

TO WHOM IT MAY CONCERN

Bosch Security Systems
Torenallee 49
5617 BA Eindhoven
The Netherlands
AT18-Q1616

Product Test Report

Product name: **BOSCH FLEXIDOME IP panoramic 5000 MP /**
Model numbers: **Outdoor NUC-52051-F0E**

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 >>class IV, outdoor in general , fixed equipment>>	Passed
1) till 7) is Introduction		
8) Dry heat Operational IEC60068-2-2:1974 +A1:1993+ A2:1994	Temp. +70°C (158°F), duration 16 hours.	Yes
9) Dry heat endurance IEC60068-2-2:1974 +A1:1993+ A2:1994	Temp. +70°C (158°F), duration 21 days.	Yes
10) Cold operational IEC60068-2-1:1990 +A1:1993+ A2:1994	Temp. -25°C (-13°F), duration 16 hrs. Note: Tested at more severe -40°C (-40°F).	Yes
11) Temperature change operational IEC60068-2-14:1984 +A1:1986	Only for portable equipment, no test for fixed equipment.	N.A.
12) Damp heat, steady state operational IEC60068-2-2:1988	No test for class IV product.	N.A.
13) Damp heat, steady state endurance IEC60068-2-3:1969+A1:1984	Temp. +40°C (104°F), Relative humidity 93%, duration 21 days. Note: Tested at more severe with relative humidity 95%	Yes
14) Damp heat, cyclic operational IEC60068-2-30:1980+A1:1985	Temp. +20°C ~ +55°C (68°F to 131°F), Relative humidity 93%, 2 cycles, 24hrs/cycle.	Yes
15) Damp heat, cyclic endurance IEC60068-2-30:1980+A1:1985	Temp. +20°C ~ +55°C (68°F to 131°F), Relative humidity 93%, 6 cycles, 24hrs/cycle.	Yes
16) Water ingress (operational)	IEC60529 IPX6 Note: Tested at IEC60529 IPX6 with an installed camera unit (mounted on a board).	Yes
17) Sulphur Dioxide SO ₂ endurance IEC60068-2-42:1982	Sulphur Dioxide 25 ppm, Temperature 25°C, Relative humidity 93%, Duration 21 days	Yes

18) Salt mist, cyclic endurance IEC60068-2-52:1996	Total 28 days, 4 cycles. Salt mist exposure: 5%, Temp. +15°C ~ 35°C, Duration 2hr/cycle. Damp heat exposure: NaCl, Temp. 40°C, Hum. 93%, duration 166hr/cycle.	Yes
19) Shock operational IEC60068-2- 27:1987	Half sine wave 6 ms, A =1000-(200xM)m/s ² , 6 number of shocks, 3 pulses per direction.	Yes
20) Impact operational IEC60068-2- 75:1997	Impact energy 1.0 Joule , 3 impacts per point Note: Tested at more severe IK10, 20 Joule	Yes
21) Free fall operational IEC60068-2- 32:1975 +A1:1982+A2:1990	No test for Fixed equipment	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 with 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	Yes
24) Simulated solar radiation Temperature rise operational	Temperature: + 25 °C ~ + 40 °C, 2 days Irradiance: 1120Wm ⁻² at 300~3000nm	Yes
25) Simulated solar radiation Surface degradation	Temperature: + 25 °C ~ + 40 °C, 10 days Irradiance: 1120Wm ⁻² at 300~3000nm	Yes
26) Dust tightness endurance	IEC60529 IP6X	Yes

ADDITIONAL ENVIRONMENTAL – FUNCTIONAL BOSCH TESTS

Environmental test methods	Specific Test description	Passed
MTBF calculation of used components	Based on: Siemens SN 29500, or FIT figures manufacturer. Theoretical MTBF = 930,343 hrs	Yes
FMEA (failure Mode and Effect Analysis)	Design and Process analyses based on Bosch template.	Yes
HALT (Highly Accelerating Life Test)	Overstress test to Fail, Operational, Temp. -50°C to +100°C, fast changes.	Yes
Type plate test	Rubbing by hand with water+ 95% industrial alcohol, during 15s.	Yes
Hot spots on components.	With Infra red scanner at room temperature Tamb. 20 ±5 °C (+68°F).	Yes
Temperature of Hot spots components	With thermocouples at room temperature Tamb. 50° ±5 °C (+122°F).	Yes
Bump Non operating	IEC 60068-2-29 test Eb 10g, 16ms, 3 x 1000 times.	N.A.
Cold start test	At -40°C(-40°F).	Yes

Transport tests acc. AV18-Q0681		
1. Conditioning	Pre-conditioning: Temp. +25°C, 43%RH, Duration 6 hours. Conditioning: Temp. +38°C, 85%RH, Duration 72 hours. Temp. +60°C, 30%RH, Duration 6 hours.	Yes
2. Compression	Top to Bottom, Apply and Hold, Duration 60min. Calculated test load = 972 lbs	
3. First vibration test	Frequency 232CPM, Duration 62 min. ; Number of Impact (cycle): 14200 cycles	Yes
4. Drop test after 1 st vibration test	Height depending of weight of product. Drop height (inch): 32; drop times: 10	Yes
5. Second vibration test	Frequency 232CPM, Duration 62 min. ; Number of Impact (cycle): 14200 cycles	Yes

Approvals Safety, EMC and Environmental

EMC Europe	Description	Passed
EN 55022:2010/ AC: 2011 EN 55024: 2010	Information Technology Equipment- Radio disturbance characteristics Limits and Methods of measurement. Class B	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 50121-4: 2006/ AC: 2008	Railway EMC	Yes
EN 61000-3-2:2006+A1:2009+A2:2009.	Mains harmonics Part 3-2: Limits - Limits for harmonic current emissions	Yes
EN 61000-3-3:2013.	Voltage fluctuations Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems.	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
Japan VCCI: V-2/2012.04&V-3/2013.04	EMC certification for Japan.	Yes
Safety Europe		Passed
EN 60950-1:2006+A11:2009+A1:2010 +A12:2011+A2:2013 EN 60950-22: 2006+ A11: 2008	Information technology equipment — Safety — Part 1: General requirements	Yes

Safety USA + Canada		Passed
UL 60950-1 & -22 CAN/CSA-C22.2 No.60950-1 & -22	UL listing + cUL listing. First edition dated April 1, 2003. Information technology equipment — Safety — Part1: General requirements	Yes
Environmental		Passed
Prohibited and declarable substances in products, components, materials and preparations.	Bosch internal environmental standard. Manufacturer's declaration database based on N 2580-1.	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, July 2015.