

TO WHOM IT MAY CONCERN

Bosch Security Systems
Torenallee 49
5617 BA Eindhoven
The Netherlands

Product Test Report

BT-SC 2019-E-044

Products**FLEXIDOME IP turret 3000i IR**

F.01U.360.364	NTV-3502-F02L	Turret camera 2MP HDR 130° IK08 IR
F.01U.360.363	NTV-3502-F03L	Turret camera 2MP HDR 100° IK08 IR
F.01U.360.362	NTV-3503-F02L	Turret camera 5MP HDR 120° IK08 IR
F.01U.360.361	NTV-3503-F03L	Turret camera 5MP HDR 100° IK08 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.

EMC approvals

EMC EU	Description
EN 55032: 2015 / AC: 2016 EN 55024: 2010+ A1: 2015	Information Technology Equipment- Radio disturbance characteristics Limits and Methods of measurement. Class B
EN 50130-4: 2011+ A1: 2014	Alarm systems - Part 4: Electromagnetic compatibility - Product family standard: Immunity requirements for components of fire, intruder and social alarm systems.
EN 50121-4: 2016	Railway applications – Electromagnetic compatibility – Part 4: Emission and immunity of signaling and telecommunications apparatus.
EN 61000-3-2: 2014	Mains harmonics Part 3-2: Limits - Limits for harmonic current emissions
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.
EMC US	
CFR 47 FCC part 15 Class B	Code of Federal Regulations, Radio Frequency Devices, Unintentional Radiators. Radiated Emission based on verification procedure.
EMC Australia	
AS/NZS CISPR 32 equal to CISPR 32	Electromagnetic compatibility of multimedia equipment - Emission requirements. Compliance via EN 55032:2012, Product marked with RCM logo
EMC Japan	
VCCI: VCCI-CISPR 32: 2016	EMC certification for Japan.

Safety approvals

Safety EU	
EN 62368-1 (EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013)	Audio/video, Information and Communication technology equipment - Part 1: Safety requirements
IEC 62368-1 (IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013)	
IEC 62471: 2006 (Only for IR version) EN 62471: 2008 (Only for IR version)	Eye Safety
Safety USA + Canada	
UL62368-1 (UL 60950-1, 2nd Edition, 2019-05-09) CAN/CSA C22.2 No. 60950-1-07, 2nd Edition, 2014-10	Audio/video, Information and Communication technology equipment - Part 1: Safety requirements

Environmental approvals

Directive or standard	Description
RoHS EU, 2011/65/EU EN 50581:2012	Restriction of the use of certain hazardous substances (RoHS)
WEEE EU, 2012/19/EU	Waste Electrical and Electronic Equipment (WEEE)
Packaging EU, 94/62/EC (amended by 2014/12/EC)	Packaging and packaging waste
N2580-1 (Bosch standard)	Central directive Bosch-Norm N 2580-1: "Prohibition and declaration of substances" Bosch-Norm N 2580-1 regulates prohibited substances and those rated declarable in materials, and it is part of the requirements for materials.
N33 6 (Bosch standard)	Design for Environment (DfE): Design and manufacturing rules.

Management system

Directive or standard	Description
ISO 9001:2008	Quality management systems – Requirements Scope: Development, Production, Installation and Sales.
ISO 14001:2004 /AC:2009	Environmental management systems – Requirements with guidance for use Scope: Development, Production, Sales and After Sales.

Reliability tests

EN50130-5:2011 Alarm systems Part 5: Environmental test methods	Class II, fixed equipment, indoor in general
Dry heat (Operational) (EN 60068-2-2:2007)	Temperature +50°C, Duration 16 hours.
Cold operation (Operational) (EN 60068-2-1:2007)	Temperature -20°C, Duration 16 hours.
Damp heat, steady state (Endurance) (EN 60068-2-78:2012)	Temperature +40°C, Relative Humidity 93%, duration 21 days.
Damp heat, cyclic (Operational) (EN 60068-2-30:2005)	Temperature +25°C to +50°C, Relative Humidity 93%, 2 cycles.
Damp heat, cyclic (Endurance) (EN 60068-2-30:2005)	Temperature +25°C to +50°C, Relative Humidity 93%, 6 cycles.
Shock (Operational) (EN 60068-2-27:2009)	Halve sine wave pulse, duration 6ms, 3 pulses per direction, 6 directions.
Impact (Operational) (EN 60068-2-75:2014)	Impact energy 5 Joule , 3 impacts per point (Similar to EN 62262 IK08 rating).
Vibration sinusoidal (Operational) (EN 60068-2-6:2008)	Frequency Range 10~150Hz, 10 m/s ² , 3 axes, Sweep rate 1 octave/min, 1 sweep/axis.
Vibration sinusoidal (Endurance) (EN 60068-2-6:2008)	Frequency Range 10~150Hz, 10 m/s ² , 3 axes, Sweep rate 1 octave/min, 20 sweep/axis.
Dust tightness (Endurance) (EN 60529:1991 A1:2000)	N/A

Additional Reliability tests

Environmental test methods	Specific Test description
MTBF (Mean Time Between Failures) calculation of used components	Based on: Siemens SN29500, or FIT figures manufacturer. Theoretical MTBF is about 350000 hours.
HALT (Highly Accelerating Life Test)	Overstress test to Fail, Operational, Lower Of Limitation = -40°C, High Of Limitation = +100°C, Vibration OL > 50Grms Combined Environment Stress: Temperature -40°C to +100°C, with 50 Grms for each cycle.
Cold start test	At ambient temperature -20°C.
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.
2. Compression	Top to Bottom, Apply and Hold, Duration 60min. Calculated test load = 2610N.
3. First vibration test	CPM: 300, 5Hz, Duration 48 min.
4. Drop test after 1 st vibration test	Height depending of weight of product. Drop height (mm): 810; drop times: 10
5. Second vibration test	CPM: 300, 5Hz, Duration 48 min.

Data subject to change without notice.
Eindhoven, January 2020.