61000-6-1: 2005 BS EN 61000-6-1: 2007 IEC 61000-6-2: 2005 BS EN 61000-6-2: 2005 IEC 61547: 1995 BS EN 61547:1996 ETSI EN 301 489-1: 2011 IEC61326-3-1: 2008 EN12405: 2010 | 0.5 kV to 6.0 kV (1 Phase & 3 Phase) |

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|--------------|--|--------------------------------|---|--|
| | Electrical and Electronic Products, Process Control Devices, Lighting Control Products, Sensing and Control Devices, Electromechanical Products, RF and Wireless Devices, Networking Products | Conducted RF Susceptibility | IEC 61000-4-6: 2013 BS EN 61000-4-6: 2014 IEC 60669-2-1: 2009-01 Clause. 26 BS EN 60669-2-1: 2004+ A12: 2010 IEC 61326-1: 2006 (2012) BSEN 61326-1: 2006 (2013) BS EN 50270: 2006 IEC/EN 61131-2: 2007 IEC 61000-6-1: 2005 BS EN 61000-6-1: 2007 IEC 61000-6-2: 2005 BS EN 61000-6-2: 2005 IEC 61547: 1995 BS EN 61547: 1996 ETSI EN 301 489-1: 2011 IEC61326-3-1: 2008 EN12405: 2010 | 150 kHz to 110 MHz, 1 V to 10 V Sine, Pulse & Square EM Clamp & CDN Method |

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| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|--------------|--|--------------------------------|--|---|
| | Electrical and Electronic Products, Process Control Devices, Lighting Control Products, Sensing and Control Devices, Electromechanical Products, RF and Wireless Devices, Networking Products | Magnetic Field Susceptibility | IEC 61000-4-8: 2009 BS EN 61000-4-8: 2010 IEC 60669-2-1: 2009-01 Clause. 26 BS EN 60669-2-1: 2004+ A12. 2010 IEC 61326-1: 2006 (2012) BSEN 61326-1: 2006 (2013) BS EN 50270: 2006 IEC/EN 61131-2: 2007 IEC 61000-6-1: 2005 BS EN 61000-6-1: 2007 IEC 61000-6-2: 2005 BS EN 61000-6-2: 2005 IEC 61547: 1995 BS EN 61547: 1996 IEC61326-3-1: 2008 EN12405: 2010 | 50 Hz & 60 Hz, 1 A/m to 30 A/m, (Continuous & Short Duration) |

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|--------------|--|--------------------------------|---|---|
| | Electrical and Electronic Products, Process Control Devices, Lighting Control Products, Sensing and Control Devices, Electromechanical Products, RF and Wireless Devices, Networking Products | Electrostatic Discharge | IEC 61000-4-2: 2008 BS EN 61000-4-2: 2009 IEC 60669-2-1: 2009-01 Clause. 26 BS EN 60669-2-1: 2004+ A12: 2010 IEC 61326-1: 2006: 2012 BSEN 61326-1: 2006 (2013) BS EN 50270: 2006 IEC/EN 61131-2: 2007 IEC 61000-6-1: 2005 BS EN 61000-6-1: 2007 IEC 61000-6-2: 2005 BS EN 61000-6-2: 2005 IEC 61547: 1995 BS EN 61547:1996 ETSI EN 301 489-1: 2011 IEC61326-3-1: 2008 EN12405: 2010 | Contact Discharge : 0.25 kV to 15 kV Air Discharge : 0.5 kV to 30 kV |

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| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|--------------|--|--|--|--|
| | Electrical and Electronic Products, Process Control Devices, Lighting Control Products, Sensing and Control Devices, Electromechanical Products, RF and Wireless Devices, Networking Products | Voltage Dips & Interruptions | IEC 61000-4-11: 2004 BS EN 61000-4-11: 2004 IEC 60669-2-1: 2009-01 Clause. 26 BS EN 60669-2-1: 2004+ A12: 2010 IEC 61326-1: 2006 (2012) BSEN 61326-1: 2006 (2013) BS EN 50270: 2006 IEC/EN 61131-2: 2007 IEC 61000-6-1: 2005 BS EN 61000-6-1: 2007 IEC 61000-6-2: 2005 BS EN 61000-6-2: 2005 IEC 61547: 1995 BS EN 61547:1996 ETSI EN 301 489-1: 2011 IEC61326-3-1: 2008 EN12405: 2010 | Dips : 100 %, 60 %, 30 %, 20 % Interruption : 100 % duration : 10 ms to 5 s |
| 2. | (FHSS) Low-Power Licence Radio Communication Devices Short Range Devices | 20dB Bandwidth Maximum Peak Output Power Carrier Frequency Separation Number of Hopping Frequencies Band Edge compliance Time of Occupancy (Dwell Time) | FCC part15.247 IC RSS 210 | 890 MHz to 940 MHz 2400 MHz to 2483.5 MHz 5725 MHz to 5875 MHz |

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| | (FHSS) Low-Power Licence Radio Communication Devices Short Range Devices | Spurious RF Conducted Emissions | | |
| | | Spurious Radiated Emissions | FCC Part15.247 IC RSS 210 ETSI 300 220-1 ver2.4.1 ETSI 300 440-1 ver1.5.1 ETSI EN 300 328 ver1.7.1 | 9 kHz to 1 GHz 1 GHz to 18 GHz 9 kHz to 12.75 GHz |
| 3. | DTS | DTS 6dB Bandwidth | FCC Part15.247 & 209 IC RSS 210 | 890 MHz to 940 MHz 2400 MHz to 2483.5 MHz 5725 MHz to 5875 MHz |
| | | Maximum Peak Output Power | | |
| | | Maximum Power Spectral Density | | |
| | | Band Edge Conducted Emissions | | |
| | | Radiated Spurious Emissions | | 9 kHz to 12.75 GHz |

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| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|--|--|--------------------------------|--|---|
| 4. | Electromagnetic Compatibility and Radio Spectrum Matters (ERM); Short Range Devices (SRD); Radio Equipment to be used in the 25 MHz to 1000 MHz Frequency Range with Power Levels Ranging upto 500 mW; Part 1: Technical Characteristics and Test methods (Transmitter Parameter) | Frequency Error | ETSI 300 220-1 ver2.4.1 | 25 MHz to 1 GHz |
| Average power (conducted) | | | | |
| Effective radiated power | | | | |
| Modulation bandwidth | | | | |
| Frequency stability under low voltage condition | | | | |
| | Transmitter Spurious Emission | ETSI 300 220-1 ver2.4.1 | 30 MHz to 12.75 GHz | |

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| Accreditation Standard | ISO/IEC 17025: 2005 | | |
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| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|--------------|--|--|--|--|
| 5. | Electromagnetic Compatibility and Radio Spectrum Matters (ERM); Short Range Devices (SRD); Radio Equipment to be used in the 25 MHz to 1000 MHz Frequency Range with Power Levels Ranging up to 500 mW; Part 1: Technical Characteristics and Test Methods (Receiver Parameter) | Receiver sensitivity Adjacent channel selectivity Blocking Receiver Spurious Emissions | ETSI 300 220-1 ver2.4.1 | 25 MHz to 1 GHz |
| 6. | Fire Detection and Fire Alarm Systems — Part 2: Control and Indicating Equipment | EMC Tests Mains supply voltage variations Mains supply voltage dips and interruptions | BS EN 54-2: 1997 A1: 2006 BS EN 50130-4: 2011 BS EN 54-2: 1997-A1: 2006 BS EN 50130-4: 2011 EN 61000-4-11: 2004 IEC 61000-4-11: 2004 | Supply voltage: max (U _{max}): Unominal(+10) % Supply voltage: min (U _{min}) : Unominal (-)15 % Dips : 100 %, 60 %, 30 %, 20 % Interruption : 100 % Duration : 10 ms to 5 s |

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|--------------|---|---------------------------------|--|--|
| | Fire Detection and Fire Alarm Systems — Part 2: Control and Indicating Equipment | Electrostatic discharge | BS EN 54-2: 1997-A1: 2006 BS EN 50130-4: 2011 EN 61000-4-2: 2009 IEC 61000-4-2: 2008 | Air discharges : 2 kV, 4 kV & 8 kV Contact discharges : 6 kV |
| | | Radiated electromagnetic fields | BS EN 54-2: 1997 A1: 2006 BS EN 50130-4: 2011 EN 61000-4-3: 2006+ A1: 2008+A2: 2010 IEC 61000-4-3: 2006+ A1: 2007+A2: 2010 | Frequency range : 80 MHz to 2,700 MHz, 10 V/m Modulation : AM 80 %, 1 kHz, sinusoidal PM 1 Hz (0.5 s ON : 0.5 s OFF) |
| | | Conducted disturbances | BS EN 54-2: 1997-A1: 2006 BS EN 50130-4: 2011 EN 61000-4-6: 2009 IEC 61000-4-6: 2008 | Frequency range : 0.150 MHz to 100 MHz, Voltage level: 10Vrms, Modulation: AM 80 %, 1 kHz, sinusoidal PM 1 Hz (0.5 s ON : 0.5 s OFF) |
| | | Electrical Fast Transient Burst | BS EN 54-2: 1997-A1: 2006 BS EN 50130-4: 2011 EN 61000-4-4: 2004+A1: 2010 EN 61000-4-4: 2004+A1: 2010 | AC mains supply lines : 0.5 kV; 1 kV & 2 kV (1 Phase & 3 Phase) Other supply control signal lines :1 kV Repetition rate : 100 kHz |
| | | Slow High Energy Surge | BS EN 54-2: 1997-A1: 2006 BS EN 50130-4: 2011 EN 61000-4-5 : 2006 EN 61000-4-5 : 2005 | Test voltages AC mains supply lines: line-to-line : 0.5 kV to 1.0 kV line-to-ground : 0.5 kV; 1 kV & 2 kV Other supply/signal lines : line-to-ground : 0.5 kV & 1 kV |

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| II. | SAFETY TESTING FACILITY | | | |
| 1. | Information Technology Equipments | Marking and instructions | IEC 60950-1-2005, Cl. No 1.7 | Qualitative |
| | | Durability | IEC 60950-1-2005, Cl. No 1.7.11 | Qualitative |
| | | Electric Strength | IEC 60950-1-2005, Cl. No 5.2 | AC : 0.1kV to 5kV DC: 0.1kV to 6kV |
| | | Insulation Resistance | IEC 60950-1-2005, Cl. No 6.2.2.3 | Resistance: 0.01M Ω to 9.99 G Ω DC Voltage - 500V |
| | | Provision for earthing and bonding | IEC 60950-1-2005, Cl. No 2.6.3.4 | Resistance- 0 to 600m Ω |
| | | Resistance to abnormal heat | IEC 60950-1-2005, Cl. No 4.5.5 | Thermal chamber : 70 °C & 125°C Force: 20N |
| | | Protection from hazards | IEC 60950-1-2005, Cl. No 4.4.1 to 4.4.4 ,2.1.1 | Jointed & Unjointed Fingers upto 100N |
| | | Thermal requirements | IEC 60950-1-2005, Cl. No 4.5 | Temperature: 0°C to 200°C Vrms : upto 240V Current : upto 10A |
| | Power interface | IEC 60950-1-2005, Cl. No 1.6.2 | Vrms: 10V to 250V Current: 100mA to 16A Power: 4kW | |

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| | Information Technology Equipments | Abnormal operating and fault conditions | IEC 60950-1-2005, Cl. No 5.3.1, 5.3.3, 5.3.4 & 5.3.7 | Temperature : 0°C to 200 °C Vrms : 240V Current : upto 10A |
| | | Humidity conditioning | IEC 60950-1-2005, Cl. No 2.9.2 | Humidity: 90 % to 95 % Temperature: 20°C to 30°C |
| 2. | Electrical Equipment for Measurement, Control and Laboratory Use | Marking | IEC 61010-1, Ed 3.0: 2010, Cl. No 5.1 | Qualitative |
| | | Durability of markings | IEC 61010-1, Ed 3.0 : 2010, Cl. No 5.3 | Qualitative |
| | | Dielectric strength tests | IEC 61010-1, Ed 3.0 : 2010, Cl. No 6.8.3.1, Cl. No 6.8.3.2 | AC : 0.5kV to 5kV DC: 0.1kV to 6kV |
| | | Impedance of protective bonding | IEC 61010-1, Ed 3.0 : 2010, Cl. No 6.5.2.4 | Resistance: 0 to 600mΩ |
| | | Resistance to heat | IEC 61010-1, Ed 3.0: 2010, Cl. No 10.5.3 | Thermal chamber : 70°C & 125°C Force: 20N |
| | | Determination of accessible parts | IEC 61010-1, Ed 3.0: 2010, Cl. No 6.2 | Jointed & Unjointed Fingers upto 100N |

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|--------------|--|-----------------------------------|--|--|
| | Electrical Equipment for Measurement, Control and Laboratory Use | Temperature | IEC 61010-1, Ed 3.0: 2010, Cl. No 4.4.4.2 | Temperature: 0°C to 200°C |
| | | Mains supply | IEC 61010-1, Ed 3.0: 2010, Cl. No 5.1.3 | Vrms : upto 240V Current : upto 10A Vrms: 10V to 250V Current: 100mA to 16A Power: 4kW |
| | | Humidity Treatment Test | IEC 61010-1, Ed 3.0: 2010, Cl. No 6.8.2 | Humidity: 90 % to 95 % Temperature: 20°C to 30°C |
| 3. | Switches for Household and Similar Fixed - Electrical Installations | Marking | BS EN 60669-1: 1999 +A2 : 2008, Cl. No 8 | Qualitative |
| | | Durability of markings | BS EN 60669-1: 1999 +A2 : 2008, Cl. No 8.9 | Qualitative |
| | | Electric Strength Test | BS EN 60669-1: 1999 +A2 : 2008, Cl. No 16.2 | AC : 0.5kV to 5kV DC: 0.1kV to 6kV |
| | | Insulation Resistance Test | BS EN 60669-1: 1999 +A2: 2008, Cl. No 16.1 | Resistance: 0.01MΩ to 9.99GΩ DC Voltage : 500V |
| | | Resistance to heat | BS EN 60669-1: 1999 +A2 : 2008, Cl. No 21.1Cl. No 21.2 Cl. No 21.3 | Thermal chamber : 70°C & 125°C Force: 20N |
| | | Protection against electric shock | BS EN 60669-1: 1999 +A2 : 2008, Cl. No 10.1 | Jointed & Unjointed Fingers upto 100N |

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|--------------|--|-----------------------------------|---|---|
| | Switches for Household and Similar Fixed - Electrical Installations | Temperature Rise | BS EN 60669-1 : 1999 +A2 : 2008, Cl. No 17 | Temperature : 0°C to 200°C Vrms : 240V Current : upto 10A |
| | | Resistance to humidity | BS EN 60669-1 : 1999 +A2 : 2008, Cl. No 15.3 | Humidity: 90 % to 95 % Temperature: 20°C to 30°C |
| | | Marking | EN 60669-2-1 : 2004 +A12 : 2010, Cl. No 8 | Qualitative |
| | | Durability of markings | EN 60669-2-1 : 2004 +A12 : 2010, Cl. No 8.9 | Qualitative |
| | | Electric Strength Test | EN 60669-2-1 : 2004 +A12 : 2010, Cl. No 16.2 | AC : 0.5KV to 5KV DC: 0.1KV to 6KV |
| | | Insulation Resistance Test | EN 60669-2-1 : 2004 +A12 : 2010, Cl. No 16.1 | Resistance: 0.01MΩ - 9.99GΩ DC Voltage - 500V |
| | | Resistance to heat | EN 60669-2-1 : 2004 +A12 : 2010, Cl. No 21.1 Cl. No 21.2, Cl. No 21.3 | Thermal chamber : 70°C & 125°C Force: 20N |
| | | Protection against electric shock | EN 60669-2-1 : 2004 +A12 : 2010, Cl. No 10.1 Cl. No 10.101, Cl. No 10.102, Cl. No 10.103 | Jointed & Unjointed Fingers Upto 50 N |
| | | Temperature Rise | EN 60669-2-1 : 2004 +A12 : 2010, Cl. No 17 | Temperature: 0°C to 200°C Vrms : upto 240V Current : upto 10A |

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|-------------------------------|--|--------------------|-------------------|
| Laboratory | Honeywell Technology Solutions, Bangalore-EMC Lab, 19/2, Devarabisanahalli Village, K.R. Puram, Varthur Hobli, Bangalore, Karnataka | | |
| Accreditation Standard | ISO/IEC 17025: 2005 | | |
| Discipline | Electrical Testing | Issue Date | 19.05.2014 |
| Certificate Number | T-2948 | Valid Until | 18.05.2016 |
| Last Amended on | 07.10.2015 | Page | 18 of 18 |

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|--------------|--|--------------------------------|--|--|
| | Switches for Household and Similar Fixed - Electrical Installations | Abnormal conditions | EN 60669-2-1 : 2004 +A12 : 2010, Cl. No 101 Cl. No 102.1 to 102.3 | Temperature : 0°C to 200°C Vrms : 240V Current : upto 10A |
| | | Resistance to humidity | EN 60669-2-1 : 2004 +A12 : 2010, Cl. No 15.3 | Humidity: 90 % to 95 % Temperature: 20°C to 30°C |

III. ENVIRONMENTAL TEST FACILITY

| | | | |
|---|----------------|--|--|
| 1. Fire Detection and Fire Alarm Systems Part 2: Control and indicating Equipment and Other Electronic Devices | Vibration Test | BS EN 54-2-1997-A1:2006 EN 60068-2-6:2007 EN 60068-2-47:2005 | Frequency range: 5Hz to 2000Hz. Acceleration: 0.5 to 25g |
| | Cold Test | BS EN 54-2-1997-A1:2006 EN 60068-2-1:2007 | Temperature :0 to -65°C |
| | Damp Heat test | BS EN 54-2-1997-A1:2006 EN 60068-2-78:June 2013 | Temperature : Ambient to +40 °C RH : upto 95% |

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