
Safety Test Report

Report No.: AGC05443251228ES02

PRODUCT DESIGNATION : Wireless charger, lamp speaker

BRAND NAME : N/A

MODEL NAME : M02124

APPLICANT : MID OCEAN BRANDS B.V.

DATE OF ISSUE : Jan. 07, 2026

STANDARD(S) : EN 60598-2-4:2018
: EN IEC 60598-1:2021+A11:2022

REPORT VERSION : V1.0

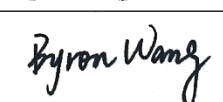
Attestation of **Global Compliance (Shenzhen) Co., Ltd.**



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TEST REPORT EN 60598-2-4 Luminaires Part 2: Particular requirements Section 4: Portable general purpose luminaires	
Report reference No.....	AGC05443251228ES02
Tested by (+ signature).....	Mody Mo 
Reviewed by (+ signature).....	Jimmy Zhu 
Approved by (+ signature).....	Byron Wang (Authorized officer) 
Date of issue	Jan. 07, 2026
Contents.....	Total 61 pages
Testing laboratory	
Name.....	Attestation of Global Compliance (Shenzhen) Co., Ltd.
Address	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao 'an District, Shenzhen, Guangdong, China
Test location.....	Same as above
Applicant	
Name	MID OCEAN BRANDS B.V.
Address	Unit 711- 716, 7/F., Tower A, 83 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong.
Manufacturer	
Name	MID OCEAN BRANDS B.V.
Address	Unit 711- 716, 7/F., Tower A, 83 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong.
Factory	
Name	MID OCEAN BRANDS B.V.
Address	Unit 711- 716, 7/F., Tower A, 83 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong.
Test specification	
Standard.....	EN 60598-2-4:2018 EN IEC 60598-1:2021+A11:2022
Test procedure.....	Type test
Procedure deviation.....	N/A
Non-standard test method.....	N/A

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Test Report Form/blank test report	
Test Report Form No..... :	AGC60598-2-4A8
TRF originator	AGC
Master TTRF..... :	2023-01
Test item	
Product designation :	Wireless charger, lamp speaker
Brand name	N/A
Test model	MO2124
Series models..... :	N/A
Rating(s)	Input: 9V $\overline{=}$ 2A Output: 9V $\overline{=}$ 1.1A Wireless Output power: 10W Max
Test item Particulars	
Classification of installation and use	Portable light
Supply connection	Type C inlet
Protection class	Class III
Protection against ingress of water..... :	IP20
Test case verdicts	
Test case does not apply to the test object ... :	N(/A)
Test item does meet the requirement	P(ass)
Test item does not meet the requirement..... :	F(ail)
Testing	
Date of receipt of test item..... :	Dec. 17, 2025
Date(s) of performance of test..... :	Dec. 17, 2025 – Dec. 29, 2025
Attachments	
Attachment A..... :	Test report of EN IEC 62031:2020+A11:2021
Attachment B..... :	Test report of IEC TR 62778:2014
Attachment C..... :	Photo of product

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General remarks

This test 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.

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

“(see appended table)” refers to a table appended to the report.

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

Report Revise Record:

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jan. 07, 2026	Valid	Initial release

General product information

1. The product is class III portable luminaire included integral LED module and charger and wireless module. The wireless module of the lighting fixture has been evaluated according to EN IEC 62368-1: 2020+A11:2020, refer to report No. AGC05443251228ES01 for details.

2. The product rated maximum ambient temperature of luminaire is 25°C, indoor used only.

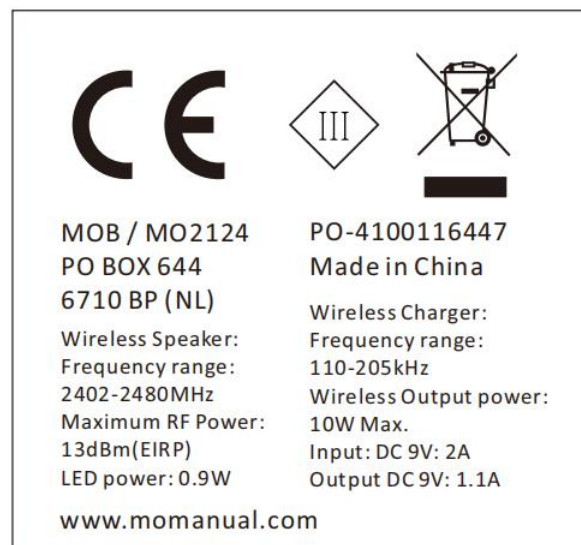
Summary of testing

The product complies with the requirements of EN IEC 60598-1:2021+A11:2022 and EN 60598-2-4:2018.

According clause 4.2.2 of EN 62493:2015, lighting equipment deemed to comply with the requirements of EN 62493:2015 without testing.

The retinal blue light hazard is assessed according to IEC/TR 62778.

Copy of marking plate



Remark:

- 1) The CE marking and WEEE symbol (if any) should be at least 5mm and 7mm respectively in height.
- 2) The markings and instructions are the minimum requirements required by safety standard. For final production samples, the additional markings which do not give rise to misunderstanding may be added.
- 3) As declared by the applicant, the importer (and manufacturer, if it is different)'s name, registered trade name or mark and the postal address will be marked on the products before being place on the market.
- 4) Marking on the packaging or in a document accompanying the electrical equipment is only acceptable if it is not possible to place such markings on the product.

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
4.4 (0)	GENERAL TEST REQUIREMENTS		P
4.4 (0.3)	More sections applicable.....:	Yes ☐ No ☒ Section/s:	—
4.4 (0.7)	Information for luminaire design in light sources standards		—
4.4 (0.7.2)	Light source safety standard	EN IEC 62031 IEC TR62778	—
	Luminaire design in the light source safety standard		—

4.5 (2)	CLASSIFICATION OF LUMINAIRES		P
4.5 (2.2)	Type of protection	Class III	—
4.5 (2.3)	Degree of protection.....:	IP20	—
4.5 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces.....:	Yes ☒ No ☐	—
4.5 (2.5)	Luminaire for normal use	Yes ☒ No ☐	—
	Luminaire for rough service	Yes ☐ No ☒	—
4.5.1 (-)	Ordinary luminaire.....:	Yes ☒ No ☐	—
	Luminaires other than ordinary classified “for indoor use only”	Yes ☐ No ☒	—
	Luminaires other than ordinary classified for “outdoor use” and “for indoor use”	Yes ☐ No ☒	—
4.5.2 (-)	Portable luminaire for outdoor use classified IPX4 or higher		N
4.5.3 (-)	Luminaires designed for standing on a floor or table classified as suitable for direct mounting on normally flammable surfaces		P

4.6 (3)	MARKING		P
4.6 (3.2)	Mandatory markings	Refer to the copy of marking plate	P
	Position of the marking	Affixed on enclosure	P
	Format of symbols/text	Symbols>5mm, letters>2mm	P
4.6 (3.3)	Additional information		P
	Language of instructions	English	P
4.6 (3.3.1)	Combination luminaires		N
4.6 (3.3.2)	Nominal frequency in Hz	9VDC	N
4.6 (3.3.3)	Operating temperature		N

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
4.6 (3.3.5)	Wiring diagram		N
4.6 (3.3.6)	Special conditions		N
4.6 (3.3.7)	Metal halide lamp luminaire – warning		N
4.6 (3.3.8)	Limitation for semi-luminaires		N
4.6 (3.3.9)	Power factor and supply current		N
4.6 (3.3.10)	Suitability for use indoors		P
4.6 (3.3.11)	Luminaires with remote control		N
4.6 (3.3.12)	Clip-mounted luminaire – warning		N
4.6 (3.3.13)	Specifications of protective shields		N
4.6 (3.3.14)	Symbol for nature of supply	---	P
4.6 (3.3.15)	Rated current of socket outlet		N
4.6 (3.3.16)	Rough service luminaire		N
4.6 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	Type C inlet	N
4.6 (3.3.18)	Non-ordinary luminaires with PVC cable		N
4.6 (3.3.19)	Protective conductor current in instructions, if applicable		N
4.6 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N
4.6 (3.3.21)	Non replaceable and non-user replaceable light sources information provided		N
4.6 (3.3.22)	Controllable luminaires, classification of insulation provided		N
4.6 (3.3.23)	Luminaires without controlgear provided with necessary information for selection of appropriate component		P
4.6 (3.3.24)	If not supplied with terminal block, information on the packaging		N
4.6 (3.3.25)	Luminaires employing light sources emitting UV on mains wiring, information provided		N
4.6 (3.3.26)	Wall mounted luminaire using external flexible cable or cord longer than 0.3 m, information provided		N
4.6 (3.4)	Test with water	15 s	P
	Test with hexane	15 s	P
	Legible after test	No any curling and still legibility	P
	Label attached	No any curling	P
4.6.1 (-)	Luminaire not suitable for outdoor application		P

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
	Required symbol		P
	Information in the instructions		P
4.6.2 (-)	Outdoor use, socket outlet incorporated in the luminaire	Indoor used	N
	Maximum power rating marked		N
	Position of the marking		N

4.7 (4)	CONSTRUCTION		P
4.7 (4.2)	Components replaceable without difficulty		P
4.7 (4.3)	Wireways smooth and free from sharp edges		P
4.7 (4.4)	Lampholders		N
4.7 (4.4.1)	Integral lampholder		N
4.7 (4.4.2)	Wiring connection		N
4.7 (4.4.3)	Lampholder for end-to-end mounting		N
4.7 (4.4.4)	Positioning		N
	- pressure test (N)		—
	After test the lampholder comply with relevant standard sheets and show no damage		N
	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		N
	- bending test (N)		—
	After test the lampholder have not moved from its position and show no permanent deformation		N
4.7 (4.4.5)	Peak pulse voltage		N
4.7 (4.4.6)	Centre contact		N
4.7 (4.4.7)	Parts in rough service luminaires resistant to tracking		N
4.7 (4.4.8)	Lamp connectors		N
4.7 (4.4.9)	Caps and bases correctly used		N
4.7 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		N
4.7 (4.5)	Starter holders		N
	Starter holder in luminaires other than class II		N
	Starter holder class II construction		N
4.7 (4.6)	Terminal blocks		N

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
	Tails		N
	Unsecured blocks		N
4.7 (4.7)	Terminals and supply connections		N
4.7 (4.7.1)	Contact to metal parts		N
4.7 (4.7.2)	Test 8 mm live conductor		N
	Test 8 mm earth conductor		N
4.7 (4.7.3)	Terminals for supply conductors		N
4.7 (4.7.3.1)	Welded method and material		N
	- stranded or solid conductor		N
	- spot welding		N
	- welding between wires		N
	- Type Z attachment		N
	- mechanical test according to 15.6.2		N
	- electrical test according to 15.6.3		N
	- heat test according to 15.6.3.2.3 and 15.6.3.2.4		N
4.7 (4.7.4)	Terminals other than supply connection		N
4.7 (4.7.5)	Heat-resistant wiring/sleeves		N
4.7 (4.7.6)	Multi-pole plug		N
	- test at 30 N		N
4.7 (4.8)	Switches		P
	- adequate rating		N
	- adequate fixing		P
	- polarized supply		N
	- compliance with IEC 61058-1 for electronic switches		N
4.7 (4.9)	Insulating lining and sleeves		N
4.7 (4.9.1)	Retainment		N
	Method of fixing.....:		N
4.7 (4.9.2)	Insulated linings and sleeves:		N
	Resistant to a temperature > 20 °C to the wire temperature or		N
	a) & c) Insulation resistance and electric strength		N
	b) Ageing test. Temperature (°C).....:		N

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
4.7 (4.10)	Double or reinforced insulation	Class III luminaire	N
4.7 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		N
	Safe installation fixed luminaires		N
	Capacitors and switches		N
	Interference suppression capacitors according to IEC 60384-14		N
4.7 (4.10.2)	Assembly gaps:		N
	- not coincidental		N
	- no straight access with test probe		N
4.7 (4.10.3)	Retention of insulation:		N
	- fixed		N
	- unable to be replaced; luminaire inoperative		N
	- sleeves retained in position		N
	- lining in lampholder		N
4.7 (4.10.4)	Protective impedance device		N
	Basic and supplementary insulation bridged by resistor(s) or appropriate capacitor		N
	Double or reinforced insulation bridged by at least two separate resistors in series or appropriate capacitor(s)		N
	Capacitors comply with IEC 60384-14		N
	Resistors comply with test (a) in 14.2 of IEC 60065		N
4.7 (4.11)	Electrical connections and current-carrying parts		P
4.7 (4.11.1)	Contact pressure		P
4.7 (4.11.2)	Screws:		P
	- self-tapping screws		P
	- thread-cutting screws		N
4.7 (4.11.3)	Screw locking:		N
	- spring washer		N
	- rivets		N
4.7 (4.11.4)	Material of current-carrying parts	Copper alloy	P
4.7 (4.11.5)	No contact to wood or mounting surface		P
4.7 (4.11.6)	Electro-mechanical contact systems		N

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
4.7 (4.12)	Screws and connections (mechanical) and glands		P
4.7 (4.12.1)	Screws not made of soft metal		N
	Screws of insulating material		N
	Torque test: torque (Nm); part..... :		N
	Torque test: torque (Nm); part..... :		N
4.7 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N
4.7 (4.12.4)	Locked connections:		P
	- fixed arms; torque (Nm)..... :	Screw for fix main circuit PCB, 2.0mm,0.4Nm	P
	- lampholder; torque (Nm)..... :	Screw for fix enclosure, 2.0mm,0.4Nm	P
	- push-button switches; torque 0,8 Nm..... :		N
4.7 (4.12.5)	Screwed glands; force (Nm)..... :		N
4.7 (4.13)	Mechanical strength		P
4.7 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm)..... :		N
	- other parts; energy (Nm)..... :	Plastic enclosure:0.35Nm	P
	1) live parts		P
	2) linings		N
	3) protection		P
	4) covers		P
4.7 (4.13.2)	Metal parts have adequate mechanical strength		N
4.7 (4.13.3)	Straight test finger	30N	P
4.7 (4.13.4)	Rough service luminaires		N
	- IP54 or higher		N
	a) fixed		N
	b) hand-held		N
	c) delivered with a stand		N
	d) for temporary installations and suitable for mounting on a stand		N
4.7 (4.13.6)	Tumbling barrel		N
4.7 (4.14)	Suspensions, fixings and means of adjusting		P
4.7 (4.14.1)	Mechanical load:		N
	A) four times the weight		N

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
	B) torque 2,5 Nm		N
	C) bracket arm; bending moment (Nm)..... :	--	N
	D) load track-mounted luminaires		N
	E) clip-mounted luminaires, glass-shelve. Thickness (mm) :	--	—
	Metal rod. diameter (mm) :	--	N
	Fixed luminaire or independent control gear without fixing devices		N
4.7 (4.14.2)	Load to flexible cables		N
	Mass (kg) :	--	—
	Stress in conductors (N/mm ²) :	--	N
	Mass (kg) of semi-luminaire :	--	N
	Bending moment (Nm) of semi-luminaire :	--	N
4.7 (4.14.3)	Adjusting devices:		P
	- flexing test; number of cycles..... :	1500cycles	P
	- strands broken..... :	<50%	P
	- electric strength test afterwards		P
4.7 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N
4.7 (4.14.5)	Guide pulleys		N
4.7 (4.14.6)	Strain on socket-outlets		N
4.7 (4.15)	Flammable materials		P
	- glow-wire test 650°C..... :	See Test Table 3.15 (13.3.2)	P
	- spacing ≥30 mm		N
	- screen withstanding test of 13.3.1		N
	- screen dimensions		N
	- no fiercely burning material		P
	- thermal protection		N
	- electronic circuits exempted		N
4.7 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N
	a) construction		N
	b) temperature sensing control		N
	c) surface temperature		N
4.7 (4.16)	Luminaires for mounting on normally flammable surfaces		P

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Clause	Requirement – Test	Result	Verdict
	No lamp control gear.....:	(compliance with Section 12)	P
	Provided with adaptor for a track meet the requirements for direct mounting on normally flammable surfaces		N
4.7 (4.16.1)	Lamp control gear spacing:		N
	- spacing 35 mm		N
	- spacing 10 mm		N
4.7 (4.16.2)	Thermal protection:		N
	- in lamp control gear		N
	- external		N
	- fixed position		N
	- temperature marked lamp control gear		N
4.7 (4.16.3)	Design to satisfy the test of 12.6.....:	(see clause 12.6)	N
4.7 (4.17)	Drain holes		N
	Clearance at least 5 mm		N
4.7 (4.18)	Resistance to corrosion		N
4.7 (4.18.1)	- rust-resistance		N
4.7 (4.18.2)	- season cracking in copper		N
4.7 (4.18.3)	- corrosion of aluminium		N
4.7 (4.19)	Ignitors compatible with ballast		N
4.7 (4.20)	Rough service vibration		N
4.7 (4.21)	Protective shield		N
4.7 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		N
	Shield of glass if tungsten halogen lamps		N
4.7 (4.21.2)	Particles from a shattering lamp not impair safety		N
4.7 (4.21.3)	No direct path		N
4.7 (4.21.4)	Impact test on shield		N
	Glow-wire test on lamp compartment.....:	See Test Table 3.15 (13.3.2)	N
4.7 (4.22)	Attachments to lamps not cause overheating or damage		N
4.7 (4.23)	Semi-luminaires comply Class II		N
4.7 (4.24)	Photobiological hazards		P
4.7 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
4.7 (4.24.2)	Retinal blue light hazard		P
	Class of risk group assessed according to IEC/TR 62778	RG0	—
	Luminaires with E_{thr} :		N
	a) Fixed luminaires		N
	- distance x m, borderline between RG1 and RG2... :		N
	- marking and instruction according 3.2.23		N
	b) Portable and handheld luminaires	It is classified as RG0, not necessary to access the retinal blue light hazard	P
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		N
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778		N
4.7 (4.25)	Mechanical hazard		P
	No sharp point or edges		P
4.7 (4.26)	Short-circuit protection		N
4.7 (4.26.1)	Adequate means of uninsulated accessible SELV or PELV parts		N
4.7 (4.26.2)	Short-circuit test with test chain according 4.26.3		N
	Supply source ES1 PSE		N
	Test chain not melt through		N
	Test sample not exceed values of Table 12.1 and 12.2		N
4.7 (4.27)	Terminal blocks with integrated screwless earthing contacts		N
	Test according Annex V		N
	Pull test of terminal fixing (20 N)		N
	After test, resistance < 0,05 Ω		N
	Pull test of mechanical connection (50 N)		N
	After test, resistance < 0,05 Ω		N
	Voltage drop test, resistance < 0,05 Ω		N
4.7 (4.28)	Fixing of thermal sensing control		N
	Not plug-in or easily replaceable type		N
	Reliably kept in position		N

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N
	Not outside the luminaire enclosure		N
	Test of adhesive fixing:		N
	Max. temperature on adhesive material (°C) :		—
	100 cycles between t min and t max		N
	Temperature sensing control still in position		N
4.7 (4.29)	Luminaires with non-replaceable light source		N
	Not possible to replace light source		N
	Live part not accessible after parts have been opened by hand or tools		N
4.7 (4.30)	Luminaires with non-user replaceable light source		N
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:		N
	At least one fixing means requiring use of tool		N
4.7 (4.31)	Insulation between circuits	Class III luminaire	N
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		N
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3		N
4.7 (4.31.1)	SELV or PELV circuits		N
	Used SELV or PELV source		N
	Voltage ≤ ELV		N
	Insulating of SELV or PELV circuits from LV supply		N
	Insulating of SELV or PELV circuits from other non SELV or PELV circuits		N
	Insulating of SELV or PELV circuits from FELV		N
	Insulating of SELV or PELV circuits from other SELV or PELV circuits		N
	SELV or PELV circuits insulated from accessible parts according Table X.1		N
	Plugs not able to make any electrical contact with socket-outlets of other voltage systems		N
	Socket outlets does not admit plugs of other voltage systems		N

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
	Plugs and socket-outlets does not have protective conductor contact		N
4.7 (4.31.2)	FELV circuits		N
	Used FELV source		N
	Voltage $\leq$ ELV		N
	Insulating of FELV circuits from LV supply		N
	FELV circuits insulated from accessible parts according Table X.1		N
	Plugs not able to make any electrical contact with socket-outlets of other voltage systems		N
	Socket outlets does not admit plugs of other voltage systems		N
	Socket-outlets have protective conductor contact		N
4.7 (4.31.3)	Other circuits		N
	Other circuits insulated from accessible parts according Table X.1		N
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		N
	- conductive parts are connected together		N
	- test according 7.2.3		N
	- conductive part not cause an electric shock in case of an insulation fault		N
	- equipotential bonding in master/slave applications		N
	- master luminaire provided with terminal for accessible conductive parts of slave luminaires		N
	- slave luminaire constructed as class I		N
4.7 (4.32)	Overvoltage protective devices		N
	Comply with IEC 61643-11		N
	External to controlgear and connected to earth:		N
	- only in fixed luminaires		N
	- only connected to protective earth		N
4.7 (4.33)	Luminaire powered via information technology communication cabling		N
	Requirements for Class III luminaire		N
	Rated voltage within the range of ES1 and does not exceed maximum voltage of used connector		N
	Luminaire does not create any hazard from overvoltage	(see Annex 2)	N

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
4.7 (4.34)	Electromagnetic fields (EMF)		P
	No harmful electromagnetic fields		P
4.7 (4.35)	Protection against moving fan blades		N
	Test with a standard test finger		N
	Test with test probe acc. to Figure 13 (IEC 61032) for portable luminaire		N
	Blades rounded with radius ≥ 0.5 mm and:		N
	- hardness less than D60 Shore		N
	- peripheral speed less than 15 m/s		N
	- input power of fan ≤ 2 W at rated voltage		N
4.7 (4.36)	Track-mounted luminaires		N
	Test in accordance with Annex A of IEC60570:2003/AMD2:2019		N
4.7.1 (-)	Insulation not damaged when moving, adjusting or placing on support		P
4.7.2 (-)	Wiring fixed, to avoid rubbing		P
	Carrier or clips of insulation material or with insulating lining		P
4.7.3 (-)	Luminaire not overturn at angle 6°	Reference user manual before use	P
	Outdoor use luminaire not overturn at an angle 15°	Indoor use	N
4.7.4 (-)	Candlestick luminaires with E5 or E10 lampholders provided with a switch		N
	Switch part of the luminaire or within 300 mm of the luminaire if with cord		N
4.7.5 (-)	Voltage not exceeding 25 V for E5 lampholders		N
	E10 lampholder voltage:		N
	- not exceeding 60 V for series connection) or		N
	- not exceeding 250 V for parallel connections		N
	Maximum rated wattage not exceed 100 W		N
4.7.6 (-)	Portable luminaires for outdoor use tails not provided	Indoor use	N
4.7.7 (-)	Portable luminaires for outdoor use, cable entries		N
4.7.8 (-)	Portable luminaires for outdoor use, socket-outlet degree of protection at least same as the luminaire but not less than IPX4.		N
	Degree of protection maintained with or without a plug inserted into the socket-outlet.		N

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
	Class II luminaires, mains socket-outlets comply with the standard and only allow connection to Class II luminaires		N
	Class I luminaires, mains socket-outlets comply with the standard and only allow connection to Class I or Class II luminaires		N
4.7.9 (-)	Portable luminaires for outdoor use, lampholders and plugs are of material resistant to tracking	See Test Table 4.16 (13.4)	N
	Compliance to clause 13.4		N

4.8 (11)	CREEPAGE DISTANCES AND CLEARANCES		P
	Impulse withstand category (Normal category II) (Category III Annex U, Table U.1).....:	Category II ☐ Category III ☒	—
4.8 (11.2.1)	Category III according Annex U		N
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1		N
4.7 (11.2.2)	Creepage distances for frequency up to 30 kHz.....:	See Test Table 4.7 (11.2) I	N
	Creepage distances for frequency over 30 kHz:		N
	- Controlgear marked with $\hat{U}_{OUT}$ and f_{UOUT} according IEC 61347-1, clause 7.1, item w).....:	See Test Table 4.7 (11.2) II	N
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347.....:	See Test Table 4.7 (11.2) II	N
4.7 (11.2.3)	Clearances for frequency up to 30 kHz.....:	See Test Table 4.7 (11.2) I	N
	Clearances distances for frequency over 30 kHz:		N
	- Controlgear marked with U_P:	See Test Table 4.7 (11.2) II	N
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347.....:	See Test Table 4.7 (11.2) II	N

4.9 (7)	PROVISION FOR EARTHING		N
4.9 (7.2.1 + 7.2.3)	Accessible metal parts		N
	Metal parts in contact with supporting surface		N
	Resistance < 0,5 Ω:		N
	Self-tapping screws used		N
	Thread-forming screws		N
	Thread-forming screw used in a grove		N
	Earth makes contact first		N

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N
	Protective earthing of the luminaire not via built-in control gear		N
4.9 (7.2.2 + 7.2.3)	Protective earthing continuity in joints, etc.		N
4.9 (7.2.4)	Locking of clamping means		N
	Compliance with 4.7.3		N
4.9 (7.2.5)	Earth terminal integral part of connector socket		N
4.9 (7.2.6)	Earth terminal adjacent to mains terminals		N
4.9 (7.2.7)	Electrolytic corrosion of the protective earth terminal		N
4.9 (7.2.8)	Material of earth terminal		N
	Contact surface bare metal		N
4.9 (7.2.10)	Class II luminaire for looping-in		N
	Double or reinforced insulation to functional earth		N
4.9 (7.2.11)	Protective earthing core coloured green-yellow		N
	Length of protective earthing conductor		N
4.9 (7.2.12)	PELV circuit connected to protective earth for functional purpose		N

4.10 (14)	SCREW TERMINALS		N
	Separately approved; component list.....:	(see Annex 1)	N
	Part of the luminaire.....:	(see Annex 3)	N

4.10 (15)	SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS		N
	Separately approved; component list.....:	(see Annex 1)	N
	Part of the luminaire.....:	(see Annex 4)	N

4.11 (5)	EXTERNAL AND INTERNAL WIRING		P
4.11 (5.2)	Supply connection and external wiring		P
4.11 (5.2.1)	Means of connection.....:	Type C inlet	P
	Outdoor luminaire has not PVC insulated external wiring if not Class III or SELV/PELV circuits ≤ 25 V AC/60 V DC/25 V peak interrupted DC voltage with frequency 10Hz -200 Hz or protected from outdoor environment		N

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
4.11 (5.2.2)	Type of cable.....:		N
	Nominal cross-sectional area (mm ²).....:		N
	Cables equal to IEC 60227 or IEC 60245		N
4.11 (5.2.3)	Type of attachment, X, Y or Z.....:		N
4.11 (5.2.5)	Type Z not connected to screws		N
4.11 (5.2.6)	Cable entries:		N
	- suitable for introduction		N
	- adequate degree of protection		N
4.11 (5.2.7)	Cable entries through rigid material have rounded edges		N
4.11 (5.2.8)	Insulating bushings:		N
	- suitably fixed		N
	- material in bushings		N
	- material not likely to deteriorate		N
	- tubes or guards made of insulating material		N
4.11 (5.2.9)	Locking of screwed bushings		N
4.11 (5.2.10)	Cord anchorage:		N
	- covering protected from abrasion		N
	- clear how to be effective		N
	- no mechanical or thermal stress		N
	- no tying of cables into knots etc.		N
	- insulating material or lining		N
4.11 (5.2.10.1)	Cord anchorage for type X attachment:		N
	a) at least one part fixed		N
	b) types of cable		N
	c) no damaging of the cable		N
	d) whole cable can be mounted		N
	e) no touching of clamping screws		N
	f) metal screw not directly on cable		N
	g) replacement without special tool		N
	Glands not used as anchorage		N
	Labyrinth type anchorages		N

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
4.11 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		N
4.11 (5.2.10.3)	Tests:		N
	- impossible to push cable; unsafe		N
	- pull test: 25 times; pull (N)..... :		N
	- torque test: torque (Nm)..... :		N
	- displacement ≤ 2 mm		N
	- no movement of conductors		N
	- no damage of cable or cord		N
	- function independent of electrical connection		N
4.11 (5.2.10.4)	Luminaire with/ designed for use with supply cord with maximum current of 2A:		N
	- Ordinary Class III luminaire supplied with SELV ≤ 25 V RMS/60V DC		N
	- Ordinary Class III luminaire supplied with PELV ≤ 12 V RMS/30V DC		N
	- Other than ordinary Class III luminaire supplied with voltage ≤ 12 V RMS/30V DC		N
	Pull test of 30 N		N
4.11 (5.2.11)	External wiring passing into luminaire		N
4.11 (5.2.12)	Looping-in terminals		N
4.11 (5.2.13)	Wire ends not tinned		N
	Wire ends tinned: no cold flow		N
4.11 (5.2.14)	Mains plug same protection		N
	Class III luminaire plug		N
	No unsafe compatibility		N
4.11 (5.2.16)	Appliance inlets (IEC 60320)		N
	Installation couplers (IEC 61535)		N
	Appliance inlet or connector systems (IEC 61984)		N
4.11 (5.2.17)	No standardized interconnecting cables properly assembled		N

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
4.11 (5.2.18)	Used plug in accordance with		N
	- IEC 60083		N
	- other standard		N
4.11 (5.3)	Internal wiring		P
4.11 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		N
	- not delivered/ mounting instruction		N
	- factory assembled		N
	- socket outlet loaded (A)..... :		N
	- temperatures..... : (see Annex 2)		N
	Green- yellow for earth only		N
4.11 (5.3.1.1)	Internal wiring connected directly to fixed wiring		N
	Cross-sectional area (mm ²)..... :		N
	Insulation thickness		N
	Extra insulation added where necessary		N
4.11 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		P
	Cross-sectional area (mm ²)..... :	See Annex 1	P
4.11 (5.3.1.3)	Double or reinforced insulation for class II		N
4.11 (5.3.1.4)	Conductors without insulation		N
4.11 (5.3.1.5)	SELV current-carrying parts		P
4.11 (5.3.1.6)	Insulation thickness other than PVC or rubber		N
4.11 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		P
	Joints, raising/lowering devices		N
	Telescopic tubes etc.		N
	No twisting over 360°		P
4.11 (5.3.3)	Insulating bushings:		N
	- suitable fixed		N
	- material in bushings		N

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
	- material not likely to deteriorate		N
	- cables with protective sheath		N
4.11 (5.3.4)	Joints and junctions effectively insulated		N
4.11 (5.3.5)	Strain on internal wiring		N
4.11 (5.3.6)	Wire carriers		N
4.11 (5.3.7)	Wire ends not tinned		N
	Wire ends tinned: no cold flow		P
4.11 (5.4)	Test to determine suitability of conductors having a reduced cross-sectional area		N
	Under test the temperature of the luminaire wiring insulation not exceed the limits stated in Table 12.2	(see Annex 2)	N
	No damage to luminaire wiring after test		N
4.11.1 (-)	Cord anchorage of luminaire for indoor use made of glass or ceramic not fixed or integral		—
4.11.2 (-)	For Class I and Class II luminaires for indoor use, if:		N
	- mass < 1 kg (kg).....:		N
	- rated current ≤ 2,5 A (A).....:		N
	- cable length ≤ 2 m (m).....:		N
	- the nominal cross-sectional area of copper conductor ≥ 0,5 mm ² (mm ²)..... :		N
4.11.3 (-)	Terminals, a cord anchorage and an inlet opening for the proper connection of the flexible cable or cord if for outdoor use and delivered without a flexible cable or cord and a plug.		N
4.11.4 (-)	Portable luminaires for outdoor use Insulation class I and class II, non-detachable flexible cables or cords at least type 245 IEC 57.	Indoor use	N

4.12 (8)	PROTECTION AGAINST ELECTRIC SHOCK		N
4.12 (8.2.1)	Live parts not accessible	Class III luminaire, no live parts in luminaire	N
	Basic insulated parts not used on the outer surface without appropriate protection		N
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		N
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		N

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
	Lamp and starter holders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N
	Basic insulation only accessible under lamp or starter replacement		N
	Protection in any position		N
	Double-ended tungsten filament lamp		N
	Insulation lacquer not reliable		N
	Double-ended high pressure discharge lamp		N
	Relevant warning according to 3.2.18 fitted to the luminaire		N
4.12 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N
4.12 (8.2.3.a)	Class II luminaire:		N
	- basic insulated metal parts not accessible		N
	- required insulation from live parts in compliance with Table X.1		N
	- glass protective shields not used as supplementary insulation		N
4.12 (8.2.3.b)	Metal BC lampholder in class I luminaires connected to protective earth		N
4.12 (8.2.3.c)	SELV circuits with exposed current carrying parts:		N
	Ordinary luminaire:		N
	- voltage under load/ no-load AC (V).....:		N
	- voltage under load/ no-load DC (V).....:		N
	- interrupted DC voltage (V).....:		N
	- touch current if applicable (mA)		N
	One conductive part insulated if required		N
	Other than ordinary luminaire:		N
	- voltage under load/ no-load AC (V).....:		N
	- voltage under load/ no-load DC (V).....:		N
	- interrupted DC voltage (V).....:		N
4.12 (8.2.3.d)	PELV circuits with exposed current carrying parts:		N
	Ordinary luminaire:		N

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
	- voltage under load/ no-load AC (V).....:		N
	- voltage under load/ no-load DC (V).....:		N
	Other than ordinary luminaire:		N
	- voltage under load/ no-load AC (V).....:		N
	- voltage under load/ no-load DC (V).....:		N
	Pole not connected to earth insulated		N
	Class III luminaire only for connection to SELV or PELV		N
4.12 (8.2.4)	Portable luminaire have protection independent of supporting surface		N
4.12 (8.2.5)	Compliance with the standard test finger or relevant probe		P
4.12 (8.2.6)	Covers reliably secured		P
4.12 (8.2.7)	Luminaire other than below with capacitor > 0,5 μ F not exceed 50 V 1 min after disconnection		N
	Portable luminaire with capacitor > 0,1 μ F (0,25) not exceed 34 V 1 s after disconnection		N
	Other luminaires with capacitor > 0,1 μ F (0,25) with plug and track adaptors not exceed 60 V 5 s after disconnection		N
4.12. (-)	Class I luminaire with bayonet lampholder:		N
	1) cap not accessible with test finger		N
	2) metal lampholder is earthed		N

4.13 (12)	ENDURANCE TEST AND THERMAL TEST		P
4.13 (-)	If IP > IP 20 relevant test of (12.4), (12.5), (12.6) and (12.7) after (9.2) before (9.3) specified in 4.13		—
4.13 (12.2)	Selection of lamps and ballasts		—
	Lamp used according Annex B.....:	See Annex 2 for lamp used	—
	Controlgear if separate and not supplied.....:	--	—
4.13 (12.3)	Endurance test:		P
	a) mounting- position	As user manual	—
	b) test temperature (°C).....:	35°C	—
	c) total duration (h)	240h	—
	d) supply voltage (V).....:	9.54VDC	—

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
	d) if not equipped with controlgear, constant voltage/current (V) or (A)	--	—
1.13 (12.3.1d)	d) Class III luminaires powered via information technology communication cable:		—
	- voltage under normal operation (V).....:		—
	- voltage under abnormal operation (V).....:		—
	e) luminaire ceases to operate		—
	f) luminaire with a constant light output function		—
4.13 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N
	- marking legible		P
	- no cracks, deformation etc.		P
4.13 (12.4)	Thermal test (normal operation).....:	(see Annex 2)	P
4.13 (12.5)	Thermal test (abnormal operation).....:	(see Annex 2)	N
4.13 (12.6)	Thermal test (failed lamp control gear condition):		N
4.13 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A)		—
	- case of abnormal conditions.....:		—
	- electronic lamp control gear		N
	- measured winding temperature (°C): at 1,1 Un		—
	- measured mounting surface temperature (°C) at 1,1 Un.....:		N
	- calculated mounting surface temperature (°C)		N
	- track-mounted luminaires		N
4.13 (12.6.2)	Temperature sensing control		N
	- case of abnormal conditions.....:		—
	- thermal link		N
	- manual reset cut-out		N
	- auto reset cut-out		N
	- measured mounting surface temperature (°C).....:		N
	- track-mounted luminaires		N

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
4.13 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N
4.13 (12.7.1)	Luminaire without temperature sensing control		N
4.13 (12.7.1.1)	Luminaire with fluorescent lamp $\leq 70W$		N
	Test method 12.7.1.1 or Annex W		—
	Test according to 12.7.1.1:		N
	- case of abnormal conditions.....		—
	- Ballast failure at supply voltage (V)		—
	- Components retained in place after the test		N
	- Test with standard test finger after the test		N
	Test according to Annex W:		N
	- case of abnormal conditions.....		—
	- measured winding temperature ($^{\circ}C$): at 1,1 Un.....		—
	- measured temperature of fixing point/exposed part ($^{\circ}C$): at 1,1 Un.....		—
	- calculated temperature of fixing point/exposed part ($^{\circ}C$).....		—
	Ball-pressure test.....	See Table 3.15 (13.2.1)	N
4.13 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp $> 70W$, transformer $> 10 VA$		N
	- case of abnormal conditions.....		—
	- measured winding temperature ($^{\circ}C$): at 1,1 Un.....		—
	- measured temperature of fixing point/exposed part ($^{\circ}C$): at 1,1 Un.....		—
	- calculated temperature of fixing point/exposed part ($^{\circ}C$).....		—
	Ball-pressure test.....	See Table 3.15 (13.2.1)	N
4.13 (12.7.1.3)	Luminaire with short circuit proof transformers $\leq 10 VA$		N
	- case of abnormal conditions.....		—
	- Components retained in place after the test		N
	- Test with standard test finger after the test		N
4.13 (12.7.2)	Luminaire with temperature sensing control		N
	- thermal link.....	Yes ☐ No ☐	—

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
	- 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 3.15 (13.2.1)	N
4.13 (-)	Indoor use luminaire, Test overturned position (overturns < 15°)		N

4.14 (9)	RESISTANCE TO DUST AND MOISTURE		P
4.14 (-)	If IP > IP 20 the order of tests as specified in clause 4.12		N
4.14 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP..... :	IP20	—
	- mounting position during test..... :	As user manual	—
	- fixing screws tightened; torque (Nm)..... :	--	—
	- tests according to clauses..... :	CI 9.2.0	—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		N
	b) no talcum in dust-tight luminaire		N
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard		N
	c.1) For luminaires without drain holes – no water entry		N
	c.2) For luminaires with drain holes – no hazardous water entry		N
	d) no water in watertight or pressure watertight luminaire		N
	e) no contact with live parts (IP 2X)	IP20	P
	e) no entry into enclosure (IP 3X and IP 4X)		N
	e) no contact with live parts through drain holes and ventilation slots (IP3X and IP4X)		N
	f) no trace of water on part of lamp requiring protection from splashing water		N
	g) no damage of protective shield or glass envelope		N
4.14 (9.3)	Humidity test 48 h	25°C ; 93%R.H.	P

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
4.14 (-)	Portable luminaire for outdoor use tested in the most unfavourable of the overturned positions likely to occur	Indoor use	N

4.15 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH		P
4.15 (10.2.1)	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø		—
	Insulation resistance (MΩ)..... :		—
	SELV or PELV:		P
	- between current-carrying parts of different polarity :	>100 MΩ	P
	- between current-carrying parts and mounting surface..... :	>100 MΩ	P
	- between current-carrying parts and metal parts of the luminaire..... :		N
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		N
	- Insulation bushings as described in Section 5		N
	Other than SELV or PELV:		N
	- between live parts of different polarity..... :		N
	- between live parts and mounting surface..... :		N
	- between live parts and metal parts..... :		N
	- between live parts of different polarity through action of a switch..... :		N
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		N
	- Insulation bushings as described in Section 5		N
4.15 (10.2.2)	Electric strength test		P
	Dummy lamp		N
	Luminaires with ignitors after 24 h test		N
	Luminaires with manual ignitors		N
	Luminaires with ignitors provided with ballasts conforming to IEC 61347-2-9		P
	SELV or PELV:		P

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EN 60598-2-4			
Clause	Requirement – Test	Result	Verdict
	- 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
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		N
	- Insulation bushings as described in Section 5 :		N
	Other than SELV		N
	- between live parts of different polarity..... :		N
	- between live parts and mounting surface..... :		N
	- between live parts and metal parts..... :		N
	- between live parts of different polarity through action of a switch..... :		N
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		N
	- Insulation bushings as described in Section 5 :		N
4.15 (10.3)	Touch current or protective conductor current (mA):	Class III luminaire	N
	Protective conductor current (mA)..... :		N

4.16 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		P
4.16 (13.2.1)	Ball-pressure test..... :	See Test Table 4.15 (13.2.1)	P
4.16 (13.3.1)	Needle-flame test (10 s)..... :	See Test Table 4.15 (13.3.1)	P
4.16 (13.3.2)	Glow- wire test (650°C)..... :	See Test Table 4.15 (13.3.2)	P
4.16 (13.4)	Proof tracking test (IEC 60112)..... :	See Test Table 4.15 (13.4)	N

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4.7 (11.2)	TABLE I: Creepage distances and clearances						N
	Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages						N
	Applicable part of IEC 60598-1 Table 11.1.A*, 11.1.B* and 11.2*						N
	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:							
Working voltage (V)..... :							—
PTI..... :					< 600 ☐ ≥ 600 ☐		—
Pulse voltage or U_P if applicable (kV) :							—
Supplementary information:							
Distance 2:							
Working voltage (V)..... :							—
PTI..... :					< 600 ☐ ≥ 600 ☐		—
Pulse voltage or U_P if applicable (kV) :							—
Supplementary information:							
Distance 3:							
Working voltage (V)..... :							—
PTI..... :					< 600 ☐ ≥ 600 ☐		—
Pulse voltage or U_P if applicable (kV) :							—
Supplementary information:							
** Insulation type: B – Basic; S – Supplementary; R – Reinforced. See also IEC 60598-1 Annex							
Remark							
For class III construction: no values are specified for working voltages below 60VDC as the electric strength test at a voltage of 500V is considered sufficient.							

4.7 (11.2)	TABLE II: Creepage distances and clearances						N
	Minimum distances (mm) for a.c. higher than 30 kHz sinusoidal voltages						
	Applicable part of IEC 61347-1 Table 7 and 8* or IEC 60664-4 Table 1 and 2						
Distances	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:							
Working voltage (V)..... :						—	
Frequency if applicable (kHz)..... :						—	
PTI..... :						< 600 ☐ ≥ 600 ☐	
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) :						—	

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Supplementary information:							
Distance 2:							
Working voltage (V)..... :							—
Frequency if applicable (kHz)..... :							—
PTI..... :	< 600 ☐ ≥ 600 ☐						—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV)							—
Supplementary information:							
Distance 3:							
Working voltage (V)..... :							—
Frequency if applicable (kHz)..... :							—
PTI..... :	< 600 ☐ ≥ 600 ☐						—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV)							—
Supplementary information:							
** Insulation type: B – Basic; S – Supplementary; R – Reinforced							

4.15 (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics		P
Allowed impression diameter (mm) :		2	—
Object/ Part No./ Material	Test temperature (°C)	Impression diameter (mm)	
Main circuit PCB	125	0.5	
LED PCB	125	0.5	
Plastic enclosure	85	1.1	
Lamp cover	75	0.8	
Supplementary information:			

4.15 (13.3.1)	TABLE: Needle-flame test (IEC 60695-11-5)				P
Object/ Part No./ Material	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict	
Main circuit PCB	10	No	No burning	P	
LED PCB	10	No	No burning	P	
Supplementary information:					

4.15 (13.3.2)	TABLE: Glow-wire test (IEC 60695-2-11)			P
Glow wire temperature	650°C			—

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Object/ Part No./ Material	Manufacturer/ trademark	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Plastic enclosure	See ANNEX 1	No	0	P
Lamp cover	See ANNEX 1	No	0	P
Supplementary information:				

4.15 (13.4)	TABLE: Proof tracking test (IEC 60112)	N
Test voltage PTI	175 V	—
Object/ Part No./ Material	Withstand 50 drops without failure on three places or on three specimens	Verdict
--	--	--
Supplementary information:		

ANNEX 1	TABLE: Critical components information					P
object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity	
Plastic enclosure	FORMOSA CHEMICALS & FIBRE CORP PLASTICS DIV	AC250(+)	HB, 60°C, thickness Min. 1.5mm	UL 94	UL E162823	
Lamp cover	NINGBO LG YONGXING CHEMICAL CO LTD	HI-121H	HB, 60°C	UL 796 EN 60598-2-4	UL E203955 Tested with appliance	
Main circuit PCB	Goldenmax International Technology (Hangzhou) Ltd	GF11/T600	V-0, 130°C	UL94, UL796	UL E134893	
Transmitting coil	Shenzhen Ruitong thousand industry technology Co., LTD	Φ 50MMX5.0MMX 0.8MM PC40	6.5uH ± 10%,	EN IEC 62368-1	AGC0544325 1228ES01	
Speaker	DongGuan HuaPeng Electronic CO.,LTD	218-07777- 850R	8 Ω /1W	EN IEC 62368-1	AGC0544325 1228ES01	
LED PCB	KINGBOARD LAMINATES HOLDINGS LTD	KB-3151C	V-0, 130°C	UL94, UL796	UL E123995 Tested with appliance	
LEDs	Shenzhen Xdlumen Optoelectronic Technology Co.,Ltd.	2835	Vf: 2.8-3.0V, If: 60mA Pd: 0.2W	IEC TR 62778	Tested with appliance,	
Internal wire	interchangeable	interchangeable	24-30AWG, min. 80°C, vw-1	UL 758	UL	

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ANNEX 2	TABLE: Thermal tests of Section 12			P		
	Type reference:	MO2124		—		
	Lamp used.....:	With integrated LED module		—		
	Lamp control gear used.....:	N/A		—		
	Mounting position of luminaire.....:	As in manual		—		
	Supply wattage (W).....:	17.67W		—		
	Supply current (A)..... :	1.852A		—		
	Temperatures in test 1 - 4 below are corrected for ta (°C) :	25°C		—		
	- abnormal operating mode.....:	--		—		
	- test 1: rated voltage :	--		—		
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :	9.54VDC		—		
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage..... :	--		—		
	Through wiring or looping-in wiring loaded by a current of A during the test :	--		—		
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current..... :	--		—		
Temperature measurements (°C)						
Part	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
	test 1	test 2	test 3	limit	test 4	limit
Type C inlet	--	38.6	--	Ref.	--	--
Main circuit PCB	--	98.3	--	130	--	--
Transmitting coil	--	68.9	--	110	--	--
Internal wire	--	54.4	--	80	--	--
Plastic enclosure	--	59.7	--	60	--	--
LED PCB	--	52.7	--	130	--	--
Lamp cover	--	32.4	--	60	--	--
Mounting surface	--	51.0	--	90	--	--
Ambient	--	25.0	--	--	--	--
Supplementary information:						

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ANNEX 3	Screw terminals (part of the luminaire)		N
(14)	SCREW TERMINALS		N
(14.2)	Type of terminal..... :		—
	Rated current (A)..... :		—
(14.3.2.1)	One or more conductors		N
(14.3.2.2)	Special preparation		N
(14.3.2.3)	Terminal size		N
	Cross-sectional area (mm ²)..... :		—
(14.3.3)	Conductor space (mm)..... :		N
(14.4)	Mechanical tests		N
(14.4.1)	Minimum distance		N
(14.4.2)	Cannot slip out		N
(14.4.3)	Special preparation		N
(14.4.4)	Nominal diameter of thread (metric ISO thread)..... :		N
	External wiring		N
	No soft metal		N
(14.4.5)	Corrosion		N
(14.4.6)	Nominal diameter of thread (mm)..... :		N
	Torque (Nm)..... :		N
(14.4.7)	Between metal surfaces		N
	Lug terminal		N
	Mantle terminal		N
	Pull test; pull (N)..... :		N
(14.4.8)	Without undue damage		N

ANNEX 4	Screwless terminals (part of the luminaire)		N
(15)	SCREWLESS TERMINALS		N
(15.2)	Type of terminal..... :		—
	Rated current (A)..... :		—
(15.3.1)	Material		N
(15.3.2)	Clamping		N
(15.3.3)	Stop		N
(15.3.4)	Unprepared conductors		N
(15.3.5)	Pressure on insulating material		N

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(15.3.6)	Clear connection method		N
(15.3.7)	Clamping independently		N
(15.3.8)	Fixed in position		N
(15.3.10)	Conductor size		N
	Type of conductor		N
(15.5)	Terminals and connections for internal wiring		N
(15.5.1)	Mechanical tests		N
(15.5.1.1.1)	Pull test spring-type terminals (4 N, 4 samples).....:		N
(15.5.1.1.2)	Pull test pin or tab terminals (4 N, 4 samples).....:		N
	Insertion force not exceeding 50 N		N
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N
(15.5.2)	Electrical tests		N
	Voltage drop (mV) after 1 h (4 samples).....:		N
	Voltage drop of two inseparable joints		N
	Number of cycles:		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N
(15.6)	Terminals and connections for external wiring		N
(15.6.1)	Conductors		N
	Terminal size and rating		N
15.6.2	Mechanical tests		N
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N)		N
(15.6.2.2)	Pull test pin or tab terminals (4 samples); pull (N)		N
(15.6.3)	Electrical tests		N
	Tests according 15.6.3.1 + 15.6.3.2 in IEC 60598-1		N

(15.6.3.1) (15.6.3.2)	TABLE: Contact resistance test / Heating tests									N
	Voltage drop (mV) after 1 h									—
terminal	1	2	3	4	5	6	7	8	9	10

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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)											
Supplementary information:											

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ATTACHMENT TO TEST REPORT IEC 60598-2-4 **EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES**

Luminaires

Part 2: Particular requirements

Section 4: Portable general purpose luminaires

Differences according to.....: EN 60598-2-4:2018 used in conjunction with
EN IEC 60598-1:2021 + A11:2022

Annex Form No.....: EU_GD_IEC60598_2_4I_II

Annex Form Originator.....: IMQ S.p.A.

Master Annex Form.....: Dated 2022-07-01

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	CENELEC COMMON MODIFICATIONS (EN)	P
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4.6 (3)	MARKING	P
(3.2.12)	Delete the note 4	N

4.7 (4)	CONSTRUCTION	P
4.7 (4.11.6)	Electro-mechanical contact systems: electric strength test at 1 500 V	N

4.11 (5)	EXTERNAL AND INTERNAL WIRING	P
4.11 (5.2.2)	Cables equal to EN 50525	N
4.11 (5.2.2)	Delete paragraph 2	N
	Replace table 5.1 – Supply cord	N
4.11.4 (-)	For class I and class II portable luminaires for outdoor use, non-detachable flexible cables or cords not lighter than type H05RN-F	N
	- compliance with 4.6, 4.7.1, 4.7.2, 4.10.1, 11.2, 12 and 13.2 of Part 1	N
4.13 (12)	ENDURANCE TESTS AND THERMAL TESTS	P
4.13 (12.4.2c)	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring	P

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ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		N
(3.3)	DK: power supply cords of class I luminaires with label		N
(5.2.18)	DK: socket-outlets		N
(5.2.1)	CY, DK, FI, GB: type of plug		N
4.4.4 (-)	DK: luminaires for outdoor use classified as class II or class III		N

ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		N
(4 & 5)	FR: Shuttered socket-outlets 10/16A		N
	FR: Safety requirements for high buildings (Arrêté du 30 décembre 2011 portant règlement de sécurité pour la construction des immeubles de grande hauteur et leur protection contre les risques d'incendie et de panique; Section VIII; Article GH 48, Eclairage) Glow-wire test for outer parts of luminaires:		N
	- 850°C for luminaires in stairways and horizontal travel paths		N
	- 650°C for indoor luminaires		N
	GB: Requirements according to United Kingdom Building Regulation		N

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Attachment A
Test report of EN 62031

EN 62031			
Clause	Requirement – Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS		P
4.2	Classification		P
	Built-in module	Yes ☐ No ☒	—
	Independent module.....	Yes ☐ No ☒	—
	Integral module	Yes ☒ No ☐	—
4.6	Independent modules comply with requirements in IEC 60598-1:2014/AMD1:2017		N
4.8	Modules with integrated controlgear providing SELV comply with requirements according to IEC 61347-1:2015/AMD1:2017 clause L.5 to L.11.		P

6	MARKING		N
6.2	Mandatory markings		N
	a) mark of origin		N
	b) model number, type reference		N
	c)- rated supply voltage (V) :		N
	- rated supply current (A) :		N
	- rated input power (W) :		N
	d) nominal power		N
	e) indication of connections, wiring diagram		N
	f) value of tc and place on the module		N
	g) eye protection		N
	h) symbol for built-in modules		N
	i) heat transfer temperature td		N
	j) power for heat-conduction Pd		N
	k) working voltage for insulation		N
6.4	Location of marking for independent LED modules		N
	- marking of a), b), c) and f) in 6.2 on the modules		N
	- marking of other applicable items in 6.2 on the modules or in data sheet, leaflet or website		N
6.5	Marking of integral LED modules		N
	- information in 6.2 a) to g) in data sheet, leaflet or website		N

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Clause	Requirement – Test	Result - Remark	Verdict
6.6	Durable and legibility of marking		N
	- marking on the LED module legible after test with water		N
	- marking not on the LED module legible		N

7	TERMINALS		N
7.1	Integral terminals		N
	Screw terminals comply with section 14 of IEC 60598-1	(see Annex 3)	N
	Screwless terminals comply with section 15 of IEC 60598-1	(see Annex 4)	N
7.2	Terminals other than integral terminals		N
	Separately approved; component list	(see Annex 2)	N
	Ratings suit the conditions		N
	Satisfy additional relevant requirements of this standard		N

8 (9)	EARTHING		N
- (9.1)	Provisions for protective earthing		N
	Terminal complying with clause 8		N
	Locked against loosening and not possible to loosen by hand		N
	Not possible to loosen clamping means unintentionally on screwless terminals		N
	Earthing via means of fixing		N
	Earthing terminal only used for the earthing of the control gear		N
	All parts of material minimizing the danger of electrolytic corrosion		N
	Made of brass or equivalent material		N
	Contact surface bare metal		N
	Test according 7.2.3 of IEC 60598-1		N
- (9.2)	Provision for functional earthing		N
	Comply with clause 8 and 9.1		N

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Clause	Requirement – Test	Result - Remark	Verdict
	Functional earth insulated from live parts by double or reinforced insulation		N
- (9.3)	Lamp controlgear with conductors for protective earthing by tracks on printed circuit board		N
	Test with a current of 25 A between earthing terminal and each of the accessible metal parts; measured resistance (Ω) at ≥ 10 A according 7.2.3 of IEC 60598-1: $< 0,5 \Omega$:		N
- (9.4)	Earthing of built-in lamp controlgear		N
	Earth by means of fixing to earthed metal of luminaire in compliance of 7.2 of IEC 60598-1		N
	Earthing terminal only for earthing the built-in controlgear		N
- (9.5)	Earthing via independent controlgear		N
- (9.5.1)	Earth connection to other equipment		N
	Looping or through connection, conductor min. 1,5 mm ² and of copper or equivalent		N
	Protective earthing wires in line with 5.3.1.1 and clause 7		N
- (9.5.2)	Earthing of the lamp compartments powered via the independent lamp controlgear		N
	Test with a current of 25 A between input and output earth terminals; measured resistance (Ω) between earthing terminal and each of the accessible metal parts at ≥ 10 A according 7.2.3 of IEC 60598-1: $< 0,5 \Omega$:		N
	Output earthing terminal marked as in 7.1 t) of IEC 61347-1		N

9 (10)	PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS		N
- (10.1)	Controlgear protected against accidental contact with live parts		N
- (A2)	Voltage measured with 50 k Ω	(see Annex A)	N
- (A3)	Voltage > 35 V peak or > 60 V d.c. or protective impedance device	(see Annex A)	N
- (10.1)	Lacquer or enamel not used for protection or insulation		N
	Adequate mechanical strength on parts providing protection		N

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Clause	Requirement – Test	Result - Remark	Verdict
- (10.2)	Capacitors > 0,5 μ F: voltage after 1 min (V): < 50 V :		N
- (10.3)	Controlgear providing SELV		N
	Accessible conductive parts are insulated from live parts by double or reinforced insulation in SELV controlgear		N
	No connection between output circuit and the body or protective earthing circuit		N
	No possibility of connection between output circuit and the body or protective earthing circuit through other conductive parts		N
	SELV outputs separated from earth by at least basic insulation		N
	ELV conductive parts insulated as live parts		N
	Tests according Annex L of IEC 61347-1		N
- (10.4)	Accessible conductive parts in SELV circuits		N
	Output voltage under load $\leq$ 25 V r.m.s. or $\leq$ 60 V d.c.		N
	If output voltage > 25 V r.m.s. or > 60 V d.c.; No load output $\leq$ 35 V peak or $\leq$ 60 V d.c and touch current does not exceed 0,7 mA (peak) or 2 mA d.c. :		N
	One conductive part is insulated if output voltage or current exceeding the values above and withstand test voltage 500 V		N
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N
	Y1 or Y2 capacitors comply with IEC 60384-14		N
	Resistors comply with test (a) in 14.1 of IEC 60065		N

10 (11)	MOISTURE RESISTANCE AND INSULATION		P
	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance with d.c. 500 V (M Ω):		P
	For basic insulation $\geq$ 2 M Ω :	>100 M Ω	P
	For double or reinforced insulation $\geq$ 4 M Ω :		N

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Clause	Requirement – Test	Result - Remark	Verdict
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in IEC 61347-1		N

11 (12)	ELECTRIC STRENGTH		P
	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
	Working voltage > 50 V ≤ 1000 V, test voltage (V):		N
	Basic insulation, $2U + 1000$ V		N
	Supplementary insulation, $2U + 1000$ V		N
	Double or reinforced insulation, $4U + 2000$ V		N
	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

12 (14)	FAULT CONDITIONS		P
- (14.1)	When operated under fault conditions the controlgear:		P
	- does not emit flames or molten material		P
	- does not produce flammable gases		P
	- protection against accidental contact not impaired		P
	Thermally protected controlgear does not exceed the marked temperature value		N
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	(see appended table)	P
- (14.2)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (after any reduction in 14.2 - 14.5)	(see appended table)	P
- (14.3)	Short-circuit or interruption of semiconductor devices	(see appended table)	P
- (14.4)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	P
- (14.5)	Short-circuit across electrolytic capacitors	(see appended table)	N

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	Short-circuit or interruption of SPDs	(see appended table)	N
- (14.6)	After the tests has been carried out on three samples:		P
	The insulation resistance $\geq 1 \text{ M}\Omega$:	>100M Ω	P
	No flammable gases		P
	No accessible parts have become live		P
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		N
- (14.7)	Relevant fault condition tests with high-power a.c. supply and in turn to a d.c. supply		N
12.2	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
	No fire, smoke or flammable gas is produced		P
	Molten material does not ignite tissue paper, spread below the module		P

14 (15)	CONSTRUCTION	P
- (15.1)	Wood, cotton, silk, paper and similar fibrous material	P
	Wood, cotton, silk, paper and similar fibrous material not used as insulation	P
- (15.2)	Printed circuits	P
	Printed circuits used as internal connections complies with clause 14	P

15 (16)	CREEPAGE DISTANCES AND CLEARANCES	N
- (16.1)	General	N
	Creepage distances and clearances according to 16.2 and 16.3	N
	Controlgears providing SELV comply with additional requirements in Annex L	N
	Insulating lining of metallic enclosures	N
	Controlgear protected against pollution comply with Annex P	N
- (16.2)	Creepage distances	N

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Clause	Requirement – Test	Result - Remark	Verdict
- (16.2.2)	Minimum creepage distances for working voltages		N
	Creepage distances according to Table 7		N
- (16.2.3)	Creepage distances for working voltages with frequencies above 30 kHz		N
	Creepage distances according to Table 8		N
- (16.3)	Clearances		N
- (16.3.2)	Clearances for working voltages		N
	Clearances distances according to Table 9		N
- (16.3.3)	Clearances for ignition voltages and working voltages with higher frequencies		N
	Clearances distances for basic or supplementary insulation according to Table 10		N
	Clearances distances for reinforced insulation according to Table 11		N

16 (17)	SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS		P
	Screws, current-carrying parts and connections in compliance with EN 60598-1 (clause numbers between parentheses refer to EN 60598-1)		P
(4.11)	Electrical connections:		P
(4.11.1)	Contact pressure		P
(4.11.2)	Screws:		P
	- self-tapping screws		P
	- thread-cutting screws		N
	- at least two self-tapping screws		N
(4.11.3)	Screw locking:		N
	- spring washer		N
	- rivets		N
(4.11.4)	Material of current-carrying parts	Copper alloy	P
(4.11.5)	No contact to wood		P
(4.11.6)	Electro-mechanical contact systems		P
(4.12)	Mechanical connections and glands:		P
(4.12.1)	Mechanical stress		P
	Screws not made of soft metal	No screw	N
	Screws of insulating material		N
	Torque test: part; torque (Nm)		N

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	Torque test: part; torque (Nm)		N
	Torque test: part; torque (Nm)		N
(4.12.2)	Screw diameter < 3 mm screwed into metal		N
(4.12.3)	Void		—
(4.12.4)	Locked connections		N
	- fixed arms; torque (Nm)..... :		N
(4.12.5)	Screwed glands: force (N)		N

17 (18)	RESISTANCE TO HEAT, FIRE AND TRACKING		N
	Resistance to Heat, Fire and Tracking in compliance with EN 61347-1 (clause numbers between parentheses refer to EN 61347-1)		N
(18.1)	Parts of insulating material retaining live parts in position, ball-pressure test:		N
	- part; test temperature (°C)		N
	- part; test temperature (°C)		N
(18.2)	Printed boards in accordance with IEC 60249- 1, 4.3		N
(18.2.1)	Parts of insulating material retaining current-carrying parts in position conduct glow-wire test 750 °C		N
(18.2.2)	Parts provide protection against electric shock, and parts of insulating material retaining SELV parts in position conduct glow-wire test 650 °C		N
(18.2.3)	needle-flame test :		N
	- flame extinguished within 30 s		N
	- no flaming drops igniting tissue paper		N
(18.3)	Tracking test		N

18 (18)	RESISTANCE TO CORROSION		N
	Resistance to corrosion in compliance with EN 61347-1		N
	Rust protection:		N
	- test according 4.18.1 of EN 60598-1		N
	- adequate varnish on the outer surface		N

20	HEAT MANAGEMENT		N
20.1	General		N

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	Fulfil clause 20 if replaceable LED module and when heat conducting thermal interface is needed.		N
20.2	Thermal interface material		N
	Thermal interface material delivered with the module if necessary		N
20.3	Heat protection		N
	Not impair safety when operated under poor heat-conduction conditions according Annex D		N

22	PHOTOBIOLOGICAL SAFETY		P
22.1	UV radiation		N
	Luminous radiation not exceed 2mW/klm		N
22.2	Blue light hazard	RG0	P
	Assessed according to IEC TR 62778		P
22.3	Infrared radiation		N

13.2	TABLE: Module withstands overpower condition--1.5 times rated Pout			P
Test sample	Uout	Iout	Pout	Tc(enclosure)
MO2124	2.98VDC	0.268A	0.798W	LED PCB: 52.7°C, No hazards

12 (14)	TABLE: tests of fault conditions		P
Part	Simulated fault	Hazard	
LED	S-C O-C	NO	

A	ANNEX A - TESTS		P
	All tests performed in accordance with the advisement given in Annex H of IEC 61347-1, if applicable		P

B	ANNEX 1: SELV-operated LED modules		P
I.5	Protection against electric shock		N
I.5.1	No connection between output winding and body		N

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	No connection between output winding and protective earthing circuit		N
I.5.2	Input and output circuits electrically separated from each other		N
I.5.2.1	Insulation between input and output winding of the HF-transformer consists of double or reinforced insulation		N
	Class II: insulation between input/output and body consists of double or reinforced insulation		N
	Class I: insulation between input and body consists of basic and between output and body supplementary insulation		N
I.5.2.2	Insulation between input and output winding via the core consists of double or reinforced insulation		N
	Insulation between cord and windings of the HD-transformer consists of basic insulation		N
I.5.2.3	Serrated tape, additional layer		N
I.5.2.4	Class I controlgear for fixed connection provided with basic insulation plus protective screening comply with the following conditions:		N
	a) Insulation between the input winding and the protective screen complies with the requirements for basic insulation		N
	b) Insulation between the protective screen and the output winding complies with the requirements for basic insulation		N
	c) Metal screen consists of a metal foil or of a wire wound screen		N
	d) Metal screen so arranged that both edges cannot simultaneously touch a magnetic core		N
	e) Metal screen and its lead-out wire have a cross-section sufficient to ensure that an overload device will open the circuit before the screen is destroyed		N
	f) Lead-out wire sufficiently fixed to the metal screen		N
I.5.2.5	Last turn of each winding of the transformer retained by positive means		N
	Impregnated winding		N
	Winding held together by means of insulating material		N
I.5.3	Components bridging between input and output circuit		N

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I.5.3.1	Used capacitors and resistors comply with 8.2		N
I.5.3.2	Used opto-couplers		N
I.6	Heating		N
I.6.1	No excessive temperatures in normal use		N
	Used material classified as Class :		—
	Stated value of t_a :		—
I.6.2	Temperature rises (Upri: 1.06 time supply rated voltage)		N
	Determined temperature rises in windings: - Primary (K) : - Limit max (K) : - Secondary (K) : - Limit max (K) :		N
	After the test:		N
	- no connections have worked loose		N
	- no reduction of creepage distances and clearances		N
	- no flow of sealing compound		N
	- no operation of protecting devices		N
	- electric strength test between input and output windings		N
I.6.3	Cycling test (10 cycles):		N
I.6.3.1	- heat run at (K) :		N
I.6.3.2	- moisture treatment 48 h		N
I.6.3.3	- vibration test 1 h; 1,5 g		N
I.6.3.4	After the tests:		N
	- insulation resistance $\geq 2, 4$ or $5 M\Omega$		N
	- dielectric strength test for 2 min. at 35 % of specified value in table I.6		N
	- Current or the ohmic component does not deviates by more than 30 %		N
I.7	Short-circuit and overload protection		N
I.7.1	Upri: 1.06 times rated voltage or 0.94 and 1.06 times rated supply voltage (V) :		N
I.7.2 I.7.3 I.7.4	Determined temperature rise in windings and on other parts:		N

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	- test according to Clause :		N
	- Primary winding (K) :		N
	- Limit max (K) :		N
	- Secondary winding (K) :		N
	- Limit max (K) :		N
	- External enclosure < 80 (K) :		N
	- Rubber insulation of wiring < 60 (K) :		N
	- PVC insulation of wiring < 60 (K) :		N
	- Supports < 80 (K) :		N
I.7.5	Fail-safe convertors		N
I.7.5.1	- Upri: 1.06 times rated supply voltage V:		—
	- Isec: 1.5 times rated output current A:		—
	- time until steady-state conditions t1 (h) :		—
	- time until failure t2 (h): < t1; < 5 h :		N
I.7.5.2	During the test:		N
	- no flames, molten material, etc.		N
	- temperature rise of enclosure < 150 K		N
	- temperature rise of plywood support < 100 K		N
	After the test:		N
	- electric strength (test voltage; 35 % of specified value); no flashover or breakdown for primary-to-secondary and for primary-to-body		N
	- live parts not accessible by test finger through holes of enclosure		N
I.8	Insulation resistance and electric strength		N
I.8.1	Conditioned 48 h between 91 % and 95 %		N
I.8.2	Adequate insulation (500 V d.c. for 1 min) between:		N
	Live parts and the body -for basic insulation not less than 2 MΩ :		N
	Live parts and the body -for reinforced insulation not less than 4 MΩ :		N
	Input- and output circuits not less than 5 MΩ :		N
	Metal parts of class II convertors which are separated from live parts by basic insulation only and the body not less than 5 MΩ :		N

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Attachment A
Test report of EN 62031

EN 62031			
Clause	Requirement – Test	Result - Remark	Verdict
	Metal foil in contact with the inner and outer surfaces of enclosures of insulating material not less than 2 MΩ :		N
I.8.3	Electric strength test:		N
	1) Between live parts of input circuits and live parts of output circuits :		N
	2) Over basic or supplementary insulation between:		N
	a) live parts which are or may become of different polarity :		N
	b) live parts and body if intended to be connected to protective earth :		N
	c) accessible metal parts and a metal rod of the same diameter as the flexible cable or cord :		N
	d) live parts and an intermediate metal part :		N
	e) intermediate metal parts and the body :		N
	3) Over reinforced insulation between the body and live parts :		N
	No flashover or breakdown occurred		N
I.9	Construction		N
I.9.1	Comply with all requirements		N
I.9.2	The distance between input and output terminals shall not be less than 25 mm :		N
I.10	Components		N
I.10.1	Socket-outlets in the output circuit does not accept plugs complying with IEC 60083 and IEC 60906-1		N
I.10.2	Self-resetting protective devices shall not be used unless it is certain that there will be no hazards		N
	Compliance is checked by connecting the convertor for 48 h at 1.06 times the rated voltage with the output short-circuited		N
I.11	Creepage distances and clearances		N
	1. Insulation between input and output circuits:		N
	a) measured values > specified values (mm) :		N
	b) measured values > specified values (mm) :		N
	c) measured values > specified values (mm) :		N
	2. Insulation between adjacent input circuits: measured values > specified values (mm) :		N

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Attachment A
Test report of EN 62031

EN 62031			
Clause	Requirement – Test	Result - Remark	Verdict
	2. Insulation between adjacent output circuits: measured values > specified values (mm) :		N
	3. Insulation between terminals for external connection:		N
	a) measured values > specified values (mm) :		N
	b) measured values > specified values (mm) :		N
	c) measured values > specified values (mm) :		N
	4. Basic or supplementary insulation:		N
	a) measured values > specified values (mm) :		N
	b) measured values > specified values (mm) :		N
	c) measured values > specified values (mm) :		N
	5. Reinforced insulation: measured values > specified values (mm) :		N
	6. Distance through insulation:		N
	a) measured values > specified values (mm) :		N
	b) measured values > specified values (mm) :		N
	c) measured values > specified values (mm) :		N
	d) measured values > specified values (mm) :		N

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Attachment B
Test report of IEC TR 62778

IEC TR 62778			
Clause	Requirement – Test	Result	Verdict
7	MEASUREMENT INFORMATION FLOW		P
7.1	Basic flow		P
	'Law of conservation of luminance' applied		N
	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		N
	In case Ethr value for RG2 was established the peak value was derived from angular light distribution		N
7.2	Conditions for the radiance measurement		P
	Standard condition applied (200mm distance, 0,011rad field of view)		P
	Non-standard condition applied		N
7.3	Special cases (I): Replacement by a lamp or LED module of another type		N
	Light source is a white light source		N
	Evaluation done based on highest luminance		N
	Evaluation done based on CCT value		N
7.4	Special cases (II): Arrays and clusters of primary light sources		N
	LED package is evaluated as :	☐ RG0 unlimited ☐ RG1 unlimited	N
	Ethr of LED package applies to array		N
8	RISK GROUP CLASSIFICATION		P
	Risk group achieved:		N
	-...Risk Group 0 unlimited		P
	-...Risk Group 1 unlimited		N
	- E _{thr} (lx) : Distance to reach RG1 (m) :		N

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Attachment B
Test report of IEC TR 62778

IEC TR 62778				
TABLE: Spectroradiometric measurement				P
	Measurement performed on.....		☐ LED package ☐ LED module ☐ Lamp ☒ Luminaire	
	Model number.....		MO2124	
	Test voltage (V).....		9VDC	—
	Test current (mA).....		-	—
	Test frequency (Hz).....		-	—
	Ambient, t (°C).....		24.5°C	—
	Measurement distance.....		☒ 20 cm ☐ ... cm	—
	Source size		☒ Non-small ☐ Small : mm	—
	Field of view		☐ 100 mrad ☒ 11 mrad ☐ 1,7 mrad (for small sources)	—
Item	Symbol	Units	Result	Remark
Blue light hazard radiance	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	4.676E+01	RG0
Supplementary information:				

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Attachment C Photos of product

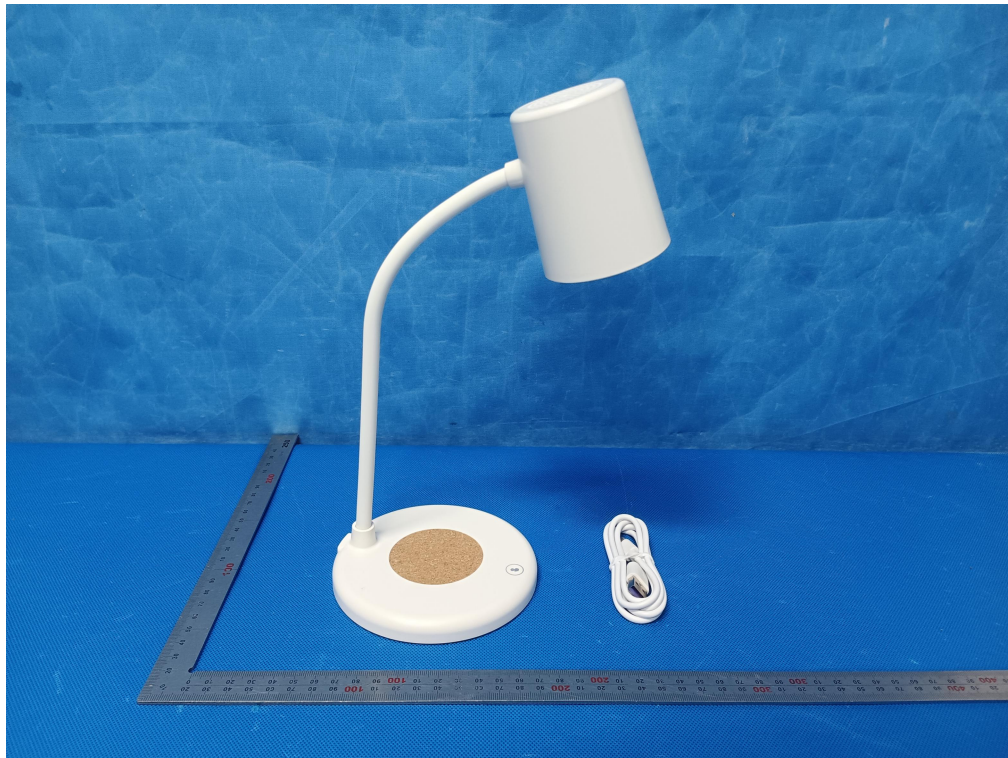


Fig.1- Overall view



Fig.2- Overall view

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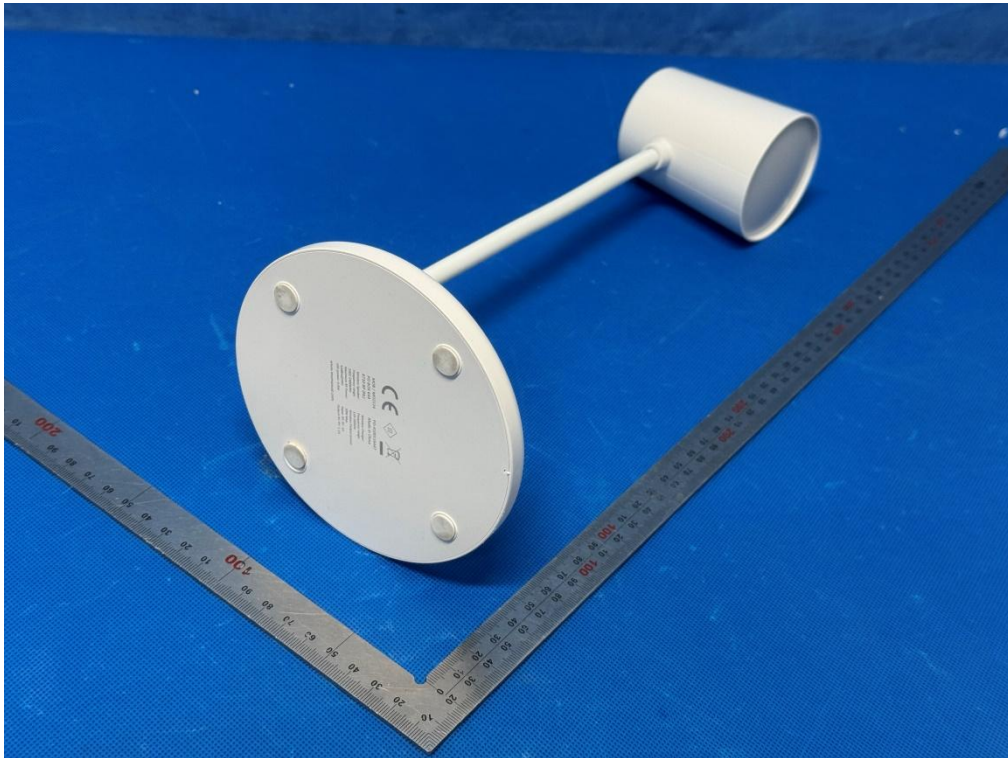


Fig.3- Overall view



Fig.4- Overall view

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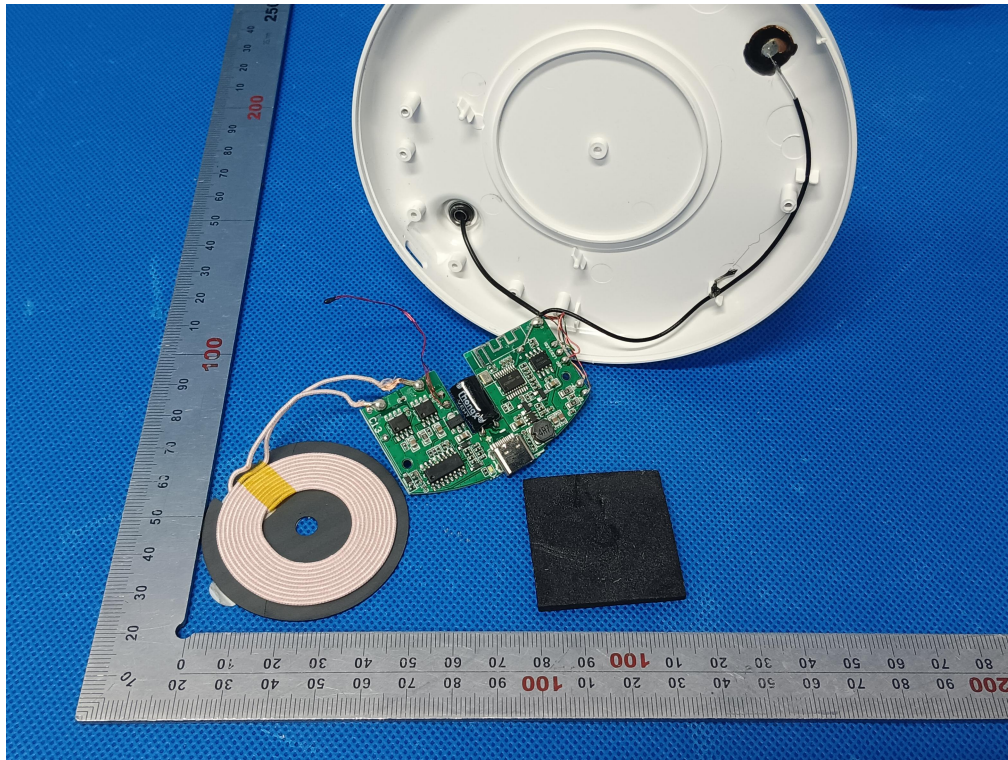


Fig.5- Part view

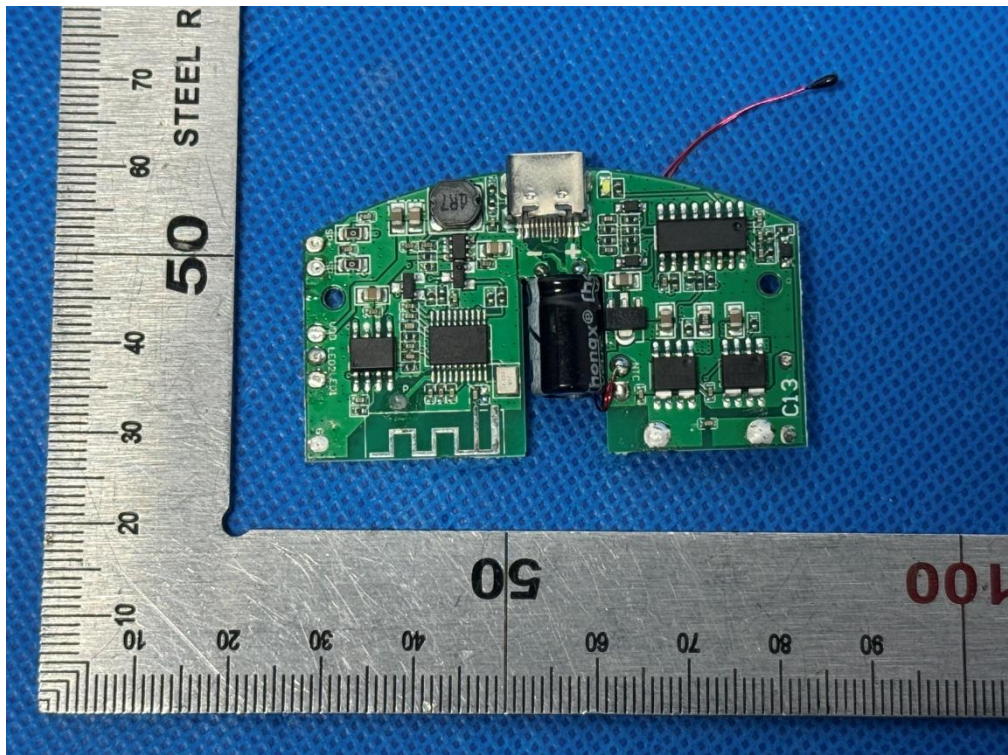


Fig.6- Part view

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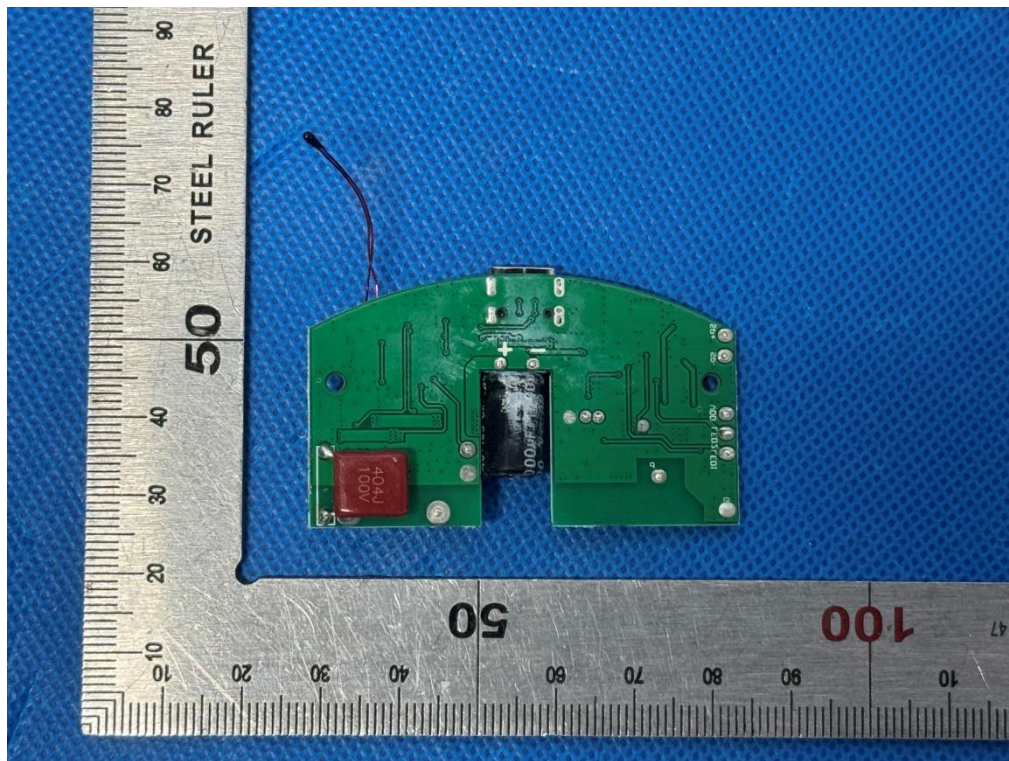


Fig.7- Open view

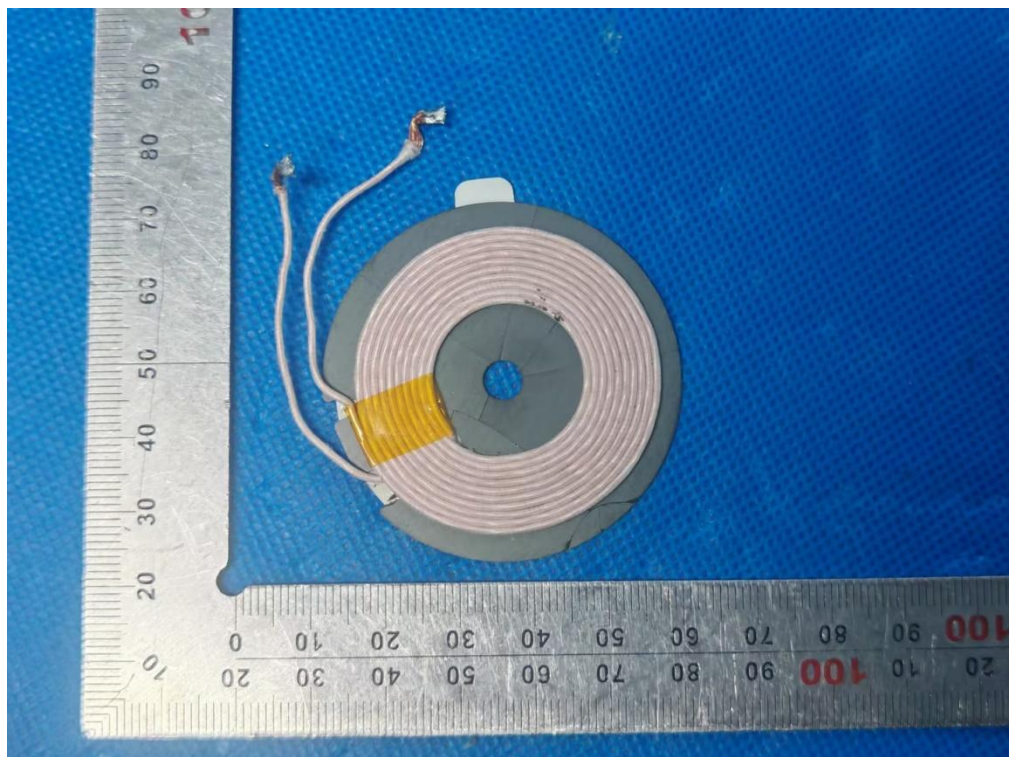


Fig.8- Part view

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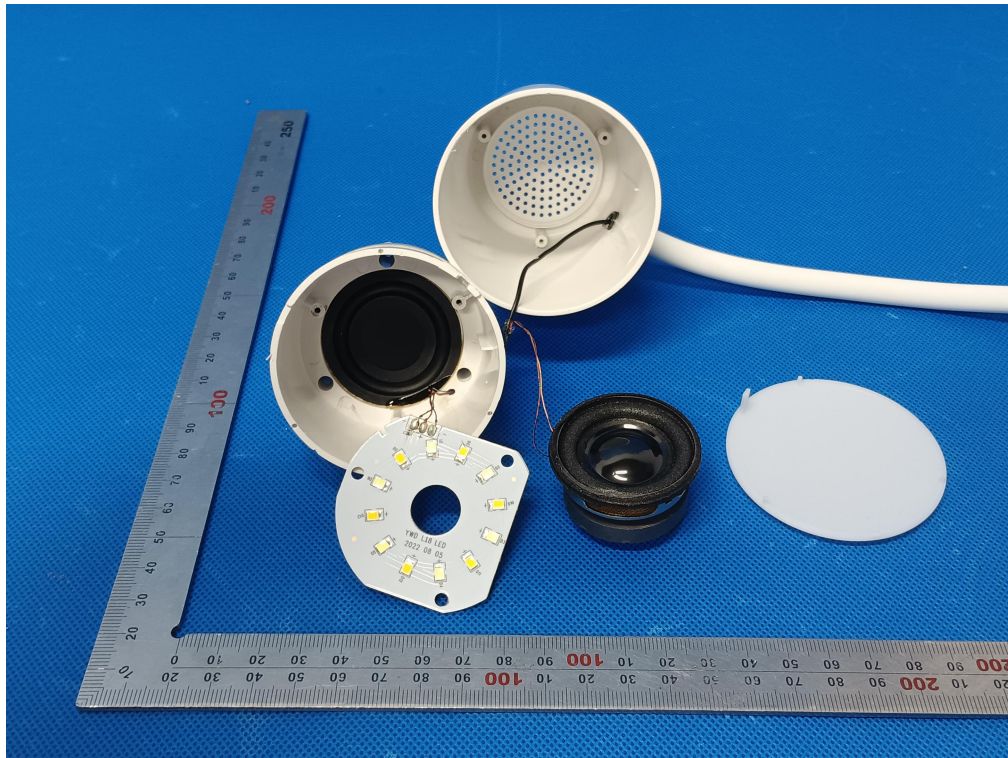


Fig.9- Part view

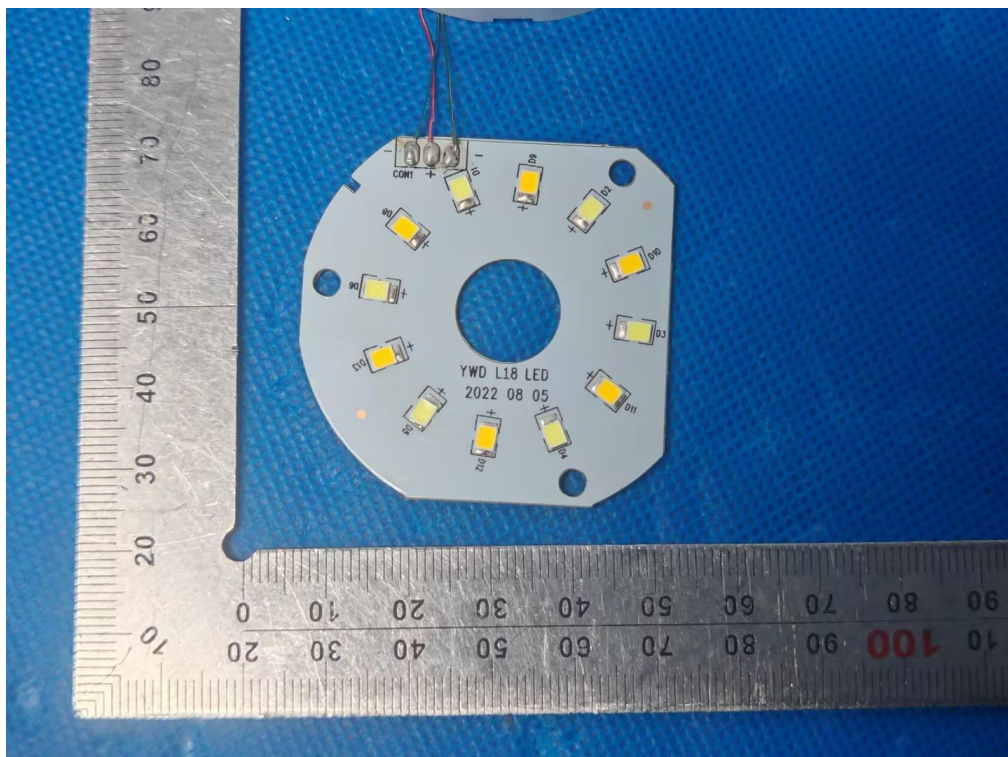


Fig.10- Part view

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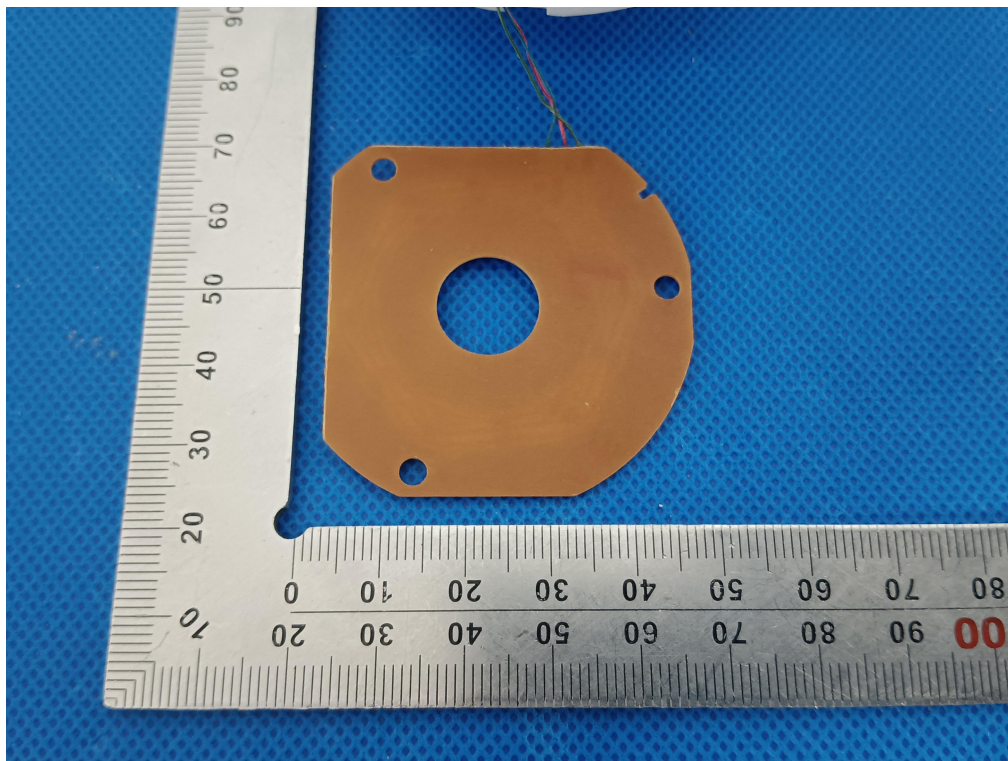


Fig.11- Part view

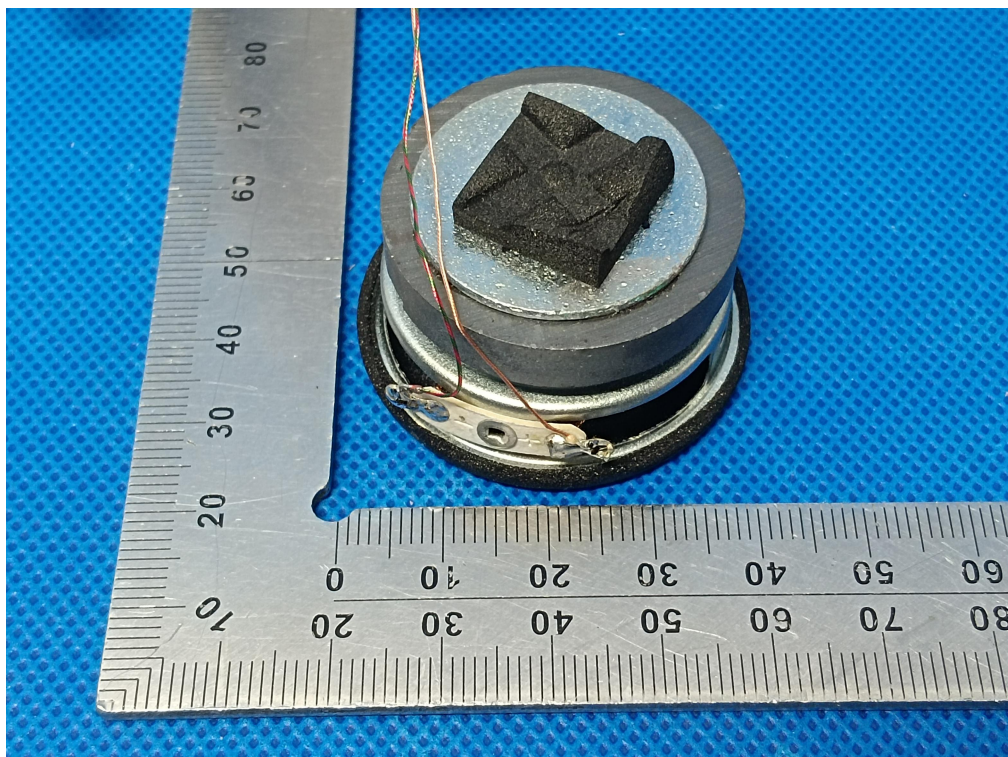


Fig.12- Part view (speaker)

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Conditions of Issuance of Test Reports

1. All samples and goods are accepted by the Attestation of Global Compliance (Shenzhen) Co., Ltd (the "Company") solely for testing and reporting in accordance with the following terms and conditions. The company provides its services on the basis that such terms and conditions constitute express agreement between the company and any person, firm or company requesting its services (the "Clients").
2. Any report issued by Company as a result of this application for testing services (the "Report") shall be issued in confidence to the Clients and the Report will be strictly treated as such by the Company. It may not be reproduced either in its entirety or in part and it may not be used for advertising or other unauthorized purposes without the written consent of the Company. The Clients to whom the Report is issued may, however, show or send it, or a certified copy thereof prepared by the Company to its customer, supplier or other persons directly concerned. The Company will not, without the consent of the Clients, enter into any discussion or correspondence with any third party concerning the contents of the Report, unless required by the relevant governmental authorities, laws or court orders.
3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.
4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.
5. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.
6. The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.
7. Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.
8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.
9. Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.

-----END OF REPORT-----

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