Report No.: 18220WC40016804S

Test Report

Applicant	:	**Shenzhen Qianyan Technology LTD**
Address	:	**No. 3301, Block C, Section 1, Chuangzhi Yuncheng Building, Liuxian Avenue, Xili Community, Xili Street, Nanshan District, Shenzhen**
Product Name	:	**Govee Gaming Wall Light**
Date	:	**Apr. 09, 2024**

Shenzhen Anbotek Compliance Laboratory Limited

TEST REPORT
IEC 60598-2-4
Luminaires
Part 2: Particular requirements
Section Four - Portable general purpose luminaires

Report

Report reference No.	18220WC40016804S
Compiled by	Otto Guo
Approved by	Jeff Zhu
Date of issue	Apr. 09, 2024
Contents	63 pages report

Testing laboratory

Name	Shenzhen Anbotek Compliance Laboratory Limited
Address	1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.
Testing location	Location 1: 1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China. Location 2: Zone South, 1/F., Building 2, Hengchangrong High-Tech Industrial Park, Huangtian, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.

Applicant

Name	Shenzhen Qianyan Technology LTD
Address	No. 3301, Block C, Section 1, Chuangzhi Yuncheng Building, Liuxian Avenue, Xili Community, Xili Street, Nanshan District, Shenzhen

Test specification

Standard	IEC 60598-2-4:2017 IEC 60598-1:2020
Test procedure	Type test
Non-standard test method	N/A

Test item Description

Product name	Govee Gaming Wall Light
Trademark	Govee
Model and/or type reference	H6063A, H6063B, H6063C

Manufacturer	:	Shenzhen Qianyan Technology LTD
Address	:	No. 3301, Block C, Section 1, Chuangzhi Yuncheng Building, Liuxian Avenue, Xili Community, Xili Street, Nanshan District, Shenzhen
Rating(s)	:	36VDC, 2A With LED adapter input 100-240VAC, 50/60Hz, 1.8A, output 36VDC, 2A

Test item particulars

Classification of installation and use ..... Portable luminaires

Protection class ..... Class III

Degree of protection IP20

Test case verdicts

- test case does not apply to the test object ..... N (N/A)
- test object does meet the requirement ..... P (Pass)
- test object does not meet the requirement ..... F (Fail)

Testing

Date of receipt of test item ..... Feb. 01, 2024

Date(s) of performance of tests ..... Feb. 01, 2024 to Mar. 05, 2024

General remarks

This report shall not be reproduced except in full without the written approval of the testing laboratory.

The test results presented in this report relate only to the item tested.

Clause numbers between brackets refer to clauses in IEC 60598-1.

"(see remark #)" refers to a remark appended to the report.

"(see Annex #)" refers to an annex appended to the report.

Throughout this report a point is used as the decimal separator.

The submitted samples were LED-light-source technology, they were found to comply with the requirement of EN 62493:2015 without test.

Summary of testing

Tests performed

- EN IEC 60598-1: 2021+A11:2022
- EN 60598-2-4: 2018
- EN IEC 62031: 2020+A11:2021
- EN 62493: 2015

The submitted samples were found to comply with the above specification.

List of Attachments

Attachment 1: Test report of EN IEC 62031:2020+A11:2021

Attachment 2: IEC TR 62778

Attachment 3: Photo documentation

Copy of marking plate(s)

Govee Gaming Wall Light

Model: H6063A

Rating: 36VDC, 2A

With LED adapter input 100-240VAC, 50/60Hz, 1.8A, output 36VDC, 2A

Shenzhen Qianyan Technology LTD

No. 3301, Block C, Section 1, Chuangzhi Yuncheng Building, Liuxian Avenue, Xili Community, Xili Street, Nanshan District, Shenzhen

Importer: xxxxxx

Address: xxxxxx

General product information

IEC 60598-2-4 Clause 4.6 (4.24.2) were tested at location 2, others were tested at location 1.

All models have the similar mechanical and electrical construction, main differences among them are size, wattage and light bar quantity.

Unless otherwise specified, models H6063A were selected as representative models to perform all tests.

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict
4.1 (0)	**SCOPE**		**--**
4.2 (0.1)	Information for luminaire design considered ..... :	Standard Yes ☒ No ☐	--
4.2 (0.3)	More sections applicable ..... :	Yes ☐ No ☒	--
(0.7.2)	Light source safety standard ..... :	IEC 60598-1	--
	Luminaire design in the light source safety standard		P
4.4 (2)	**CLASSIFICATION**		--
4.4 (2.2)	Type of protection ..... :	Class III	--
4.4 (2.3)	Degree of protection ..... :	IP20	--
4.4 (2.4)	Portable and handheld luminaire ..... :	Yes	--
	Fixed luminaire suitable for normally flammable surfaces..... :	Yes	--
	Fixed luminaire suitable for non-combustible materials only ..... :	No	--
4.4 (2.5)	Luminaire for normal use ..... :	Yes	--
	Luminaire for rough service ..... :	No	--
4.5 (3)	**MARKING**		--
4.5 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
4.5 (3.3)	Additional information		P
	Language of instructions	English	P
4.5 (3.3.1)	Combination luminaires		N/A
4.5 (3.3.2)	Nominal frequency in Hz	50/60Hz for LED adapter	P
4.5 (3.3.3)	Operating temperature		P
4.5 (3.3.4)	Symbol or warning notice		N/A
4.5 (3.3.5)	Wiring diagram		N/A
4.5 (3.3.6)	Special conditions		N/A
4.5 (3.3.7)	Metal halid lamp luminaire – warning		N/A
4.5 (3.3.8)	Limitation for semi-luminaires		N/A

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict
4.5 (3.3.9)	Power factor and supply current		P
4.5 (3.3.10)	Suitability for use indoors		P
4.5 (3.3.11)	Luminaires with remote control		N/A
4.5 (3.3.12)	Clip-mounted luminaire - warning		N/A
4.5 (3.3.13)	Specifications of protective shields		N/A
4.5 (3.3.14)	Symbol for nature of supply	DC	P
4.5 (3.3.15)	Rated current of socket outlet		N/A
4.5 (3.3.16)	Rough service luminaire		N/A
4.5(3.3.17)	The mounting instructions for luminaires with type X, Y or Z attachments		N/A
4.5(3.3.18)	Information of luminaires provided with a PVC non-detachable cable or cord		N/A
4.5 (3.3.19)	Protective conductor current in instruction if applicable		N/A
4.5 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
4.5 (3.3.21)	Non replaceable and non-user replaceable light sources information provided	Non-user replaceable light sources "caution, risk of electric shock" 	P
	Cautionary symbol		N/A
4.5 (3.3.22)	Controllable luminaires, insulation		N/A
(3.3.23)	Luminaires without control gear provided with necessary information for selection of appropriate component		N/A
(3.3.24)	If not supplied with terminal block, information on the packaging		N/A
(3.3.25)	Luminaires employing light sources emitting UV on mains wiring, information provided		N/A
(3.3.26)	Wall mounted luminaire using external flexible cable or cord longer than 0.3 m, information provided		N/A
4.5 (3.4)	Test of marking		P
	Test with water	15 s	P

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict
	Test with hexane	15 s	P
	Legible after test		P
	Label attached		P
4.6 (4)	**CONSTRUCTION**		--
4.6.1 (-)	Insulation cables and cords		N/A
4.6.2 (-)	Means of fixing wiring		N/A
4.6.3 (-)	Stability		N/A
4.6.4 (-)	Candlestick luminaires with switch		N/A
4.6.5 (-)	E5 lampholders		N/A
4.6 (4.2)	Components replaceable without difficulty		N/A
4.6 (4.3)	Wireways smooth and free from sharp edges		P
4.6 (4.4)	Lampholders		--
4.6 (4.4.1)	Integral lampholder		N/A
4.6 (4.4.2)	Wiring connection		N/A
4.6 (4.4.3)	Lampholder for end-to-end mounting		N/A
4.6 (4.4.4)	Positioning		N/A
4.6 (4.4.5)	Peak pulse voltage		N/A
4.6 (4.4.6)	Centre contact		N/A
4.6 (4.4.7)	Rough service luminaires		N/A
4.6 (4.4.8)	Lamp connectors		N/A
4.6 (4.4.9)	Caps and bases correctly used		N/A
4.6 (4.5)	Starter holders		--
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
4.6 (4.6)	Terminal blocks		N/A
	Tails		N/A
	Unsecured blocks		N/A
4.6 (4.7)	Terminals and supply connections		--
4.6 (4.7.1)	Contact to metal parts		N/A
4.6 (4.7.2)	Location stranded wires		N/A
	8 mm test live conductor		N/A

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict
	8 mm test earth conductor		N/A
4.6 (4.7.3)	Terminals for supply conductors		P
4.6 (4.7.3.1)	Welded connections:		N/A
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.8.2		N/A
	- electrical test according to 15.9		N/A
	- heat test according to 15.9.2.3 and 15.9.2.4		N/A
4.6 (4.7.4)	Terminals other than supply connection		P
4.6 (4.7.5)	Heat-resistant wiring/sleeves		N/A
4.6 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A
4.6 (4.8)	Switches:		--
	- adequate rating		P
	- adequate fixing		P
	- polarized supply		N/A
4.6 (4.9)	Insulating lining and sleeves		--
4.6 (4.9.1)	Retainment		N/A
	Method of fixing .....:		N/A
4.6 (4.9.2)	Insulated linings and sleeves		--
	Resistant to a temperature > 20 °C to the wire temperature or		N/A
	a) & c) Insulation resistance and electric strength		N/A
	b) Ageing test. Temperature (°C) .....:		N/A
4.6 (4.10)	Insulation of Class II luminaires		N/A
4.6 (4.10.1)	No contact, mounting surface - accessible metal parts - wiring of basic insulation		N/A
	Safe installation fixed luminaires		N/A
	Capacitors		N/A
	Interference suppression capacitors according to IEC 60384-14		N/A

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict
4.6 (4.10.2)	Assembly joints:		--
	- not coincidental		N/A
	- no straight access		N/A
	- degree of protection		N/A
4.6 (4.10.3)	Retainment of insulation:		--
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		N/A
	- sleeves retained in position		N/A
	- lining in lampholder		N/A
4.6 (4.11)	Electrical connections		P
4.6 (4.11.1)	Contact pressure		P
4.6 (4.11.2)	Screws:		--
	- spaced threaded screws		N/A
	- thread-cutting screws		N/A
	- earth continuity		N/A
	- at least two screws		N/A
4.6 (4.11.3)	Screw locking:		--
	- spring washer		N/A
	- rivets		N
4.6 (4.11.4)	Material of current-carrying parts		P
4.6 (4.11.5)	No contact to wood		P
4.6 (4.11.6)	Electro-mechanical contact systems		N/A
4.6 (4.12)	Mechanical connections and glands		--
4.6 (4.12.1)	Mechanical stress		P
	Not made of soft metal		N/A
	Screws of insulating material		N/A
	Torque test: torque (Nm); part .....:	Fixed PCB for controller screw 0.4Nm	P
	Torque test: torque (Nm); part .....:		N/A
	Torque test: torque (Nm); part .....:		N/A
4.6 (4.12.2)	Screw diameter up to 3 mm		N/A
4.6 (4.12.4)	Locked connections:		--
	- fixed arms; torque (Nm).....:		N/A

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict
	- lampholder; torque (Nm) .....:		N/A
	- push-button switches; torque (Nm) .....:		N/A
4.6 (4.12.5)	Screwed glands; force (N).....:		N/A
4.6 (4.13)	Mechanical strength		P
4.6 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm).....:	LED cover: 0.35Nm	P
	- other parts; energy (Nm) .....:	Enclosure: 0.50Nm	P
	1) live parts		P
	2) linings		N/A
	3) protection		P
	4) covers		P
4.6(4.13.2)	Metal parts enclosing live parts		N/A
4.6 (4.13.3)	Straight test finger		N/A
4.6 (4.13.4)	Rough service luminaires		--
	a) fixed		N/A
	b) hand-held		N/A
	c) delivered with a stand		N/A
	d) for temporary installations and suitable for mounting on a stand		N/A
4.6 (4.13.6)	Tumbling barrel		N/A
4.6 (4.14)	Suspensions and adjusting devices		--
4.6 (4.14.1)	Mechanical load:		--
	A) four times the weight	1.497kg*4=5.988kg	P
	B) torque 2,5 Nm		P
	C) bracket arm; force (N).....:		P
	D) load track-mounted luminaires		N/A
	E) clip-mounted luminaires, glass-shelve. Thickness (mm) .....:		N/A
	metal rod. diameter (mm) .....:		N/A
	Fixed luminaire or independent control gear without fixing devices		N/A
4.6 (4.14.2)	Load to flexible cables		--
	Mass (kg) .....:		N/A
	Stress in conductors (N/mm²).....:		N/A

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict
	Mass (kg) of semi-luminaire .....:		N/A
	Bending moment (Nm) of semi-luminaire:		N/A
4.6 (4.14.3)	Adjusting devices:		--
	- rotating test; number of cycles .....:		N/A
	- strands broken		N/A
	- high voltage test		N/A
4.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
4.6 (4.14.5)	Guide pulleys		N/A
4.6 (4.14.6)	Strain on socket-outlets		N/A
4.6 (4.15)	Flammable materials:		--
	- glow-wire test 650 °C		P
	- spacing ≥ 30 mm		N/A
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A
	- no fiercely burning material		P
	- thermal protection		N/A
	- electronic circuits exempted		N/A
4.6 (4.15.2)	Luminaires made of thermoplastic material		--
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
4.6 (4.16)	Luminaires for mounting on normally flammable surfaces		--
	No lamp control gear .....:	(compliance with Section 12)	N/A
4.6 (4.16.1)	Lamp control gear spacing:		--
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
4.6 (4.16.2)	Thermal protection:		--
	- in lamp control gear		N/A
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear		N/A
4.6 (4.16.3)	Design to satisfy the test of 12.6	(see clause 12.6)	N/A

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict
4.6 (4.17)	Drain holes		N/A
	Clearance at least 5 mm		N/A
4.6 (4.18)	Resistance to corrosion:		--
4.6 (4.18.1)	- rust-resistance		N/A
4.6 (4.18.2)	- season cracking in copper		N/A
4.6 (4.18.3)	- corrosion of aluminium		N/A
4.6 (4.19)	Ignitors compatible with ballast		N/A
4.6 (4.20)	Rough service vibration		N/A
4.6 (4.21)	Protective shield:		--
4.6 (4.21.1)	Shield fitted		N/A
4.6 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
4.6 (4.21.3)	No direct path		N/A
4.6 (4.21.4)	Impact test on shield		P
	Glow-wire test on lamp compartment		P
4.6 (4.22)	Attachments to lamps		N/A
4.6 (4.23)	Semi-luminaires comply Class II		N/A
4.6 (4.24)	UV radiation, metal halide lamps		N/A
4.6 (4.24.2)	Retinal blue light hazard		P
	Luminaires with E_{thr}		N/A
	a) Fixed luminaires		N/A
	Distance x m, borderline between RG1 and RG2.....:		N/A
	Marking and instruction		N/A
	b) Portable and handheld luminaires	RG0	P
	RG1 exceeded at 200 mm according to IEC/TR 62778		N/A
	Marking		N/A
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12		N/A
	RG at 200 mm according to IEC/62778		N/A
4.6 (4.25)	No sharp point or edges		P

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict
4.6 (4.26)	Short-circuit protection:		--
4.6 (4.26.1)	Uninsulated accessible SELV parts		N/A
4.6 (4.26.2)	Short-circuit test		N/A
4.6 (4.26.3)	Test chain according to IEC 61032		N/A
4.6 (4.27)	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
	Pull test of terminal fixing (20 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Pull test of mechanical connection (50 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Voltage drop test, resistance < 0,05 Ω		N/A
4.6 (4.28)	Fixing of thermal sensing control		N/A
	External to lamp control gear		N/A
	Plug-in or easily replaceable type		N/A
	Adhesive fixing		N/A
	Positioning		N/A
	Temperature (°C) .....:		N/A
	100 cycles between t min and t max		N/A
	Temperature sensing control still in position		N/A
4.6 (4.29)	Luminaires with non-replaceable light source		N/A
	Replacement not possible		N/A
	Live part not accessible		N/A
	Breaking of the luminaire or its parts		N/A
	Removal of parts		N/A
	Compliance with test probe		N/A
	Access to live parts		N/A
4.6 (4.30)	Luminaires with non-user replaceable light source		P
	Protective cover		P
	Fixing means		N/A
	Cautionary symbol		N/A

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict
4.6 (4.31)	Insulation between circuits		N/A
	Transformer or control gears		N/A
	Insulation between circuits		N/A
	Circuits insulated from LV supply		N/A
	Insulation provided		N/A
	Controllable luminaires		N/A
	Control terminals		N/A
	Insulation		N/A
	Control gear U-OUT		N/A
4.6 (4.31.1)	SELV or PELV circuits		P
	Used SELV/PELV source		P
	Voltage ≤ ELV		P
	Insulating of SELV/PELV circuits from LV supply		P
	Insulating of SELV/PELV circuits from other non SELV/PELV circuits		N/A
	Insulating of SELV/PELV circuits from FELV		N/A
	Insulating of SELV/PELV circuits from other SELV/PELV circuits		N/A
	SELV/PELV circuits insulated from accessible parts according Table X.1		P
	Plugs not able to make any electrical contact with socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Plugs and socket-outlets does not have protective conductor contact		N/A
4.6 (4.31.2)	FELV circuits		N/A
	Source		N/A
	Insulation between circuits		N/A
	Plug and socket outlet		N/A
4.6 (4.31.3)	Other circuits		N/A
	Cl II		N/A

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict
	Equipotential bonding		N/A
	All conductive part connected		N/A
	Resistance < 0,5 Ω .....:		N/A
	Insulation fault: accessible part cause electric shock		N/A
	Master/slave applications		N/A
4.6 (4.32)	Overvoltage protective devices		N/A
	External to lamp control gear, connected to earth		N/A
	Fixed luminaires connected to a protective earth		N/A
4.6 (4.33)	Luminaire powered via information technology communication cabling		N/A
	Requirements for Class III luminaire		N/A
	Rated voltage within the range of ES1 and does not exceed maximum voltage of used connector		N/A
	Luminaire does not create any hazard from overvoltage	(see Annex 2)	N/A
1.6 (4.34)	Electromagnetic fields (EMF)		P
	No harmful electromagnetic fields	The submitted samples were LED-light-source technology, they were found to comply with the requirement of IEC 62493:2015 without test.	P
1.6 (4.35)	Protection against moving fan blades		N/A
	Test with a standard test finger		N/A
	Test with test probe acc. To Figure 13 (IEC 61032) for portable luminaire		N/A
	Blades rounded with radius ≥ 0.5 mm and:		N/A
	-hardness less than D60 Shore		N/A
	-peripheral speed less than 15 m/s		N/A
1.6 (4.36)	Track-mounted luminaires		N/A
	Test in accordance with Annex A of IEC60570:2003/AMD2:2019		N/A
1.6 (4.36)	Track-mounted luminaires		N/A
4.6.1 (-)	Insulation not damaged when placing on support		N/A
4.6.2 (-)	Wiring fixed, to avoid rubbing		N/A

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict
4.6.3 (-)	Stability (6°)		N/A
4.6.4 (-)	Candlestick luminaires with switch		N/A
4.6.5 (-)	E5 lampholders		N/A
4.7 (11)	**CREEPAGE DISTANCES AND CLEARANCES**		**P**
4.7 (11.2)	Creepage distances and clearances .....:	See Table 4.7 (11.2)	--
	Working voltage (V) .....:	36VDC for light	--
	Rated pulse voltage (kV) .....:	--	--
	Voltage form	Sinusoidal [ ] Non-sinusoidal [√]	
	PTI	< 600 [√] ≥ 600 [ ]	--
	Impulse withstand category (Normal category II) (Category III Annex U)	category II	P
4.8 (7)	**PROVISION FOR EARTHING**		**--**
4.8 (7.2.1 + 7.2.3)	Accessible metal parts		N/A
	Metal parts in contact with supporting surface		N/A
	Resistance < 0,5 Ω		N/A
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a grove		N/A
	Earth makes contact first		N/A
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
	Built-in control gear		N/A
4.8 (7.2.2 + 7.2.3)	Earth continuity in joints, etc.		N/A
4.8 (7.2.4)	Locking of clamping means		N/A
	Compliance with 4.7.3		N/A
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict
4.8 (7.2.5)	Earth terminal integral part of connector socket		N/A
4.8 (7.2.6)	Earth terminal adjacent to mains terminals		N/A
4.8 (7.2.7)	Electrolytic corrosion of the earth terminal		N/A
4.8 (7.2.8)	Material of earth terminal		N/A
	Contact surface bare metal		N/A
4.8 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
4.8 (7.2.11)	Earthing core coloured green-yellow		N/A
	Length of earth conductor		N/A
4.8 (7.2.10)	Class II luminaire for looping-in		N/A
4.8 (7.2.11)	Earthing core coloured green-yellow		N/A
	Length of earth conductor		N/A
1.9 (7.2.12)	PELV circuit connected to protective earth for functional purpose		N/A
4.9 (14)	**SCREW TERMINALS**		**--**
	Separately approved; component list		N/A
	Part of the luminaire		N/A
4.9 (15)	**SCREWLESS TERMINALS**		**--**
	Separately approved; component list		N/A
	Part of the luminaire		N/A
4.10 (5)	**EXTERNAL AND INTERNAL WIRING**		**--**
4.10 (5.2)	Supply connection and external wiring		--
4.10 (5.2.1)	Means of connection..... :	LED adapter	P
4.10 (5.2.2)	Type of cable..... :		P
	Nominal cross-sectional area (mm^2)..... :		N/A
	Cables equal to IEC 60227 or IEC 60245		N/A
4.10 (5.2.3)	Type of attachment, X, Y or Z		N/A
4.10 (5.2.5)	Type Z not connected to screws		N/A
4.10 (5.2.6)	Cable entries:		--
	- suitable for introduction		N/A

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict
	- adequate degree of protection		N/A
4.10 (5.2.7)	Cable entries through rigid material have rounded edges		N/A
4.10 (5.2.8)	Insulating bushings:		--
	- suitably fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
4.10 (5.2.9)	Locking of bushings		N/A
4.10 (5.2.10)	Cord anchorage:		--
	- covering protected from abrasion		N/A
	- clear how to be effective		N/A
	- no mechanical or thermal stress		N/A
	- no tying of cables into knots etc.		N/A
	- insulating material or lining		N/A
4.10 (5.2.10.1)	Cord anchorage for type X attachment:		--
	a) at least one part fixed		N/A
	b) types of cable		N/A
	c) no damaging of the cable		N/A
	d) whole cable can be mounted		N/A
	e) no touching of clamping screws		N/A
	f) metal screw not directly on cable		N/A
	g) replacement without special tool		N/A
	Glands not used as anchorage		N/A
	Labyrinth type anchorages		N/A
4.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		N/A
4.10 (5.2.10.3)	Tests:		N/A
	- impossible to push cable; unsafe		N/A
	- pull test: 25 times; pull (N)		N/A
	- torque test: torque (Nm)		N/A
	- displacement ≤ 2 mm		N/A

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict
(5.2.10.4)	Luminaire with/designed for use with supply cord with maximum current of 2A:		N/A
	- Ordinary Class III luminaire supplied with SELV		N/A
	- Ordinary Class III luminaire supplied with PELV 12V RMS/30V DC		N/A
	- Other than ordinary Class III luminaire supplied with voltage 12V RMS/30V DC		N/A
	Pull test of 30N		N/A
	- no movement of conductors		N/A
	- no damage of cable or cord		N/A
4.10 (5.2.11)	External wiring passing into luminaire		N/A
4.10 (5.2.12)	Looping-in terminals		N/A
4.10 (5.2.13)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
4.10 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
	No unsafe compatibility		N/A
4.10 (5.2.15)	Colour code low voltage		N/A
4.10 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	Other appliance inlet or connector		N/A
	Relevant IEC standard		N/A
4.10 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
4.10 (5.2.18)	Used plug in accordance with		N/A
	- IEC 60083		N/A
	- other standard		N/A
4.10 (5.3)	Internal wiring		--
4.10 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		N/A
	- not delivered/ mounting instruction		N/A
	- factory assembled		N/A
	- socket outlet loaded (A).....		N/A
	- temperatures.....		N/A

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict
	Green-yellow for earth only		N/A
4.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		N/A
	Cross-sectional area (mm²)		N/A
	Insulation thickness		N/A
	Extra insulation added where necessary		N/A
4.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		N/A
	Adequate cross-sectional area and insulation thickness		N/A
4.10 (5.3.1.3)	Double or reinforced insulation for class II		N/A
4.10 (5.3.1.4)	Conductors without insulation		N/A
4.10 (5.3.1.5)	SELV current-carrying parts		P
4.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
4.10 (5.3.2)	Sharp edges etc.		--
	No moving parts of switches etc.		P
	Joints, raising/lowering devices		N/A
	Telescopic tubes etc.		N/A
	No twisting over 360^0		P
4.10 (5.3.3)	Insulating bushings:		N/A
	- suitable fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- cables with protective sheath		N/A
4.10 (5.3.4)	Joints and junctions effectively insulated		N/A
4.10 (5.3.5)	Strain on internal wiring		N/A
4.10 (5.3.6)	Wire carriers		N/A
4.10 (5.3.7)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		P
4.11 (8)	**PROTECTION AGAINST ELECTRIC SHOCK**		--
4.11 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		P
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		N/A
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A
	Basic insulation only accessible under lamp or starter replacement		N/A
	Protection in any position		P
	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable		N/A
	Double-ended high pressure discharge lamp		N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
4.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		P
4.11 (8.2.3.a)	Class II luminaire:		N/A
	- basic insulated metal parts not accessible during starter or lamp replacement		N/A
	- basic insulation not accessible other than during starter or lamp replacement		N/A
	- glass protective shields not used as supplementary insulation		N/A
4.11 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		N/A
4.11 (8.2.3.c)	Class III luminaires with exposed SELV parts:		N/A
	Ordinary luminaire:		N/A
	- touch current		N/A
	- no-load voltage		N/A
	Other than ordinary luminaire:		N/A
	- nominal voltage		N/A
4.11 (8.2.3.d)	PELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict
	- voltage under load/ no-load AC (V)	:	N/A
	- voltage under load/ no-load DC (V)……..:		N/A
	Other than ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V)	:	N/A
	- voltage under load/ no-load DC (V)……..:		N/A
	One pole insulated if required		N/A
4.11 (8.2.4)	Portable luminaire have protection independent of supporting surface		P
4.11 (8.2.5)	Compliance with the standard test finger or relevant probe		P
4.11 (8.2.6)	Covers reliably secured		P
4.11 (8.2.7)	Discharging of capacitors ≥ 0,5 μF		N/A
	Portable plug connected luminaire with capacitor		N/A
	Other plug connected luminaire with capacitor		N/A
	Discharge device on or within capacitor		N/A
	Discharge device mounted separately		N/A
4.11.1 (-)	Class I luminaire with bayonet lampholder:		--
	- cap not accessible with test finger©		N/A
	- metal lampholder is earthed		N/A

4.12 (12)	**ENDURANCE TEST AND THERMAL TEST**		**--**
4.12 (-)	If IP > IP 20 relevant test of (12.4), (12.5) and (12.6) after (9.2) before (9.3) specified in 4.13		--
4.12 (12.3)	Endurance test:		P
	- mounting-position .....:	(see Annex 2)	--
	- test temperature (°C) .....:	50°C	--
	- total duration (h).....:	240 h	--
	- supply voltage: Un factor; calculated voltage (V).....:	264VAC	--
	- lamp used .....:	LED	--
4.12 (12.3.2)	After endurance test:		--

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N/A
	- marking legible		P
	- no cracks, deformation etc.		P
4.12 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
4.12 (12.5)	Thermal test (abnormal operation)		P
4.12 (-)	Overturned position		N/A
4.12 (12.6)	Thermal test (failed lamp control gear condition):		--
4.12 (12.6.1)	- case of abnormal conditions.....:		N/A
	- electronic lamp control gear		N/A
	- measured winding temperature (°C): at 1,1 Un.....:		N/A
	- measured mounting surface temperature (°C): at 1,1 Un.....:		N/A
	- calculated mounting surface temperature (°C).....:		N/A
	- track-mounted luminaires		N/A
4.12 (12.6.2)	Temperature sensing control		--
	- thermal link		N/A
	- manual reset cut-out		N/A
	- auto reset cut-out		N/A
	- measured mounting surface temperature (°C):.....:		N/A
	- track-mounted luminaires		N/A
4.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		--
4.12 (12.7.1)	Luminaire without temperature sensing control		N/A
4.12 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 70W		N/A
	Test method 12.7.1.1 or Annex W :		—
	Test according to 12.7.1.1:		N/A
	- case of abnormal conditions:		—
	- Ballast failure at supply voltage (V) :		—
	- Components retained in place after the test		N/A

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict
	- Test with standard test finger after the test		N/A
	Test according to Annex W:		N/A
	- case of abnormal conditions		—
	- measured winding temperature (°C): at 1,1 Un		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un.....		—
	- calculated temperature of fixing point/exposed part (°C).....		—
	Ball-pressure test.....	See Table 4.15 (13.2.1)	N/A
4.12 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		N/A
	- case of abnormal conditions		—
	- measured winding temperature (°C): at 1,1 Un		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un.....		—
	- calculated temperature of fixing point/exposed part (°C).....		—
	Ball-pressure test.....	See Table 4.15 (13.2.1)	N/A
4.12 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		N/A
	- case of abnormal conditions		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
4.12 (12.7.2)	Luminaire with temperature sensing control		N/A
	- thermal link	Yes ☐ No ☐	—
	- manual reset cut-out.....	Yes ☐ No ☐	—
	- auto reset cut-out	Yes ☐ No ☐	—
	- case of abnormal conditions		—
	- highest measured temperature of fixing point/ exposed part (°C):.....		—
	Ball-pressure test:.....	See Table 4.15 (13.2.1)	N/A

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict
4.12 (-)	Test overturned position (overturns < 15°)		N/A
4.13 (9)	**RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE**		**P**
4.13 (-)	If IP > IP 20 the order of tests as specified in clause 4.12		--
4.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		--
	- classification according to IP ..... :	IP20	--
	- mounting position during test..... :	Normal installation	--
	- fixing screws tightened; torque (Nm).... :	0.4*2/3Nm	--
	- tests according to clauses ..... :	Clauses 9.2.0	--
	- electric strength		P
	a) no deposit in dust-proof luminaire		N/A
	b) no talcum in dust-tight luminaire		N/A
	c) no trace of water on live parts		N/A
	d) no accumulation of water in waterproof luminaire		N/A
	e) no water in watertight luminaire		N/A
	f) no contact with live parts (IP 2X)		P
	f) no entry into enclosure (IP 3X and IP 4X)		N/A
	f) no contact with live parts (IP3X and IP4X)		N/A
	g) no trace of water on part of lamp requiring protection from splashing water		N/A
	h) no damage of protective shield or glass envelope		N/A
4.13 (9.3)	Humidity test 48 h	Humidity: 93% Temperature: 25°C	P
4.14 (10)	**INSULATION RESISTANCE AND ELECTRIC STRENGTH**		**--**
4.14 (10.2.1)	Insulation resistance test	Class III	P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø ..... :		N/A
	Insulation resistance (MΩ)..... :		P
	SELV/PELV:		--
	- between current-carrying parts of different polarity..... :	100MΩ	P

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict
	- between current-carrying parts and mounting surface ..... :	100MΩ	P
	- between current-carrying parts and metal parts of the luminaire ..... :		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts ... :		N/A
	- Insulation bushings as described in Section 5 ..... :		N/A
	Other than SELV/PELV:		--
	- between live parts of different polarity.. :	100MΩ with LED adapter	P
	- between live parts and mounting surface ..... :	100MΩ with LED adapter	P
	- between live parts and metal parts..... :		N/A
	- between live parts of different polarity through action of a switch ..... :	100MΩ with LED adapter	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts ..... :		N/A
	- Insulation bushings as described in Section 5 ..... :		N/A
4.14 (10.2.2)	Electric strength test:		--
	Class of protection ..... :	Class III	P
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test		N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V):		--
	SELV/PELV:		--
	- between current carrying parts of different polarity..... :	500V	P
	- between current carrying parts and mounting surface ..... :	500V	P
	- between current-carrying parts and metal parts of the luminaire..... :		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts ..... :		N/A

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict
	- Insulation bushings as described in Section 5 ..... :		N/A
	Other than SELV/PELV:		--
	- between live parts of different polarity.. :		N/A
	- between live parts and mounting surface ..... :	2960V with LED adapter	P
	- between live parts of different polarity through action of a switch ..... :	2960V with LED adapter	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts ..... :		N/A
	- Insulation bushings as described in Section 5 ..... :		N/A
4.14 (10.3.1)	Touch current or protective conductor current (mA) ..... :	0.04mA	P

4.15 (13)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		--
4.15 (13.2.1)	Ball-pressure test.....	See Test Table 4.15 (13.2.1)	N/A
4.15 (13.3.1)	Needle-flame test (10 s)	See Test Table 4.15 (13.3.1)	N/A
4.15 (13.3.2)	Glow-wire test (650°C)	See Test Table 4.15 (13.3.2)	P
4.15 (13.4.1)	Proof tracking test (IEC 60112)		N/A
	- part tested.....		N/A

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict

EN IEC 60598_1 ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT **IEC 60598-1** **EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES** Luminaires			
Differences according to ..... :	EN IEC 60598-1: A11: 2022		
TRF template used..... :	EN IEC 60598-1:2021 Ed. 1.1		
Attachment Form No. ..... :	EU_GD_IEC 60598_1		
Attachment Originator..... :	Anbotek		
Master Attachment..... :	2023-02-16		
	CENELEC COMMON MODIFICATIONS (EN)		
4	**CONSTRUCTION**		P
4.11.6	Following completion of these test…, add the following test: the test voltage however being reduced to 1500V		P
5	**EXTERNAL AND INTERNAL WIRING**		P
5.2.2	Replace “IEC 60227 (all parts) and IEC 60245 (all parts), by EN 50525 (all parts), and delete paragraph 2.		P
	Replace table 5.1 – by the following new table		P
12	**ENDURANCE TESTS AND THERMAL TESTS**		P
12.4.2c	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring		P
	In table 12.2 footnote add the following: -after European installation standards (HD 60364 all parts) and (HD 384 all parts) -after European cable standard (EN 50525 all parts)		P
ZB	**Addition of Annex ZB, Special national conditions and Annex ZC**		P

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict

EN IEC 60598_1 ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
3.3	Denmark: supply cords of class I luminaires which are delivered without a plug, shall be provided with a visible tag with the following text Vigtigt ! Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket 		N/A
5.2.18	Denmark		N/A
	Socket-outlets intended for providing power to other appliances shall be in compliance with SD 60884-2-D1:2017		N/A
5.2.1	Cyprus		N/A
	Domestic luminaites intended for connection to a standard United Kingdom 13A socket must be pre-fitted with an approved plug complying with BS 1363		N/A
	Cord sets for domestic luminaires for connection with an appliance inlet must be pre-fitted with an approved plug complying with BS 1363 Plug must be fitted with the correct fuse		N/A
	Denmark		N/A
	Supply cords on single-phase portable luminaires having a rated current not exceeding 13A		N/A
	For luminaires having an aooliance inlet, the plug on the supply cord shall comply with te above requirements		N/A
	If multi-phase luminaires and single-phase luminaires having a rated current exceeding 13A are provided with a supply cord with a plug, the plug shall comply with the following table or EN 60309.		N/A
	Finland		N/A
	For luminaires provided with non-detachable flexible calbles and cords and a plug, the plug shall comply with the requirements of SFS 5610 and EN 50075, the Standard sheets to be applied being as follows		N/A

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict

EN IEC 60598_1 ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex ZC	A-deviation : National deviation due to regulations, the alteration of which is for the time being outside the competence of the CEN-CENELEC national memner.		P
	This European Standard falls under Directive 2014/35/EU		P

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict

4.7 (11.2)	**TABLES: Creepage distances and clearances**	P
Table 11.1	**Minimum distances (mm) for a.c. (50/60 Hz) sinusoidal voltages**	P

RMS working voltage (V) not exceeding	50	150	250	500	750	1000
Creepage distances						
Required basic insulation, PTI ≥ 600	0,6	0,8	1,5	3	4	5,5
Measured	---	---	---	---	---	---
Required basic insulation, PTI < 600	1,2	1,6	2,5	5	8	10
Measured	2.0	---	---	---	---	---
Required supplementary insulation PTI ≥ 600	-	0,8	1,5	3	4	5,5
Measured	---	---	---	---	---	---
Required supplementary insulation PTI < 600	-	1,6	2,5	5	8	10
Measured	---	---	---	---	---	---
Required reinforced insulation	-	3,2	5	6	8	11
Measured	---	---	---	---	---	---
Clearances						
Required basic insulation	0,2	0,8	1,5	3	4	5,5
Measured	2.0	---	---	---	---	---
Required supplementary insulation	-	0,8	1,5	3	4	5,5
Measured	---	---	---	---	---	---
Required reinforced insulation	-	1,6	3	6	8	11
Measured	---	---	---	---	---	---

Table 11.2	**Minimum distances (mm) for non-sinusoidal pulse voltages**						
Rated pulse voltage (peak kV)	2,0	2,5	3,0	4,0	5,0	6,0	8,0
Required clearances	1,0	1,5	2	3	4	5,5	8
Measured	>1.0	---	---	---	---	---	---
Rated pulse voltage (peak kV)	10	12	15	20	25	30	40
Required clearances	11	14	18	25	33	40	60
Measured	---	---	---	---	---	---	---
Rated pulse voltage (peak kV)	50	60	80	100	-	-	-
Required clearances	75	90	130	170	-	-	-
Measured	---	---	---	---	---	---	---

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict

3.15 (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics			N/A
Allowed impression diameter (mm)				—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
--	--	--	--	
--	--	--	--	
Supplementary information:				

3.15 (13.3.1)	TABLE: Needle-flame test (IEC 60695-11-5)				N/A
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
--	--	--	--	--	--
--	--	--	--	--	--
Supplementary information:					

3.15 (13.3.2)	TABLE: Glow-wire test (IEC 60695-2-11)			P
Glow wire temperature	650°C			—
Object/ Part No./ Material	Manufacturer/ trademark	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
LED cover	See the annex 1	No	0	Pass
Plastic enclosure for light	See the annex 1	No	0	Pass
Plastic enclosure for controller	See the annex 1	No	0	Pass
LED PCB	See the annex 1	No	0	Pass
Any flame or glowing of the sample extinguished within 30 s of withdrawing the glow-wire, and any burning or molten drop did not ignite the underlying parts (Yes/No).....				
Supplementary information:				

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict

3.15 (13.4)	**TABLE: Proof tracking test (IEC 60112)**					**N/A**
Test voltage PTI		175 V				—
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens				Verdict
---	---	---	---	---		---
Supplementary information:						

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict

ANNEX 1	**TABLE: Critical components information**					**P**
Object / part No.	**Code**	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1)]**
Housing black	B	BASF SE	Ultramid A3X2G5	V-0, min 1,5mm	IEC 60695-11-10	VDE
Transparent light window	B	LG Chem (Guangzhou) Engineering Plastics Co Ltd	LUPOY GN5001RF (T)	PC, V-0, 80°C min 1,5mm	UL94	UL E248280
Plastic enclosure	B	Covestro Deutschland AG [PC Resins]	2407 + (z)(f1)	PC, V-2 115°C, Min. Thinckness 0.75mm	UL 94	UL E41613
LED adapter (EU) for all model	B	SHENZHEN LINKSOONER TECHNOLOGY CO., LTD	YXT072EU-3602000	Input: 200-240VAC, 50/60Hz, 1.5A Output: 36VDC, 2A, 72W, PF≥0.9, ta:40°C, tc:75°C, for LED modules only SELV	EN 61347-1 EN 61347-2-13	CE
LED adapter (UK) for all model	B	SHENZHEN LINKSOONER TECHNOLOGY CO., LTD	YXT072UK-3602000	Input: 200-240V, 50/60Hz, 1.5A Output: 36VDC, 2A, 72W ta:40°C, tc:75°C PF≥0.9, for LED modules only SELV	BS EN 61347-1 BS EN 61347-2-13	UKCA
PCB	B	Shenzhen Huaqiu Electronics Co., Ltd.	HQPCB-4(ASP1)	Multilayer printed wiring boards V-0, 130°C, Complied with UL796.	UL 796	UL E469747
LED type	B	Shenzhen Smalite Semiconductor Co., Ltd	TOP SL-C2LM35-AM	6500K, 2.8-3.4VDC, 30mA	IEC TR 62778	Tested with appliance

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict

Supplementary information:

15) Provided evidence ensures the agreed level of compliance. See OD-CB2039.

The codes above have the following meaning:

A - The component is replaceable with another one, also certified, with equivalent characteristics

B - The component is replaceable if authorised by the test house

C - Integrated component tested together with the appliance

D - Alternative component

License available upon request.

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict

ANNEX 2	**temperature measurements, thermal tests of Section 12**		**---**
	Type reference.....:	H6063A	--
	Lamp used.....:	LED	--
	Ballast used.....:	LED adapter	--
	Mounting position of luminaire.....:	normal use	--
	Supply wattage (W).....:	36.4W	--
	Supply current (A).....:	0.188A	--
	Calculated power factor.....:	0.758 for LED adapter supply	--
	Table: measured temperatures corrected for Ta=40°C:		---
	- abnormal operating mode.....:	LED driver output was shorted circuit, output shutdown immediately, the temperature rise of components are lower than temperature rise of components at normal heating test.	--
	- test 1: rated voltage.....:		--
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage.....:	240VAC*1.06=254.4VAC	--
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage:		--
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage.....:		--
	Through wiring or looping-in wiring loaded by a current of A during the test .....:		

temperature (°C) of part	clause 12.4 – normal				clause 12.5 – abnormal	
	test 1	test 2	test 3	limits	test 4	Limit
Tc for LED adapter	--	58.9	--	75	--	--
Input wire for LED adapter	--	49.3	--	Ref.	--	--
LED adapter output wire	--	42.7	--	80	--	--
Input wire for LED module	--	50.2	--	80	--	--
Controller surface	--	47.6	--	Ref.	--	--
LED PCB	--	56.8	--	130	--	--
LED module	--	64.9	--	Ref.	--	--

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict

LED cover	--	46.5	--	80	--	--
Internal wire	--	43.9	--	80	--	--
Enclosure	--	47.2	--	90	--	--
Mounting surface	--	48.6	--	90	--	--

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict

ANNEX 3	**screw terminals (part of the luminaire)**		**N/A**
(14)	**SCREW TERMINALS**		**N/A**
(14.2)	Type of terminal .....:		--
	Rated current (A) .....:		--
(14.3.2.1)	One or more conductors		N/A
(14.3.2.2)	Special preparation		N/A
(14.3.2.3)	Terminal size		N/A
	Cross-sectional area (mm²).....:		N/A
(14.3.3)	Conductor space (mm) .....:		N/A
(14.4)	Mechanical tests		N/A
(14.4.1)	Minimum distance		N/A
(14.4.2)	Cannot slip out		N/A
(14.4.3)	Special preparation		N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread) .....:		N/A
	External wiring		N/A
	No soft metal		N/A
(14.4.5)	Corrosion		N/A
(14.4.6)	Nominal diameter of thread (mm).....:		N/A
	Torque (Nm).....:		N/A
(14.4.7)	Between metal surfaces		N/A
	Lug terminal		N/A
	Mantle terminal		N/A
	Pull test; pull (N) .....:		N/A
(14.4.8)	Without undue damage		N/A

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict

ANNEX 4	**screwless terminals (part of the luminaire)**		**--**
(15)	**SCREWLESS TERMINALS**		**--**
(15.2)	Type of terminal .....:		--
	Rated current (A) .....:		--
(15.3.1)	Material		N/A
(15.3.2)	Clamping		N/A
(15.3.3)	Stop		N/A
(15.3.4)	Unprepared conductors		N/A
(15.3.5)	Pressure on insulating material		N/A
(15.3.6)	Clear connection method		N/A
(15.3.7)	Clamping independently		N/A
(15.3.8)	Fixed in position		N/A
(15.3.10)	Conductor size		N/A
	Type of conductor		N/A
(15.5.1)	Terminals internal wiring		N/A
(15.5.1.1)	Pull test spring-type terminals (4 N, 4 samples)		N/A
(15.5.1.2)	Pull test pin or tab terminals (4 N, 4 samples)		N/A
	Insertion force not exceeding 50 N		N/A
(15.5.2)	Permanent connections: pull-off test (20 N)		N/A
(15.6)	Electrical tests		--
	Voltage drop (mV) after 1 h (4 samples) .:		N/A
	Voltage drop of two inseparable joints		N/A
	Number of cycles .....:		N/A
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N/A
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N/A
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N/A
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N/A
(15.7)	Terminals external wiring		N/A

IEC 60598-2-4			
Clause	Requirement - Test	Result - Remark	Verdict

	Terminal size and rating									N/A
(15.8.1)	Pull test spring-type terminals (4 samples); pull (N)									N/A
	Pull test pin or tab terminals (4 samples); pull (N)									N/A
(15.9)	Contact resistance test									N/A
	Voltage drop (mV) after 1 h									N/A
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Voltage drop of two inseparable joints									
	Voltage drop after 10th alt. 25th cycle									
	Max. Allowed voltage drop (mV).....:									--
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Voltage drop after 50th alt. 100th cycle									
	Max. Allowed voltage drop (mV).....:									--
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Continued ageing: voltage drop after 10th alt. 25th cycle									
	Max. Allowed voltage drop (mV).....:									--
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Continued ageing: voltage drop after 50th alt. 100th cycle									
	Max. Allowed voltage drop (mV).....:									--
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										

Attachment 1: Test report of IEC 62031			
Clause	Requirement – Test	Result - Remark	Verdict
4	**GENERAL REQUIREMENTS**		---
4.4	Integral modules tested assembled in the luminaire		P
4.5	Independent modules complies with requirements in IEC 60598-1		N/A
5	**GENERAL TEST REQUIREMENTS**		--
5.5	SELV-operated LED modules comply with Annex I of IEC 61347-2-13	(see Annex 1)	N/A
	General conditions for tests in Annex A	(see Annex A)	P
6	**CLASSIFICATION**		---
	Built-in module .....:	Yes ☐ No ☒	—
	Independent module.....:	Yes ☐ No ☒	—
	Integral module .....:	Yes ☒ No ☐	—
	For Integral module; Note to 1.2.1 in IEC 60598-1 applies.		—
7	**MARKING**		N/A
	Requirements not applicable to the evaluated product.		**---**
8	**TERMINALS**		**---**
	Screw terminals according section 14 of IEC 60598-1:		N/A
	Separately approved; component list	(see Annex 2)	N/A
	Part of the luminaire	(see Annex 3)	N/A
	Screwless terminals according section 15 of IEC 60598-1:		N/A
	Separately approved; component list	(see Annex 2)	N/A
	Part of the luminaire	(see Annex 4)	N/A
	Connectors according IEC 60838-2-2:		N/A
	Separately approved; component list	(see Annex 2)	N/A
9 (9)	**PROVISION FOR PROTECTIVE EARTHING**		N/A
	Requirements not applicable to the evaluated product.		**---**
10 (10)	**PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS**		N/A
	Requirements not applicable to the evaluated product.		--

Attachment 1: Test report of IEC 62031			
Clause	Requirement – Test	Result - Remark	Verdict

11 (11)	**MOISTURE RESISTANCE AND INSULATION**		**---**
	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance with d.c. 500 V (MΩ):		P
	For basic insulation ≥ 2 MΩ .....:	100MΩ	P
	For double or reinforced insulation ≥ 4 MΩ .....:		N/A
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in IEC 61347-1		N/A

12 (12)	**ELECTRIC STRENGTH**		**---**
	Immediately after clause 11 electric strength test for 1 min		P
	Basic insulation for SELV, test voltage 500 V		P
	Working voltage ≤ 50 V, test voltage 500 V		N/A
	Working voltage > 50 V ≤ 1000 V, test voltage (V):		N/A
	Basic insulation, 2U + 1000 V		N/A
	Supplementary insulation, 2U + 1000 V		N/A
	Double or reinforced insulation, 4U + 2000 V		N/A
	No flashover or breakdown		P
	Solid or thin sheet insulation for double or reinforced insulation fulfil the requirements in Annex N in IEC 61347-1		N/A

13 (14)	**FAULT CONDITIONS**		**---**
- (14)	When operated under fault conditions the controlgear:		N/A
	- does not emit flames or molten material		N/A
	- does not produce flammable gases		N/A
	- protection against accidental contact not impaired		N/A
	Thermally protected controlgear does not exceed the marked temperature value		N/A
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	(see appended table)	N/A

Attachment 1: Test report of IEC 62031			
Clause	Requirement – Test	Result - Remark	Verdict
- (14.1)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (except between live parts and accessible metal parts)	(see appended table)	N/A
	Creepage distances on printed boards less than specified in clause 16 in Part 1 provided with coating according to IEC 60664-3		N/A
- (14.2)	Short-circuit or interruption of semiconductor devices	(see appended table)	N/A
- (14.3)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	N/A
- (14.4)	Short-circuit across electrolytic capacitors	(see appended table)	N/A
- (14.5)	After the tests has been carried out on three samples:		N/A
	The insulation resistance ≥ 1 MΩ .....:		N/A
	No flammable gases		N/A
	No accessible parts have become live		N/A
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		N/A
- (14.6)	Relevant fault condition tests with high-power supply		N/A
13.2	**Overpower condition**		**P**
	Module withstands overpower condition >15 min.		P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		N/A
	No fire, smoke or flammable gas is produced		P
	Molten material does not ignite tissue paper, spread below the module		P
15	**CONSTRUCTION**		**---**
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P
16 (16)	**CREEPAGE DISTANCES AND CLEARANCES**		**---**
- (16)	Creepage and distances and clearances in compliance with IEC 61347-1		P
	Insulating lining of metallic enclosures		P

Attachment 1: Test report of IEC 62031			
Clause	Requirement – Test	Result - Remark	Verdict
	Basic insulation on printed boards tested according to clause 14		P
	Distances subjected to both sinusoidal voltage as non-sinusoidal pulses not less than value in Table 16		P
	Creepage distances not less than minimum clearance		P
16 (-)	Conductive accessible parts in compliance with applicable parts of IEC 60598-1		N/A
17 (17)	**SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS**		**---**
	Screws, current-carrying parts and connections in compliance with IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1)		P
18 (18)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		**---**
- (18.1)	Ball-pressure test.....:	See Test Table 18 (18.1)	N/A
- (18.3)	Glow-wire test (650°C) .....:	See Test Table 18 (18.3)	N/A
- (18.4)	Needle-flame test (10 s) .....:	See Test Table 18 (18.4)	N/A
- (18.5)	Proof tracking test .....:	See Test Table 18 (18.5)	N/A
19 (19)	**RESISTANCE TO CORROSION**		**---**
	- test according 4.18.1 of IEC 60598-1		N/A
	- adequate varnish on the outer surface		N/A
20	**INFORMATION FOR LUMINAIRE DESIGN**		N/A
	Information in Annex D (informative)		—
21	**HEAT MANAGEMENT**		**---**
21.1	**General**		N/A
	Exchangeability is safeguarded by cap or base		N/A
21.2	**Heat-conducting foil and paste**		N/A
	Heat-conducting foil delivered with the module if necessary		N/A
22	**PHOTOBIOLOGICAL SAFETY**		**---**
22.1	**UV radiation**		N/A
	Luminous radiation not exceed 2mW/klm		N/A

Attachment 1: Test report of IEC 62031			
Clause	Requirement – Test	Result - Remark	Verdict
22.2	**Blue light hazard**		P
	Assessed according to IEC TR 62778	Refer to clasue 4.24.2 of IEC 60598-1	P
22.3	**Infrared radiation**		N/A
	Requirements for infrared radiation when required		N/A
A	**ANNEX A - TESTS**		**---**
	All tests performed in accordance with the advice given in Annex H of IEC 61347-1, if applicable		P
	ANNEX 1 - SELV-operated LED modules		**---**
	SELV-operated LED modules in compliance with Annex I of IEC 61347-2-13		N/A

Attachment 2: Test report of IEC TR 62778			
Clause	Requirement – Test	Result - Remark	Verdict

IEC TR 62778:2014			
Clause	Requirement + Test	Result – Remark	Verdict
5	Spectrum, colour temperature, and blue light hazard		P
5.1	Calculation of blue light hazard quantities and photometric quantities from emission spectra		P
5.2	Luminance and illuminance regimes that give rise to tmax values below 100s		P
7	**MEASUREMENT INFORMATION FLOW**		**P**
7.1	Basic flow		P
	'Law of conservation of luminance' applied		P
	Use of only true luminance/radiance values		P
	In case of luminaire: The light source is operated in the luminaire under similar conditions as when tested as a component		P
	In case E_{thr} value for RG2 was established the peak value was derived from angular light distribution		P
7.2	Conditions for the radiance measurement		P
	Standard condition applied (200mm distance, 0,011rad field of view)		P
	Non-standard condition applied		N/A
7.3	Special cases (I): Replacement by a lamp or LED module of another type		N/A
	Light source is a white light source		N/A
	Evaluation done based on highest luminance		N/A
	Evaluation done based on CCT value		N/A
7.4	Special cases (II): Arrays and clusters of primary light sources		N/A
	LED package is evaluated as……..:	☒RG0 unlimited ☐ RG1 unlimited	P
	E_{thr} of LED package applies to array		N/A
8	**RISK GROUP CLASSIFICATION**		**P**
	Risk group achieved:		P
	-.. Risk Group 0 unlimited		P

Attachment 2: Test report of IEC TR 62778			
Clause	Requirement – Test	Result - Remark	Verdict

IEC TR 62778:2014			
Clause	Requirement + Test	Result – Remark	Verdict
5	Spectrum, colour temperature, and blue light hazard		P
5.1	Calculation of blue light hazard quantities and photometric quantities from emission spectra		P
5.2	Luminance and illuminance regimes that give rise to tmax values below 100s		P
	-.. Risk Group 1 unlimited		N/A
	- E_{thr}…… (lx): Distance to reach RG1……..…… (m):		N/A

Risk Group Number	Risk Group Name	Corresponding t_{max} range (s)	Blue light hazard L_B (W/m².sr)
RG0	Exempt	>10000	<100
RG1	Low Risk	100-10000	100-10000
RG2	Moderate Risk	0.25-100	10000-4000000
RG3	High Risk	<0.25	>4000000

IEC TR 62778:2014			
Clause	Requirement + Test	Result – Remark	Verdict
TABLE	**SPECTRORADIOMETRIC MEASUREMENT**		**P**
Tested model number……..……:	H6063A		
Tested voltage……..…:	230Vac		
Tested current……:	0.18A		
Tested frequency……..…:	50Hz		
Ambient temperature……:	24.1°C		
Measurement distance……..:	100mm		
Source size……:	☒ Non-small source ☐ Small source		

Attachment 2: Test report of IEC TR 62778			
Clause	Requirement – Test	Result - Remark	Verdict

IEC TR 62778:2014			
Clause	Requirement + Test	Result – Remark	Verdict
Field of		☐ 100 mrad☒11 mrad☐ 1.7 mrad	
Blue light hazard radiance (L_B)……:		7.62e+00W/(m^2•sr)	
Blue light hazard irradiance (E_B)……..:		--W/m^2	
Luminance (L)……:		--cd/m^2	
Illuminance (E_{thr})……..:		--lx	
Calculate distance (d_{min})……..:		--m	

Measurement Uncertainty Statement:

EB, Urel=2.52% (k=2)

LB, Urel=2.84% (k=2)

LR, Urel=2.84% (k=2)

Attachment 3: Test report of EN 62493			
Clause	Requirement – Test	Result - Remark	Verdict

4.2	**APPLICATION OF LIMITS (Test summary)**		—
	Specific absorption rate (SAR)		—
a)	CISPR 15 clause 4.3.1 Disturbance voltage mains terminals 20 kHz – 30 MHz	*)	P
b)	CISPR 15 clause 4.4 Radiated electromagnetic disturbances 100 kHz – 30 MHz	*)	P
c)	CISPR 15 clause 4.4.2 Radiated electromagnetic disturbances 30 MHz – 300 MHz	*)	P
*)	☒ See separate Test Report for measurements of a), b) and c) above ☐ Only measurement of d) below. See measurement results below. In this case this test report does not show compliance with IEC 62493.		—
	Induced current density		N/A
d)	Induced current density 20 kHz – 10 MHz	See measurement results below	N/A
4.2.d	**INDUCED CURRENT DENSITY**		—
	Power supply system utilised:		—
	Voltage..... :		—
	Frequency..... :		—
	Environmental conditions:		—
	Temperature ..... :	25°C	—
	Humidity..... :	52% R.H.	—
	EuT operation mode:		—
	☒ Normal operation		—
	☐ Other operation:		—
4.2.d	**MEASUREMENT RESULTS**		—
	Measuring with “Van der Hoofden” test head		—

Location of EuT	Measuring distance	Result (F)	Limit (F)	Verdict
Front of EuT	50 cm	--	0,85	N/A
Rear of EuT	50 cm	--	0,85	N/A
Side of EuT	50 cm	--	0,85	N/A

Attachment 4: Photo Documentation

Photo 1 For model H6063A	
Photo 2 For model H6063B	

Attachment 4: Photo Documentation

Photo 3 For model H6063C	
Photo 4 For model H6063A	

Attachment 4: Photo Documentation

Photo 5 For model H6063A	

Photo 6 For model H6063A	

Attachment 4: Photo Documentation

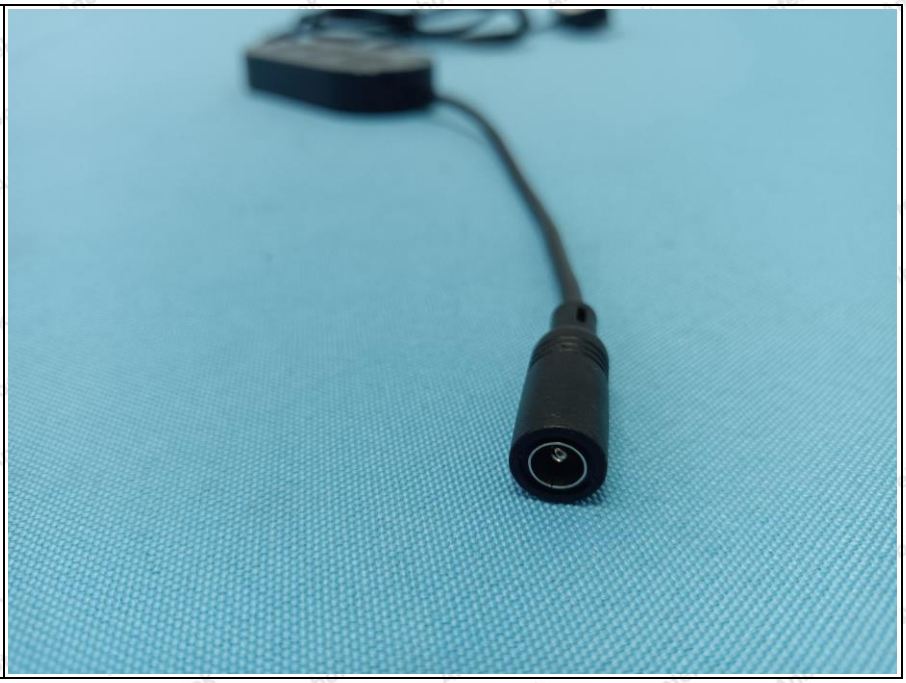
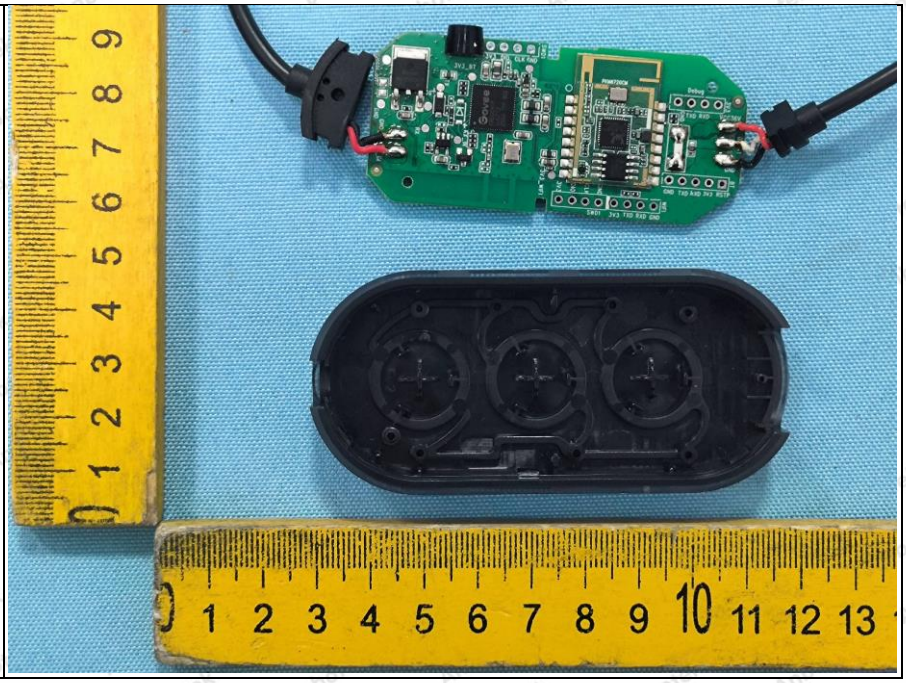
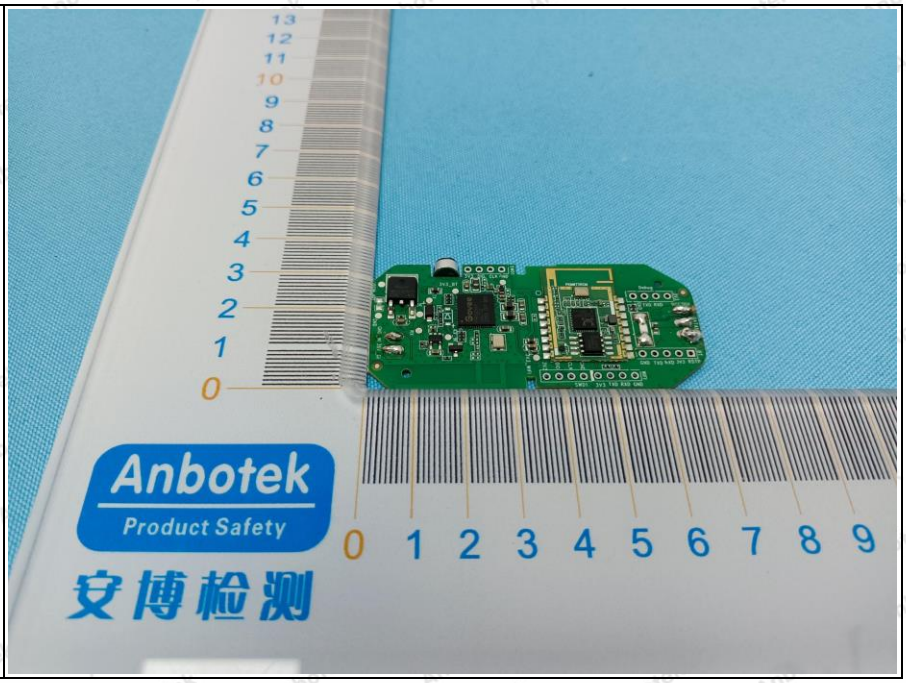
Photo 7 For model H6063A	

Photo 8 For model H6063A	

Attachment 4: Photo Documentation

Photo 9 For model H6063A	
Photo 10 For model H6063A	

Attachment 4: Photo Documentation

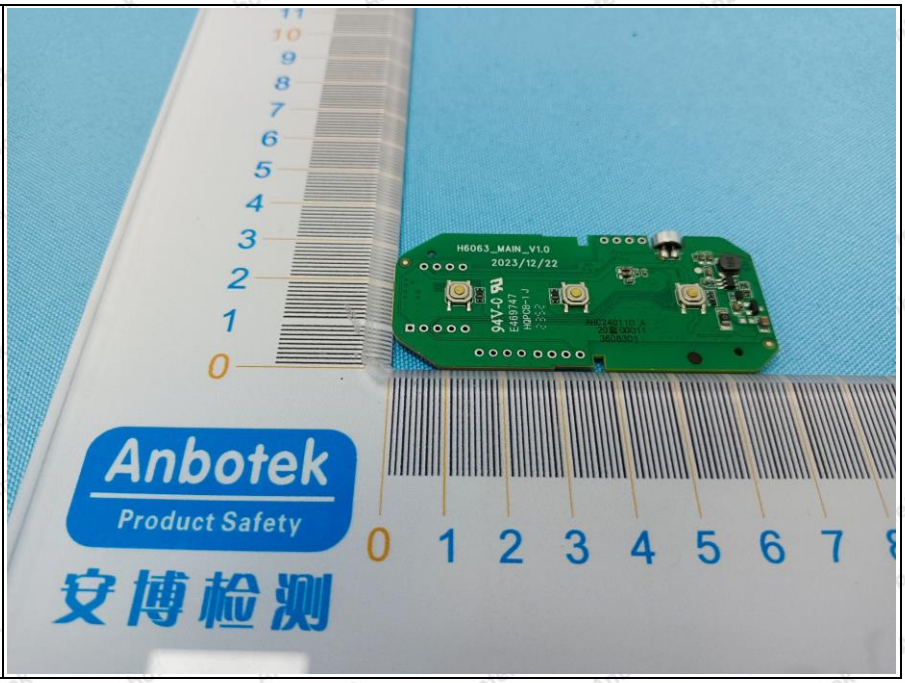
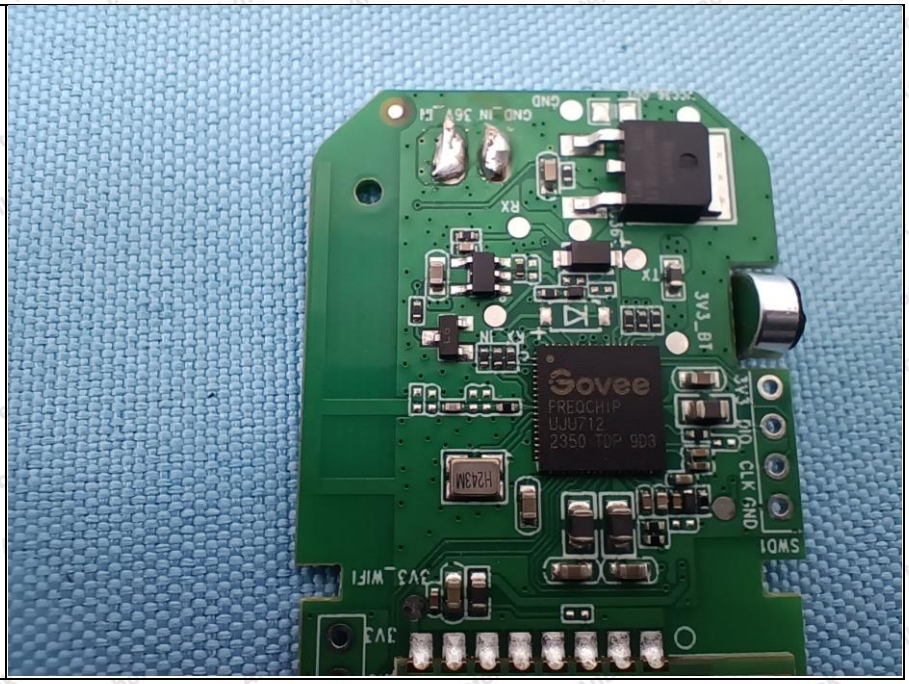
Photo 11 For model H6063A	

Photo 12 For model H6063A	

Attachment 4: Photo Documentation

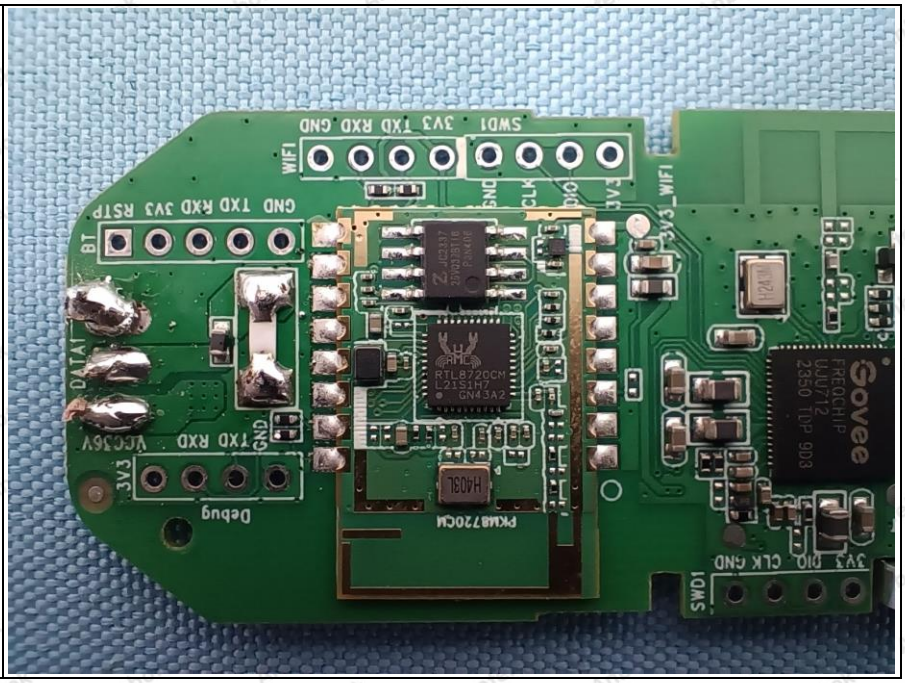
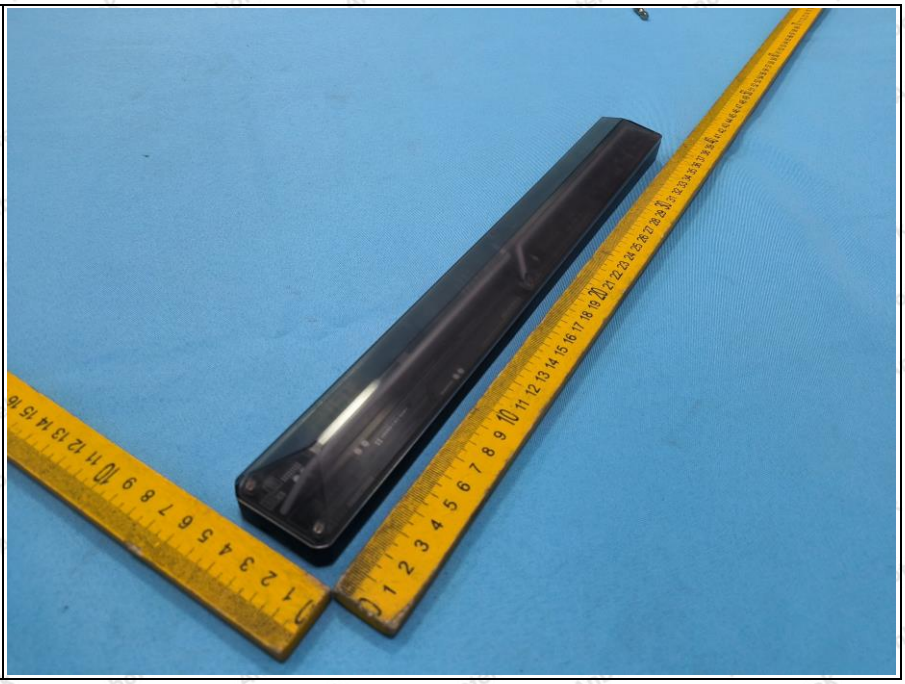
Photo 13 For model H6063A	

Photo 14 For model H6063A	

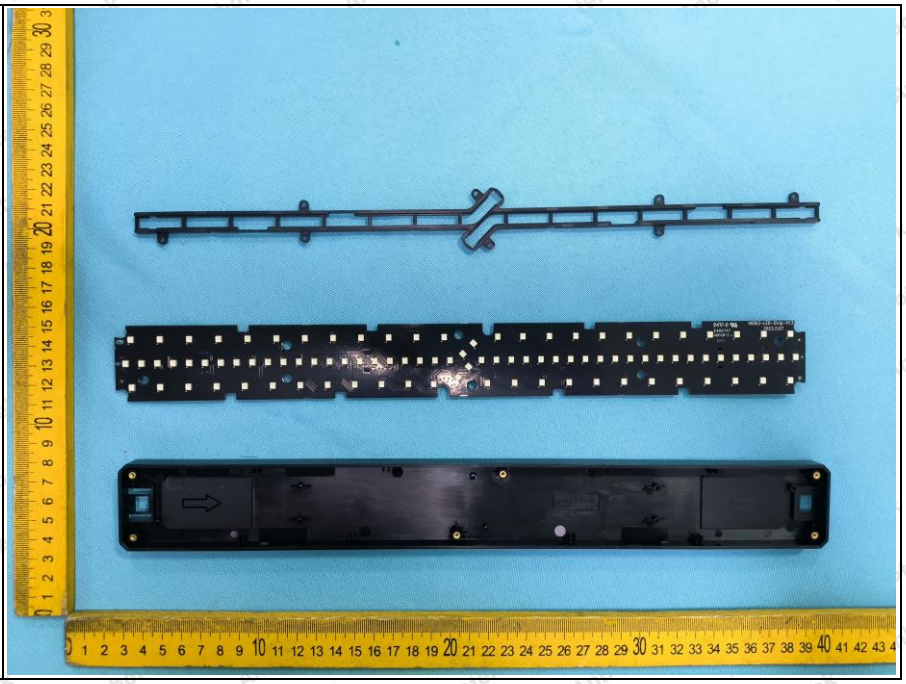
Attachment 4: Photo Documentation

Photo 15 For model H6063A	

Photo 16 For model H6063A	

Attachment 4: Photo Documentation

Photo 17 For model H6063A	

Photo 18 For model H6063A	

Attachment 4: Photo Documentation

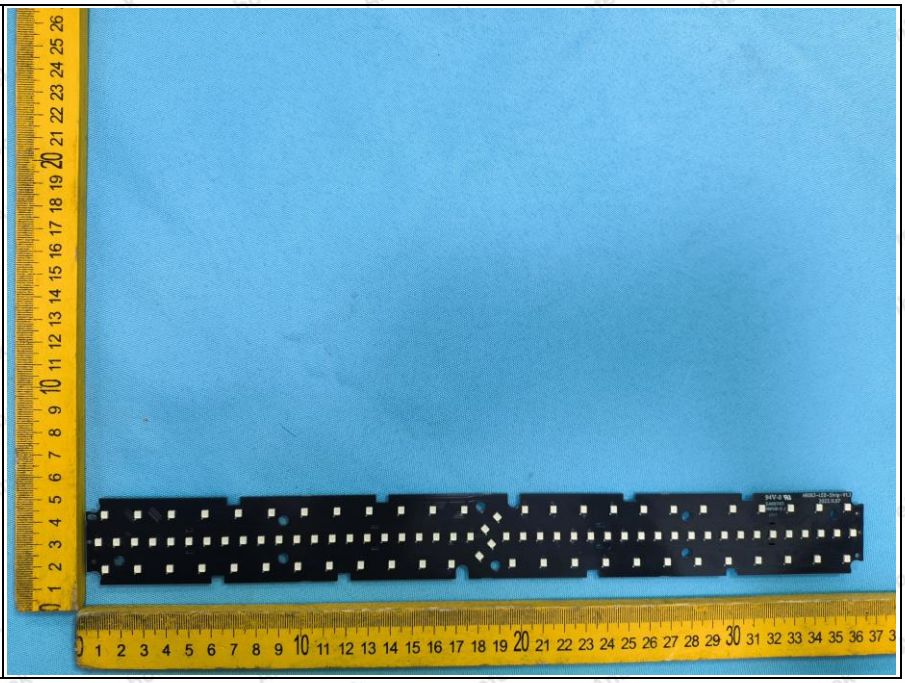
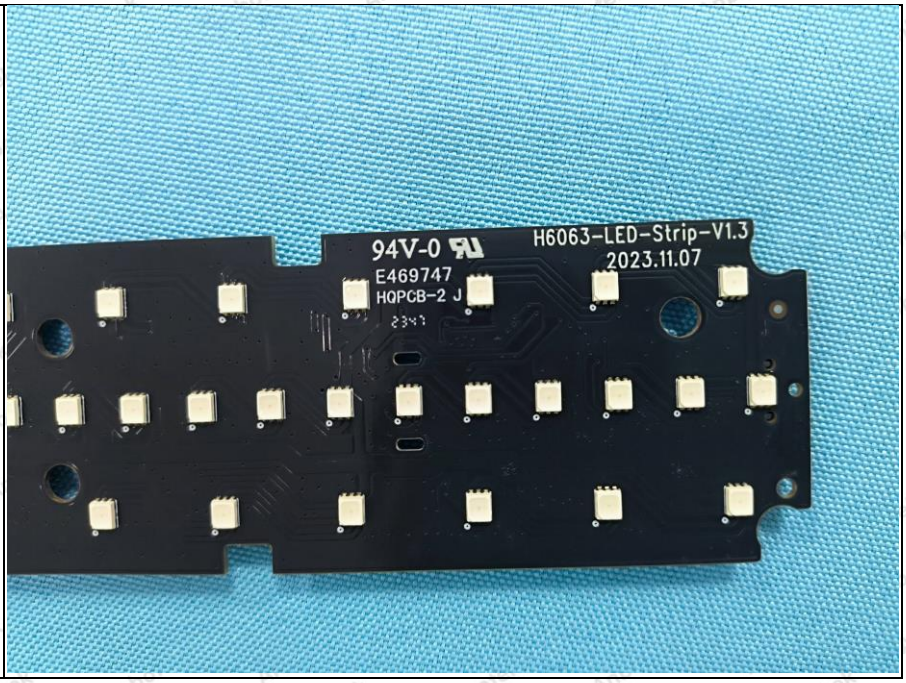
Photo 19 For model H6063A	

Photo 20 For model H6063A	

Attachment 4: Photo Documentation

Photo 21 For model H6063A	
Photo 22 For model H6063A	

Attachment 4: Photo Documentation

Photo 23 For model H6063A	

Photo 24 For model H6063A	

Attachment 4: Photo Documentation

Photo 25 For model H6063A	

--End of Report--