

TO WHOM IT MAY CONCERN

Bosch Security Systems
Torenallee 49
5617 BA Eindhoven
The Netherlands

Product Test Report

BT-VS 2025-E-005

Product

FLEXIDOME 8100i IR and FLEXIDOME 8100i IR

F.01U.411.088	NDE-8702-RX	Fixed dome 2MP HDR X 4.4-10mm PTRZ IP67
F.01U.411.089	NDE-8702-RXT	Fixed dome 2MP HDR X 12-38mm PTRZ IP67
F.01U.411.090	NDE-8702-RXL	Fixed dome 2MP HDR X 4.4-10mm PTRZ IP67
F.01U.411.091	NDE-8703-RX	Fixed dome 4MP HDR X 4.4-10mm PTRZ IP67
F.01U.411.092	NDE-8703-RXT	Fixed dome 4MP HDR X 12-38mm PTRZ IP67
F.01U.411.093	NDE-8703-RXL	Fixed dome 4MP HDR X 4.4-10mm PTRZ IP67
F.01U.411.094	NDE-8703-R	Fixed dome 6MP HDR 3.9-10mm PTRZ IP67
F.01U.411.095	NDE-8703-RT	Fixed dome 6MP HDR 12-38mm PTRZ IP67
F.01U.411.096	NDE-8703-RL	Fixed dome 6MP HDR 3.9-10mm PTRZ IP67
F.01U.411.097	NDE-8704-R	Fixed dome 8MP HDR 3.9-10mm PTRZ IP67
F.01U.411.098	NDE-8704-RT	Fixed dome 8MP HDR 12-38mm PTRZ IP67
F.01U.411.099	NDE-8704-RL	Fixed dome 8MP HDR 3.9-10mm PTRZ IP67

The above mentioned Bosch Security Systems products have been tested in accordance and were found to comply with the tests listed below which were conducted during the development phase of the product.

Safety approvals

Directive or standard	Description
IEC 62368-1:2018	Audio/video, information and communication technology equipment - Part 1: Safety requirements
EN IEC 62368-1:2020 +A11:2020	Audio/video, information and communication technology equipment - Part 1: Safety requirements
AS/NZS 62368.1:2022	Audio/video, information and communication technology equipment - Part 1: Safety requirements
GB 4943.1-2022	Audio/video, information and communication technology equipment - Part 1: Safety requirements
J62368-1(2023)	Audio/video, information and communication technology equipment - Part 1: Safety requirements
SASO-IEC 62368-1:2020	Audio/video, information and communication technology equipment - Part 1: Safety requirements
UL 62368-1, 3rd Edition, Issue Date: 2019-12-13, Revision Date: 2021-10-22	Audio/video, information and communication technology equipment - Part 1: Safety requirements
CSA C22.2 No. 62368-1:19, 3rd Edition, Issue Date: 2019-12- 13, Revision Date: 2021-10-22	Audio/video, information and communication technology equipment - Part 1: Safety requirements
IEC 62471:2006 EN 62471:2008	Photobiological safety of lamps and lamp systems

EMC approvals

Directive or standard	Description
EMC EU, 2014/30/EU (EMCD)	Electromagnetic Compatibility Directive
Emission	
EN 55032:2015 +A11:2020 +A1:2020, Class A	Electromagnetic compatibility of multimedia equipment - Emission requirements
Immunity	
EN 55035:2017 +A11:2020	Electromagnetic compatibility of multimedia equipment - Immunity requirements
EMC USA	
CFR 47 FCC part 15, Class A	Code of Federal Regulations, Radio Frequency Devices, Unintentional Radiators. Radiated Emission based on verification procedure.
EMC Canada	
RSS-Gen, Issue 5	General Requirements for Compliance of Radio Apparatus
ICES-003 (Issue 7), Class A	Information Technology Equipment (Including Digital Apparatus) — Limits and Methods of Measurement
EMC Japan	
VCCI-CISPR 32:2016	Voluntary Control Council for Interference. Electromagnetic compatibility of multimedia equipment - Emission requirements.
Basic standards	
CISPR 32:2015 +COR1:2016 +A1:2019	Electromagnetic compatibility of multimedia equipment - Emission requirements
IEC 61000-6-2:2016	Electromagnetic compatibility (EMC) – Immunity Part 6-2: Generic standards Immunity for industrial environment
IEC 61000-6-4:2018	Electromagnetic compatibility (EMC) – Emission Part 6-4: Generic standards - Emission standard for industrial environments
EN IEC 61000-6-2:2019	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments
EN IEC 61000-6-4:2019	Electromagnetic compatibility (EMC) - Emission Part 6-4: Generic standards - Emission standard for industrial environments
EN 50130-4:2011 +A1:2014	Alarm systems - Part 4: Electromagnetic compatibility - Product family standard: Immunity requirements for components of fire, intruder, hold up, CCTV, access control and social alarm systems
EN 50121-4:2016	Railway applications - Electromagnetic compatibility - Part 4: Emission and immunity of the signaling and telecommunications apparatus
EN 61000-4-2:2009	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test
EN 61000-4-3:2006 +A1:2008 +A2:2010	Electromagnetic compatibility (EMC) - Part 4-3 : Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test
EN 61000-4-4:2012	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test

EN 61000-4-5:2006 EN 61000-4-5:2014 +A1:2017	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test
EN 61000-4-6:2009 EN 61000-4-6:2014	Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields
EN 61000-4-8:2010	Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test

Environmental approvals

Directive or standard	Description
RoHS EU, 2011/65/EU EN IEC 63000:2018	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	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 <u>Scope:</u> Development, production, installation and sales.
ISO 14001:2015	Environmental management systems -- Requirements with guidance for use <u>Scope:</u> Development, Production, Sales and After Sales.

Reliability tests

Accordinging: EN 50130-5:2011 Alarm systems Part 5: Environmental test methods
Class IV, Outdoor in general

Test specification	Description
Dry heat (operational) (EN 60068-2-2:2007)	Temperature +70°C, Duration 16 hours.
Dry heat (endurance) (EN 60068-2-2:2007)	Temperature 55°C, Duration 21 days
Cold (operational) (EN 60068-2-1:2007)	Temperature -25°C, Duration 16 hours. <i>Bosch tested more severe at -50°C.</i>
Damp heat, steady state (endurance) (EN 60068-2-78:2001)	Temperature +40°C, Relative Humidity 93%, Duration 21 days.
Damp heat, cyclic (operational) (EN 60068-2-30:2005)	Temperature +25°C to +55°C, Relative humidity 93%, 2 cycles.
Damp heat, cyclic (endurance) (EN 60068-2-30:2005)	Temperature +25°C to +55°C, Relative humidity 93%, 6 cycles.
Water ingress (operational) (EN 60068-2-18:2001)	Test procedure Rb1.1 or Rb1.2, 10min (Similar EN60529 IPX4). <i>Bosch tested more severe for class IPx6</i>
Sulphur dioxide (SO ₂) (endurance) (EN 60068-2-42:2003)	Temperature 25°C, SO ₂ Concentration 25x10e-6, RH 93%, Duration 21 days.
Salt mist, cyclic (endurance) (EN 60068-2-52:1996)	Temperature 15 till 40°C, RH 93%, 4 cycles, Duration 28d.
Shock (operational) (EN 60068-2-27:2009)	Halve sine wave pulse, duration 6ms, 3 pulses per direction, 6 directions. <i>Bosch tested with peak acceleration of 500 m/s².</i>
Impact (operational) (EN 60068-2-75:1997 Test Ehb)	Impact energy 1 Joule, 3 impacts per point (Similar to EN 62262 IK06 rating). <i>Bosch tested more severe at 20 Joule.</i>
Vibration, sinusoidal (operational) (EN 60068-2-6:2008)	Frequency range 10-150 Hz, 5 ms ² , 3 axes, sweep rate 1 octave x min ⁻¹ , 1 sweep cycles per axis functional mode.
Vibration, sinusoidal (endurance) (EN 60068-2-6:2008)	Frequency range 10-150 Hz, 10 m/s ² , 3 axes, sweep rate 1 octave x min ⁻¹ , 20 sweep cycles per axis.
Dust tightness (endurance) (EN 60529:1991 A1:2000)	Duration 8h (similar to EN 60529 IP5X). <i>Bosch tested more severe for class IP6x</i>

Additional reliability tests

Activity	Description
Environmental Type 4X (Raintight) UL50E	Type 4X Hose down Test, Icing Test, Gasket Tests.
Degrees of protection against external mechanical impacts (endurance) (IEC 62262:2002)	IK10, Impact energy 20 Joule, 5 impacts per exposed face → Operational: No loss of functions IK11, Impact energy 50 Joule, 5 impacts per exposed face → No safety related failures
Protection against foreign objects, water and access (endurance) (ISO 20653:2013)	IP6K9K
MTBF (Mean Time Between Failures)	> 223.223h -> Calculation of used components according Siemens SN29500. >1.000.000 h Based on current field performance of predecessor products.
Operating temperature	-50°C - +60°C
Cold start test	Until ambient temperature -40°C (tested according EN 60068-2-1:2007)
Traffic Controller Assemblies with NTCIP Requirements NEMA TS 2-2021	Compliant to the next chapters when using a TS-2 compliant power supply: 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.9 and 2.1.10 Tested according chapter 2.2.7, 2.2.8 and 2.2.9
Quality (Q) and Reliability (Z) testing	Annual product compliance. Verification tests to secure that products remain compliant to the specified requirements.

Data subject to change without notice.

Eindhoven, February 2025