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Product Test Report

Product Name: Bosch FLEXIDOME 5000 Camera

Model Numbers:

CTN	Description
VDN-5085-V311	1/3" CCD, 960 H, WDR, True Day/Night, PAL, 12 VDC / 24 VAC, 50Hz, 2.8~10.5mm F1.2, Vandal Proof
VDN-5085-V321	1/3" CCD, 960 H, WDR, True Day/Night, NTSC, 12 VDC / 24 VAC, 60Hz, 2.8~10.5mm F1.2, Vandal Proof
VDN-5085-VA11	1/3" CCD, 960 H, WDR, True Day/Night, PAL, 12 VDC / 24 VAC, 50Hz, 18~50mm F1.6, Vandal Proof
VDN-5085-VA21	1/3" CCD, 960 H, WDR, True Day/Night, NTSC, 12 VDC / 24 VAC, 60Hz, 18~50mm F1.6, Vandal Proof
VDN-5085-V911	1/3" CCD, 960 H, WDR, True Day/Night, PAL, 12 VDC / 24 VAC, 50Hz, 9~22mm F1.4, Vandal Proof
VDN-5085-V921	1/3" CCD, 960 H, WDR, True Day/Night, NTSC, 12 VDC / 24 VAC, 60Hz, 9~22mm F1.4, Vandal Proof

The above mentioned Bosch Security System 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>>	Comments	Passed
Damp heat, steady state test	Temp. +40°C, 93%RH, 21D		Yes
Dry heat test	Temp. +55°C, 16H 16 hours operation + 20days and 8 hours endurance		Yes
Thermal change test	-25°C with 1H, 30°C with 1H, Temp change time 2 to 3 min; 4 cycles		Yes
Damp heat, cyclic test	25°C to 55 °C, (93~96) %RH, 6 Cycles		Yes
Mechanical shock test IEC 60068-2-27 Ea: 2008	Half-sine Waveform, 850m/s ² (A = 100- 200×M, M=0.75kg), Pulse Duration 6ms, ±X, ±Y, ±Z axes , 3 times/direction		Yes
Sinusoidal vibration test IEC 60068-2-6 Fc: 2007	(10 ~ 150) Hz, 10 m/s ² , 1 Oct/min , X, Y, Z axis, 2.6 h/axis, total 7.8 h, Non-Operation		Yes
Sinusoidal vibration test IEC 60068-2-6 Fc: 2007	(10 ~ 150) Hz, 5 m/s ² , 1 Oct/min , X, Y, Z axis, 0.13 h/axis, total 0.39 h, Operation		Yes

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Drop test IEC 60068-2-31 Ec: 2008	1m, Armor plate, 6 faces, total 6 drops		Yes
Dustproof test IP6x	Talcum powder, 2kg/m ³ , 8 hours		Yes
Waterproof test IPx6	Internal diameter of the nozzle: 12.5mm, 100L/min±5%, 2.5m~3m Distance, 3min duration		
Impact (operational) Test	1J (IK06)		Yes
Impact Test IEC 62262-2002	20J (IK10), Combined mass of the striking element 5kg, Height of fall 400mm,		Yes
Sulphur dioxide (SO ₂) endurance test	25ppm, 21D		Yes
Cyclic corrosion testing	① Salt spray Concentration of salt solution: 5% NaCl (m/m) Chamber temperature: (15~35)°C pH of salt solution at (25±2)°C: 6.5~7.2 Exposure period: 2h ② humidity, 40°C, 93% RH, 166h. ①~②as one cycle, total 4 cycles		Yes
Xenon-arc Exposure test to ISO 11341:2004 and ISO 105- A02:1993 Cor2:2005	Test cycle: ISO 11341:2004 method 2, cycle C Irradiance: 50W/m ² @300~400nm Continuous light at (63±2)°C BPT, (50±10)% RH Filter: Window Exposure period: 500h		Yes
Icing test NEMA-250-2008 5.6 clause	Adjust the chamber air temperature to the lower of either -7°C and maintain the water spray rate until a minimum of 25.4 mm (1 in) of ice has accumulated on the appropriate surfaces.		Yes
Transfort test acc. AV18-Q0681			
Sinusoidal vibration test AV18 –Q0681: 2004 Section 8.1	7Hz, 5.3mmp-p, 1.05g, X, Y, Z axis, 30min/axis, total 90min		Yes
Drop test to AV18-Q0681: 2004 Section 8.2	0.7m, Armor plate, 1 corner, 3 edges, and 6 faces, total 10 drops, 9.63Kg		Yes

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Compression test AV18-Q0681: 2004	10mm/min, 5min, 400N	Yes
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ADDITIONAL ENVIRONMENTAL – FUNCTIONAL BOSCH TESTS

Environmental test methods	Specific Test description	Comments	Passed
MTBF calculation of used components Based on: for electronics. Siemens SN29500. or based on FIT number of manufacturer	Flexidome (Flexidome 5000): 108.74 Year @25°C		Yes
HALT (Highly Accelerating Life Test)	overstress test to Fail		Yes
FMEA			Yes
Hot spots on components, Thermocouples	At room temperature Tambient 55°C		Yes

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ADDITIONAL CERTIFICATION

Specific Approval	Description	Comments	Passed
EMC Europe			
EN55022:2010	Information Technology Equipment- Radio disturbance characteristics Limits and Methods of measurement		Yes
EN61000-3-2:2006+A1:2009+A2:2009	Mains harmonics Part 3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase)		Yes
EN61000-3-3:2008	Voltage fluctuations Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current <= 16 A per phase and not subject to conditional connection.		Yes
EN50130-4:2011	Part 4: Electromagnetic compatibility - Product family standard: Immunity requirements for components of fire, intruder and social alarm systems.		Yes

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EN50121-4:2006	Railway applications – Electromagnetic compatibility Part 4: Emission and immunity of the signaling and telecommunications apparatus		Yes
EMC USA			
FCC 47 CFR PART 15, Subpart B: 2012	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
Safety Europe			
EN60950-1: 2006+A11:2009+A1:2010+A12:2011	Information technology equipment — Safety — Part 1: General requirements		Yes
Safety USA + Canada			
UL 60950-1, 2nd Edition:2011; CSA- C22.2 No.60950-1-07, 2nd edition 2011	UL listing + cUL listing. Information technology equipment — Safety — Part 1: General requirements		Yes
Environmental			
Restriction of Hazardous Substances	ROHS complaint		Yes
Prohibited and declarable substances in products, components, materials and preparations.	Manufacturer’s declaration database based on N 2580-1.		Yes

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The products is produced by a manufacturing organisation which is certified on ISO9001 and ISO14001 standards.

Data subject to change without notice.

May 27th, 2013