**Product Tests Report**

Product name: DINION IP imager 9000

Model number and description:

F.01U.296.123 NAI-90022-AAA HD IR Imager, 10-23mm AF, 850nm Hybrid

The above-mentioned Bosch Security Systems product has been tested in accordance and was found to comply with the tests listed below which were carried out during the development phase of the product. Please note that for some tests, test conditions exceed the range that Bosch recommends for effective continuous operation of the camera.

Data subject to change without notice.

**ENVIRONMENTAL TEST**

| **Directive or standard** | **Description** | **Passed** |
| --- | --- | --- |
| Dry heat Operational  IEC 60068-2-2:1974 +A1:1993+ A2:1994 | Temp. 70°C, duration 48 hours | Yes |
| Dry heat Storage IEC 60068-2-2:1974 +A1:1993+ A2:1994 | Temp. +75 °C, duration 4 hours | No |
| Cold operational  IEC 60068-2-1:1990 +A1:1993+ A2:1994 | Temp. -45 °C, duration 48 hours | Yes |
| Cold start test | 1. For 24VAC & 12VDC & PoE injector test under -45 degree can PASS normally.  2. For POE+ test under -20 degree can PASS normally. | Yes |
| Cold Endurance IEC 60068-2-1:1990 +A1:1993+ A2:1994 | Temp -45 °C, Duration 4 hours | No |
| Humidity, operational Damp heat, steady state operational  IEC 60068-2-2:1988 | 55°C / 95 %RH, 25°C / 95% RH for 24 hours. Repeat for 6 cycles total. | Yes |
| IEC 60529 Ingress Protection Rating (IP66)  Degrees of protection provided by enclosures (IP Code) [Dust, water ingress (operational)] | (Camera with mounting adaptor) Dust tight (no dust ingress; complete protection against contact).  Water immersion: 24 hours Water depth: 1.8 meters | Yes |
| IEC 60529 Ingress Protection Rating (IP66)  Degrees of protection provided by enclosures (IP Code) [Dust, water ingress (operational)] | (Camera without mounting adaptor; exposed connectors in base of camera) Dust tight (no dust ingress; complete protection against contact).  Water immersion: 30 minutes Water depth: 1 meter | Yes |
| UL Type rating (similar to NEMA 4X) | Water immersion: 24 hours Water depth: 1.8 meters | Yes |
| Salt Spray ASTM B117 standard for corrosion resistance | 2000 hrs at 35 °C, 95%RH, 5% NaCl | No |
| External Mechanical Impact (IK Code) IK10 Rating [“Vandalism-proof test”]  IEC 62262:2002-02 | Energy 20J, 5 kg steel mass test slug,  50 mm striking radius, drop height 0.4 m  3 drops per side, impact 3 sides,  9 total impacts Excludes window. | Yes |
| Vibration IEC 60068-2-6:2007 | Freq. Range 10-150Hz, 20m/s², 3 axes, sweep rate 1 octave/m 20 sweeps/axis, (2.0g) | Yes |
| Sinusoidal vibration test  IAW MIL-STD-167-1A | Exploratory Test 4Hz – 25Hz @ .01-in single amplitude (.02-in DAD)  1Hz frequency intervals for (15) second dwells.  Variable Frequency Test 4Hz – 15Hz @ .03-in single amplitude (.06-in DAD)  16Hz – 25Hz @ .02-in single amplitude (.04-in DAD)  1Hz frequency intervals for (5) minute dwells.  Endurance Testing 25Hz @ .02-in single amplitude (.04-in DAD)  The duration of Endurance Testing is to be 2 hours total, and should be performed at each frequency of prominence identified in the Exploratory and Variable Freq Tests previously performed | No |
| Shock operational  IEC 60068-2-27:1987 | Half Sine Impulse, 6ms, 40g | No |
| Medium weight Hammer Shock IAW MIL-S-901D | Equipment class I, Shock test type A, grade A & B | No |
| Wind speed (150mph wind tunnel test) | (MIC7000 camera only, MIC sunshield, MIC7000 illuminator)  Sustained 120-150 mph winds for a 40 minute period without structural damage or loss of video or PTZ function. | No |
| Sound level (audible noise) | < 65 dB | Yes |
| Transportation Tests (ISTA Procedure 1A) | ISTA – Vibration  14,200 vibratory shocks – 2 axis | No |
| Transportation Tests (ISTA Procedure 1A) | ISTA – 36 inches (0.9 m) free fall drop  6 faces of box | No |

**ADDITIONAL ENVIRONMENTAL – FUNCTIONAL BOSCH TESTS**

| **Environmental test methods** | **Specific Test Description** | **Passed** |
| --- | --- | --- |
| HALT (Highly Accelerated Life Test) | HALT LOL/UOL Temperature Test:  1 - Step temperature down from -40 °C by 5 °C every 4 hours (minimum) until operational failure and/or destruct failure.  2 - Step temperature up from +40 °C by 5 °C every 4 hours (minimum) until operational failure and/or destruct failure.  HALT Vibration Test:  1 - The DUT is initially vibrated at acceleration level of 5g (rms) for minimum period of at least 10 minutes. After 10 minutes exposure, the DUT is tested operationally and results are recorded. The operating vibration level is then increased by 5g (rms) and the process is repeated for the next step in the test. This sequence is repeated until the DUT fails operational testing or the test level reaches 50g (rms). | Yes |

**Approvals Safety, EMC and Environmental**

| **Specific Approval** | **Passed** |
| --- | --- |
| **EMC Europe** | **Passed** |
| EN 55022:2010/ AC: 2011 | Yes |
| EN 50130-4:2011 | Yes |
| EN 50121-4:2006/ AC: 2008 | Yes |
| EMC directive 2014/30/EU | Yes |
| EN 55024: 2010 class B | Yes |
| EN 50132-5-2; IEC 62676-2-3 |  |
| **EMC USA** | **Passed** |
| FCC part 15 Subpart B, Class B | Yes |
| **EMC Japan** | **Passed** |
| VCCI J55022 V2 / V3 | Yes |
| **EMC Australia/New Zealand** | **Passed** |
| RCM AS/NZS CISPR 22 (equal to  CISPR 22) | Yes |
| **EMC Canada** | **Passed** |
| ICES-003 class B | Yes |
| **Safety Europe** | **Passed** |
| EN 60950-1: 2006+ A11: 2009+ A1: 2010+ A12: 2011+ A2: 2013 | Yes |
| **Safety USA + Canada** | **Passed** |
| CAN/CSA-C22.2 NO. 60950-1 | Yes |
| UL 60950-1 | Yes |

|  |  |  |
| --- | --- | --- |
| **Environmental** |  | **Passed** |
| Restriction of Hazardous Substances | ROHS complaint | Yes |
| Prohibited and declarable substances in products, components, materials and preparations. | Manufacturer’s declaration database based on N 2580-1 | Yes |
| IEC 50130-5 |  | Yes |
| UL/cUL 60950-22 |  | Yes |
| **Product certifications** |  | **Passed** |
| CE, FCC, UL, cUL, C-tick, CB, VCCI |  | Yes |

**Miscellaneous specifications**

|  |  |  |
| --- | --- | --- |
| **Description** |  | **Passed** |
| Eye Safety | CIE/IEC 62471 | Yes |

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