

TO WHOM IT MAY CONCERN

Bosch Security Systems  
Torenallee 49  
5617 BA Eindhoven  
The Netherlands

**Product Test Report**

BT-SC 2018-E-054

**Products****FLEXIDOME indoor 5100i (IR)**

F.01U.394.427	NDV-5702-A	Fixed dome 2MP HDR 3.2-10.5mm
F.01U.394.428	NDV-5702-AL	Fixed dome 2MP HDR 3.2-10.5mm IR I/O
F.01U.394.429	NDV-5703-A	Fixed dome 5MP HDR 3.2-10.5mm
F.01U.394.430	NDV-5703-AL	Fixed dome 5MP HDR 3.2-10.5mm IR I/O
F.01U.394.454	NDV-5704-A	Fixed dome 8MP HDR 3.2-10.5mm
F.01U.394.455	NDV-5704-AL	Fixed dome 8MP HDR 3.2-10.5mm IR I/O

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 and Safety approvals**

<b>EMC EU, 2014/30/EU (EMCD)</b>	<b>Description</b>
EN 55032:2015 +A11:2020	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.
<b>EMC Canada</b>	
ICES-003 Class B	Spectrum Management and Telecommunications Policy Interference-Causing Equipment Standard
<b>EMC US</b>	
CFR 47 FCC part 15 Class B	Telecommunication Chapter I - FEDERAL COMMUNICATIONS COMMISSION, Subchapter A – GENERAL, Part 15 - RADIO FREQUENCY DEVICES
<b>EMC Australia and New Zealand</b>	
AS/NZS CISPR 32 equal to CISPR 32	Electromagnetic compatibility of multimedia equipment - Emission requirements.
<b>EMC Japan</b>	

VCCI: VCCI-CISPR 32: 2016	CISPER 32. EMC certification for Japan.
<b>EMC United Kingdom</b>	
UKCA	Declaration of Conformity for UKCA
<b>EMC India</b>	
BIS: IS 13252 (Part 1):2010	EMC certification for India

### Safety approvals

<b>Safety EU, 2014/35/EU (LVD)</b>	
EN 62368-1:2014 /A11:2017	Audio/video, information and communication technology equipment - Part 1: Safety requirements
<b>Safety USA</b>	
UL 62368-1, 2nd Edition, 2014-12-01	Audio/video, Information and Communication Technology Equipment - Part 1: Safety Requirements)
<b>Safety Canada</b>	
CSA C22.2 No. 62368-1-14, 2nd Edition, 2014-12	Audio/video, Information and Communication Technology Equipment - Part 1: Safety Requirements)
<b>IR lighting (IR model only)</b>	
IEC 62471	Photobiological safety of lamps and lamp systems

### Environmental approvals

<b>Directive or standard</b>	<b>Description</b>
RoHS EU, 2011/65/EU and 2015/863/EU	Directive of the European Parliament and of the Council as regards the list of restricted substances
EN IEC 63000	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
EN 50130-5	Class IV Alarm systems - Part 5: Environmental test methods
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

<b>Directive or standard</b>	<b>Description</b>
ISO 9001:2015	Quality management systems – Requirements Scope: Development, Production, Installation and Sales.

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ISO 14001:2015	Environmental management systems – Requirements with guidance for use <u>Scope:</u> Development, Production, Sales and After Sales.
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### Reliability tests

Dry heat (Operational) (EN 60068-2-2:2007)	Temperature +55°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 to +40°C, Relative Humidity 93%, 2 cycles.
Shock (Operational) (IEC 60068-2-27:2008)	Halve sine wave pulse, duration 6ms, 3 pulses per direction, 6 directions
Impact (Operational) EN 62262 Edition 1.1:2021 (IK10)	2002 Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK 10)
Vibration sinusoidal (Operational) (IEC 60068-2-6:2007)	Frequency Range 10~150Hz, 5 m/s <sup>2</sup> , 3 axes, Sweep rate 1 octave/min, 1 sweep/axis.
Vibration sinusoidal (Endurance) (IEC 60068-2-6:2007)	Frequency Range 10~150Hz, 10 m/s <sup>2</sup> , 3 axes, Sweep rate 1 octave/min, 20 sweep/axis.
Water/Dust protection IEC 60529 Edition 2.2:2013 (IP54)	Degrees of protection provided by enclosures (IP54)

### Additional Reliability tests

<b>Environmental test methods</b>	<b>Specific Test description</b>
MTBF (Mean Time Between Failures) calculation of used components	Based on: Telcordia Issue 4, or FIT figures manufacturer. Theoretical MTBF is about 527,735 h.
HALT (Highly Accelerating Life Test)	Overstress test to Fail, Operational, Lower Of Limitation = -40°C, High Of Limitation = +80°C, Vibration OL > 27.5Grms Combined Environment Stress: Temperature -40°C to +80°C, with 4 to 24 Grms for each cycle.
Cold start test	At ambient temperature -20°C.
<b>Transport tests acc. AV18-Q0681 ISTA-2A: 2011</b>	
1. Conditioning	Pre-conditioning: Temp. +25(±3)°C, 55(±20)%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 = 790.12 lbs
3. First vibration test	Frequency 240CPM, Duration 60 min. ; Number of Impact (cycle): 14200 cycles
4. Drop test after 1 <sup>st</sup> vibration test	Height depending of weight of product Drop height: 810mm; drop times: 10
5. Second vibration test	Frequency 240CPM, Duration 60 min. ; Number of Impact (cycle): 14200 cycles

<b>Image performance</b>	<b>Specific Test description</b>
IEC 62676-5	Video surveillance systems for use in security applications - Part 5: Data specifications and image quality performance for camera devices

### **ONVIF**

<b>Conformance</b>	<b>Specific Test description</b>
EN 50132-5-2	Alarm systems - CCTV surveillance systems for use in security applications - Part 5-2: IP Video Transmission Protocols
EN 62676-2	Video surveillance systems for use in security applications

Data subject to change without notice.  
Eindhoven, Jan 2023.

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