**Product Tests Report**

**Product name: AUTODOME IP starlight 5100i IR Camera**

Model number and description:

**Pendant outdoor IR model:** NDP-5523-Z30L, NDP-5523-Z30L-P

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

**ENVIRONMENTAL TEST**

| **BS EN 50130-5:1999 Alarm systems Part 5: Environmental test methods** | **Specific Test Description** | **Comments** |
| --- | --- | --- |
| Dry heat (operational)  EN 60068-2-2:2007 | Temp. +70 °C, duration 48 hours |  |
| Dry heat endurance (non-operational) EN 60068-2-2:2007 | Temp. +70 °C, duration 21 days. |  |
| Cold (operational)  EN 60068-2-1:2007 | Temp. -40 °C, duration 48 hours |  |
| Cold start | Soak at -45 °C for 4 hours then power up. Camera must power up & function normally within 10 minutes. |  |
| Damp heat, steady state (non-operational) EN 60068-2-78:2001 | Temp. +40ºC, Relative Humidity 93%, Duration 21 days. No condensation. Camera must not have condensation. |  |
| Damp heat, cyclic operational  EN 60068-2-30:2005 | Temp. +25ºC to +55ºC, Relative humidity 93%, 2 cycles. 24hours for each cycle. |  |
| Damp heat, cyclic endurance  EN 60068-2-30:2005 | Temp. +25ºC to +55ºC, Relative humidity 93%, 6 cycles. 24hours for each cycle. |  |
| Ingress Protection Rating- IP6X  IEC 60529, Edition 2.2, CLAUSE 13.4 | Duration 2hours. No dust ingress; complete protection against contact. |  |
| Water ingress (operational)- IPX6  IEC 60529, Edition 2.2, CLAUSE 14.2.6 | At least 3 minutes Water flow rate: 100L/min  Distance from sample to nozzle:2.5~3m |  |
| Sulfur Dioxide SO2 endurance Class IV  EN60068-2-42: 2003 | Sulfur Dioxide 25 ppm, Temp. 25°C, Humidity 93%, Duration 21 days |  |
| Salt mist, cyclic endurance Class IV  EN60068-2-52:1996 | 2 hours salt mist, 166 hours for 40degree and 93%RH damp heat, 4 cycle. Total 28 days |  |
| Vibration sinusoidal (operational) IEC 60068-2-6: 2008 | Freq. Range 10㎡/s²: 8-10Hz,1㎡/s²: 10-200Hz,0.2㎡/s²: 200-1000Hz, 3 axis, 3h. |  |
| Vibration sinusoidal (endurance) IEC 60068-2-6: 2008 | Freq. Range 10㎡/s²: 8-10Hz,1㎡/s²: 10-200Hz,0.2㎡/s²: 200-1000Hz, 3 axes, per axis 20 sweeps/ axis, 4hours, |  |
| Shock (operational) IEC 60068-2-27 :2009 | Half sine wave 11ms, 10.0g, 6 number of shocks, 3 shocks/ axis. |  |
| Impact (operational)- IK10 IEC 62262, Class IV | Impact energy 20.0 Joule, 3 impacts per point, 2pcs |  |
| Bump test  EN 60068-2-29 | Half sine wave Acceleration: 10 G Duration: 16 ms, 1 bump/ second, 1000 bumps/ axis total 6000 bumps | NDA-U-WMT |
| Wind load test | Pass 150mph simulated wind load test |  |
| Sound level (audible noise) | < 55 dB 3meter from camera | NDA-U-WMT |
| Transportation Tests (ISTA Procedure 3A) | Atmospheric condition Test  Compression Test  Drop Test  Vibration Test |  |
| solar radiation EN60068-2-5 :1999 | Temp. 40°C, duration 10 days Irradiance 1120 W/m² |  |

**ADDITIONAL** **CERTIFICATIONS**

|  |  |
| --- | --- |
| **Functional tests description** | **Description** |
| Conformant with Open Network Video Interface Forum (ONVIF) | Interoperability between network video products, regardless of manufacturer  Profile S, Profile G, Profile T |

**ADDITIONAL ENVIRONMENTAL – FUNCTIONAL BOSCH TESTS**

| **Environmental test methods** | **Specific Test Description** |
| --- | --- |
| MTBF (Mean Time between Failures)  Calculated according to Telcordia SR-332, issue 4, 2016 | MTBF = 166,516 hours |
| HALT (Highly Accelerated Life Test) | Ambient Operational Test: +25 °C  Completed: 8/03/2020  1. Temp LOL  2. Temp UOL  3. Rapid Thermal Transitions Stress  4. Vibration OL  5. Combine Environment Stress |

**Approvals Safety, EMC and Environmental**

| **Specific Approval** | **Description** |
| --- | --- |
| **EMC Europe** |  |
| Directive 2014/30/EU | EMC Directive- Electromagnetic compatibility (recast) Text with EEA relevance |
| EN 55032 | EN 55032:2015 + AC: 2016  Electromagnetic compatibility of multimedia equipment - Emission Requirements, Class A. |
| EN 50130-4 | EN 50130-4:2011  Part 4: Electromagnetic compatibility - Product family standard: Immunity requirements for components of fire, intruder and social alarm systems. |
| EN 50121-4 | EN 50121-4:2016  Railway application |
| IEC/EN 61000-4-2 | ESD Susceptibility |
| IEC/EN 61000-4-3 | Radiated electromagnetic fields |
| IEC/EN 61000-4-4 | Electrical Fast Transient (EFT) Burst |
| IEC/EN 61000-4-6 | Conducted Immunity |
| **EMC USA** |  |
| FCC | FCC 47 CFR Part 15 Subpart B: 2020  Conducted + Radiated Emission based on VERIFICATION procedure, Class A |
| **EMC Canada** |  |
| ICES-003 Issue 6: 2016-01 Updated 2019-04 | Information Technology Equipment (including Digital Apparatus) |
| **EMC JAPAN** |  |
| VCCI | VCCI-CISPR 32:2016  Voluntary Control Council for Interference. Electromagnetic compatibility of multimedia equipment - Emission requirements. |
| **Safety Europe** |  |
| EN 62368-1 | Audio/video, information and communication technology equipment |
| EN 60950-1 | Information technology equipment — Safety — Part 1: General requirements |
| EN 60950-22 | Information technology equipment — Safety — Part 22: Equipment to be installed outdoors |
| **Safety** **USA + Canada** |  |
| UL 62368-1 | Audio/video, information and communication technology equipment |
| CSA-C22.2 No. 62368-1-14 | Audio/video, information and communication technology equipment |
| **Environmental** |  |
| RoHS EU 2011/65/EU  (IEC/EN 63000:2018) | Restriction of Hazardous Substances |
| Restriction of Hazardous Substances | REACH (no substances prohibited in REACH annex XVII and no information about possible SVHCs contained). |
| 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. |

The product is produced by a manufacturing organization which is certified on **ISO9001:2015** and **ISO14001:2015** standards.