TO WHOM IT MAY CONCERN

Bosch Security Systems
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The Netherlands
AT18-Q1616

# Product Test report

Product name: **FLEXIDOME IP micro 2000**
Model numbers:

| Material No. | CTN | Description | Product Name |
|---|---|---|---|
| F.01U.286.259 | NUC-21012-F2 | IP MicroDome 720P Plus | FLEXIDOME IP micro 2000 HD |
| F.01U.286.260 | NUC-21002-F2 | IP MicroDome VGA Plus | FLEXIDOME IP micro 2000 IP |

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

**ENVIRONMENTAL TEST**

| **EN50130-5:1999 Alarm systems Part 5: Environmental test methods**<br>1) till 7) is Introduction | **Specific Test description**<br>**Class II, Indoor in general, fixed equipment.** | **Passed** |
|---|---|---|
| 8) Dry heat Operational IEC60068-2-2:1974 +A1:1993+ A2:1994 | Temp. +55°C, duration 16 hours.<br>**Note:** Tested at more severe condition, Temp. +70°C, duration 48 hours. | Yes |
| 9) Dry heat endurance IEC60068-2-2:1974 +A1:1993+ A2:1994 | No test for class II fixed product<br>**Note:** Covered by 13) | Yes |
| 10) Cold operational IEC60068-2-1:1990 +A1:1993+ A2:1994 | Temp. -10°C, duration 16 h<br>**Note:** Tested at more severe condition, Temp. -40°C, duration 48 hours. | Yes |
| 11) Temperature change operational IEC60068-2-14:1984 +A1:1986 | No test for class II fixed equipment.<br>Non operational 4 cycles -10°C to +30°C, fast changes, 2h stabilising,2 chamber method. | N.A. |
| 12) Damp heat, steady state operational IEC60068-2-2:1988 | No test for class II fixed product | N.A. |
| 13) Damp heat, steady state endurance IEC60068-2-3:1969+A1:1984 | Temp. 40°C, Relative humidity 93%, duration 21 days<br>**Note:** Tested at more severe condition, Temp. 70°C, Relative humidity 95%, duration 21 days | Yes |
| 14) Damp heat, cyclic operational IEC60068-2- | Temp. 25°C ~40°C, Relative humidity 93%, 2 | Yes |

| | | |
|---|---|---|
| 30:1980+A1:1985 | cycles<br>**Note:** Tested at more severe condition, Temp. 25°C~55°C, Relative humidity 95%, 6 cycles | |
| 15) Damp heat, cyclic endurance IEC60068-2-30:1980+A1:1985 | Temp. 25°C ~55°C, Relative humidity 93%, 6 cycles<br>**Note:** Covered by 14) | Yes |
| 16) Water ingress (operational) | No test for class II fixed product | N.A. |
| 17) Sulphur Dioxide $SO_2$ endurance IEC60068-2-42:1982 | Sulphur Dioxide 25 ppm, Temperature 25°C, Humidity 93%, Duration 4 days | Yes |
| 18) Salt mist, cyclic endurance IEC60068-2-52:1996 | No test for class II fixed product | N.A. |
| 19) Shock operational IEC60068-2-27:1987 | Half sine wave 6 ms, A =1000-(200xM)m/s², 3 number of shocks, 3 pulses per direction. | Yes |
| 20) Impact operational IEC60068-2-75:1997 | Impact energy 0.5 Joule , 3 impacts per point | Yes |
| 21) Free fall operational IEC60068-2-32:1975 +A1:1982+A2:1990 | No test for class II fixed product | N.A. |
| 22) Vibration sinusoidal operational IEC60068-2-6:1995 | Freq. Range 10-150Hz, 5m/s², 3 axes, sweep rate 1 octave/m 1 sweep/axis<br>**Note:** Tested at more severe condition, Freq. Range 10-150Hz, 10m/s², 3 axes, sweep rate 1 octave/min 20 sweep/axis | Yes |
| 23) Vibration sinusoidal endurance IEC60068-2-6:1995 | Freq. Range 10-150Hz, 10m/s², 3 axes, sweep rate 1 octave/min 20 sweep/axis<br>**Note:** Covered by 23) | Yes |
| 24) Simulated solar radiation Temperature rise operational | No test for class II fixed product<br>Alternative for test dry heat (operational) 40°C, 2x24h. NOT applicable | N.A. |
| 25) Simulated solar radiation Surface degradation | No test for class II fixed product<br>Temperature 40°C, duration 10 days<br>Irradiance 1120 W/m² | N.A. |
| 26) Dust tightness endurance | This product is not a specific enclosure to protect ingress of dust. Optical path is tested to IP5X. | Yes |

**ADDITIONAL ENVIRONMENTAL – FUNCTIONAL BOSCH TESTS**

| Environmental test methods | Specific Test description | Passed |
|---|---|---|
| Cold Endurance IEC60068-2-1:1990 +A1:1993+ A2:1994 | Temp -40°C, Duration 96h | N.A. |
| Simulated solar radiation: ISO 11341:2004 method 2, cycle C | Irradiance: 50W/m2 @ 300~400nm<br>Continuous light at (63+/-2)°C BPT, (50+/-10)% RH | N.A. |
| MTBF calculation of used components | Based on Siemens SN 29500 or FIT figures manufacture. Theoretical MTBF = 656,625 hrs | Yes |
| HALT (Highly Accelerating Life Test) | Overstress test to Fail<br>Operational, Temp. -40°C to +80°C, fast changes. | Yes |
| Type plate test | Rubbing by hand with water and 95% industrial alcohol, Duration 15s. | Yes |
| Vandalism proof test | Energy 50J tested with sphere 50mm diameter and weight 500g. Height 10m. Other big sphere dimensions 100mm.<br>On ALL touchable outside places | N.A. |
| Hot spots on components. | With Infra red scanner at room temperature Tamb. 25 ±5 °C | Yes |
| Temperature of Hot spots components | With thermocouples at room temperature Tamb. 25 ±5 °C | Yes |
| Bump Non operating | IEC 60068-2-29 test Eb 10g, 16ms,<br>3 axes x 1000 times. | Yes |
| Cold start test | At -40°C | Yes |
| **Transport tests acc. AV18-Q0681** | | |
| 1.ISTA-2A:2011 | Following with specification of ISTA-2A | Yes |
| 2. Vibration test | Freq. 7Hz, 5.3 mm(= 1.05g), 30 min each side, 3 directions | Yes |
| 3. Drop test after vibration test 10 drops. | Height depending of weight of product. | Yes |

## Approvals Safety, EMC and Environmental

| **EMC Europe** | **Description** | **Passed** |
|---|---|---|
| EN 55022:2010 / AC:2011, Class B | Information Technology Equipment- Radio disturbance characteristics Limits and Methods of measurement. | Yes |
| EN 50130-4:2011 | Part 4: Electromagnetic compatibility - Product family standard: Immunity requirements for components of fire, intruder and social alarm systems. | Yes |
| EN 61000-3-2:2006+A1:2009+A2:2009 | Mains harmonics<br>Part 3-2: Limits - Limits for harmonic current emissions | Yes |
| EN 61000-3-3:2008 | Voltage fluctuations<br>Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems | Yes |
| EN 50121-4: 2006 / AC: 2008 | Railway applications EMC | Yes |
| EN 50121-3-2: 2006/ AC: 2008 | Railway applications EMC | Yes |
| **EMC USA** | | **Passed** |
| CFR 47 FCC part 15 Class B | Conducted + Radiated Emission based on VERIFICATION procedure | Yes |
| **Australian**<br>AS/NZS CISPR 22 equal to CISPR 22 | Product market with BOSCH supplier code N663 | Yes |
| **EMC Japan**<br>VCCI: V-2/2012.04 & V-3/2012.04 | Japan EMC certification | Yes |
| **Safety Europe** | | |
| EN 60950-1: 2006+ A11: 2009+ A1: 2010+ A12: 2011 | Information technology equipment — Safety — Part 1: General requirements | Yes |
| **Safety USA + Canada** | | |
| UL 60950-1<br>CSA-C22.2 No.E60950-1-07 | Information technology equipment — Safety — Part 1 | Yes |
| **Environmental** | | |
| Prohibited and declarable substances in products, components, materials and preparations. | Manufacturer's declaration database based on N2580-1. | Yes |
| Restriction of Hazardous Substances | RoHS compliant | Yes |

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

Data subject to change without notice.
Eindhoven, November 2014.