TO WHOM IT MAY CONCERN

Bosch Security Systems
Torenallee 49
5617 BA Eindhoven
The Netherlands

Product Test Report BT-SC 2021-E-052

Product

FLEXIDOME corner 7100i IR

NCE-7703-FK	FLEXIDOME corner 7100i IR	Fixed dome 6MP corner IR
NCE-7703-FK-GOV	FLEXIDOME corner 7100i IR	Fixed dome 6MP corner 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 + A11: 2010	Information Technology Equipment- Radio disturbance characteristics Limits and Methods of measurement. Class A
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.
EMC US	
CFR 47 FCC part 15 Class A	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 55032:2015
EMC Japan	
VCCI: VCCI-CISPR 32: 2016	EMC certification for Japan.
EMC Morocco	
CMIM	Conformity Mark for Electronics and Electro technical Products
EMC United Kingdom	
UKCA	Declaration of Conformity for UKCA

Safety approvals

Safety EU	
EN/ IEC 62368-1 (EN IEC 62368-1:2020+A11:2020)	Audio/video, Information and Communication technology equipment - Part 1: Safety requirements
EN 62471:2008	Photobiological safety of lamps and lamp systems. Applicable to IR LEDs for eye safety
Safety USA + Canada	
UL 62368-1 (UL 62368-1, 3rd Edition, 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 IEC 63000:2018 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 9001:2015	Quality management systems – Requirements Scope: Development, Production, Installation and Sales.
ISO 14001:2015	Environmental management systems – Requirements 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 +55°C, duration 16 hours.
Cold operation (Operational) (EN 60068-2-1:2007)	Temperature -10°C, duration 16 hours.
Cold start (EN 60068-2-1:2007)	Temperature 0°C, power off and dwells 4 hours then power on
Damp heat, cyclic (Operational) (EN 60068-2-30:2005)	Temperature +25°C to +55°C, relative humidity 93%, 2 cycles.
Damp heat, steady state (Endurance) (EN 60068-2-30:2005)	Temperature +40°C, relative humidity 93%, 21 days
Water ingress (Operational) (EN 60529 Edition 2.2:2013)	Nozzle internal diameter 12.5mm, delivery rate 100 l/min, distance from nozzle 2.5~3 meters, test duration 3 mins
Dust tightness (Endurance) (EN 60529 Edition 2.2:2013)	Talcum powder with 2kg per cubic meter of the chamber volume, test pressure -2 kPa, test duration 8 hours
Shock (Operational) (EN 60068-2-27:2009)	Half sine wave pulse, pulse duration 6ms, 3 pulses per direction, 6 shock directions.
Impact (Operational) (EN 62262 Edition 1.1:2021)	Impact energy 50 Joule, 1 impact per point
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.

Additional Reliability tests

Environmental test methods	Specific Test description
MTBF (Mean Time Between Failures) calculation of used components	Telcordia Issue 4, method 1 case 3, temperature 50°C, Theoretical MTBF is about 291,975 hours.
HALT (Highly Accelerating Life Test)	Overstress test to fail, operational, Lower of Limitation = -80°C, High of Limitation = +100°C, Vibration OL > 40Grms Combined Environment Stress: Temperature -70°C to +90°C, with 35 Grms for each cycle.
IR cut filter/ICR reliability test	85ºC / 85% RH 500 hours, use 3M 365 tape to peel it by 3 times.
Operating temperature	-10 ºC to +50 ºC
NEMA 4X	The following tests were conducted and complied with UL 50E and CSA C22.2 NO.94.2-15 requirement: Additional corrosion protection test, hose down test, gasket tensile strength and elongation test. Mechanical related tests were conducted under UL 62368-1 in report E329535-4790909913.1 Original.
Transport tests acc. AV18-Q0681 ISTA-2A: 2011	
1. Pre-conditioning	Temperature: +25°C, 55%RH, Duration 6 hours.
2. Conditioning	Temperature: +38°C, 85%RH, Duration 72 hours. Temperature: +60°C, 30%RH, Duration 6 hours.
3. Compression	Weight & Load Spender: Increase the load unit until it reaches the test load. Maintain the force for a designated duration, then release the force. Test load (AR): 309 kg. Test duration: 1 press
4. Vibration test	Perform Vibration Test - Truck spectrum followed by the Road Truck Spectrum: Frequency: random, 1~200Hz. Duration: 3 axes* each axis continue 30 minutes
5. Drop test	Height depending on weight of product. Drop height (mm): 970; drop times: 10

Data subject to change without notice.
Eindhoven, March 2024.