TO WHOM IT MAY CONCERN

Bosch Security Systems
<< 4/F. N0. 90, Jian Guo North Road
Sec 1, Taipei 10491
Taiwan >>>
<<AT18-Q1616>>

Product Test report

Product name: Flexidome IP outdoor 5000
Model numbers: **NDN-50022-V3**
NDN-50051-V3
NDI-50022-V3
Product description: **IP Dome 1080p IP66**
IP Dome 5M IP66
Infrared IP Dome 1080p IP66

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 IV fixed equipment**	**Passed**
8) Dry heat Operational IEC60068-2- 2:1974 +A1:1993+ A2:1994	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.	Yes(combined with test 13), function works)
10) Cold operational IEC60068-2-1:1990 +A1:1993+ A2:1994	Temp. -40°C, duration 48 h	Yes
11) Temperature change operational IEC60068-2-14:1984 +A1:1986	Non operational 5 cycles -40°C to +70°C, fast changes, 2h stabilising,2 chamber method.	NA
12) Damp heat, steady state operational IEC60068-2-2:1988	No test but covered by test 14.	Yes
13) Damp heat, steady state endurance IEC60068-2-30	Temp. 25°C - +55°C, Relative humidity 95%, duration 21 days	Yes
14) Damp heat, cyclic operational IEC60068-2-30:1980+A1:1985	Temp. +55°C, 2 cycles	Yes
15) Damp heat, cyclic endurance IEC60068-2-30:1980+A1:1985	Temp. 55 °C, 6 cycles	Yes

16) Water ingress	IEC60529 IPX6	Yes
17) Sulphur Dioxide SO_2 endurance IEC60068-2-42:1982	Sulphur Dioxide 25 ppm, Temperature 25°C, Humidity 93%, Duration 21 days	Yes (function works)
18) Salt mist, cyclic endurance IEC60068-2-52:1996	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 (function works)
19) Shock operational IEC60068-2-27:1987	Half sine wave 6 ms, A =1000-(200xM)m/s², 6 number of shocks, 3 pulses per direction.	Yes
20) Impact operational IEC60068-2-75:1997	Impact energy 20 Joule , 3 impacts per point	Yes
21) Free fall operational IEC60068-2-32:1975 +A1:1982+A2:1990	No test for Fixed equipment	NA
22) Vibration sinusoidal operational IEC60068-2-6 Edition 7.0 2007	Freq. Range 10-150Hz, 5m/s², 3 axes, sweep rate 1 octave/m 1 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	Yes
24) Simulated solar radiation Temperature rise operational	Alternative for test dry heat (operational) 40°C, 2x24h. NOT applicable	NA
25) Simulated solar radiation Surface degradation	Temperature 40°C, duration 10 days Irradiance 1120 W/m²	NA
26) Dust tightness endurance	IP6X	Yes

ADDITIONAL ENVIRONMENTAL – FUNCTIONAL BOSCH TESTS

Environmental test methods	**Specific Test description**	**Passed**
NEMA 4X	UL50 test: • hose down • protective coating • corrosive resistance • Icing • Gasket => aging test • Gasket test	NA
Cold Endurance IEC60068-2-1:1990 +A1:1993+ A2:1994	Temp -40°C, Duration 96h	NA
MTBF calculation of used components	Based on : Siemens SN 29500 or FIT figures manufacturer. Theoretical MTBF > 914,282 hrs	Yes
Design Maturity Test	Life test at 25°C	NA
HALT (Highly Accelerating Life Test)	-40°C to +75°C with 5 Grms to 30 Grms	Yes
Decorative surface test	UN-D 1225/01 : 25 rubbings by hand on stickers • Boiling point spirit 100- 140 °C Ethanol 96 % with 5% methanol.	NA

Type plate test	IEC60065 par.5 Rubbing water+ Petroleum spirit 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	NA
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. 50 ±5 °C	Yes
Bump Non operating	IEC 60068-2-29 test Eb 10g, 16ms, 3 x 1000 times.	NA
Wind speed	Wind speed 30 m/s. On oscillation speed max 5 min.	NA
Cold start test	At -40°C	Yes
Transport tests acc. AV18-Q0681		
1. Vibration test	250 CPM, 1/16 inch leave surface, 14200 impacts	Yes
2. Drop test before vibration test 10 drops.	Height depending of weight of product.	Yes

Approvals Safety, EMC and Environmental

EMC Europe	**Description**	**Passed**
EN 55022:2010.	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 61000-3-2: 2006+ A1: 2009+ A2: 2009	Mains harmonics Part 3-2: Limits - Limits for harmonic current emissions	Yes
EN 50121-4: 2006	Railway applications EMC	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
Brown out supply voltage test. Supply voltage down and slowly back to nominal voltage. The DUT must be functioning at normal supply voltage.	Supply voltage 24VAC and 120VAC 230VAC must be linear lowered till 0V and back linear to nominal voltage during 2 min.	NA

EMC Japan VCCI: V-2/2012.04 & V-3/2013.04	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 CAN/CSA-C22.2 No.E60950-1-07 cUL 60950-22 First Edition	UL listing + cUL listing. First edition dated April 1, 2003. Information technology equipment — Safety — Part 1: General requirements	Yes
Environmental		
Prohibited and declarable substances in products, components, materials and preparations.	Manufacturer's declaration database based on N 2580-1.	Yes
Restriction of Hazardous	ROHS complaint	Yes

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

Data subject to change without notice.

<< Taipei>> << November 2014>>