

TO WHOM IT MAY CONCERN

Bosch Security Systems  
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 Lancaster  
 Pennsylvania, 17601  
 USA  
 30 Aug 2017

## Product Test report

Product name: **BOSCH AUTODOME IP 4000i**

Model number and description:

NDP-4502-Z12 PTZ dome camera with clear bubble and indoor pendant housing, 12x zoom, 1080p HD

NDP-4502-Z12C PTZ dome camera with clear bubble and indoor in-ceiling housing, 12x zoom, 1080p HD

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. Please note that for some tests, test conditions exceed the range that Bosch recommends for effective continuous operation of the camera.

Data subject to change without notice.

### ENVIRONMENTAL TEST

<b>EN50130-5:1999 Alarm systems Part 5: Environmental test methods</b>	<b>Specific Test description (Temperatures stated are outside of the camera housing)</b>	<b>Comments</b>	<b>Passed</b>
Dry heat Operational IEC60068-2-2:2007	Temp. +60°C, duration 48 hours.		Yes
Dry heat endurance IEC60068-2-2:2007	Temp. +60°C, duration 10 days.		Yes
Cold operational IEC60068-2-1:2007	-20°C, duration 48 hours.		Yes
Cold Endurance and Cold Start Test IEC 60068-2-1:2007	-20 °C, duration 96 hours perform cold start at end of test		Yes
Damp heat, steady state endurance IEC60068-2-78:2012	Temp. 40°C, Relative humidity 93%, duration 21 days		Yes
Damp heat, cyclic operational IEC60068-2-30:2005	16h @ 60C/95%RH to 6h @ 35C/85%, 5 Cycles total		Yes
IEC 60529 Ingress Protection Rating	Dust protected / Dust tight Dripping water / Water jets	NDP-4502-Z12: IP65 NDP-4502-Z12C: IP51	Yes
Shock operational	Half sine wave 11 ms, 10g,		Yes

IEC60068-2-27:2009	6 number of shocks, 3 pulses per direction.		
Vibration sinusoidal operational IEC60068-2-6:2008	Freq. Range 10-150Hz, 5m/s <sup>2</sup> , 3 axes, sweep rate 1 octave/min 1 sweep/axis		Yes
Vibration sinusoidal endurance IEC60068-2-6:2008	Freq. Range 10-150Hz, 10m/s <sup>2</sup> , 3 axes, sweep rate 1 octave/min 20 sweep/axis		Yes

#### **ADDITIONAL ENVIRONMENTAL – FUNCTIONAL BOSCH TESTS**

<b>Environmental test methods</b>	<b>Specific Test description</b>	<b>Comments</b>	<b>Passed</b>
MTBF calculation of used components	MTBF > 120,000 hours		Yes
Design Maturity Test	Life test at 25°C		Yes
HALT (Highly Accelerating Life Test)	overstress test to Fail		Yes
Sound level	<45dB		Yes
Transportation Vibration Test	ISTA-3A		Yes
Transportation Drop test	12 edges, 8 corner, 6 faces, height: 1 meter		Yes

#### **Approvals Safety, EMC and Environmental**

<b>EMC Europe</b>	<b>Description</b>	<b>Comments</b>	<b>Passed</b>
EN 55032:2012/AC:2013 (Class B)	Electromagnetic compatibility of multimedia equipment - Emission Requirements (CISPR 32:2015)		Yes
EN 50130-4:2011/A1:2014	Part 4: Electromagnetic compatibility - Product family standard: Immunity requirements for components of fire, intruder and social alarm systems		Yes
EN 61000-3-2:2014	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
<b>EMC USA</b>			<b>Passed</b>

CFR 47 FCC part 15 (Class B)	Conducted + Radiated Emission based on VERIFICATION procedure		Yes
<b>Safety Europe</b>			
EN 60950-1:2006/ A1:2010/ A11:2009/ A12:2011/ A2:2013	Information technology equipment — Safety — Part 1: General requirements		Yes
<b>Safety USA + Canada</b>			
UL 60950-1 (2 <sup>nd</sup> edition, 2014-10-14) CAN/CSA-C22.2 No. 60950-1-07, 2 <sup>nd</sup> edition, 2014-10	UL listing + cUL listing. First edition dated April 1, 2003. Information technology equipment — Safety — Part 1: General requirements		Yes
<b>Environmental</b>			
Prohibited and declarable substances in products, components, materials and preparations.	Manufacturer's declaration database based on N 2580-1.		Yes
Restriction of Hazardous Substances	RoHS compliant		Yes

### **Functional and specification test**

<b>Functional tests description</b>		<b>Comments</b>	<b>Passed</b>
Camera Performance	Refer to AUTODOME IP 4000i HD datasheet		Yes

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