

TO WHOM IT MAY CONCERN

Bosch Security Systems
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Eindhoven
5617 BA
The Netherlands
AT18-Q1616

Product Test report

Product name: **FLEXIDOME IP micro 5000**

Model numbers:

Material No.	CTN	Description	Product Name
F.01U.286.255	NUC-51022-F2	IP MicroDome 1080p UW-FOV IP66 Plus	FLEXIDOME IP micro 5000 HD
F.01U.286.257	NUC-51051-F2	IP MicroDome 5M UW-FOV IP66 Plus	FLEXIDOME IP micro 5000 MP
F.01U.287.878	NUC-51022-F4	IP MicroDome 1080p IP66 Plus	FLEXIDOME IP micro 5000 HD
F.01U.287.895	NUC-51051-F4	IP MicroDome 5M IP66 Plus	FLEXIDOME IP micro 5000 MP

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	Specific Test description	Passed
1) till 7) is Introduction	Class III, Outdoor but sheltered from direct rain and sunshine, or indoor with extreme environmental conditions, fixed equipment.	
8) Dry heat Operational IEC60068-2-2:1974 +A1:1993+ A2:1994	Temp. +55°C, duration 16 hours. 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	Temp. +70°C, duration 21 days. Note: Covered by 13)	Yes
10) Cold operational IEC60068-2-1:1990 +A1:1993+ A2:1994	Temp. -25°C, duration 16 h 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 III fixed product Non operational 4 cycles -25°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 III 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 Note: Tested at more severe condition, Temp. 70°C, Relative humidity 95%, duration 21 days	Yes
14) Damp heat, cyclic operational IEC60068-2-30:1980+A1:1985	Temp. 25°C ~55°C, Relative humidity 93%, 2 cycles	Yes

	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 Note: Covered by 14)	Yes
16) Water ingress (operational)	IEC60529 IPX2 Note: Tested at more severe condition, IPX6	Yes
17) Sulphur Dioxide SO ₂ endurance IEC60068-2-42:1982	Sulphur Dioxide 25 ppm, Temperature 25°C, Relative humidity 93%, Duration 10 days Note: Tested at more severe condition, SO ₂ 25 ppm, Temp. 25°C, Relative humidity 93%, Duration 21 days	Yes
18) Salt mist, cyclic endurance IEC60068-2-52:1996	No test for class III fixed product Note: Tested at more severe condition, Total duration 28 days, 4 cycles. Salt mist exposure: 5%, Temp. 15-35°C, Duration 2h. Damp heat exposure: NaCl, Temp. 40°C, Hum. 93%, duration per cycle 166h	Yes
19) Shock operational IEC60068-2-27:1987	Half sine wave 6 ms, A =1000-(200xM)m/s ² , 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 Note: Tested at more severe condition, Impact energy 5 Joule , 3 impacts per point	Yes
21) Free fall operational IEC60068-2-32:1975 +A1:1982+A2:1990	No test for class III fixed product	N.A.
22) Vibration sinusoidal operational IEC60068-2-6:1995	Freq. Range 10-150Hz, 5m/s ² , 3 axes, sweep rate 1 octave/m 1 sweep/axis Note: Tested at more severe condition, Freq. Range 10-150Hz, 10m/s ² , 3 axes, sweep rate 1 octave/min 20 sweep/axis	Yes
23) Vibration sinusoidal endurance IEC60068-2-6:1995	Freq. Range 10-150Hz, 10m/s ² , 3 axes, sweep rate 1 octave/min 20 sweep/axis Note: Covered by 23)	Yes
24) Simulated solar radiation Temperature rise operational	No test for class III fixed product Alternative for test dry heat (operational) 40°C, 2x24h.	N.A.
25) Simulated solar radiation Surface degradation	No test for class III fixed product Temperature 40°C, duration 10 days Irradiance 1120 W/m ²	N.A.
26) Dust tightness endurance	IP6X	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/m ² @ 300-400nm 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 = 648,797 hrs	Yes
HALT (Highly Accelerating Life Test)	Overstress test to Fail 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. 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, 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 Part 3-2: Limits - Limits for harmonic current emissions	Yes
EN 61000-3-3:2008	Voltage fluctuations 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
E-Mark E24	ECE R10	Yes
EMC USA		Passed
CFR 47 FCC part 15 Class B	Conducted + Radiated Emission based on VERIFICATION procedure	Yes
Australian AS/NZS CISPR 22 equal to CISPR 22	Product market with BOSCH supplier code N663	Yes
EMC Japan 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 and UL 60950-22 CSA-C22.2 No.E60950-1-07, 2 nd , 2011	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.