TO WHOM IT MAY CONCERN

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

Product Test report

Product name:

BOSCH FLEXIDOME IP indoor 4000 HD/IR
BOSCH FLEXIDOME IP indoor 5000 HD/MP/IR

Model numbers:

Material No.	CTN	Description	
F.01U.296.217	NIN-41012-V3	IP Dome 720p indoor	FLEXIDOME IP indoor 4000 HD
F.01U.296.218	NII-41012-V3	Infrared IP Dome 720p indoor	FLEXIDOME IP indoor 4000 IR
F.01U.296.213	NIN-51022-V3	IP Dome 1080p indoor	FLEXIDOME IP indoor 5000 HD
F.01U.296.214	NII-51022-V3	Infrared IP Dome 1080p indoor	FLEXIDOME IP indoor 5000 IR
F.01U.302.967	NIN-50022-A3	IP Dome 1080p indoor AVF	FLEXIDOME IP indoor 5000 HD
F.01U.302.968	NII-50022-A3	Infrared IP Dome 1080p indoor AVF	FLEXIDOME IP indoor 5000 IR
F.01U.296.215	NIN-50051-A3	IP Dome 5M indoor AVF	FLEXIDOME IP indoor 5000 MP
F.01U.296.216	NII-50051-A3	Infrared IP Dome 5M indoor AVF	FLEXIDOME IP indoor 5000 IR

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 1) till 7) is Introduction	**Specific Test description >>class II, indoor in general , fixed equipment>>**	**Passed**
8) Dry heat (Operational) IEC60068-2-2:1974 + A1:1993 + A2:1994	Temp. +55°C (131°F), Duration 16 hours. Note: Tested at more severe condition: +70°C (158°F)	Yes
9) Dry heat (Endurance) IEC60068-2-2:1974 + A1:1993 + A2:1994	Not test for class II product.	N.A.
10) Cold operation (Operational) IEC60068-2-1:1990 + A1:1993 + A2:1994	Temp. -10°C (14°F), Duration 16 hours. Note: Tested at more severe condition: -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 II 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.	Yes

14) Damp heat, cyclic (Operational) IEC60068-2-30:1980 + A1:1985	Temp. +25°C~+40°C (77°F~104°F), Relative humidity 93%, 24 hr/cycle, 2 cycles. Note: Tested at more severe condition: Temp. +25°C~+55°C (77°F~131°F), Relative humidity 95%, 24 hr/cycle, 6 cycles.	Yes
15) Damp heat, cyclic (Endurance) IEC60068-2-30:1980 + A1:1985	No test for class II product.	N.A.
16) Water ingress (Operational) IEC60529 Edition 2.2: 2013	No test for class II product.	N.A.
17) Sulphur Dioxide SO_2 (Endurance) IEC60068-2-42:1982	Sulphur Dioxide 25 ppm, Temp. 25°C (77°F), Relative humidity 93%, Duration 4 days	N.A.
18) Salt mist, cyclic (Endurance) IEC60068-2-52:1996	Not test for class II product.	N.A.
19) Shock (Operational) IEC60068-2-27:1987	Half sine wave 6 ms, Acceleration = 100G, Shock direction ±X ±Y ±Z, 3 shocks/axis.	Yes
20) Impact (Operational) IEC60068-2-75:1997	Impact energy 0.5 Joule , 3 impacts per point Note: Tested at IK04	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, 5 m/s², X Y Z axes, Sweep rate 1 octave/min, 1 sweep/axis Note: Tested at more severe condition: Freq. Range 10~150Hz, 10 m/s², X Y Z axes, Sweep rate 1 octave/min, 20 sweep/axis	Yes
23) Vibration sinusoidal (Endurance) IEC60068-2-6:1995	Freq. Range 10~150Hz, 10 m/s², X Y Z axes, Sweep rate 1 octave/min, 20 sweep/axis Note: Covered by 22)	Yes
24) Simulated solar radiation Temperature rise (Operational) IEC60068-2-5 Edition 2.0: 2010, Procedure A	No test for class II product.	N.A.
25) Simulated solar radiation Surface degradation (Endurance) IEC60068-2-5 Edition 2.0: 2010, Procedure C	No test for class II product.	N.A.
26) Dust tightness (Endurance) IEC60529 Edition 2.2: 2013	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
MTBF calculation of used components	Based on: Siemens SN 29500, or FIT figures manufacturer. Theoretical MTBF = 892,337 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, LOL = -40°C (-40°F), HOL = +80°C (176°F), Vibration OL > 50Grms Combined Environment Stress: Temp. -40°C~+80°C (-40°F~176°F), with 4/8/12/16/20/25 Grms for each cycle.	Yes
Type plate test	Rubbing by hand with water and 95% industrial alcohol, Duration 15s.	Yes
Hot spots on components.	With Infra red scanner at room temperature Temp. 25 ±5 °C (+77°F).	Yes
Temperature of Hot spots components	With thermocouples at room temperature Temp. 50 ±5 °C (+122°F).	Yes
Bump Non operating IEC 60068-2-27 Ea	Half sine wave, Acceleration 10G, Duration 16ms, 1 bump/sec, 1000 bumps/axis, X,Y,Z axes, total 6000 bumps	N.A.
Cold start test	At -40°C(-40°F).	Yes
Transport tests acc. AV18-Q0681 **ISTA-2A: 2011**		
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 1st 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
IEC 62471: 2008 (Only for IR version)	Eye Safety	Yes
Safety USA + Canada		**Passed**
UL 60950-1 & -22 CAN/CSA-C22.2 No.E60950-1 & -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, June 2015.