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 micro 3100i outdoor

F.01U.408.367	NUE-3702-F02	Micro dome 2MP HDR 137° IP66 IK10
F.01U.408.370	NUE-3702-F04	Micro dome 2MP HDR 106° IP66 IK10
F.01U.408.372	NUE-3702-F06	Micro dome 2MP HDR 58° IP66 IK10
F.01U.408.373	NUE-3703-F02	Micro dome 5MP HDR 131° IP66 IK10
F.01U.408.374	NUE-3703-F04	Micro dome 5MP HDR 101° IP66 IK10
F.01U.408.375	NUE-3703-F06	Micro dome 5MP HDR 56° IP66 IK10

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 +A11:2020 (Class A)	Information Technology Equipment- Radio disturbance characteristics Limits and Methods of measurement. Class A
EN 55035: 2017 +A11: 2020	Electromagnetic compatibility of multimedia equipment - Immunity requirements
IEC 61000-4-2: 2008	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test
IEC 61000-4-3: 2020 (Ed. 4.0)	Electromagnetic Compatibility (EMC) - Part 4-3 : Testing And Measurement Techniques - Radiated, Radio-Frequency, Electromagnetic Field Immunity Test
IEC 61000-4-4: 2012	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test
IEC 61000-4-5: 2014 + A1: 2017	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test

IEC 61000-4-6: 2013 + COR1: 2015	Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields
IEC 61000-4-8: 2009	Electromagnetic Compatibility (EMC) - Part 4-8: Testing And Measurement Techniques - Power Frequency Magnetic Field Immunity Test
EMC US	
FCC 47 CFR Part 15 Subpart B Class A ICES-003 Issue 7-2020	Telecommunication Chapter I - FEDERAL COMMUNICATIONS COMMISSION, Subchapter B – Unintentional Radiators, Part 15 - RADIO FREQUENCY DEVICES Spectrum Management and Telecommunications Policy Interference-Causing Equipment Standard
EMC Australia	
AS/NZS CISPR 32: 2015 + A1: 2020, Class A	Electromagnetic compatibility of multimedia equipment - Emission requirements
EMC Japan	
VCCI-CISPR 32: 2016, Class A	EMC certification for Japan.
EMC United Kingdom	
UKCA, Class A	Declaration of Conformity for UKCA

Safety approvals

Safety EU	
EN IEC 62368-1:2020/A11:2020	Audio/video, information and communication technology equipment - Part 1: Safety requirements.
Safety USA + Canada	
UL 62368-1, 3rd Ed, 2021-10-22 CAN/CSA C22.2 No. 62368-1:19, 3rd Ed, 2021-10-22	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)
EN IEC 63000	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
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 9001:2015	Quality management systems – Requirements Scope: Development, Production, Installation and Sales.
ISO 14001:2015	Environmental management systems – Requirements with guidance for use Scope: Development, Production, Sales and After Sales.

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 -30°C, Duration 16 hours.
Damp heat, cyclic (Operational) (EN 60068-2-30:2005)	Temperature +25°C to +50°C, Relative Humidity 93%, 2 cycles.
Water ingress (Operational) (IEC 60068-2-18:2000	Test procedure similar to EN60529 IPX6.
Salt mist, cyclic (Endurance) (EN 60068-2-52:1996)	Temperature +40°C, Relative Humidity 93%, 4 cycles, Duration 28 days.
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 20 Joule , 3 impacts per point (Similar to EN 62262 IK10 rating).
Vibration sinusoidal (Operational) (EN 60068-2-6:2008)	Frequency Range 10~150Hz, 5 m/s², 3 axes, Sweep rate 1 octave/min, 1 sweep/axis.
Vibration sinusoidal (Endurance) (EN 60068-2-6:2008)	Frequency Range 10~150Hz, 10 m/s², 3 axes, Sweep rate 1 octave/min, 20 sweep/axis.
Dust tightness (Endurance) (EN 60529:1991 A1:2000)	Duration 8h (similar to EN 60529 IP6X).

Additional Reliability tests

Environmental test methods	Specific Test description
MTBF calculation of used components	Based on Telcordia Issue 4 Theoretical MTBF is about 700000 hours.
HALT (Highly Accelerating Life Test)	Overstress test to Fail, Operational, Lower Of Limitation = -70°C, High Of Limitation = +100°C, Vibration OL > 37.5Grms Combined Environment Stress: Temperature -80°C to +90°C, 3 Grms to 9 Grms
Cold start test	At ambient temperature -20°C.
Transport tests acc. AV18-Q0681 ISTA-2A: 2011	
1. Conditioning	Pre-conditioning: Temp. +25°C ±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	Weight & Load Spender: Increase the load unit it reaches the test load. Maintain the force for a designated duration, then release the force. Test load (AR): 323 kg. Test duration: 1 press
3. First vibration test	Frequency: random, 1~200 Hz. 3 axes * each axis continue 30 minutes
4. Drop test after 1st vibration test	Height depending of weight of product. Drop height (mm): 970; drop times: 10

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

ONVIF

Conformance	Specific Test description
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, December 2023