 <b>BOSCH</b> Bosch Security Systems 20 Ji Chang Bei Road, Zhuhai, China	Product Test Report –	Version: 1.0
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## Product Test Report

**Product Name:** Bosch DINION 4000 and DINION 5000 Camera


**Model Numbers:**

CTN	Description
VBN-4075-C11	1/3" CCD, 960 H, True Day/Night, PAL, 12 VDC / 24 VAC, 50Hz
VBN-4075-C21	1/3" CCD, 960 H, True Day/Night, NTSC, 12 VDC / 24 VAC, 60Hz
VBC-4075-C11	1/3" CCD, 960 H, Electrical Day/Night, PAL, 12 VDC / 24 VAC, 50Hz
VBC-4075-C21	1/3" CCD, 960 H, Electrical Day/Night, NTSC, 12 VDC / 24 VAC, 60Hz
VBN-4075-C51	CAM 1/3" 960H True D/N, PAL, 230VAC, 50Hz
VBC-4075-C51	CAM 1/3" 960H Electrical D/N, PAL, 230VAC, 50Hz
VBN-5085-C11	1/3" CCD, 960 H, WDR, True Day/Night, PAL, 12 VDC / 24 VAC, 50Hz
VBN-5085-C21	1/3" CCD, 960 H, WDR, True Day/Night, NTSC, 12 VDC / 24 VAC, 60Hz
VBN-5085-C51	1/3" CCD, 960 H, WDR, True Day/Night, PAL, 230 VAC, 50Hz

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 II >>	Comments	Passed
Damp heat, steady state test	Temp. +40°C, 93%RH, 21D		Yes
Dry heat test	Temp. +55°C, 16H		Yes
Thermal change test	-10°C with 1H, 30°C with 1H, Temp change time 2 to 3 min; 4 cycles		Yes
Damp heat, cyclic test	25°C to 40 °C, (93~96) %RH, 6 Cycles		Yes
Mechanical shock test IEC 60068-2-27 Ea: 2008	Half-sine Waveform, 900m/s <sup>2</sup> (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 <sup>2</sup> , 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 <sup>2</sup> , 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 <sup>3</sup> , 8 hours		Yes
Impact (operational) Test	0.5J (IK04)		Yes
Impact Test IEC 62262-2002	1J (IK06)		Yes
Sulphur dioxide (SO <sub>2</sub> ) 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
<b>Transfort test acc. AV18-Q0681</b>			
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	0.8m, Armor plate, 1 corner, 3 edges, and 6 faces, total 10 drops, 6.5Kg		Yes
Compression test AV18-Q0681: 2004	10mm/min, 5min, 2200N		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	Midline Dinion (Dinion 4000): 140.65 Year @25°C Highline Dinion (Dinion 5000): 119.04 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

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Specific Approval	Description	Comments	Passed
<b>EMC Europe</b>			
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
EN50121-4:2006	Railway applications – Electromagnetic compatibility Part 4: Emission and immunity of the signaling and telecommunications apparatus		Yes
<b>EMC USA</b>			
FCC 47 CFR PART 15, Subpart B: 2012	Conducted + Radiated Emission based on VERIFICATION procedure	Not applied for high voltage (230VAC) camera	Yes
<b>Australian</b>			
AS/NZS CISPR 22 equal to CISPR 22	Product market with BOSCH supplier code N663		Yes
<b>Safety Europe</b>			
EN60950-1:2006+A11:2009+A1:2010+A12:2011	Information technology equipment – Safety – Part 1: General requirements		Yes

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<b>Safety USA + Canada</b>			
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	Not applied for high voltage (230VAC) camera	Yes
<b>Environmental</b>			
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 27<sup>th</sup>, 2013