

TO WHOM IT MAY CONCERN

Bosch Security Systems
Torenallee 49
5617 BA Eindhoven
The Netherlands
ST-VS 2016-E-067

Product Test Report

Product

| | | |
|---------------|-----------------|--|
| F.01U.314.807 | NIN-63013-A3 | Dome 1MP HDR 3-9mm auto IP66 |
| F.01U.314.808 | NIN-73013-A3A | Dome 1MP HDR 3-9mm auto IP66 |
| F.01U.314.809 | NIN-63013-A3S | Dome 1MP HDR 3-9mm auto IP66 surface |
| F.01U.314.810 | NIN-73013-A3AS | Dome 1MP HDR 3-9mm auto IP66 surface |
| F.01U.314.812 | NIN-73013-A10A | Dome 1MP HDR 10-23mm auto IP66 |
| F.01U.314.814 | NIN-73013-A10AS | Dome 1MP HDR 10-23mm auto IP66 surface |
| F.01U.314.815 | NIN-63023-A3 | Dome 2MP HDR 3-9mm auto IP66 |
| F.01U.314.816 | NIN-73023-A3A | Dome 2MP HDR 3-9mm auto IP66 |
| F.01U.314.817 | NIN-63023-A3S | Dome 2MP HDR 3-9mm auto IP66 surface |
| F.01U.314.818 | NIN-73023-A3AS | Dome 2MP HDR 3-9mm auto IP66 surface |
| F.01U.314.820 | NIN-73023-A10A | Dome 2MP HDR 10-23mm auto IP66 |
| F.01U.314.851 | NIN-73023-A10AS | Dome 2MP HDR 10-23mm auto IP66 surface |

The above mentioned Bosch Security Systems products have been tested in accordance and were found to comply with the tests listed below which were conducted during the development phase of the product.

EMC approvals

| Directive or standard | Description |
|--|---|
| EMC EU, 2014/30/EU (EMCD) | |
| EN 55032:2012 /AC:2013 Class B | Electromagnetic compatibility of multimedia equipment - Emission Requirements |
| EN 50130-4:2011 /A1:2014 | Alarm systems - Part 4: Electromagnetic compatibility - Product family standard: Immunity requirements for components of fire, intruder, hold up, CCTV, access control and social alarm systems |
| EN 50121-4:2016 | Railway applications - Electromagnetic compatibility - Part 4: Emission and immunity of the signalling and telecommunications apparatus |
| EMC US | |
| CFR 47 FCC part 15, Class B ANSI C63.4 (2009) | Code of Federal Regulations, Radio Frequency Devices, Unintentional Radiators. Radiated Emission based on verification procedure. |
| EMC Australia | |
| AS/NZS CISPR 32:2013 | Electromagnetic compatibility of multimedia equipment - Emission requirements. Compliance via EN 55032:2012, Product marked with RCM logo |

Safety approvals

| Directive or standard | Description |
|--|---|
| Safety EU, 2014/35/EU (LVD) | |
| EN 60950-1:2006 /A11:2009 /A1:2010 /A12:2011 /A2:2013 | Information technology equipment - Safety - Part 1: General requirements. |
| EN 60950-22:2006/AC:2008 | Information technology equipment - Safety - Part 22: Equipment installed outdoors |
| Safety USA + Canada | |
| UL 60950-1, 2nd Ed., 2014-10-14 CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2014-10 | Information technology equipment - Safety – Part 1: General requirements. Products marked with cULus logo. |
| CSA/UL60950-22, Ed. 1 CAN/CSA-C22.2 NO. 60950-22-07 (R2012) | Information Technology Equipment - Safety - Part 22: Equipment to be Installed Outdoors |

Environmental approvals

| Directive or standard | Description |
|---|--|
| RoHS EU, 2011/65/EU EN 50581:2012 | Restriction of the use of certain hazardous substances (RoHS) |
| WEEE EU, 2012/19/EU | Waste Electrical and Electronic Equipment (WEEE) |
| Packaging EU, 94/62/EC (amended by 2004/12/EC) | Packaging and packaging waste |
| N2580-1 (Bosch standard) | Central directive Bosch-Norm N 2580-1: "Prohibition and declaration of substances" Bosch-Norm N 2580-1 regulates prohibited substances and those rated declarable in materials, and it is part of the requirements for materials. |
| N33 6 (Bosch standard) | Design for Environment (DfE): Design and manufacturing rules |

Management system

| Directive or standard | Description |
|-------------------------|---|
| ISO 9001:2008 | Quality management systems -- Requirements <u>Scope:</u> Development, production, installation and sales. |
| ISO 14001:2004 /AC:2009 | Environmental management systems -- Requirements with guidance for use <u>Scope:</u> Development, Production, Sales and After Sales. |

Reliability tests

Accordinging: EN 50130-5:2011 Alarm systems Part 5: Environmental test methods
Class IV, Fixed equipment, Outdoor in general

| Test specification | Description |
|--|---|
| Dry heat (operational) (EN 60068-2-2:2007) | Temperature +70°C, Duration 16 hours. |
| Dry heat (endurance) (EN 60068-2-2:2007) | Temperature +55°C, Duration 21 days |
| Cold (operational) (EN 60068-2-1:2007) | Temperature -25°C, Duration 16 hours. |
| Damp heat, steady state (endurance) (EN 60068-2-78:2001) | Temperature +40°C, Relative Humidity 93%, Duration 21 days. <i>Bosch tested more severe at temperature 55°C</i> |
| Damp heat, cyclic (operational) (EN 60068-2-30:2005) | Temperature +25°C to +55°C, Relative humidity 93%, 2 cycles. |
| Damp heat, cyclic (endurance) (EN 60068-2-30:2005) | Temperature +25°C to +55°C, Relative humidity 93%, 6 cycles. |
| Water ingress (operational) (EN 60068-2-18:2001) | Test procedure Ra1.1 or Rb1.2, 10min (Similar EN60529 IPX4). <i>Bosch tested more severe for class IPx6</i> |
| Salt mist, cyclic (endurance) (EN 60068-2-52:1996) | Temperature 15°C till 40°C, RH 93%, 4 cycles, Duration 28d. |
| Shock (operational) (EN 60068-2-27:2009) | Halve sine wave pulse, duration 6ms, 3 pulses per direction, 6 directions. <i>Bosch tested with acceleration of ±804m/s².</i> |
| Impact (operational) (EN 60068-2-75:1997 Test Ehb) | Impact energy 0.5Joule, 3 impacts per point (Similar to EN 62262 IK04 rating). <i>Bosch tested more severe for IK10 rating</i> |
| Vibration, sinusoidal (operational) (EN 60068-2-6:2008) | Frequency range 10-150 Hz, 5 ms ² , 3 axes, sweep rate 1 octave x min ⁻¹ , 1 sweep cycles per axis functional mode. <i>Bosch tested with acceleration of 10m/s² and in operational mode.</i> |
| Vibration, sinusoidal (endurance) (EN 60068-2-6:2008) | Frequency range 10-150 Hz, 10 m/s ² , 3 axes, sweep rate 1 octave x min ⁻¹ , 20 sweep cycles per axis. |
| Dust tightness (endurance) (EN 60529:1991 A1:2000) | Duration 8h (similar to EN 60529 IP5X). <i>Bosch tested more severe for class IP6x</i> |

Additional reliability tests

| Activity | Description |
|---|--|
| MTBF (Mean Time Between Failures) | > 191.900 h Calculation of used components according Siemens SN29500. > 791.000 h Based on current field performance of predecessor products. |
| ALT (Accelerated Life Test) | Reliability test in which a moderate number of products are stressed at elevated, but non-destructive stress levels for a longer period of time. Power, PoE input 2m – 100m cable Power, DC input 10,8VDC – 13,2VDC High temperature stress +60°C Temperature shock -20°C - +80°C (20°C /min) Power/temperature cycling -30°C - +55°C (4,5°C /min) Temperature & random vibrations -20°C +40°C, 5Grms, 10Hz-10kHz |
| Cold start test | At ambient temperature -10°C. |
| Quality (Q) and Reliability (Z) testing | Annual product compliance. Verification tests to secure that products remain compliant to the specified requirements. |

Data subject to change without notice.

Eindhoven, September 2019