TEST REPORT

Reference No.	:	WTF21D10112623Y
Applicant	:	Mid Ocean Brands B.V.
Address	:	7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong
Manufacturer	:	114538
Address	:	/
Product	:	Desk light wireless charger
Model(s)	:	MO6514
Total pages	:	56 + 4 pages of photo documentation
Standards	:	EN 62368-1:2014+A11:2017 Audio/video, information and communication technology equipment-Part 1:Safety requirements
Date of Receipt sample	:	2021-11-05
Date of Test	:	2021-11-05 to 2021-11-18
Date of Issue	:	2021-12-09
Test Result	:	Pass

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:
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Compiled by:

Gary Liu / Project Engineer

Approved by:

Sam Qi / Designated Reviewer

Test item description	Desk light wireless charger
Trademark	MOB
Model and/or type reference	MO6514
Rating(s)	Input: 5V ⎓, 2.0A /9V ⎓, 2.0A; Wireless output: 5V ⎓, 1.0A /7.5V ⎓, 1.0A /9V ⎓, 1.1A;

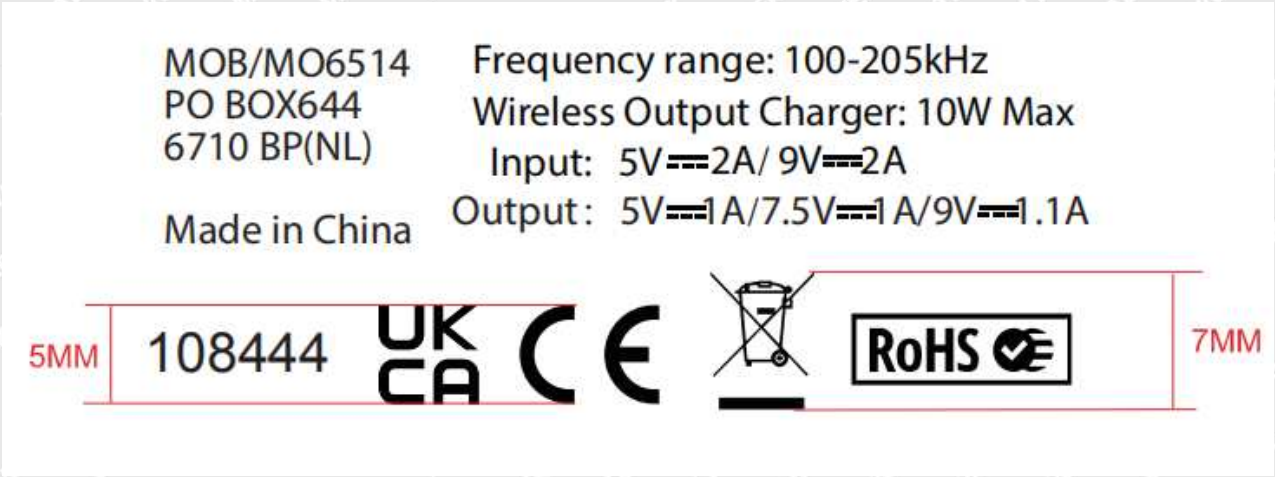
Remark:
Whether parts of tests for the product have been subcontracted to other labs:
☐ Yes ☒ No
If Yes, list the related test items and lab information:
Test items: Lab information:

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
-EN 62368-1:2014+A11:2017 All applicable test	Waltek Testing Group Co., Ltd. Address: No.77,Houjie Section, Guantai Road, Houjie Town, Dongguan City, Guangdong, China

Summary of compliance with National Differences:
List of countries addressed: National Differences and Group Differences for CENELEC countries were checked.

Copy of marking plate:



Remark:
Above label for reference only, are the minimum requirements required by the safety standard. The final label marking on product shall contain the information at least. Name and address of the Importer AND Manufacturer must be affixed on the product when the product placed on the EU market. For the final productions, the additional marking which do not give rise to misunderstanding may be added.

TEST ITEM PARTICULARS:	
Classification of use by ..... :	☒ Ordinary person ☐ Instructed person ☐ Skilled person ☒ Children likely to be present
Supply Connection ..... :	☐ AC Mains ☐ DC Mains ☒ External Circuit - not Mains connected - ☒ ES1 ☐ ES2 ☐ ES3
Supply % Tolerance ..... :	☐ +10%/-10% ☐ +20%/-15% ☐ +6%/ -10% ☒ None
Supply Connection – Type ..... :	☐ pluggable equipment type A - ☐ non-detachable supply cord ☐ appliance coupler ☐ direct plug-in ☐ mating connector ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☐ permanent connection ☐ mating connector ☒ other: not directly connected to the mains
Considered current rating of protective device as part of building or equipment installation ..... :	Installation location: ☐ building; ☒ equipment
Equipment mobility ..... :	☒ movable ☐ hand-held ☐ transportable ☐ stationary ☐ for building-in ☐ direct plug-in ☐ rack-mounting ☐ wall-mounted
Over voltage category (OVC) ..... :	☐ OVC I ☐ OVC II ☐ OVC III ☐ OVC IV ☒ other: not directly connected to the mains.
Class of equipment ..... :	☐ Class I ☐ Class II ☒ Class III
Access location ..... :	☐ restricted access location ☒ N/A
Pollution degree (PD) ..... :	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified maxium operating ambient :	40°C
IP protection class ..... :	☒ IPX0 ☐ IP20
Power Systems ..... :	☒ TN ☐ TT ☐ IT – V_{L-L}
Altitude during operation (m) ..... :	☒ 2000 m or less ☐ _____ m
Altitude of test laboratory (m) ..... :	☒ 2000 m or less ☐ _____ m
Mass of equipment (kg) ..... :	☒ 0.14kg
POSSIBLE TEST CASE VERDICTS:	
- test case does not apply to the test object ..... :	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 .....:	2021-11-05
Date (s) of performance of tests .....:	2021-11-05 to 2021-11-18

GENERAL REMARKS:

The test result presented in this report relate only to the object(s) tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

The report would be invalid without specific stamp for test institute or the authority.

The report would be invalid without the signatures of reporter and reviewer.

"(see Enclosure #)" refers to additional information appended to the report.
"(see appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

GENERAL PRODUCT INFORMATION:

Product Description

1. The equipment with model MO6514 is Desk light wireless charger, which is classified as Class III equipment.
2. The equipment is powered by an external DC source.
3. The maximum operating temperature is 40ºC.

Model Differences

N/A

Additional application considerations – (Considerations used to test a component or sub-assembly)

N/A

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.	
Electrically-caused injury (Clause 5): (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +5 V dc input	ES1
Source of electrical energy	**Corresponding classification (ES)**
Input and internal circuit	ES1
Wireless output	ES1
Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts):	PS2
Source of power or PIS	**Corresponding classification (PS)**
5V input and internal circuit	PS1
9V input and internal circuit	PS2
Wireless output	PS1
Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.) Example: Liquid in filled component	Glycol
Source of hazardous substances	**Corresponding chemical**
N/A	N/A
Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit	MS2
Source of kinetic/mechanical energy	**Corresponding classification (MS)**
Sharp edges and Corners	MS1
Equipment mass	MS1
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure	TS1
Source of thermal energy	**Corresponding classification (TS)**
External enclosure	TS1
Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product	RS1
Type of radiation	**Corresponding classification (RS)**
LED	RS1

OVERVIEW OF EMPLOYEDSAFEGUARDS				
Clause	**Possible Hazard**			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary person, Instructed person, Skilled person	ES1: Input and internal circuit ES1: Wireless output	N/A	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Internal combustible material	PS1: 5V input and internal circuit PS1: Wireless output	N/A	N/A	N/A
Internal combustible material	PS2: 9V input and internal circuit	N/A	PCB board and enclosure min. V-0	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary person, Instructed person, Skilled person	MS1: Sharp edges and Corners	N/A	N/A	N/A
Ordinary person	MS1: Equipment mass	N/A	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary person, Instructed person, Skilled person	TS1: External enclosure	N/A	N/A	N/A
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	RS1: LED	N/A	N/A	N/A
Supplementary Information: (1) See attached energy source diagram for additional details. (2) “N” – Normal Condition; “A” – Abnormal Condition; “S” Single Fault				

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Clause	Requirement – Test	Result – Remark	Verdict
4	**GENERAL REQUIREMENTS**		**P**
4.1.1	Acceptance of materials, components and subassemblies		P
4.1.2	Use of components	(See appended table 4.1.2)	P
4.1.3	Equipment design and construction		P
4.1.15	Markings and instructions	(See Annex F)	P
4.4.4	Safeguard robustness		P
4.4.4.2	Steady force tests	(See Annex T.5)	P
4.4.4.3	Drop tests		N/A
4.4.4.4	Impact tests	(See Annex T.6)	P
4.4.4.5	Internal accessible safeguard enclosure and barrier tests		N/A
4.4.4.6	Glass Impact tests	No glass used	N/A
4.4.4.7	Thermoplastic material tests	(See Annex T.8)	P
4.4.4.8	Air comprising a safeguard	(See Annex T)	N/A
4.4.4.9	Accessibility and safeguard effectiveness		P
4.5	Explosion	No explosion	P
4.6	Fixing of conductors		N/A
4.6.1	Fix conductors not to defeat a safeguard		N/A
4.6.2	10 N force test applied to		N/A
4.7	Equipment for direct insertion into mains socket - outlets		N/A
4.7.2	Mains plug part complies with the relevant standard		N/A
4.7.3	Torque (Nm)		N/A
4.8	Products containing coin/button cell batteries	No coin/button cell battery used	N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery		—
4.8.4	Battery Compartment Mechanical Tests		N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object		N/A

5	**ELECTRICALLY-CAUSED INJURY**		**P**
5.2.1	Electrical energy source classifications	(See appended table 5.2)	N/A

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Clause	Requirement – Test	Result – Remark	Verdict
5.2.2	ES1, ES2 and ES3 limits	Considered as ES1	P
5.2.2.2	Steady-state voltage and current	(See appended table 5.2)	N/A
5.2.2.3	Capacitance limits.....		N/A
5.2.2.4	Single pulse limits	No single pulse introduced	N/A
5.2.2.5	Limits for repetitive pulses	No repetitive pulses introduced	N/A
5.2.2.6	Ringing signals	No ringing signal generated	N/A
5.2.2.7	Audio signals		N/A
5.3	Protection against electrical energy sources		N/A
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		N/A
5.3.2.1	Accessibility to electrical energy sources and safeguards		N/A
5.3.2.2	Contact requirements		N/A
	a) Test with test probe from Annex V.....		N/A
	b) Electric strength test potential (V).....		N/A
	c) Air gap (mm)		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	Insulation materials and requirements		N/A
5.4.1.2	Properties of insulating material		N/A
5.4.1.3	Humidity conditioning.....		N/A
5.4.1.4	Maximum operating temperature for insulating materials	(See appended table 5.4.1.4)	N/A
5.4.1.5	Pollution degree.....	Pollution degree 2 considered	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage	(See appended table 5.4.1.8)	N/A
5.4.1.9	Insulating surfaces		N/A
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		N/A
5.4.1.10.2	Vicat softening temperature		N/A
5.4.1.10.3	Ball pressure	(See appended table 5.4.1.10.3)	N/A
5.4.2	Clearances		N/A
5.4.2.2	Determining clearance using peak working voltage	(See appended table 5.4.2.2)	N/A

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Clause	Requirement – Test	Result – Remark	Verdict
5.4.2.3	Determining clearance using required withstand voltage	(See appended table 5.4.2.3)	N/A
	a) a.c. mains transient voltage.....		—
	b) d.c. mains transient voltage	No such transient voltage	—
	c) external circuit transient voltage.....	No such transient voltage	—
	d) transient voltage determined by measurement.....	No need to conduct this test	—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test	Procedure 2 considered	N/A
5.4.2.5	Multiplication factors for clearances and test voltages.....	Clearance distance was evaluated for altitude up to 2000m above sea level	N/A
5.4.3	Creepage distances.....	(See appended table 5.4.3)	N/A
5.4.3.1	General		N/A
5.4.3.3	Material Group	Material group IIIb is assumed to be used	—
5.4.4	Solid insulation		N/A
5.4.4.2	Minimum distance through insulation		N/A
5.4.4.3	Insulation compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Cemented joints		N/A
5.4.4.6	Thin sheet material		N/A
5.4.4.6.1	General requirements		N/A
5.4.4.6.2	Separable thin sheet material		N/A
	Number of layers (pcs)		N/A
5.4.4.6.3	Non-separable thin sheet material		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material		N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		N/A
5.4.4.9	Solid insulation at frequencies >30 kHz.....		N/A
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
	Insulation resistance (MΩ).....		—
5.4.6	Insulation of internal wire as part of supplementary safeguard		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
5.4.8	Humidity conditioning		N/A
	Relative humidity (%)		—
	Temperature (°C)		—
	Duration (h)		—
5.4.9	Electric strength test		N/A
5.4.9.1	Test procedure for a solid insulation type test		N/A
5.4.9.2	Test procedure for routine tests		N/A
5.4.10	Protection against transient voltages between external circuit		N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test.....		N/A
5.4.10.2.3	Steady-state test.....		N/A
5.4.11	Insulation between external circuits and earthed circuitry		N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage U_{op}(V).....		—
	Nominal voltage U_{peak}(V).....		—
	Max increase due to variation U_{sp}.....		—
	Max increase due to ageing ΔU_{sa}		—
	$U_{op}= U_{peak}+ \Delta U_{sp}+\Delta U_{sa}$		—
5.5	Components as safeguards		
5.5.1	General		N/A
5.5.2	Capacitors and RC units		N/A
5.5.2.1	General requirement		N/A
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector.....		N/A
5.5.3	Transformers		N/A
5.5.4	Optocouplers		N/A
5.5.5	Relays		N/A
5.5.6	Resistors		N/A
5.5.7	SPD's		N/A
5.5.7.1	Use of an SPD connected to reliable earthing		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
5.5.7.2	Use of an SPD between mains and protective earth		N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable.....		N/A
5.6	Protective conductor		N/A
5.6.2	Requirement for protective conductors		N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm^2)		—
5.6.4	Requirement for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm^2).		—
	Protective current rating (A).....		—
5.6.4.3	Current limiting and overcurrent protective devices		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Requirement		N/A
	Conductor size (mm^2), nominal thread diameter (mm).....		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective system		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method Resistance (Ω).....		N/A
5.6.7	Reliable earthing		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		N/A
5.7.2	Measuring devices and networks		N/A
5.7.2.1	Measurement of touch current.....		N/A
5.7.2.2	Measurement of prospective touch voltage		N/A
5.7.3	Equipment set-up, supply connections and earth connections		N/A
	System of interconnected equipment (separate connections/single connection)		—
	Multiple connections to mains (one connection at a time/simultaneous connections)		—
5.7.4	Earthed conductive accessible parts		N/A
5.7.5	Protective conductor current		N/A
	Supply Voltage (V).....		—

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Clause	Requirement – Test	Result – Remark	Verdict
	Measured current (mA).....		—
	Instructional Safeguard.....		N/A
5.7.6	Prospective touch voltage and touch current due to external circuits		N/A
5.7.6.1	Touch current from coaxial cables		N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits		N/A
5.7.7	Summation of touch currents from external circuits		N/A
	a) Equipment with earthed external circuits Measured current (mA).....		N/A
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA)		N/A
6	**ELECTRICALLY- CAUSED FIRE**		**P**
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		P
6.2.2	Power source circuit classifications		P
6.2.2.1	General		P
6.2.2.2	Power measurement for worst-case load fault ...	(See appended table 6.2.2)	P
6.2.2.3	Power measurement for worst-case power source fault.....	(See appended table 6.2.2)	P
6.2.2.4	PS1	(See appended table 6.2.2)	P
6.2.2.5	PS2	(See appended table 6.2.2)	P
6.2.2.6	PS3		N/A
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS		N/A
6.2.3.2	Resistive PIS	(See appended table 6.2.3.2)	P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials.....	(See appended table 5.4.1.5, 6.3.2, 9.0, B.2.6)	P
6.3.1 (b)	Combustible materials outside fire enclosure		N/A
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method	Method of control fire spread used	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	General		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
6.4.3.2	Supplementary Safeguards		N/A
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions.....		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		N/A
6.4.5	Control of fire spread in PS2 circuits		P
6.4.5.2	Supplementary safeguards	V-0 enclosure and PCB board	P
6.4.6	Control of fire spread in PS3 circuit		N/A
6.4.7	Separation of combustible materials from a PIS		N/A
6.4.7.1	General		N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers	V-0 fire enclosure used.	P
6.4.8.1	Fire enclosure and fire barrier material properties	V-0 fire enclosure used.	P
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure	V-0	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier	V-0 fire enclosure used.	P
6.4.8.3.1	Fire enclosure and fire barrier openings	No openings.	N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions(mm)		N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm)		N/A
	Flammability tests for the bottom of a fire enclosure		N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c)		N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating		N/A
6.5	Internal and external wiring		N/A
6.5.1	Requirements		N/A
6.5.2	Cross-sectional area (mm^2)		—
6.5.3	Requirements for interconnection to building wiring.....		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
6.6	Safeguards against fire due to connection to additional equipment		N/A
	External port limited to PS2 or complies with Clause Q.1		N/A
7	**INJURY CAUSED BY HAZARDOUS SUBSTANCES**		N/A
7.2	Reduction of exposure to hazardous substances	No such hazardous substances	N/A
7.3	Ozone exposure	No ozone production	N/A
7.4	Use of personal safeguards (PPE)		N/A
	Personal safeguards and instructions		—
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010).....		—
7.6	Batteries.....		N/A
8	**MECHANICALLY-CAUSED INJURY**		P
8.1	General	Edges and corners are classed as MS1	P
8.2	Mechanical energy source classifications		P
8.3	Safeguards against mechanical energy sources		N/A
8.4	Safeguards against parts with sharp edges and corners	No edges and corners	N/A
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts	No moving parts	N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard.....		—
8.5.4	Special categories of equipment comprising moving parts		N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks		N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard.....		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N)		N/A
8.5.5	High Pressure Lamps	No high pressure lamps	N/A

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Clause	Requirement – Test	Result – Remark	Verdict
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test.....		N/A
8.6	Stability		N/A
8.6.1	Product classification		N/A
	Instructional Safeguard.....		—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force.....		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A
	Unit configuration during 10° tilt		—
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force)		N/A
	Position of feet or movable parts.....		—
8.7	Equipment mounted to wall or ceiling		N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface)		N/A
8.7.2	Direction and applied force.....		N/A
8.8	Handles strength	No handles.	N/A
8.8.1	Classification		N/A
8.8.2	Applied Force		N/A
8.9	Wheels or casters attachment requirements	No wheels or casters.	N/A
8.9.1	Classification		N/A
8.9.2	Applied force		—
8.10	Carts, stands and similar carriers	No carts or stands or other carriers.	N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard.....		—
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force		—
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N).....		—
8.10.6	Thermoplastic temperature stability (°C)		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
8.11	Mounting means for rack mounted equipment	Not rack mounted.	N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable *N*.....		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas.....	No rod antennas.	N/A
	Button/Ball diameter (mm).....		—
9	**THERMAL BURN INJURY**		P
9.2	Thermal energy source classifications	Enclosure is classed as TS1. .	P
9.3	Safeguard against thermal energy sources		N/A
9.4	Requirements for safeguards		N/A
9.4.1	Equipment safeguard		N/A
9.4.2	Instructional safeguard	Instructional safeguard is not required	N/A
10	**RADIATION**		P
10.2	Radiation energy source classification	The LED was RS1.	P
10.2.1	General classification	The LED was RS1.	P
10.3	Protection against laser radiation	No laser radiation	N/A
	Laser radiation that exists equipment:		—
	Normal, abnormal, single-fault.....		N/A
	Instructional safeguard.....		—
	Tool		—
10.4	Protection against visible, infrared, and UV radiation		N/A
10.4.1	General		N/A
10.4.1.a)	RS3 for Ordinary and instructed persons		N/A
10.4.1.b)	RS3 accessible to a skilled person		N/A
	Personal safeguard (PPE) instructional safeguard		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions		N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque	Safeguard is not required.	N/A
10.4.1.f)	UV attenuation	No UV.	N/A

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Clause	Requirement – Test	Result – Remark	Verdict
10.4.1.g)	Materials resistant to degradation UV.....	No UV.	N/A
10.4.1.h)	Enclosure containment of optical radiation	No required.	N/A
10.4.1.i)	Exempt Group under normal operating conditions		N/A
10.4.2	Instructional safeguard.....	Not required.	N/A
10.5	Protection against x-radiation	No X-radiation.	N/A
10.5.1	X- radiation energy source that exists equipment	(See appended table B.3 & B.4)	N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards		N/A
	Instructional safeguard for skilled person		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation.....		—
	Abnormal and single-fault condition.....		N/A
	Maximum radiation (pA/kg).....		N/A
10.6	Protection against acoustic energy sources		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A)		N/A
	Output voltage, unweightedr.m.s.		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards.....		N/A
	Equipment safeguard prevent ordinary person to RS2		—
	Means to actively inform user of increase sound pressure		—
	Equipment safeguard prevent ordinary person to RS2.....		—
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) L_{Aeq}acoustic pressure output		—
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum dB(A)		—
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A)		—

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Clause	Requirement – Test	Result – Remark	Verdict
B	**NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS**		P
B.2	Normal Operating Conditions		P
B.2.1	General requirements	(See summary of testing& appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers.....	No audio amplifier circuits	N/A
B.2.3	Supply voltage and tolerances		N/A
B.2.5	Input test	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General requirements	(See appended table B.3)	P
B.3.2	Covering of ventilation openings		N/A
B.3.3	D.C. mains polarity test		N/A
B.3.4	Setting of voltage selector	No such voltage selector	N/A
B.3.5	Maximum load at output terminals.....	(See appended table B.3)	P
B.3.6	Reverse battery polarity		N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.		N/A
B.3.8	Safeguards functional during and after abnormal operating conditions	All safeguards remained effective.	P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited.....	No such controlling device	N/A
B.4.3	Motor tests	No motors used	N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature		N/A
B.4.4	Short circuit of functional insulation	(See appended table B.4)	P
B.4.4.1	Short circuit of clearances for functional insulation	(See appended table B.4)	P
B.4.4.2	Short circuit of creepage distances for functional insulation	(See appended table B.4)	P
B.4.4.3	Short circuit of functional insulation on coated printed boards		N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors	(See appended table B.4)	N/A
B.4.6	Short circuit or disconnect of passive components	(See appended table B.4)	P
B.4.7	Continuous operation of components	Not intermittent or short-time operation equipment	N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
B.4.9	Battery charging under single fault conditions...		N/A
C	**UV RADIATION**		N/A
C.1	Protection of materials in equipment from UV radiation	No UV radiation within the EUT.	N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A
D	**TEST GENERATORS**		N/A
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
E	**TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS**		N/A
E.1	Audio amplifier normal operating conditions		N/A
	Audio signal voltage (V).....		—
	Rated load impedance (Ω)		—
E.2	Audio amplifier abnormal operating conditions		N/A
F	**EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS**		P
F.1	General requirements		P
	Instructions – Language	Instructions in English are checked	—
F.2	Letter symbols and graphical symbols		P
F.2.1	Letter symbols according to IEC60027-1		P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific		P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	Located on the enclosure surface	P
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification	See copy of marking plate	—
F.3.2.2	Model identification	See page 1 for details	—
F.3.3	Equipment rating markings	See copy of marking plate	P
F.3.3.1	Equipment with direct connection to mains		N/A
F.3.3.2	Equipment without direct connection to mains	See copy of marking plate	P

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Clause	Requirement – Test	Result – Remark	Verdict
F.3.3.3	Nature of supply voltage	DC	—
F.3.3.4	Rated voltage.....	5V/9V	—
F.3.3.4	Rated frequency	--	—
F.3.3.6	Rated current or rated power.....	2.0A	—
F.3.3.7	Equipment with multiple supply connections	No multiple supply connection	N/A
F.3.4	Voltage setting device	No such device	N/A
F.3.5	Terminals and operating devices		N/A
F.3.5.1	Mains appliance outlet and socket-outlet markings	No mains appliance outlet	N/A
F.3.5.2	Switch position identification marking.....	No switch	N/A
F.3.5.3	Replacement fuse identification and rating markings		N/A
F.3.5.4	Replacement battery identification marking.....		N/A
F.3.5.5	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification	Class III Equipment	N/A
F.3.6.1	Class I Equipment		N/A
F.3.6.1.1	Protective earthing conductor terminal		N/A
F.3.6.1.2	Neutral conductor terminal		N/A
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment (IEC60417-5172)		N/A
F.3.6.2.1	Class II equipment with or without functional earth		N/A
F.3.6.2.2	Class II equipment with functional earth terminal marking		N/A
F.3.7	Equipment IP rating marking		—
F.3.8	External power supply output marking		N/A
F.3.9	Durability, legibility and permanence of marking		P
F.3.10	Test for permanence of markings		P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present – marking		N/A
	b) Instructions given for installation or initial use		P
	c) Equipment intended to be fastened in place		N/A
	d) Equipment intended for use only in restricted access area		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1		N/A
	f) Protective earthing employed as safeguard		N/A
	g) Protective earthing conductor current exceeding ES2 limits		N/A
	h) Symbols used on equipment		P
	i) Permanently connected equipment not provided with all-pole mains switch		N/A
	j) Replaceable components or modules providing safeguard function		N/A
F.5	Instructional safeguards	Instructional safeguards are not required.	N/A
	Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction		N/A
G	**COMPONENTS**		P
G.1	**Switches**		N/A
G.1.1	General requirements	No switch used	N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	**Relays**		N/A
G.2.1	General requirements		N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	**Protection Devices**		N/A
G.3.1	Thermal cut-offs		N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691	No thermal link used	N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H).....		—
	Single Fault Condition.....		—

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Clause	Requirement – Test	Result – Remark	Verdict
	Test Voltage (V) and Insulation Resistance (Ω).....		—
G.3.3	PTC Thermistors	No PTC used	N/A
G.3.4	Overcurrent protection devices		N/A
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions.....	(See appended Table B.4)	N/A
G.4	**Connectors**		N/A
G.4.1	Spacings	Not directly connected to mains	N/A
G.4.2	Mains connector configuration		N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N/A
G.5	**Wound Components**		N/A
G.5.1	Wire insulation in wound components		N/A
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		N/A
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Time (s).....		—
	Temperature (°C).....		—
G.5.2.3	Wound Components supplied by mains		N/A
G.5.3	**Transformers**		N/A
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1).....		N/A
	Position		—
	Method of protection		—
G.5.3.2	Insulation		N/A
	Protection from displacement of windings		—
G.5.3.3	Overload test.....		N/A
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding Temperatures testing in the unit		N/A
G.5.3.3.3	Winding Temperatures – Alternative test method		N/A
G.5.4	**Motors**		N/A
G.5.4.1	General requirements	No motors used	N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	Position		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days)		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V)		—
G.5.4.5.3	Tested on the Bench – Alternative test method; test time (h)		N/A
	Electric strength test (V)		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature		N/A
	Electric strength test (V)		N/A
G.5.4.6.3	Tested on the bench – Alternative test method; test time (h).....		N/A
	Electric strength test (V)		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage		—
G.6	**Wire Insulation**		N/A
G.6.1	General		N/A
G.6.2	Solvent-based enamel wiring insulation		N/A
G.7	**Mains supply cords**		N/A
G.7.1	General requirements		N/A
	Type		—
	Rated current (A)		—
	Cross-sectional area (mm^2), (AWG)		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	Strain relief test force (N).....		—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm)..		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry.....		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g)		—
	Diameter (m).....		—
	Temperature (°C).....		—
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
G.8	**Varistors**		N/A
G.8.1	General requirements		N/A
G.8.2	Safeguard against shock		N/A
G.8.3	Safeguard against fire		N/A
G.8.3.2	Varistor overload test.....		N/A
G.8.3.3	Temporary overvoltage.....		N/A
G.9	**Integrated Circuit (IC) Current Limiters**		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.	No such IC used	N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA		—
G.9.1 d)	IC limiter output current (max. 5A).....		—
G.9.1 e)	Manufacturers' defined drift		—
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	**Resistors**		N/A
G.10.1	General requirements	No such resistors used	N/A
G.10.2	Resistor test		N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
G.10.3.3	Impulse test		N/A
G.11	**Capacitor and RC units**		N/A
G.11.1	General requirements		N/A
G.11.2	Conditioning of capacitors and RC units		N/A
G.11.3	Rules for selecting capacitors		N/A
G.12	**Optocouplers**		N/A
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results)		N/A
	Type test voltage Vini		—
	Routine test voltage, Vini,b		—
G.13	**Printed boards**		P
G.13.1	General requirements	Approved Printed board used	P
G.13.2	Uncoated printed boards		P
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
	Compliance with cemented joint requirements (Specify construction)	Complied with clause 5.4.4.5 item c)	—
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs)		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A
G.14	**Coating on components terminals**		N/A
G.14.1	Requirements	(See G.13)	N/A
G.15	**Liquid filled components**		N/A
G.15.1	General requirements		N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
G.16	**IC including capacitor discharge function (ICX)**		N/A
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours		N/A
b)	Impulse test using circuit 2 with Uc = to transient voltage		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage		—
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
D2)	Capacitance		—
D3)	Resistance		—
H	**CRITERIA FOR TELEPHONE RINGING SIGNALS**		N/A
H.1	General		N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringing signal		N/A
H.3.1.1	Frequency (Hz)		—
H.3.1.2	Voltage (V)		—
H.3.1.3	Cadence; time (s) and voltage (V)		—
H.3.1.4	Single fault current (Ma):		—
H.3.2	Tripping device and monitoring voltage.....		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V).....		—
J	**INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION**		N/A
	General requirements		N/A
K	**SAFETY INTERLOCKS**		N/A
K.1	General requirements		N/A
K.2	Components of safety interlock safeguard mechanism		N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
K.5	Fail-safe		N/A
	Compliance.....		N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method.....		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location)		N/A
K.7.2	Overload test, Current (A)		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A
L	**DISCONNECT DEVICES**		N/A
L.1	General requirements		N/A
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		N/A
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A
L.8	Multiple power sources		N/A
M	**EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS**		N/A
M.1	General requirements		N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method).		N/A
M.3	Protection circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Tests	(See appended table M)	N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
M.3.3	Compliance	(See appended table M)	N/A
M.4	Additional safeguards for equipment containing secondary lithium battery		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature.....	(See appended table M.4)	N/A
M.4.2.2 b)	Single faults in charging circuitry.....	(See appended table M.4)	N/A
M.4.3	Fire Enclosure		N/A
M.4.4	Endurance of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation		N/A
M.4.4.3	Drop and charge/discharge function tests		N/A
	Drop		N/A
	Charge		N/A
	Discharge		N/A
M.4.4.4	Charge-discharge cycle test		N/A
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current		N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method)		N/A
M.6.2	Leakage current (Ma)		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume Vz (m^3/s)		—

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Clause	Requirement – Test	Result – Remark	Verdict
M.8.2.3	Correction factors		—
M.8.2.4	Calculation of distance *d* (mm)		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing) ...		N/A
N	**ELECTROCHEMICAL POTENTIALS**		N/A
	Metal(s) used		—
O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		N/A
	Figures O.1 to O.20 of this Annex applied	Considered	—
P	**SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS**		N/A
P.1	General requirements		N/A
P.2.2	Safeguards against entry of foreign object		N/A
	Location and Dimensions (mm)		—
P.2.3	Safeguard against the consequences of entry of foreign object		N/A
P.2.3.1	Safeguards against the entry of a foreign object		N/A
	Openings in transportable equipment		N/A
	Transportable equipment with metalized plastic parts.....		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard)		N/A
P.3	Safeguards against spillage of internal liquids	No internal liquids.	N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts	No metallized coatings or adhesive securing parts.	N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C)		—
	Tr (°C)		—
	Ta (°C)		—

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Clause	Requirement – Test	Result – Remark	Verdict
P.4.2 b)	Abrasion testing		N/A
P.4.2 c)	Mechanical strength testing.....		N/A
Q	**CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING**		N/A
Q.1	Limited power sources		N/A
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		N/A
	- Regulating network limited output under normal operating and simulated single fault condition	(See table annex Q1)	N/A
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method		N/A
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A)		—
	Current limiting method		—
R	**LIMITED SHORT CIRCUIT TEST**		N/A
R.1	General requirements		N/A
R.2	Determination of the overcurrent protective device and circuit		N/A
R.3	Test method Supply voltage (V) and short-circuit current (A)).		N/A
S	**TESTS FOR RESISTANCE TO HEAT AND FIRE**		N/A
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material.....		—
	Wall thickness (mm).....		—
	Conditioning (°C)		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material.....		—
	Wall thickness (mm).....		—
	Conditioning (°C)		—

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Clause	Requirement – Test	Result – Remark	Verdict
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials		N/A
S.5	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (test condition), (°C)		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A
T	**MECHANICAL STRENGTH TESTS**		P
T.1	General requirements		N/A
T.2	Steady force test, 10 N	(See appended table T.2)	N/A
T.3	Steady force test, 30 N	Not applicable.	N/A
T.4	Steady force test, 100 N	(See appended table T.4)	N/A
T.5	Steady force test, 250 N	(See appended table T.5)	P
T.6	Enclosure impact test	(See appended table T.6)	P
	Fall test		P
	Swing test		P
T.7	Drop test	(See appended table T.7)	N/A
T.8	Stress relief test	(See appended table T.8)	P
T.9	Impact Test (glass)	No glass used	N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J)		—
	Height (m)		—

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Clause	Requirement – Test	Result – Remark	Verdict
T.10	Glass fragmentation test		N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm)		—
U	**MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFECTS OF IMPLOSION**		N/A
U.1	General requirements	No CRTs	N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen		N/A
V	**DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)**		N/A
V.1	Accessible parts of equipment		N/A
V.2	Accessible part criterion		N/A

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

ATTACHMENT TO TEST REPORT

IEC 62368-1

EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

(Audio/video, information and communication technology equipment – Part 1: Safety requirements)

Differences according to.....: EN 62368-1:2014+A11:2017

Attachment Form No.....: EU_GD_IEC62368_1B_II

Attachment Originator .....: Nemko AS

Master Attachment.....: Date 2017-09-22

	CENELEC COMMON MODIFICATIONS (EN)	
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed "Z".	
CONTENTS	**Add** the following annexes: Annex ZA (normative)Normative references to international publications with their corresponding European publications Annex ZB (normative)Special national conditions Annex ZC (informative)A-deviations Annex ZD (informative)IEC and CENELEC code designations for flexible cords	—
	Delete all the "country" notes in the reference document (IEC 62368-1:2014) according to the following list:	—
	For special national conditions, see Annex ZB.	
1	**Add** the following note: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.	—

0.2.1	Note	1	Note 3	4.1.15	Note
4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c
5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note
5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3
5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4
10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
4.Z1	**Add** the following new subclause after 4.9: To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. **mains**, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for **pluggable equipment type B** or **permanently connected equipment**, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for **pluggable equipment type A** the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.		P
5.4.2.3.2.4	**Add** the following to the end of this subclause: The requirement for interconnection with **external circuit** is in addition given in EN 50491-3:2009.		N/A
10.2.1	Add the following to [c] and [d] in table 39: For additional requirements, see 10.5.1.		N/A

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
10.5.1	**Add** the following after the first paragraph: *For RS 1 compliance is checked by measurement under the following conditions:* *In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or presets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.* NOTE Z1 Soldered joints and paint lockings are examples of adequate locking. *The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus.* *Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.* *For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.* NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.		N/A
10.6.1	**Add** the following paragraph to the end of the subclause: EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.		N/A
10.Z1	**Add** the following new subclause after 10.6.5. **10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz** The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz). For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body-mounted devices, attention is drawn to EN 50360 and EN 50566		N/A
G.7.1	**Add** the following note: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.		N/A

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
Bibliography	**Add** the following standards: **Add** the following notes for the standards indicated: IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4. IEC 60664-5 NOTE Harmonized as EN 60664-5. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1 NOTE Harmonized as EN 61508-1. IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6. IEC 61643-1 NOTE Harmonized as EN 61643-1. IEC 61643-21 NOTE Harmonized as EN 61643-21. IEC 61643-311 NOTE Harmonized as EN 61643-311. IEC 61643-321 NOTE Harmonized as EN 61643-321. IEC 61643-331 NOTE Harmonized as EN 61643-331.		—
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		—
4.1.15	**Denmark, Finland, Norway** and **Sweden** To the end of the subclause the following is added: **Class I pluggable equipment type A** intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and **accessible** parts, have a marking stating that the equipment shall be connected to an earthed **mains** socket-outlet. The marking text in the applicable countries shall be as follows: In **Denmark**: “Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord.” In **Finland**: “Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan” In **Norway**: “Apparatet må tilkoples jordet stikkontakt” In **Sweden**: “Apparaten skall anslutas till jordat uttag”	Not export to such counties	N/A

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
4.7.3	**United Kingdom** To the end of the subclause the following is added: The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex		N/A
5.2.2.2	**Denmark** After the 2nd paragraph add the following: A warning (marking **safeguard**) for high **touch current** is required if the **touch current** exceeds the limits of 3,5 Ma a.c. or 10 Ma d.c.		N/A

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
5.4.11.1 and Annex G	**Finland and Sweden** To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 Kv multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 Kv), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5Kv. It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 Kv defined in 5.4.11; • the additional testing shall be performed on all the test specimens as described in EN 60384-14; the impulse test of 2,5 Kv is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.		N/A

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
5.5.2.1	**Norway** After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A
5.5.6	**Finland, Norway** and **Sweden** To the end of the subclause the following is added: Resistors used as **basic safeguard** or bridging **basic insulation** in **class I pluggable equipment type A** shall comply with G.10.1 and the test of G.10.2.		N/A
5.6.1	**Denmark** **Add** to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. *Justification:* In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N/A
5.6.4.2.1	**Ireland and United Kingdom** After the indent for **pluggable equipment type A**, the following is added: – the **protective current rating** is taken to be 13 A, this being the largest rating of fuse used in the **mains** plug.		N/A
5.6.5.1	To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm^2 to 1,5 mm^2 in cross-sectional area.		N/A
5.7.5	**Denmark** To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the **protective conductor current** exceeds the limits of 3,5 Ma a.c. or 10 Ma d.c.		N/A

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
5.7.6.1	**Norway and Sweden** To the end of the subclause the following is added: The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system. It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: “Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)” NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 Kv r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Apparater isa I koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett isa llers en galvanisk isolator mellom apparatet og kabel-TV nettet.” Translation to Swedish: ”Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i isa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”.		N/A

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
5.7.6.2	**Denmark** To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 Ma .		N/A
B.3.1 and B.4	**Ireland and United Kingdom** The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of **direct plug-in equipment**, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the **direct plug-in equipment**, until the requirements of Annexes B.3.1 and B.4 are met		N/A
G.4.2	**Denmark** To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a *Justification:* Heavy Current Regulations, Section 6c		N/A

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
G.4.2	**United Kingdom** To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A
G.7.1	**United Kingdom** To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
G.7.1	**Ireland** To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard		N/A
G.7.2	**Ireland and United Kingdom** To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm^2 is allowed for equipment which is rated over 10 A and up to and including 13 A.		N/A

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
ZC	*ANNEX ZC, NATIONAL DEVIATIONS (EN)*		--
10.5.2	**Germany** The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 Kv, authorization is required, or application of type approval (Bauartzulassung) and marking. *Justification:* German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. **NOTE** Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int +49-531-592-6320, Internet: http://www.ptb.de		N/A

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

4.1.2	TABLE: List of critical components				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Plastic enclosure and Lamp cover	LG CHEM LTD	AF312C	V-0, 80°C, min.thinkness:2.5 mm	UL 94	UL E67171
Internal wire	Shenzhen Dingyu Electrical Technology Co Ltd	2464	300V, 80°C, 22AWG, VW-1	UL 758	UL E365423
Winding of wireless charger	Interchangeable	Interchangeable	Class A, 130°C	EN 62368-1	Test within appliance
LED	Shenzhen Jia Te Co., Ltd	2835	I_F=60mA; 6000-8000K, exempt group	EN 62471	Report No. WTF21F10112701L
LED board	SHENZHEN HECHENG FAST ELECTRONIC TECHNOLOGY CO LTD	1	V-0, 130°C	UL 796	UL E159194
PCB	KINGBOARD LAMINATES HOLDINGS LTD	KB-5150	V-0, 130°C	UL 796	UL E123995
Alternative	Interchangeable	Interchangeable	V-0, 130°C	UL 94, UL 796	UL
Supplementary information:					

4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests			N/A
(The following mechanical tests are conducted in the sequence noted.)				
4.8.4.2	TABLE: Stress Relief test			—
Part	Material	Oven Temperature (°C)		Comments
--	--	--		--
4.8.4.3	TABLE: Battery replacement test			—
Battery part no.				—
Battery Installation/withdrawal		Battery Installation/Removal Cycle		Comments
		1		
		2		
		3		
		4		
		5		
		6		

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

4.8.4.4	TABLE: Drop test		—
Impact Area	Drop Distance	Drop No.	Observations
		1	
		2	
		3	

4.8.4.5	TABLE: Impact		—
Impacts per surface	**Surface tested**	**Impact energy (Nm)**	**Comments**
--	--	--	--

4.8.4.6	TABLE: Crush test		—
Test position	**Surface tested**	**Crushing Force (N)**	**Duration force applied (s)**
--	--	--	-

Supplementary information:

4.8.5	TABLE: Lithium coin/button cell batteries mechanical test result		N/A
Test position	**Surface tested**	**Force (N)**	**Duration force applied (s)**
--	--	--	--

Supplementary information:

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

5.2	TABLE: Classification of electrical energy sources						P
5.2.2.2 – Steady State Voltage and Current conditions							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
1	5VDC	Input and internal circuit	Normal	5.0Vpk	--	DC	ES1
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	
2	9VDC	Input and internal circuit	Normal	9.0Vpk	--	DC	ES1
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	
3	5VDC	Wireless output	Normal	5.02Vpk	--	DC	ES1
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	
4	7.5VDC	Wireless output	Normal	7.49Vpk	--	DC	ES1
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	
5	9VDC	Wireless output	Normal	9.03Vpk	--	DC	ES1
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	
5.2.2.3 – Capacitance Limits							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Capacitance, Nf	Upk (V)		
1	--	--	Normal	--	--		--
			Abnormal:	--	--		--
			Single fault – SC/OC:	--	--		--

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

5.2.2.4 – Single Pulses

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Duration (ms)	Upk (V)	Ipk (Ma)	
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	

5.2.2.5 – Repetitive Pulses

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Off time (ms)	Upk (V)	Ipk (Ma)	
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	

Test Conditions:
Normal –
Abnormal –
Supplementary information: SC=Short Circuit, OC=Short Circuit

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

5.4.1.4, 6.3.2, 9.0, B.2.6	**TABLE: Temperature measurements**					**P**
	Supply voltage (V) ……..:	9V	--	--	--	—
	Ambient T_{min} (°C) ……..:	24.6	--	--	--	—
	Ambient T_{max} (°C) ……..:	24.8	--	--	--	—
	T_{ma} (°C) ……..:	40.0	--	--	--	---
Maximum measured temperature T of part/at:		T (°C)				Allowed T_{max} (°C)
DC input terminal		53.5	--	--	--	Ref.
Winding of wireless charger(L1 winding)		61.8	--	--	--	130
CBB1 body		65.3	--	--	--	105
PCB near U1		67.2	--	--	--	130
PCB near U2		72.2	--	--	--	130
Internal enclosure near L1 winding		56.0	--	--	--	Ref.
Ajust to 25°C						
External enclosure near L1 winding		38.5	--	--	--	77
Supplementary information: --						

Temperature T of winding:	t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed T_{max} (°C)	Insulation class
--	--	--	--	--	--	--	--
Supplementary information:							

5.4.1.10.2	**TABLE: Vicat softening temperature of thermoplastics**		**N/A**
Penetration (mm).....			—
Object/ Part No./Material		Manufacturer/trademark	T softening (°C)
--		--	--
supplementary information:			

5.4.1.10.3	**TABLE: Ball pressure test of thermoplastics**		**N/A**
Allowed impression diameter (mm)		≤ 2 mm	—
Object/Part No./Material	Manufacturer/trademark	Test temperature (°C)	Impression diameter (mm)
--	--	--	--
Supplementary information:			

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

5.4.2.2, 5.4.2.4 and 5.4.3	TABLE: Minimum Clearances/Creepage distance						N/A
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz)[1]	Required cl (mm)	cl (mm)[2]	Required[3] cr (mm)	cr (mm)
--	--	--	--	--	--	--	--
Supplementary information: Note 1: Provide Material Group IIIb Note 2: BI: basic insulation; SI: supplementary insulation; DI: double insulation; RI: reinforced insulation.							

5.4.2.3	TABLE: Minimum Clearances distances using required withstand voltage			N/A
	Overvoltage Category (OV):			--
	Pollution Degree:			--
Clearance distanced between:		Required withstand voltage	Required cl (mm)	Measured cl (mm)
--		--	--	--
Supplementary information: BI: basic insulation; SI: supplementary insulation; DI: double insulation; RI: reinforced insulation. 1)See appended table **5.4.2.2, 5.4.2.4 and 5.4.3** for measurements.				

5.4.2.4	TABLE: Clearances based on electric strength test			N/A
Test voltage applied between:		Required cl (mm)	Test voltage (Kv) peak/ r.m.s. / d.c.	Breakdown Yes / No
--		--	--	--
Supplementary information: Not used the alternative method to determine the clearances.				

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

5.4.4.2, 5.4.4.5 c) 5.4.4.9	**TABLE: Distance through insulation measurements**				**N/A**
Distance through insulation di at/of:	Peak voltage (V)	Frequency (Hz)	Material	Required DTI (mm)	DTI (mm)
--	--	--	--	--	--
Supplementary information: *: See appended Table 4.1.2 for details.					

5.4.9	**TABLE: Electric strength tests**		**N/A**
Test voltage applied between:	Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
Basic/supplementary:			
--	--	--	--
Reinforced:			
--	--	--	--
Supplementary information: #: all alternative sources have been considered.			

5.5.2.2	**TABLE: Stored discharge on capacitors**				**N/A**
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification
--	--	--	--	--	--
Supplementary information: X-capacitors installed for testing are: ☐Bleeding resistor rating: -- ☐ ICX: Notes: A. Test Location: Phase to Neutral; Phase to Phase; Phase to Earth; and/or Neutral to Earth B. Operating condition abbreviations: N – Normal operating condition (e.g., normal operation, or open fuse); S –Single fault condition					

5.6.6.2	**TABLE: Resistance of protective conductors and terminations**			**N/A**
Accessible part	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)
--	--	--	--	--
Supplementary information:				

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

5.7.2.2, 5.7.4	**TABLE: Earthed accessible conductive part**		**N/A**
Supply voltage		--	--
Location		Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7	Touch current (mA)
Metal enclosure		1	N/A
		2*	N/A
		3	N/A
		4	N/A
		5	N/A

Supplementary Information:
N/A
Notes:
[1] Supply voltage is the anticipated maximum Touch Voltage
[2] Earthed neutral conductor [Voltage differences less than 1% or more]
[3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3
[4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.
[5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.
N: Normal condition, R: Reverse condition.

6.2.2	**Table: Electrical power sources (PS) measurements for classification**				**P**
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s*)	PS Classification
A	5V input and internal circuit	Power (W) :	8.75	--	PS1
		V_A (V) :	5.0	--	
		I_A (A) :	1.75	--	
B	9V input and internal circuit	Power (W) :	15.39	15.39	PS2
		V_A (V) :	9.0	9.0	
		I_A (A) :	1.71	1.71	
C	5V Wireless output	Power (W) :	7.49	--	PS1
		V_A (V) :	1.97	--	
		I_A (A) :	3.81	--	
D	7.5V Wireless output	Power (W) :	8.55	--	PS1
		V_A (V) :	4.21	--	
		I_A (A) :	2.03	--	
E	9V Wireless output	Power (W) :	11.91	--	PS1
		V_A (V) :	6.44	--	
		I_A (A) :	1.85	--	
Supplementary Information:					

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)			N/A
Location	Open circuit voltage After 3 s (Vp)	Measured r.m.s current (Irms)	Calculated value (V_p x I_{rms})	Arcing PIS? Yes / No
--	--	--	--	--

Supplementary information:

All primary circuit/components were considered as arcing PIS, the open circuit of all secondary components/ circuit were not exceeded 50V.

An Arcing PIS requires a minimum of 50 V (peak) a.c. or d.c. An Arcing PIS is established when the product of the open circuit voltage (V_p) and normal operating condition rms current (I_{rms}) is greater than 15.

6.2.3.2	Table: Determination of Potential Ignition Sources (Resistive PIS)				P
Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No
9V input and internal circuit	--	--	--	--	Yes (declared)

Supplementary Information:

All primary/secondary components were considered as resistive PIS.

A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter.

If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification.

A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, or (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault.

8.5.5	TABLE: High Pressure Lamp		N/A
Description		Values	Energy Source Classification
Lamp type ..... :			—
Manufacturer ..... :			—
Cat no. ..... :			—
Pressure (cold) (MPa) ..... :			—
Pressure (operating) (MPa) ..... :			—
Operating time (minutes) ..... :			—
Explosion method ..... :			—
Max particle length escaping enclosure (mm) :			—
Max particle length beyond 1 m (mm) ..... :			—
Overall result			
Supplementary information:			

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

B.2.5	**TABLE: Input test**				**P**
U (V/Hz)	I (A)	I rated (A)	P (W)	P rated (W)	Condition/status
5VDC	1.68	2.0	8.40	--	Wireless output: 5.0VDC, 1.0A
9VDC	1.66	2.0	14.94	--	Wireless output: 9.0VDC, 1.1A
Supplementary information:					

B.3	**TABLE: Abnormal operating condition tests**							**P**
Ambient temperature (°C) .....:				See below				—
Power source for EUT: Manufacturer, model/type, output rating .:				See cover page for details				—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current (A)	T-couple	Temp. (°C)	Observation
Wireless output	overload	9VDC	2hours09mins	--	1.71	Type-J	L1 winding: 66.2°C PCB near U2: 77.3°C Ambient: 40.0°C External enclosure: 41.2°C Ambient: 25.0°C	Wireless output max. loading 1.82A, over 1.82A unit shut down, recoverable. No damage, no hazard.

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

B.4	**TABLE: Fault condition tests**							**P**
Ambient temperature (°C)						40.0		—
Power source for EUT: Manufacturer, model/type, output rating ..						See cover page for details		—
Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
CBB1	short circuit	9VDC	10mins	--	0.012	--	--	After short circuit, unit shut down, recoverable, no damage, no hazard
U2 pin5-10	short circuit	9VDC	10mins	--	0.014	--	--	After short circuit, unit shut down, recoverable, no damage, no hazard

Supplementary information:

1) SC: short circuit, OL: overload, OC: open circuit; CD: components damaged;

2) The Hi-pot test conducted successfully after the completion of fault condition test.

3) *: For fault where fuse opened, tested were repeat nine times and same result was obtained.

4)No ignition during and after all tests.

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

Annex M	**TABLE: Batteries**		**N/A**
The tests of Annex M are applicable only when appropriate battery data is not available			N/A
Is it possible to install the battery in a reverse polarity position?:		It is impossible to install the battery in a reverse polarity position	N/A

	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
1) Imax in normal condition	--	--	--	--	--	--	--	--	--
2) Imax in fault	--	--	--	--	--	--	--	--	--
3) Imax in fault	--	--	--	--	--	--	--	--	--

Test results:		Verdict
- Chemical leaks		
- Explosion of the battery		
- Emission of flame or expulsion of molten metal		
- Electric strength tests of equipment after completion of tests		
Supplementary information:		

Annex M.4	**Table: Additional safeguards for equipment containing secondary lithium batteries**				**N/A**
Battery/Cell No.	Test conditions	Measurements			Observation
		U	I (A)	Temp (C)	
--	--	--	--	--	--
	--	--	--	--	--
Supplementary Information:					

Battery identification	Charging at T_{lowest} (°C)	Observation	Charging at $T_{highest}$ (°C)	Observation
--	--	--	--	--
Supplementary Information:				

IEC/EN 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

Annex Q.1	**TABLE: Circuits intended for interconnection with building wiring (LPS)**					**N/A**
Note: Measured UOC (V) with all load circuits disconnected:						
Output Circuit	Components	U_{oc} (V)	I_{sc}(A)		S (VA)	
			Meas.	Limit	Meas.	Limit
--	--	--	--	--	--	--
	--	--	--	--	--	--
Supplementary Information: SC=Short circuit, OC=Open circuit						

T.2, T.3, T.4, T.5	**TABLE: Steady force test**				**P**
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation
Enclosure	Plastic	Min.2.5	250N	5	Enclosure remained intact.
Supplementary information:					

T.6, T.9	**TABLE: Impact tests**			**P**
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation
Top	Plastic	Min.2.5	1300	No damage, no hazard
Side	Plastic	Min.2.5	1300	No damage, no hazard
Bottom	Plastic	Min.2.5	1300	No damage, no hazard
Supplementary information:				

T.7	**TABLE: Drop tests**		**N/A**
Part/Location	Drop No.	Drop Height (mm)	Observation
--	--	--	--
Supplementary information:			

T.8	**TABLE: Stress relief test**				**P**
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation
Enclosure	Plastic	Min.2.5	70	7	No damage, no hazard
Supplementary information:					

Photo Documentation

Reference No.: WTF21D10112623Y

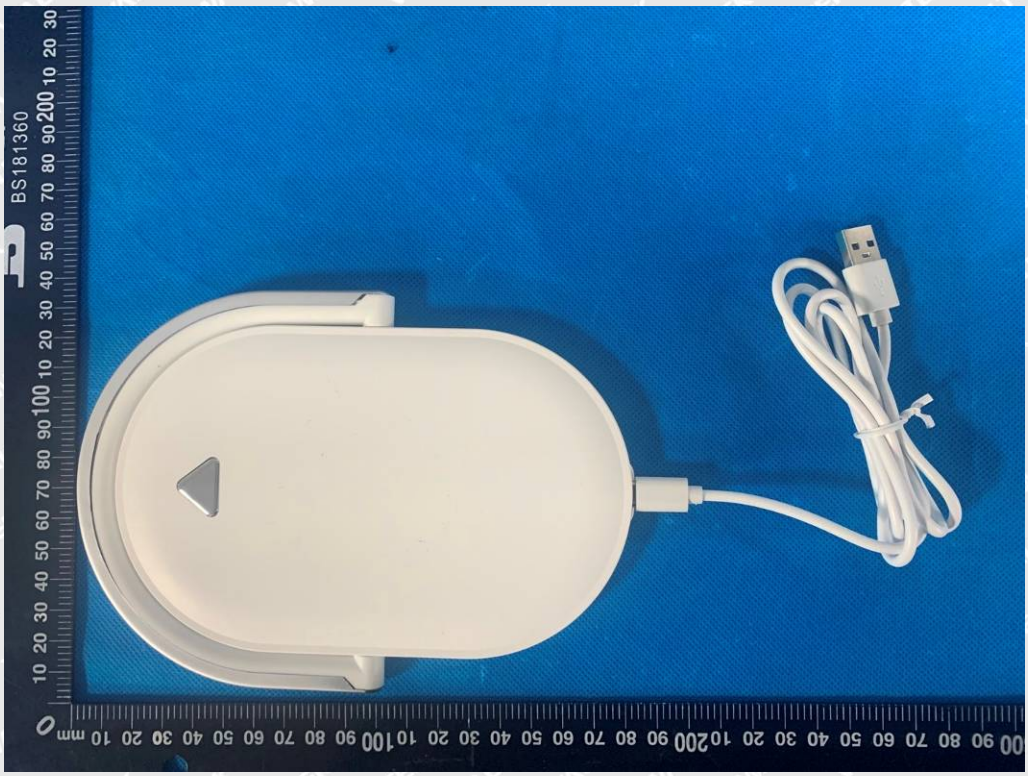

Photo 1

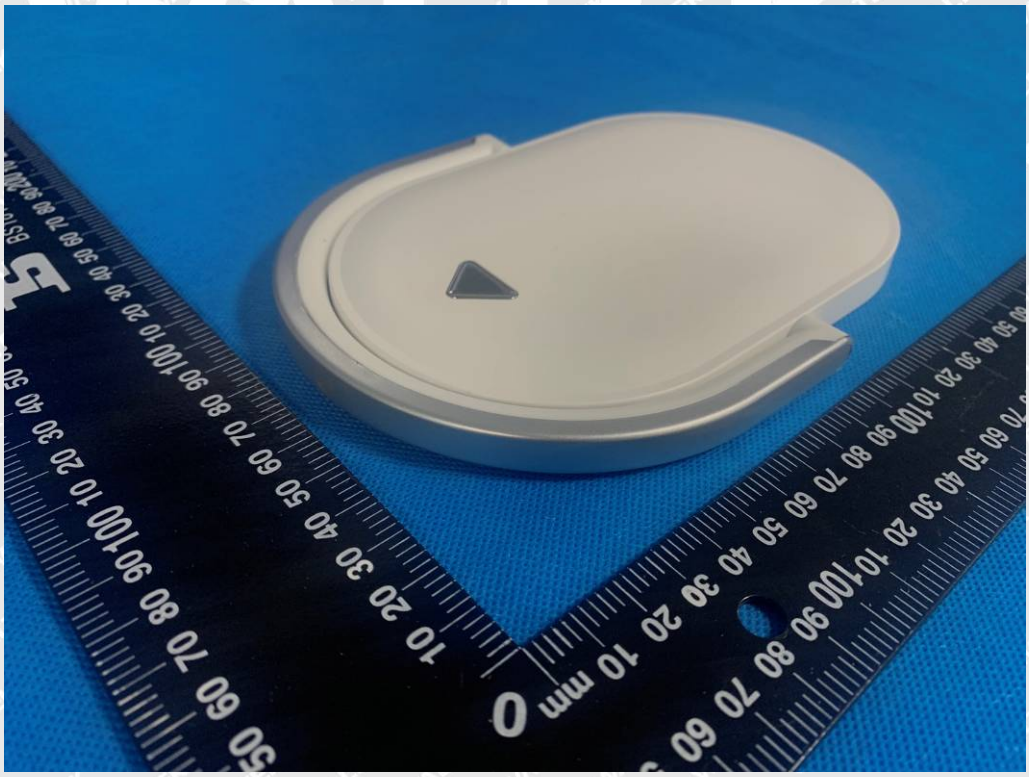

Photo 2

Photo Documentation

Reference No.: WTF21D10112623Y

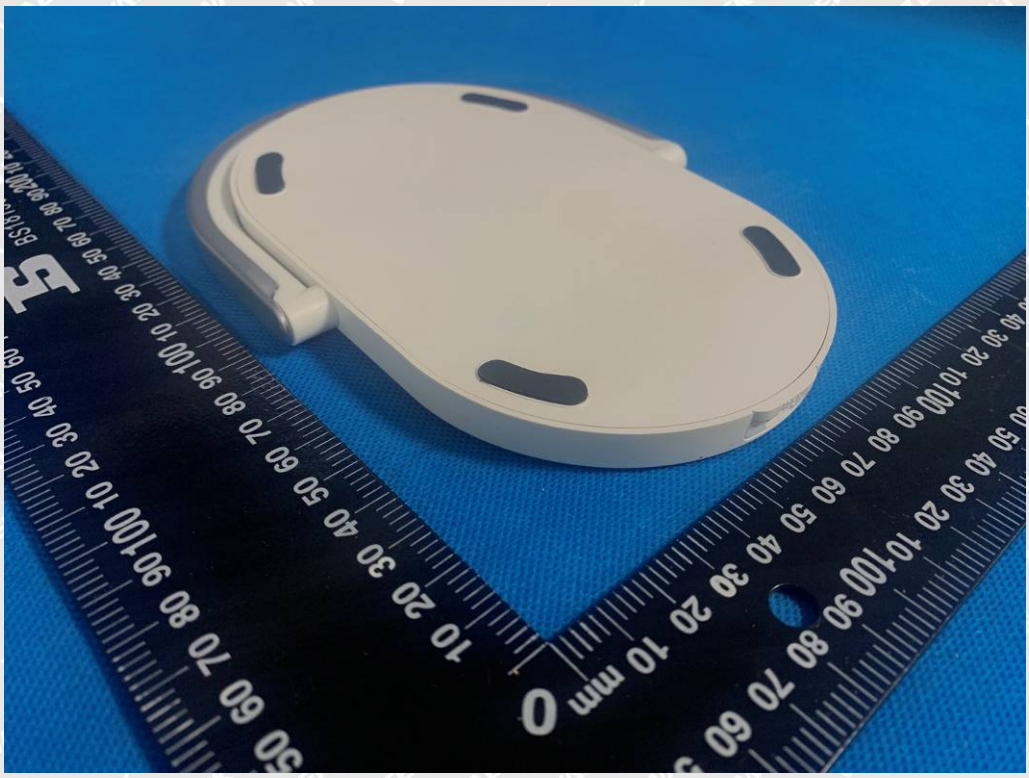

Photo 3

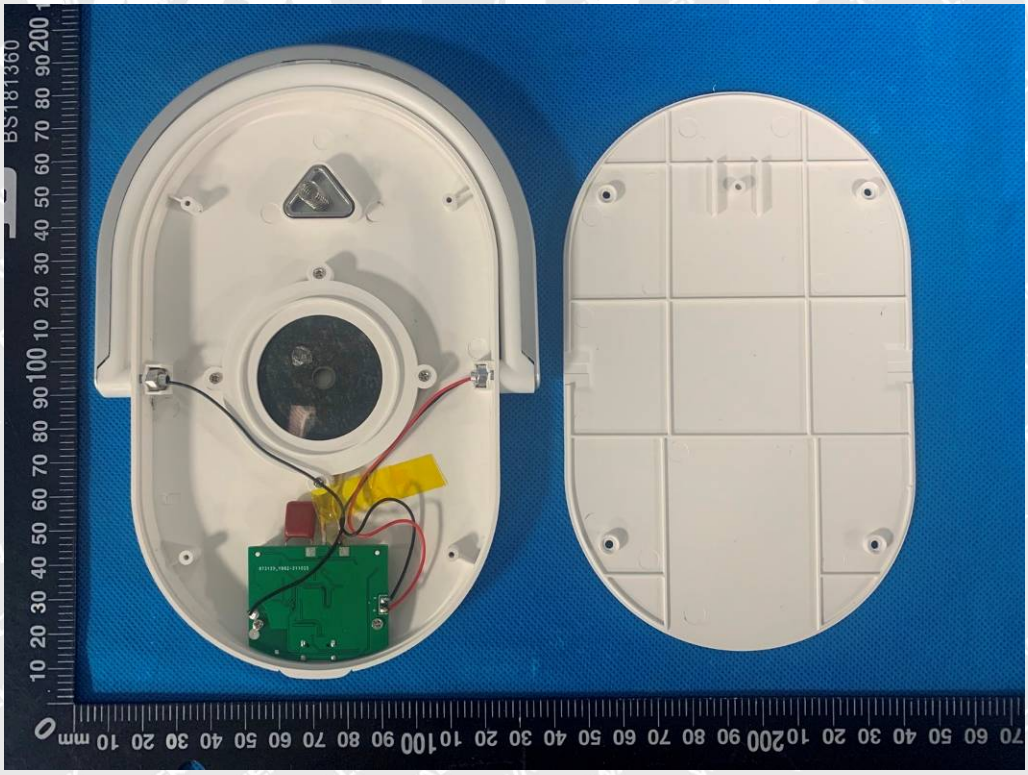

Photo 4

Photo Documentation

Reference No.: WTF21D10112623Y

Photo 5

Photo 6

Photo Documentation

Reference No.: WTF21D10112623Y

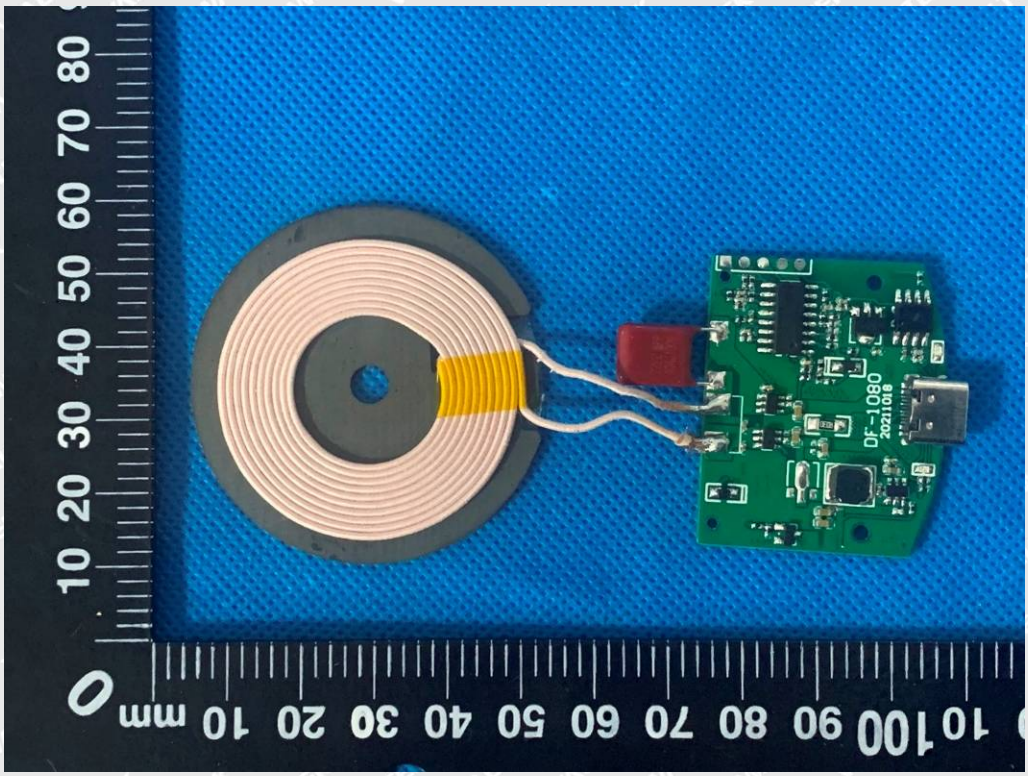

Photo 7

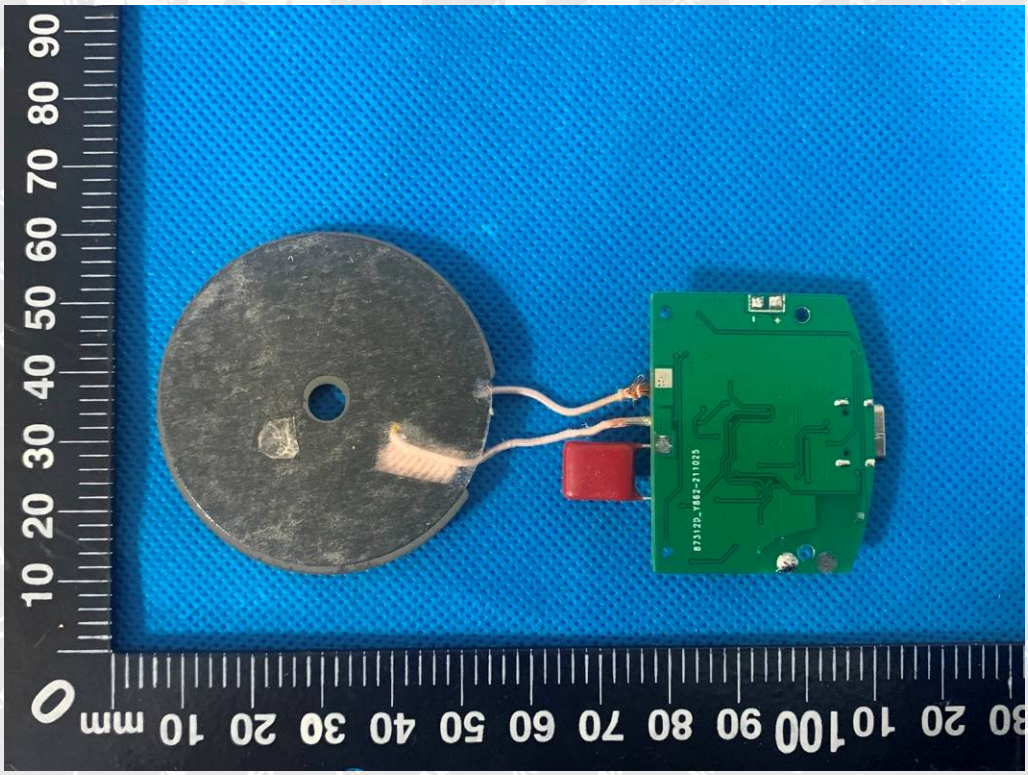

Photo 8

====== End of Report ======

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检测
TESTING
CNAS L6478

TEST REPORT

Reference No.	:	WTF21F10112701L
Applicant	:	Mid Ocean Brands B.V.
Address	:	7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong
Manufacturer	:	114538
Address	:	--
Product Name	:	Desk light wireless charger
Model No.	:	MO6514
Standards	:	Luminaires Part 2-4: Portable general purpose luminaires IEC 60598-1:2020 IEC 60598-2-4:2017
Date of Receipt sample	:	2021-11-12
Date of Test	:	2021-11-12 to 2021-11-24
Date of Issue	:	2021-12-06
Test Report Form No.	:	WSL-6059824A-02A
Test Result	:	**Pass**

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:
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Compiled by:

Nicole He

Nicole He / Project Engineer

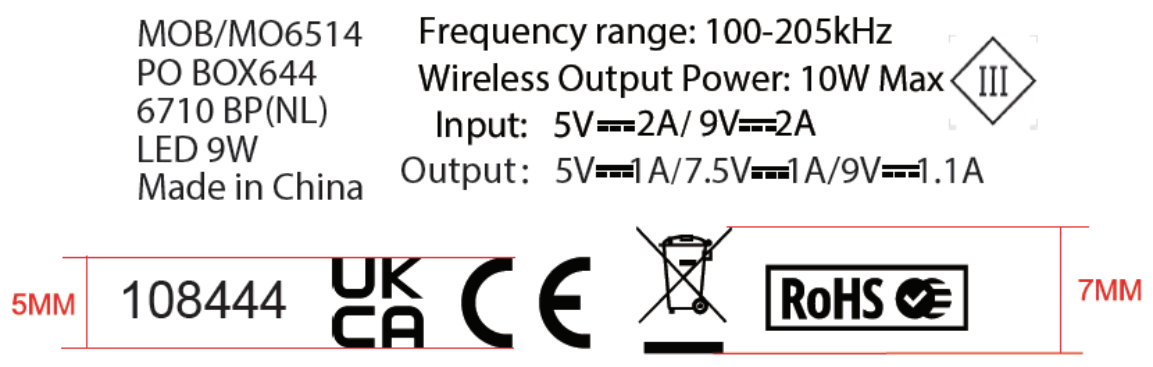
Approved by:

Jerry Mu

Jerry Mu / Manager

Test item description..... :	Desk light wireless charger
Trade Mark..... :	MOB
Model/Type reference..... :	MO6514
Ratings..... :	SELV 5Vdc or 9Vdc, LED 9W, Class III, IP20, wireless charger: Max. 10W

Copy of marking plate:



On the luminaires surface

Remark:
1. As declared by the applicant, the importer (and manufacturer, if it is different)'s name, registered trade name or registered trade mark and the postal address will be marked on the products before being place on the market. The contact details shall be in a language easily understood by end-users and market surveillance authorities.
2. 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.

Summary of testing:

1. All tests were carried out on the representative model MO6415, and found to comply with the requirements of the standards mentioned in page one.
2. EN deviation for IEC 60598-2-4:2017 and IEC 60598-1:2020 was considered and found to comply with the requirement.
3. The touch switch were assessed acc. to EN 61347-2-11:2001+A1:2019, EN 61347-1:2015+A1:2021 and Australia deviation of AS/NZS 61347.1:2016+A1:2018, and the test result was found to comply with the requirement. And switch was tested with appliance for 10000 cycles operating test according to IEC 61058-1-1:2016 and found to comply with the requirement.
4. Integral LED module was assessed according to IEC 62031:2018 and found to comply with the requirement.
5. Retinal blue light hazard was assessed according to IEC/TR 62778:2014, lamp classification group: RG0 unlimited.
6. Photobiological safety was assessed according to EN 62471:2008, classification group: exempt☒ risk 1☐ risk 2☐ risk 3☐.
7. Wireless charger was assessed according to EN 62368-1:2014+A11:2017, see Waltek report WTF21D10112623Y.
8. Assessment of lighting equipment related to human exposure to electromagnetic fields was evaluated and fulfilled the requirements of EN 62493:2015 and found to comply with the requirement.
9. Only the most unfavorable results are recorded in this report.

Test items particulars:
Classification of installation and use .....: Portable
Supply Connection.....: DC inlet
Possible test case verdicts:
- test case does not apply to the test object ..... : N (Not applicable)
- test object does meet the requirement ..... : P (Pass)
- test object does not meet the requirement ..... : F (Fail)
General remarks:
"(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 point is used as the decimal separator.
General product information:
Portable general purpose luminaires. For indoor use only and suitable for mounting on the normally

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

4.4 (0)	**GENERAL TEST REQUIREMENTS**		P
4.4 (0.3)	More sections applicable ..... :	Yes ☐ No ☒ Section/s:	—
4.4 (0.5)	Components	(see Annex 1)	—
4.4 (0.7)	**Information for luminaire design in light sources standards**		—
4.4 (0.7.2)	Light source safety standard ..... :	IEC 62031	—
	Luminaire design in the light source safety standard		P

4.5 (2)	**CLASSIFICATION OF LUMINAIRES**		P
4.5 (2.2)	Type of protection ..... :	Class III	P
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 classified “for indoor use only”... :	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		P
	Position of the marking		P
	Format of symbols/text		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		N

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Clause	Requirement + Test	Result - Remark	Verdict
4.6 (3.3.3)	Operating temperature		N
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		N
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		N
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		N
4.6 (3.3.18)	Non-ordinary luminaires with PVC cable		N
4.6 (3.3.19)	Protective conductor current in instruction 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		P
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		N

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Clause	Requirement + Test	Result - Remark	Verdict
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	15s	P
	Test with hexane	15s	P
	Legible after test		P
	Label attached		P
4.6.1 (-)	Luminaire not suitable for outdoor application		P
	Required symbol		P
	Information in the instructions		P
4.6.2 (-)	Outdoor use, socket outlet incorporated in the luminaire		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 has not moved from its position and show no permanent deformation		N

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Clause	Requirement + Test	Result - Remark	Verdict
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**
	Tails		N
	Unsecured blocks		N
4.7 (4.7)	**Terminals and supply connections**		**P**
4.7 (4.7.1)	Contact to metal parts		P
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

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Clause	Requirement + Test	Result - Remark	Verdict
4.7 (4.7.6)	Multi-pole plug		N
	- test at 30 N		N
4.7 (4.8)	**Switches**		**P**
	- adequate rating		P
	- adequate fixing		P
	- polarized supply		N
	- compliance with IEC 61058-1 for electronic switches		P
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
4.7 (4.10)	**Double or reinforced insulation**		**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
4.7 (4.10.2)	Assembly gaps:		N
	- not coincidental		N
	- no straight access with test probe		N
4.7 (4.10.3)	Retainment 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

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Clause	Requirement + Test	Result - Remark	Verdict
	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:		N
	- self-tapping screws		N
	- 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		P
4.7 (4.14.7)	No contact to wood or mounting surface		P
4.7 (4.14.7)	Electro-mechanical contact systems		P
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		P
	Torque test: torque (Nm); part ..... :	Screw fixed bottom cover: 0.5Nm	P
	Torque test: torque (Nm); part ..... :	Screw fixed enclosure: 0.5Nm	P
	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:		N
	- fixed arms; torque (Nm) ..... :	--	N

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Clause	Requirement + Test	Result - Remark	Verdict
	- lampholder; torque (Nm) ..... :	--	N
	- push-button switches; torque 0,8 Nm ..... :	--	N
4.7 (4.12.5)	Screwed glands; force (Nm) ..... :	--	N
4.7 (4.13)	**Mechanical strength**		**N**
4.7 (4.13.1)	Impact tests:		N
	- fragile parts; energy (Nm) ..... :	--	N
	- other parts; energy (Nm)..... :	--	N
	1) live parts		N
	2) linings		N
	3) protection		N
	4) covers		N
4.7 (4.13.2)	Metal parts have adequate mechanical strength		N
4.7 (4.13.3)	Straight test finger		N
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
	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) ..... :		N
	Metal rod. diameter (mm) ..... :		N

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Clause	Requirement + Test	Result - Remark	Verdict
	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/mm²) ..... :		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 ..... :	1500	P
	- strands broken ..... :	0	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 1.15 (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**
	No lamp control gear ..... :	(compliance with Section 12)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	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

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Clause	Requirement + Test	Result - Remark	Verdict
	Glow-wire test on lamp compartment ..... :	See Test Table 1.15 (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
4.7 (4.24.2)	Retinal blue light hazard		P
	Class of risk group assessed according to IEC/TR 62778 .....:	RG0 unlimited	—
	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		N
	- 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 protective earthing contacts**		**N**
	Test according Annex V		N
	Pull test of terminal fixing (20 N)		N

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Clause	Requirement + Test	Result - Remark	Verdict
	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
	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**		**P**
	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	Class III	N
4.7 (4.31)	**Insulation between circuits**		**P**
	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		P
	Used SELV or PELV source		P
+	Voltage ≤ ELV		P
	Insulating of SELV or PELV circuits from LV supply		P

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Clause	Requirement + Test	Result - Remark	Verdict
	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		P
	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
	Plugs and socket-outlets does not have protective conductor contact		N
4.7 (4.31.2)	FELV circuits		N
	Used FELV source		N
	Voltage ≤ 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		P
	Other circuits insulated from accessible parts according Table X.1		P
	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 does 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

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Clause	Requirement + Test	Result - Remark	Verdict

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**		**P**
	Requirements for Class III luminaire		P
	Rated voltage within the range of ES1 and does not exceed maximum voltage of used connector		P
	Luminaire does not create any hazard from overvoltage	(see Annex 2)	P
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 does not overturn:		P
	- at an angle of 6° for indoor use		P
	- at an angle 15° for outdoor use		N
4.7.4 (-)	Candlestick luminaires provided with switch		N

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Clause	Requirement + Test	Result - Remark	Verdict
	Switch in candlestick luminaires with E5 or E10 lampholders switches all lamps on and off simultaneously		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		N
	- not exceeding 250 V for parallel connection		N
	Maximum rated wattage does not exceed 100 W		N
4.7.6 (-)	Tails not provided for luminaires for outdoor use		N
4.7.7 (-)	Not more than two cable entries for luminaires for outdoor use		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
	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 (-)	Lampholders and plugs resistant to tracking for luminaires for outdoor use	See Test Table 4.16 (13.4)	N
	Compliance to clause 13.4		N
4.8 (11)	**CREEPAGE DISTANCES AND CLEARANCES**		**P**
4.8 (11.2.1)	Impulse withstand category (Normal category II)	Category II ☒ Category III ☐	—
	Category III according Annex U		N
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1		N
4.8 (11.2.2)	Creepage distances for frequency up to 30 kHz	See Test Table 4.8 (11.2) I	P
	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 4.8 (11.2) II	N
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 4.8 (11.2) II	N

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Clause	Requirement + Test	Result - Remark	Verdict

4.8 (11.2.3)	Clearances for frequency up to 30 kHz	See Test Table 4.8 (11.2) I	P
	Clearances distances for frequency over 30 kHz:		N
	- Controlgear marked with U_P	See Test Table 4.8 (11.2) II	N
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 4.8 (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
	Protective earth makes contact first		N
	Terminal blocks with integrated screwless protective 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 protective 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

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Clause	Requirement + Test	Result - Remark	Verdict
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 ..... :	DC 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
4.11 (5.2.2)	Type of cable..... :	see Annex 1	N
	Nominal cross-sectional area (mm²) ..... :	see Annex 1	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:		P
	- suitable for introduction		P
	- adequate degree of protection		P
4.11 (5.2.7)	Cable entries through rigid material have rounded edges		P
4.11 (5.2.8)	Insulating bushings:		N

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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
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

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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 ≤ 25V RMS/60V DC		N
	- Ordinary Class III luminaire supplied with PELV ≤ 12V RMS/30V DC		N
	- Other than ordinary Class III luminaire supplied with voltage ≤ 12V 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		P
	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 (5.2.15)	Connectors for Class III luminaires (IEC 60603 or IEC 62680)		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
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

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Clause	Requirement + Test	Result - Remark	Verdict
	- not delivered/ mounting instruction		N
	- factory assembled		N
	- socket outlet loaded (A) ..... :		N
	- temperatures..... :	(see Annex 2)	N
	Green-yellow for protective earth only		N
4.11 (5.3.1.1)	Internal wiring connected directly to fixed wiring		N
	Cross-sectional area (mm²) ..... :	see Annex 1	N
	Insulation thickness (mm) ..... :		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 (mm²) ..... :	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 or PELV 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.		N
	Joints, raising/lowering devices		N
	Telescopic tubes etc.		N
	No twisting over 360°		P
4.11 (5.3.3)	Insulating bushings:		P
	- suitable fixed		P
	- material in bushings		P
	- material not likely to deteriorate		P
	- cables with protective sheath		P
4.11 (5.3.4)	Joints and junctions effectively insulated		N
4.11 (5.3.5)	Strain on internal wiring		N

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Clause	Requirement + Test	Result - Remark	Verdict
4.11 (5.3.6)	Wire carriers		N
4.11 (5.3.7)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N
4.11 (5.4)	**Test to determine suitability of conductors having a reduced cross-sectional area**		**P**
	Under test the temperature of the luminaire wiring insulation does not exceed the limits stated in Table 12.2		P
	No damage to luminaire wiring after test		P
4.11.1 (-)	Cord anchorage of luminaire for indoor use made of glass or ceramic not fixed or integral		N
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 mm² (mm²)..... :		N
4.11.3 (-)	Terminals, cord anchorage and inlet opening provided for luminaire for outdoor use delivered without a flexible cable or cord and a plug.		N
4.11.4 (-)	Non-detachable flexible cables or cords not lighter than type 245 IEC 57 for Class I and Class II luminaires for outdoor use.		N
4.12 (8)	**PROTECTION AGAINST ELECTRIC SHOCK**		**N**
4.12 (8.2.1)	Live parts not accessible	Class III	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
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N
	Basic insulation only accessible under lamp or starter replacement		N

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Clause	Requirement + Test	Result - Remark	Verdict
	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		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
	- 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

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Clause	Requirement + Test	Result - Remark	Verdict
	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 has protection independent of supporting surface		N
4.12 (8.2.5)	Compliance with the standard test finger or relevant probe		N
4.12 (8.2.6)	Covers reliably secured		N
4.12 (8.2.7)	Luminaire other than below with capacitor > 0,5 μF not exceed 50 V 1 min after disconnection		N
	Portable luminaire with capacitor > 0,1 μF (0,25) not exceed 34 V 1 s after disconnection		N
	Other luminaires with capacitor > 0,1 μF (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) but before (9.3) specified in 4.14		—
4.13 (12.2)	**Selection of lamps and ballasts**		**—**
	Lamp used according Annex B	(Lamp used see Annex 2)	—
	Controlgear if separate and not supplied	(Controlgear used see Annex 2)	—
4.13 (12.3)	**Endurance test**		**P**
	a) mounting-position ..... :	As in normal used	—
	b) test temperature (°C) ..... :	35 °C	—
	c) total duration (h) ..... :	240 h	—
	d) supply voltage (V) ..... :	--	—
	d) if not equipped with controlgear, constant voltage/current (V) or (A) ..... :	1.1 times rated voltage	—
1.13 (12.3.1d)	d) Class III luminaires powered via information technology communication cable:		—
	- voltage under normal operation (V) ..... :	1.1 times rated voltage	—
	- voltage under abnormal operation (V) ..... :	1.3 times rated voltage	—

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Clause	Requirement + Test	Result - Remark	Verdict

	e) luminaire ceases to operate		—
	f) luminaire with a constant light output function		P
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)**	(Annex 2)	P
4.13 (12.5)	**Thermal test (abnormal operation)**	(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
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

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Clause	Requirement + Test	Result - Remark	Verdict

4.13 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 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 (°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 Test Table 1.15 (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 (°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 Test Table 1.15 (13.2.1)	N
4.13 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 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 ☐	—
	- manual reset cut-out ..... :	Yes ☐ No ☐	—
	- auto reset cut-out ..... :	Yes ☐ No ☐	—

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Clause	Requirement + Test	Result - Remark	Verdict
	- case of abnormal conditions ..... :		—
	- highest measured temperature of fixing point/ exposed part (°C): ..... :		—
	Ball-pressure test: ..... :	See Test Table 4.15 (13.2.1)	N
4.13 (-)	Luminaire for indoor use tested in overturned position (overturns < 15°)	Not overturn	N
4.14 (9)	**RESISTANCE TO DUST AND MOISTURE**		**P**
4.14 (-)	If IP > IP 20 the order of tests as specified in clause 4.13		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 in normal used	—
	- fixing screws tightened; torque (Nm) ..... :	--	—
	- tests according to clauses ..... :	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, pressure watertight, high pressure and temperature water jet-proof or high pressure and cold-water jet-proof luminaire		N
	e) no contact with live parts (IP 2X)		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		P

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Clause	Requirement + Test	Result - Remark	Verdict

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 :	Covered by metal foil	P
	Insulation resistance (MΩ):		P
	SELV or PELV:		P
	- between current-carrying parts of different polarity:		N
	- between current-carrying parts and mounting surface ..... :	100 MΩ	P
	- between current-carrying parts and metal parts of the luminaire..... :	100 MΩ	P
	- 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		N
	SELV or PELV:		P
	- between current-carrying parts of different polarity:		N
	- between current-carrying parts and mounting surface ..... :	500V	P
	- between current-carrying parts and metal parts of the luminaire..... :	500V	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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/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 (10.3)	Touch current (mA) ..... :		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 4.16 (13.2.1)	P
4.16 (13.3.1)	Needle-flame test (10 s)..... :	See Test Table 4.16 (13.3.1)	P
4.16 (13.3.2)	Glow-wire test (650°C)..... :	See Test Table 4.16 (13.3.2)	P
4.16 (13.4)	Proof tracking test (IEC 60112)..... :	See Test Table 4.16 (13.4)	N

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Clause	Requirement + Test	Result - Remark	Verdict

4.8 (11.2)	**TABLE I: Creepage distances and clearances**							**P**
	Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages							
	Applicable part of IEC 60598-1 Table 11.1.A*, 11.1.B* and 11.2* and Table U.1*							
Distances	**Insulation type ****	**Measured clearance**	**Required**		**Measured creepage**	**Required**		
			clearance	***Table**		**creepage**	***Table**	
Working voltage (V) ..... :								—
PTI ..... :					< 600 ☐	≥ 600 ☐		—
Pulse voltage or U_P if applicable (kV) ..... :					--			—
Supplementary information: Class III work light, Max. input 5VDC or 9VDC								
Working voltage (V) ..... :								—
PTI ..... :					< 600 ☐	≥ 600 ☐		—
Pulse voltage or U_P if applicable (kV) ..... :					--			—
Supplementary information:								
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 M.								
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 M.								

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Clause	Requirement + Test	Result - Remark	Verdict

4.8 (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) ..... :								—
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.								

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Clause	Requirement + Test	Result - Remark	Verdict

4.16 (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics		P
Allowed impression diameter (mm) .....:	**2**		—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)
DC inlet	See Annex 1	125.0	1.5
Internal PCB	See Annex 1	125.0	1.2
Touch switch button	See Annex 1	125.0	1.4
LED board	See Annex 1	125.0	1.3
Supplementary information:			

4.16 (13.3.1)	TABLE: Needle-flame test (IEC 60695-11-5)				P
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
DC inlet	See Annex 1	10	No	0	P
Internal PCB	See Annex 1	10	No	0	P
LED board	See Annex 1	10	No	0	P
Supplementary information:					

4.16 (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
Lamp cover	See Annex 1	30	N	P
Plastic enclosure of lamp part	See Annex 1	30	N	P
Plastic cover of bottom	See Annex 1	30	N	P
Plastic enclosure of bottom	See Annex 1	30	N	P
Touch switch button	See Annex 1	30	N	P
Supplementary information:				

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Clause	Requirement + Test	Result - Remark	Verdict

4.16 (13.4)	**TABLE: Proof tracking test (IEC 60112)**				**N**
Test voltage PTI .....:					—
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
Supplementary information:					

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Clause	Requirement + Test	Result - Remark	Verdict

	ANNEX 1 components					**P**
object/part No.	code	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity
DC inlet	B	NANTONG ORIENT PLASTICS CO LTD	3080 G(zz)	V-0; PBT	--	UL E332375
Internal wire	B	SHENZHEN DINGYU ELECTRICAL TECHNOLOGY CO LTD	2464	300V; 22AWG, 80°C,	--	UL E365423
Internal PCB	B	KINGBOARD LAMINATES HOLDINGS LTD	KB-5150	130°C	--	UL E123995
Wireless charger	B	Mid Ocean Brands B.V.	MO-6514	Input:5V or 9Vdc,2A; Wireless output: 5 or 7.5Vdc,1A; or 9Vdc 1.1A	EN 62368-1	WTF21D10112623Y
LED	B	Shenzhen JiaTe Co., Ltd.	2835	I_F=60mA; 6000-8000K	IEC/TR 62778 EN 62471	Tested with appliance
LED board	B	Shenzhen Hecheng Fast Electronic Technology Co Ltd	1	V-0	--	UL E159194
Lamp cover, plastic enclosure, touch place, switch for wireless charger	B	LG CHEM LTD	AF312C	ABS;V-0	--	UL E67171

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

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Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	**TABLE: Temperature measurements, thermal tests of Section 12**	P

	Type reference.....:	MO6514	—
	Lamp used.....:	LED	—
	Lamp control gear used.....:	--	—
	Mounting position of luminaire.....:	Acc. to user manual	—
	Supply wattage (W).....:	--	—
	Supply current (A).....:	--	—
	Calculated power factor.....:	--	—
	Table: measured temperatures corrected for ta = 25 °C:		P
	- abnormal operating mode .....:	--	—
	- test 1: rated voltage.....:	--	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage.....:	1.3 times rated voltage	—
	- 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 measurements, (°C)

Part	Ambient	Clause 12.4 – normal				Clause 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
DC inlet	25.0	--	48.8	--	Ref.	--	--
Touch switch button	25.0	--	50.6	--	55	--	--
Ambient of touch switch	25.0	--	44.3	--	55	--	--
Internal PCB for of wireless charging & touch switch	25.0	--	35.3	--	Ref.	--	--
Internal wire of switch	25.0	--	28.1	--	80	--	--
Switch button for wireless charger	25.0	--	26.3	--	55	--	--
Ambient of switch for wireless charger	25.0	--	25.6	--	55	--	--
Lead wire of LED	25.0	--	58.2	--	80	--	--

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

Lamp cover	25.0	--	50.4	--	Ref.	--	--
Plastic enclosure of lamp part	25.0	--	47.8	--	Ref.	--	--
Plastic cover of bottom	25.0	--	29.2	--	Ref.	--	--
Plastic enclosure of bottom	25.0	--	29.9	--	Ref.	--	--
Adjustment non-metal part (and 5cm around)	25.0	--	46.3	--	75	--	--
LED board	25.0	--	65.9	--	Ref.	--	--
Mounting surface	25.0	--	37.0	--	Ref.	--	--
Illuminated surface (0.1m)	25.0	--	30.1	--	90	--	--

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

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 (mm²)		—
(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)	M	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

EN 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict

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
(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

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Clause	Requirement + Test	Result - Remark	Verdict

(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
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:										

EN 60598-2-4			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 5	**National Differences for (country name) or Group Differences**	**P**
	CENELEC COMMON MODIFICATIONS (EN)	P

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

Annex Form No.....: --

Annex Form Originator.....: --

Master Annex Form.....: --

	CENELEC COMMON MODIFICATIONS (EN)	P

4.5 (3)	**MARKING**		**N**
4.5 (3.3.101)	For luminaires not supplied with terminal block: Adequate warning on the package		N

4.6 (4)	**CONSTRUCTION**		**P**
4.6 (4.11.6)	Electro-mechanical contact systems		P

4.10 (5)	**EXTERNAL AND INTERNAL WIRING**		**P**
4.10 (5.2.1)	Connecting leads		N
	- without a means for connection to the supply		N
	- terminal block specified		N
	- relevant information provided		N
	- compliance with 4.6, 4.7.1, 4.7.2, 4.10.1, 11.2, 12 and 13.2 of Part 1		N
4.10 (5.2.2)	Cables equal to EN 50525		N
	Replace table 5.1 – Supply cord		N

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Clause	Requirement + Test	Result - Remark	Verdict

4.12 (12)	**ENDURANCE TESTS AND THERMAL TESTS**		N
4.12 (12.4.2c)	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring		N

ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		**N**
(3.3)	DK: power supply cords of class I luminaires with label		N
(4.5.1)	DK: socket-outlets		N
(5.2.1)	CY, DK, FI, GB: type of plug		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
(13.3)	GB: Requirements according to United Kingdom Building Regulation		N

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Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 6	**The requirements for dimmer switch according to standard EN 61347-2-11**	**P**

4 (4)	**GENERAL REQUIREMENTS**		**P**
- (4)	Insulation materials for double or reinforced insulation according requirements in Annex N of IEC 61347-1	(see Annex N)	N
- (4)	Compliance of independent controlgear enclosure with IEC 60 598-1		N
- (4)	Built-in magnetic ballast with double or reinforced insulation comply with Annex I of IEC 61347-1		N
- (4)	Built-in electronic controlgear with double or reinforced insulation comply with Annex O of IEC 61347-1	(see Annex O)	N
- (4)	SELV controlgear comply with Annex L of IEC 61347-1	(see Annex L)	N

6 (6)	**CLASSIFICATION**		**P**
	Independent controlgear:	Yes ☐ No ☒	—
	Built-in controlgear:	Yes ☐ No ☒	—
	Integral controlgear:	Yes ☒ No ☐	—

7	**MARKING**	**N**
	Requirements not applicable to the evaluated product	—

8 (10)	**PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS**		**N**
- (10.1)	Controlgear protected against accidental contact with live parts	Class III	N
- (A2)	Voltage measured with 50 kΩ	(see Annex A)	N
- (A3)	Voltage > 35 V peak or > 60 V d.c. or protective impendance 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
- (10.2)	Capacitors > 0,5 μF: voltage after 1 min (V): < 50 V .....:		N
- (10.3)	Controlgear providing SELV		N

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Clause	Requirement + Test	Result - Remark	Verdict
	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 curcuit		N
	No possibility of connection between output circuit and the body or protective earthing circuit through other conductive parts		N
	SELV outputs separated 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 ≤ 25 V r.m.s. or ≤ 60 V d.c.		N
	If output voltage > 25 V r.m.s. or > 60 V d.c.; No load output ≤ 35 V peak or ≤ 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
9 (8)	**TERMINALS**		**N**
- (8)	Screw terminals according section 14 of IEC 60598-1:		**N**
	Separately approved; component list	(see Annex 1)	N
	Part of the controlgear	(see Annex 2)	N
	Screwless terminals according section 15 of IEC 60598-1:		**N**
	Separately approved; component list	(see Annex 1)	N
	Part of the controlgear	(see Annex 3)	N
10 (9)	**PROVISION FOR PROTECTIVE EARTHING**		**N**
- (9.1)	Provisions for protective earthing		N

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Clause	Requirement + Test	Result - Remark	Verdict
	Terminal complying with clause 9		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
- (9.2)	Provision for functional earthing		N
	Comply with clause 8 and 9.1		N
- (9.3)	Earth contact via the track on the printed 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 Ω .....:		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 mm² 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 Ω .....:		N
	Output earthing terminal marked as in 7.1 t) of IEC 61347-1		N

EN 61347-2-11			
Clause	Requirement + Test	Result - Remark	Verdict

11 (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 (MΩ):		P
	For basic insulation ≥ 2 MΩ .....:	100 MΩ	P
	For double or reinforced insulation ≥ 4 MΩ .....:	--	N
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in IEC 61347-1		N

12 (12)	**ELECTRIC STRENGTH**		**P**
- (12)	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		N
	Solid or thin sheet insulation for double or reinforced insulation fulfil the requirements in Annex N in IEC 61347-1		N

14 (14)	**FAULT CONDITIONS**		**P**
- (14)	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
- (14.1)	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)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Creepage distances on printed boards less than specified in clause 16 in Part 1 provided with coating according to IEC 60664-3		N
- (14.2)	Short-circuit or interruption of semiconductor devices	(see appended table)	P
- (14.3)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	N
- (14.4)	Short-circuit across electrolytic capacitors	(see appended table)	P
- (14.5)	After the tests has been carried out on three samples:		P
	The insulation resistance ≥ 1 MΩ .....:	100 MΩ	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		P
- (14.6)	Relevant fault condition tests with high-power supply		—

15 (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
- (15.3)	Plugs and socket-outlets used in SELV or ELV circuits		N
	No dangerous compatibility between output socket-outlet and a plug for socket-outlets for input circuit in relation to installation rules, voltages and frequencies		N
	Plugs and socket-outlets for SELV comply with IEC 60906-3 and IEC 60884-2-4		N
	Plugs and socket-outlets for SELV ≤ 3 A, ≤ 25 V r.m.s. or ≤ 60 V d.c. and ≤ 72 W comply with IEC 60906-3 and IEC 60884-2-4 or:		N
	- plugs not able to enter socket-outlets of other standardised system		N
	- socket-outlets not admit plugs of other standardised system		N
	- socket-outlets without protective earth		N

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Clause	Requirement + Test	Result - Remark	Verdict

16 (16)	**CREEPAGE DISTANCES AND CLEARANCES**		**P**
- (16)	Creepage distances and clearances according to Table 3 and 4, as appropriate	(see appended table)	P
	Controlgears providing SELV comply with L.1 in Annex L		N
	Insulating lining of metallic enclosures		N
	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 either Table 3 or 4		P
	Creepage distances not less than minimum clearance		P

17 (17)	**SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS**		**P**
	Screws, current-carrying parts and connections in compliance with IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1)		P
(4.11)	Electrical connections		P
(4.11.1)	Contact pressure		P
(4.11.2)	Screws:		N
	- self-tapping screws		N
	- thread-cutting screws		N
(4.11.3)	Screw locking:		N
	- spring washer		N
	- rivets		N
(4.11.4)	Material of current-carrying parts		P
(4.11.5)	No contact to wood or mounting surface		P
(4.11.6)	Electro-mechanical contact systems		N
(4.12)	Mechanical connections and glands		N
(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
	Torque test: torque (Nm); part ..... :	--	N
(4.12.2)	Screws with diameter < 3 mm screwed into metal		N

EN 61347-2-11			
Clause	Requirement + Test	Result - Remark	Verdict
(4.12.4)	Locked connections:		N
	- fixed arms; torque (Nm) :		N
	- lampholder; torque (Nm) :		N
	- push-button switches; torque 0,8 Nm :		N
(4.12.5)	Screwed glands; force (Nm) :		N
18 (18)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		**P**
- (18.1)	Ball-pressure test:		P
	- part tested; temperature (°C) :	PCB, 125°C	P
- (18.2)	Test of printed boards:		P
	- part tested :	PCB	P
- (18.3)	Glow-wire test (650°C):		N
	- part tested :	--	N
- (18.4)	Needle flame test (10 s):		P
	- part tested :	PCB	P
	- part tested :	--	N
- (18.5)	Tracking test:		N
	- part tested :	--	N
	- part tested :	--	N
19 (19)	**RESISTANCE TO CORROSION**		**N**
	- test according 4.18.1 of IEC 60598-1		N
	- adequate varnish on the outer surface		N
20 (-)	**ANNEXES**		**P**
	Comply with appropriate annexes of IEC 61347-1	(see Annexes)	P

14	**TABLE: tests of fault conditions**	**P**
Part	Simulated fault	Hazard
D1	Test voltage: 9Vdc, Short circuit: Fuse open immediately	No
D2	Test voltage: 9Vdc, Short circuit: Fuse open immediately	No
Q1	Test voltage: 9Vdc, Short circuit: unit shut down, recoverable	No

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Clause	Requirement + Test	Result - Remark	Verdict

U1	Test voltage: 9Vdc, Short circuit: unit shut down, recoverable	No
U2	Test voltage: 9Vdc, Short circuit: unit shut down, recoverable	No
U3	Test voltage: 9Vdc, Short circuit: unit shut down, recoverable	No
U4	Test voltage: 9Vdc, Short circuit: Fuse open immediately	No
U5	Test voltage: 9Vdc, Short circuit: unit shut down, recoverable	No
IC	Test voltage: 9Vdc, Short circuit: unit shut down, recoverable	No
D3	Test voltage: 9Vdc, Short circuit: unit shut down, recoverable	No
Q1	Test voltage: 9Vdc, Short circuit: unit shut down, recoverable	No
Q2	Test voltage: 9Vdc, Short circuit: unit shut down, recoverable	No
Q3	Test voltage: 9Vdc, Short circuit: unit shut down, recoverable	No
Q4	Test voltage: 9Vdc, Short circuit: unit shut down, recoverable	No
U1	Test voltage: 9Vdc, Short circuit: unit shut down, recoverable	No
U2	Test voltage: 9Vdc, Short circuit: unit shut down, recoverable	No
IC1	Test voltage: 9Vdc, Short circuit: unit shut down, recoverable	No
IC2	Test voltage: 9Vdc, Short circuit: unit shut down, recoverable	No

16 (16)	**TABLE: clearance and creepage distance measurements (mm)**							P
Applicable part of IEC 61347-1 Table 7 – 11*								
Distances	**Insulation type ****	**Measured clearance**	**Required**		**Measured creepage**	**Required**		
			clearance	***Table**		**creepage**	***Table**	
Working voltage (V)..... :								—
Frequency if applicable (kHz)..... :					--			—

EN 61347-2-11			
Clause	Requirement + Test	Result - Remark	Verdict

PTI .....:	< 600 ☐ ≥ 600 ☐	—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) .....:	--	—
Pulse voltage if applicable (kV) .....:	--	—
Supplementary information: Max. 9VDC input		

** Insulation type: B – Basic; S – Supplementary; R – Reinforced

A	**ANNEX A, TEST TO ESTABLISH WHETHER A CONDUCTIVE PART IS A LIVE PART WHICH MAY CAUSE AN ELECTRIC SHOCK**		**N**
A.1	Comply with A.2 or A.3		N
A.2	Voltage ≤ 35 V peak or ≤ 60 V d.c .....:	--	N
A.3	If voltage > 35 V r.m.s. or > 60 V d.c. or protective impendance device; touch current does not exceed 0,7 mA (peak) or 2 mA d.c. .....:	--	N
	Comply with Annex G of IEC 60598-1		N

C	**ANNEX C – PARTICULAR REQUIREMENTS FOR ELECTRONIC LAMP CONTROLGEAR WITH MEANS OF PROTECTION AGAINST OVERHEATING**		**N**
C3	GENERAL REQUIREMENTS		N
C3.1	Thermal protection means integral with the controlgear, protected against mechanical damage		N
	Renewable only by means of a tool		N
	If function depending on polarity, for cord-connected equipment protection means in both leads		N
	Thermal links comply with IEC 60691		N
	Electrical controls comply with IEC 60730-2-3		N
C3.2	No risk of fire by breaking (clause C7)		N
C5	CLASSIFICATION		N
	a) automatic resetting type		N
	b) manual resetting type		N
	c) non-renewable, non-resetting type		N
	d) renewable, non-resetting type		N
	e) other type of thermal protection; description : 		N
C6	MARKING		N

EN 61347-2-11			
Clause	Requirement + Test	Result - Remark	Verdict
C6.1	Symbol for temperature declared thermally protected ballasts		N
C6.2	Declaration of the type of protection provided		N
C7	LIMITATION OF HEATING		N
C7.1	Preselection test		N
	Test sample placed for at least 12 h in an oven having temperature (t_c - 5) K		N
	No operation of the protection device		N
C7.2	Functioning of protection means		N
	Normal operation of the sample in a test enclosure according to Annex D at an ambient temperature such that (t_c +0; -5) °C is obtained		N
	No operation of the protection device		N
	Introducing of the most onerous test condition determined during test of clause 14		N
	Output of windings connected to the mains supply short-circuited, and other part of the controlgear operated under normal conditions		N
	Increasing of the current through the windings continuously until operation of the protection means		N
	Continuous measuring of the highest surface temperature		N
	Controlgear according to C5 a) or C5 e) operated until stable conditions are achieved		N
	Automatic-resetting thermal protectors working 3 times		N
	Controlgear according to C5 b) working 6 times		N
	Controlgear according to C5 c) and C5) d) working once		N
	Highest temperature does not exceed the marked value		N
	Any overshoot of 10% over the marked value within 15 min		N
D	**ANNEX D – REQUIREMENTS FOR CARRY OUT THE HEATING TESTS OF THERMALLY PROTECTED LAMP CONTROLGEAR**		N
	Tests in C7 performed in accordance with Annex D, if applicable		N
E	**ANNEX E – USE OF CONSTANT S OTHER THAN 4500 IN t_w TESTS**		N
	Comply with tests according Annex E, if applicable		N

EN 61347-2-11			
Clause	Requirement + Test	Result - Remark	Verdict

F	**ANNEX F - DRAUGHT-PROOF ENCLOSURE**		P
	Draught-proof enclosure in accordance with the description		P
	Dimensions of the enclosure		P
	Other design; description		N

H	**ANNEX H - TESTS**		P
	All tests performed in accordance with the advise given in Annex H, if applicable		P

I	**ANNEX I - PARTICULAR ADDITIONAL REQUIREMENTS FOR INDEPENDENT SELV D.C. OR A.C. SUPPLIED ELECTRONIC CONTROLGEAR FOR LED MODULES**	**N**
	Requirements not applicable to the evaluated product	—

L	**ANNEX L: PARTICULAR ADDITIONAL REQUIREMENTS FOR CONTROLGEARS PROVIDING SELV** (IEC 61347-1)	**N**
	Requirements not applicable to the evaluated product	—

M	**ANNEX M: DIELECTRIC STRENGTH TEST VOLTAGES FOR CONTROLGEAR INTENDED FOR USE IN IMPULSE WITHSTAND CATEGORY III**		N
	Comply with tests according Annex M, if applicable		N

N	**ANNEX N: REQUIREMENTS FOR INSULATION MATERIALS USED FOR DOUBLE OR REINFORCED INSULATION** (IEC 61347-1)	**N**
	Requirements not applicable to the evaluated product	—

O	**ANNEX O: ADDITIONAL REQUIREMENTS FOR BUILT-IN ELECTRONIC CONTROLGEAR WITH DOUBLE OR REINFORCED INSULATION (IEC 61347-1)**	**N**
	Requirements not applicable to the evaluated product	—

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
ANNEX 7	**LED modules for general lighting – Safety specifications** **EN IEC 62031:2020**		**P**
4	**GENERAL REQUIREMENTS**		P
4.4	Integral modules treated as part of luminaires defined in clause 0.5 of IEC 60598-1		P
4.5	Independent modules complies with requirements in IEC 60598-1		N
5	**GENERAL TEST REQUIREMENTS**		—
5.5	SELV-operated LED modules comply with Annex I of IEC 61347-2-13	(see Annex 1)	N
	General conditions for tests in Annex A	(see Annex A)	N
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**
	Requirements not applicable to the evaluated product.		—
8	**TERMINALS**		**N**
	Screw terminals according section 14 of IEC 60598-1:		N
	Separately approved; component list	(see Annex 2)	N
	Part of the luminaire	(see Annex 3)	N
	Screwless terminals according section 15 of IEC 60598-1:		N
	Separately approved; component list	(see Annex 2)	N
	Part of the luminaire	(see Annex 4)	N
	Connectors according IEC 60838-2-2:		N
	Separately approved; component list	(see Annex 2)	N
9 (9)	**PROVISION FOR PROTECTIVE EARTHING**		**N**
	Requirements not applicable to the evaluated product.		—

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict

10 (10)	**PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS**	**N**
	Requirements not applicable to the evaluated product.	—

11 (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 (MΩ):		P
	For basic insulation ≥ 2 MΩ .....:	100MΩ	P
	For double or reinforced insulation ≥ 4 MΩ .....:		N
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in IEC 61347-1		P

12 (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

13 (14)	**FAULT CONDITIONS**		**P**
- (14)	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		P

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)		N
	Creepage distances on printed boards less than specified in clause 16 in Part 1 provided with coating according to IEC 60664-3		N
- (14.2)	Short-circuit or interruption of semiconductor devices	LED	P
- (14.3)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	N
- (14.4)	Short-circuit across electrolytic capacitors	(see appended table)	N
- (14.5)	After the tests has been carried out on three samples:		P
	The insulation resistance ≥ 1 MΩ .....:	100 MΩ	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		P
- (14.6)	Relevant fault condition tests with high-power supply		—
13.2	Module withstands overpower condition >15 min.		P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		N
	During the tests, tissue paper, spread below module, does not ignite		P
15	**CONSTRUCTION**		**P**
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P
16	**CREEPAGE DISTANCES AND CLEARANCES**		**P**
	Creepage and distances and clearances in compliance with IEC 60598-1		P
17 (17)	**SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS**		**P**
	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**		**P**
	Resistance to Heat, Fire and Tracking in compliance with IEC 61347-1 (clause numbers between parentheses refer to IEC 61347-1)		P

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
(18.1)	Ball-pressure test:		P
	- part tested; temperature (°C)..... :	LED board, 125°C	P
(18.2)	Test of printed boards		P
	- part tested..... :	LED board	P
(18.3)	Glow-wire test (650°C):		N
	- part tested..... :	--	N
(18.4)	Needle flame test (10 s):		P
	- part tested..... :	LED board	P
(18.5)	Tracking test:		N
	- part tested..... :	--	N
19 (19)	**RESISTANCE TO CORROSION**		**N**
	Rust protection:		N
	- test according 4.18.1 of IEC 60598-1		N
	- adequate varnish on the outer surface		N
20	**INFORMATION FOR LUMINAIRE DESIGN**		**N**
	Information in Annex D		—
21	**HEAT MANAGEMENT**		**N**
21.1	General		N
	Exchangeability is safeguarded by cap or base		N
21.2	Heat-conducting foil and paste		N
	Heat-conducting foil delivered with the module if necessary		N
21.4	Construction		N
	Electrical connection and mechanical holding are separate		N
22	**Photobiological safety**		**P**
22.1	UV radiation		N
22.2	Blue light hazard		P
	RG at 200 mm according to IEC/TR 62778		P
22.3	Infrared radiation		N

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict

A	**ANNEX A - TESTS**		**P**
	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	**N**
	SELV-operated LED modules in compliance with Annex I of IEC 61347-2-13	N

IEC/TR 62778			
Clause	Requirement + Test	Result - Remark	Verdict

Annex 8	**Retinal blue light hazard Of Lamps And Lamp Systems IEC/TR 62778:2014**	**P**

	TABLE: Spectroradiometric measurement		**P**
	Measurement performed on:	☐ **LED package** ☐ **LED module** ☐ **Lamp** ☒ **Luminaire**	—
	Model number.....:	MO6514	—
	Test voltage (V) .....:	5V	—
	Test current (mA) .....:	--	—
	Test frequency (Hz).....:	--	—
	Ambient, t (°C) .....:	25.3	—
	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
Correlated colour temperature	CCT	K	/	—
x/y colour coordinates	---	---	/	—
Blue light hazard radiance	L_B	$W/(m^2 \cdot sr^1)$	8.652e+000	—
Blue light hazard irradiance	E_B	W/m^2	/	—
Luminance	L	cd/m^2	1.541e+004	—
Illuminance	E	lx	/	—
Lamp classification group: RG0				

EN 62471			
Clause	Requirement + Test	Result - Remark	Verdict

Annex 9	**Photobiological safety**	**P**

Emission limits for risk groups of continuous wave lamps
α=0.1rad — P

Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0.001	1.4e-08	0.003	-	-	-
Near UV		E_{uvA}	$W \cdot m^{-2}$	0.33	5.6e-05	33	-	-	-
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	4.3e+00	10000	-	4000000	-
Bluelight, small source	B(λ)	E_B	$W \cdot m^{-2}$	0.01*	-	1.0	-	400	-
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	1.4e+02	28000/α	--	71000/α	-
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	545000 0.0017≤ α≤0.011	-				
				6000/α 0.011≤α ≤0.1	-				
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	2.4e-03	570	--	3200	-

* Small source defined as one with α<0.011 radian. Averaging field of view at 10000 s is 0.1 radian.
** Involves evaluation of non-GLS source.

Assessment:

Lamp classification group..... exempt☒ risk 1☐ risk 2☐ risk 3☐

EN 62493			
Clause	Requirement + Test	Result - Remark	Verdict
ANNEX 10	**Assessment Of Lighting Equipment Related To Human Exposure To Electromagnetic Fields according to standard EN 62493:2015**		**P**
4	**LIMITS**		**P**
4.1	**General**		**P**
	Comply with Van der Hoofden test limit in 4.2.3 or inherently compliant in 4.2.2 and pass assessment procedure for intentional radiators in 4.3		P
4.2	**Unintentional radiating part of lighting equipment**		**P**
4.2.2	Lighting equipment deemed to comply with the Van der Hoofden test without testing		P
	1) electronic controlgear	Yes ☐ No ☐	—
	2) incandescent-lamp technology	Yes ☐ No ☐	—
	3) LED-light-source technology	Yes ☒ No ☐	—
	4) OLED-light-source technology	Yes ☐ No ☐	—
	5) high-pressure discharge lamp LED-light-source technologies	Yes ☐ No ☐	—
	6) low-pressure discharge lamp technologies with exposure distance ⩾ 50 cm	Yes ☐ No ☐	—
	7) independent auxiliary	Yes ☐ No ☐	—
	Not fulfil any of 1-7 above subject to 4.2.3		—
4.2.3	Applications of limits		N
	Not fulfil any of 1-7 in 4.2.2 but the compliance factor F is ⩽ 1		N
4.3	**Intentional radiating part of lighting equipment**		**N**
	Comply with one of methods in Clause 7 if intentional radiator		N
6	**MEASUREMENT PROCEDURE FOR THE VAN DER HOOFDEN TEST**		**N**
6.1	**General**		**N**
	Measurements carried out under conditions according Clause 6.1 – 6.6	See Table 6	N
7	**ASSESSMENT PROCEDURE INTENTIONAL RADIATORS**		**N**
7.2	**Low-power exclusion method**		**N**
7.2.1	Input $P_{int,rad}$		—
	Exclusion level P_{max}.....		—

EN 62493			
Clause	Requirement + Test	Result - Remark	Verdict

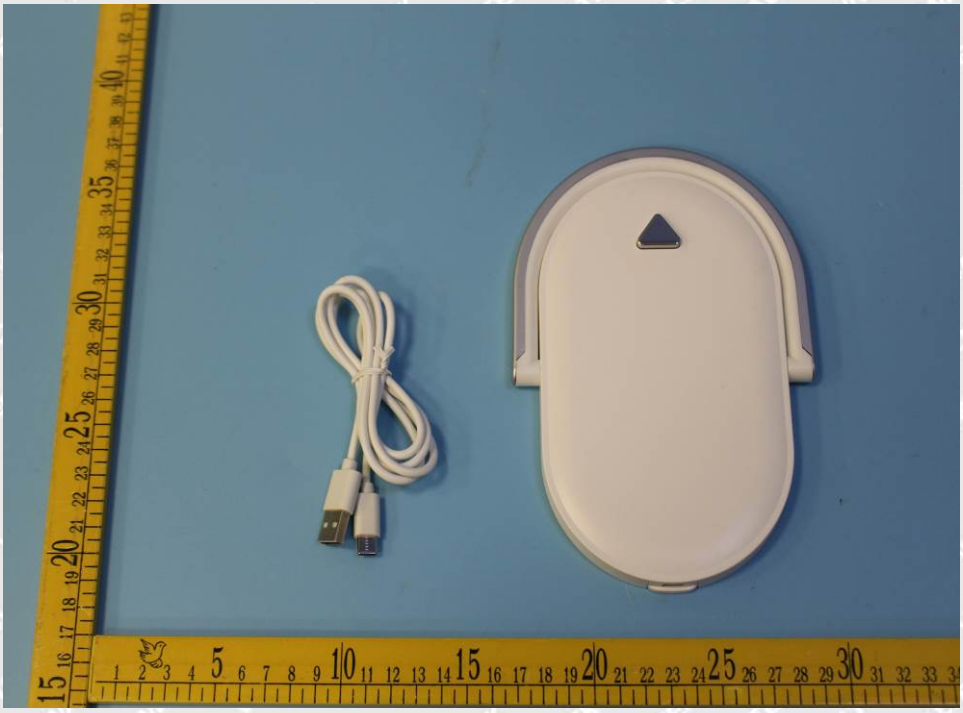
	Input power $P_{int,rad}$ < exclusion level P_{max}		N
7.3	**Application of the EMF product standard for body worn-equipment**		**N**
	If not Clause 7.2 is met and expose distance ⩽ 0.05 m, comply with IEC 62209-2		N
7.4	**Application of the EMF product standard for base stations**		**N**
	If not Clause 7.2 is met and if intentional radiator is base station, comply with IEC 62232		N
7.5	**Application of another EMF standard**		**N**
	If not Clause 7.2 is met and if intentional radiator cannot be considered as in Clause 7.3 or 7.4, comply with IEC 62311		N

6	**TABLE: Measurement results with Van der Hoofden test head**				**N**
Location of EUT	Test model	Measuring distance	Result(F)	Limit(F)	Verdict
Reference Annex B of EN 62493:2015	--	--	--	⩽1.0	N

====== End of Report ======

Photo Documentation

Model: MO6514



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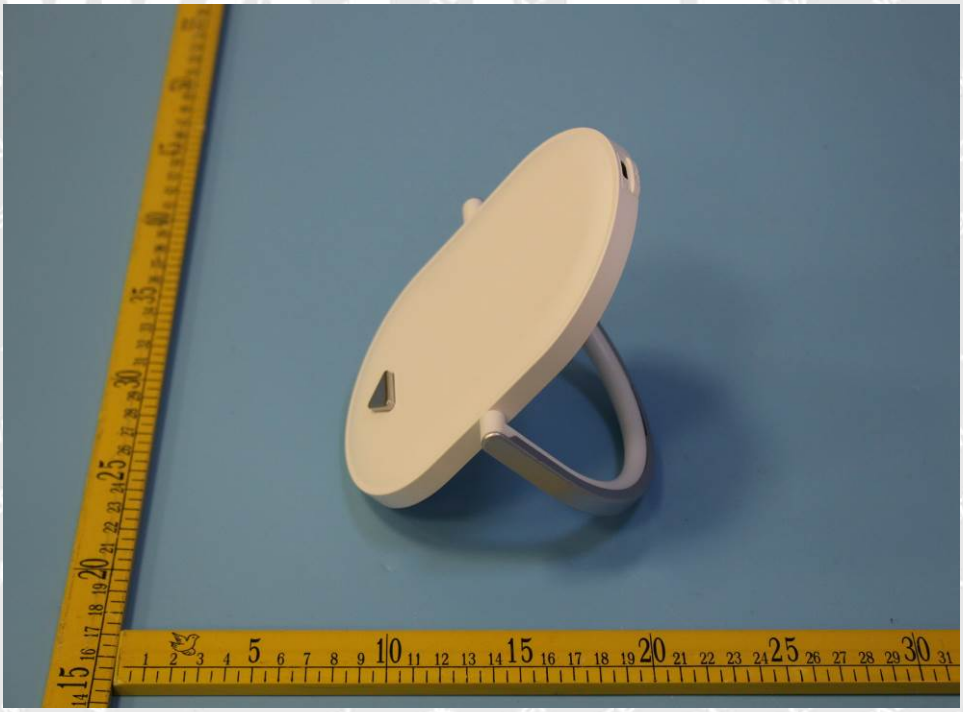

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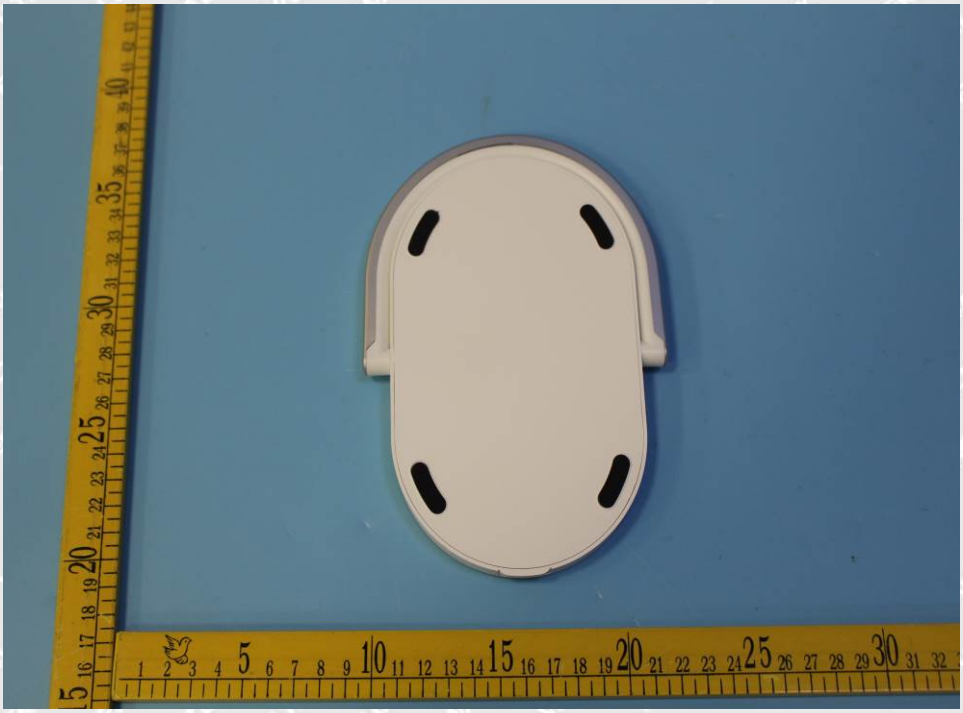
Photo Documentation



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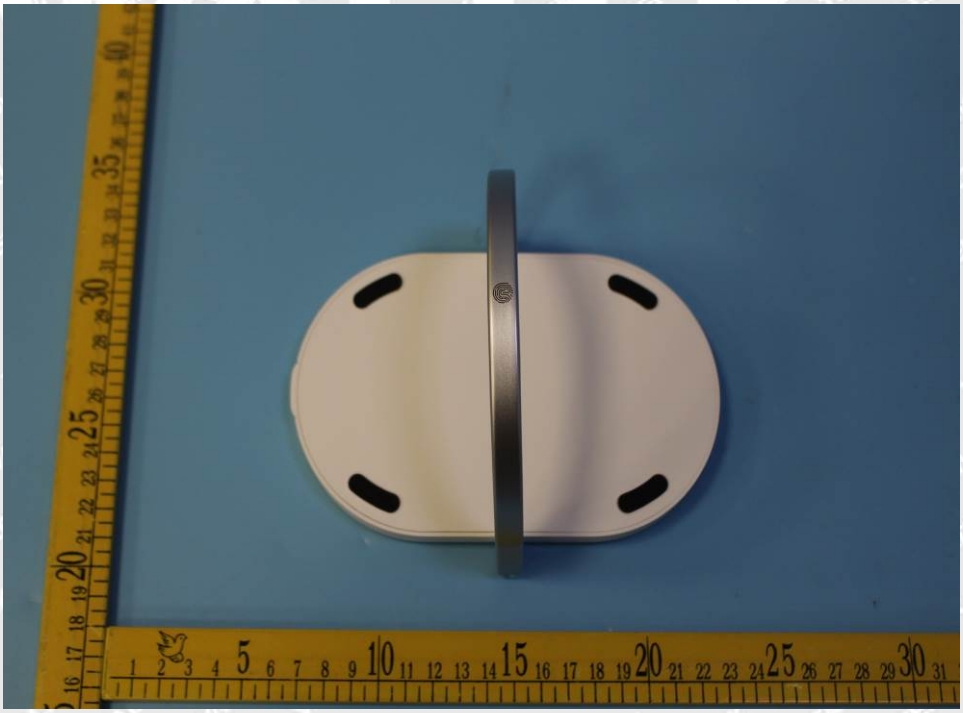

Photo 4

Photo Documentation

Photo 5

Photo 6

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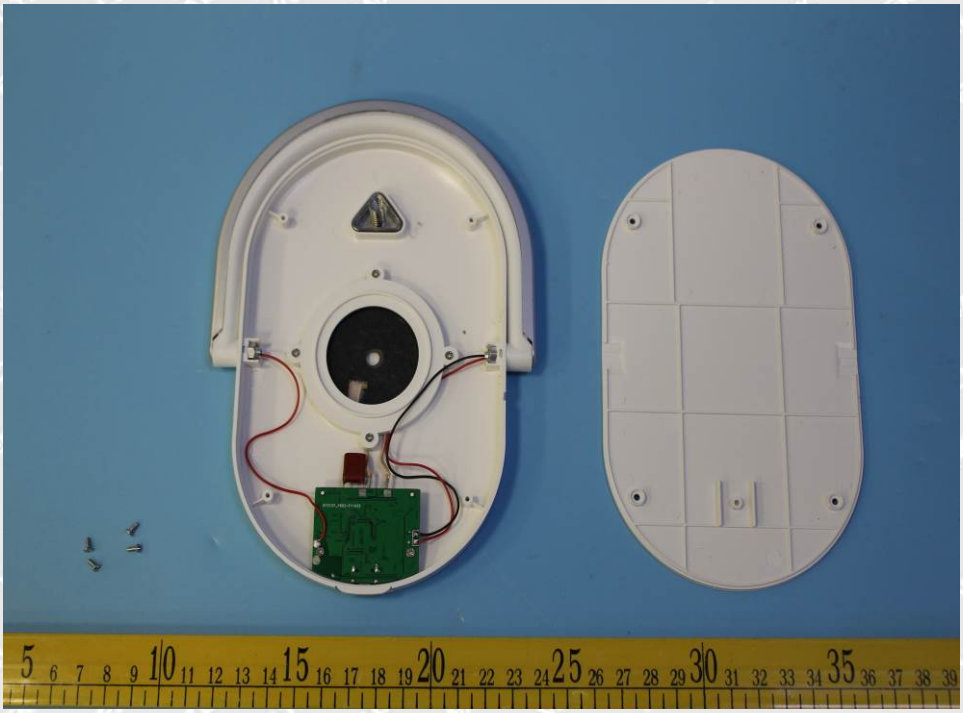

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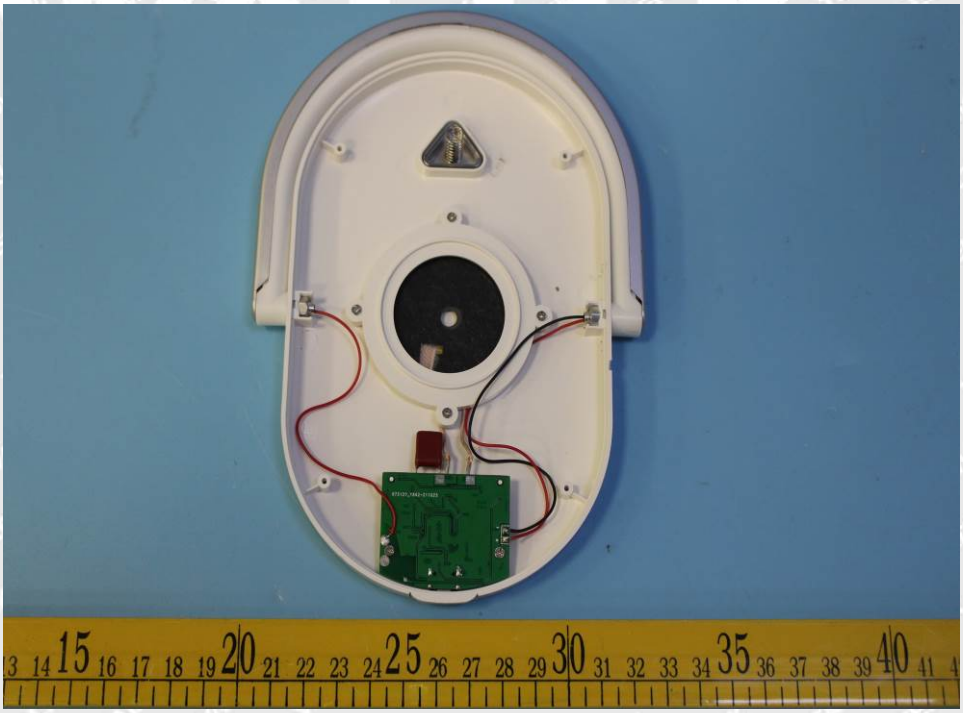
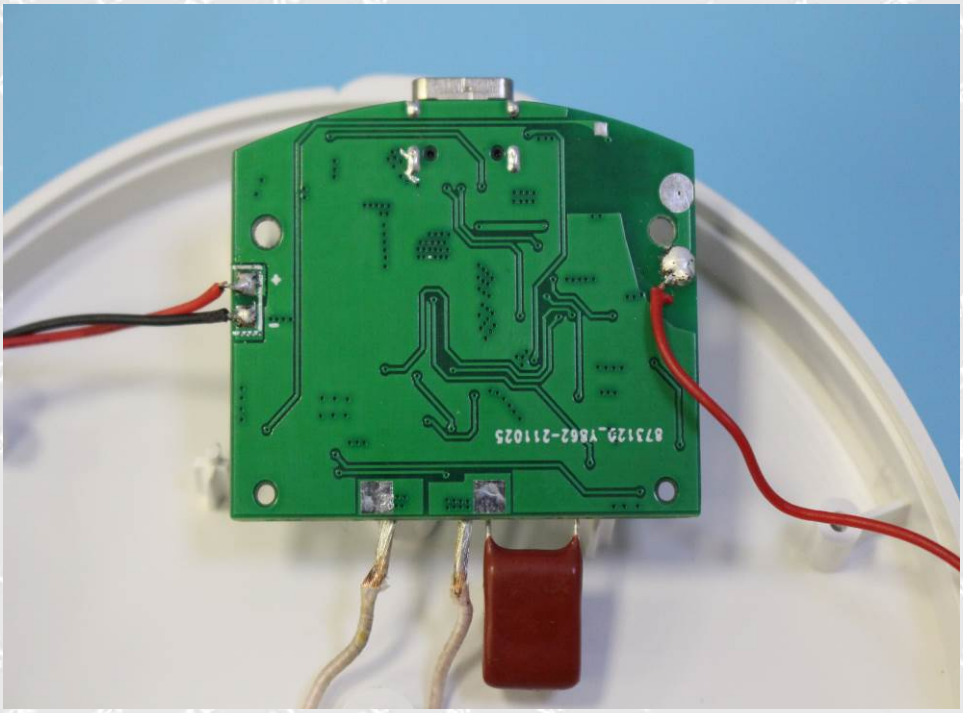


Photo 8

Photo Documentation



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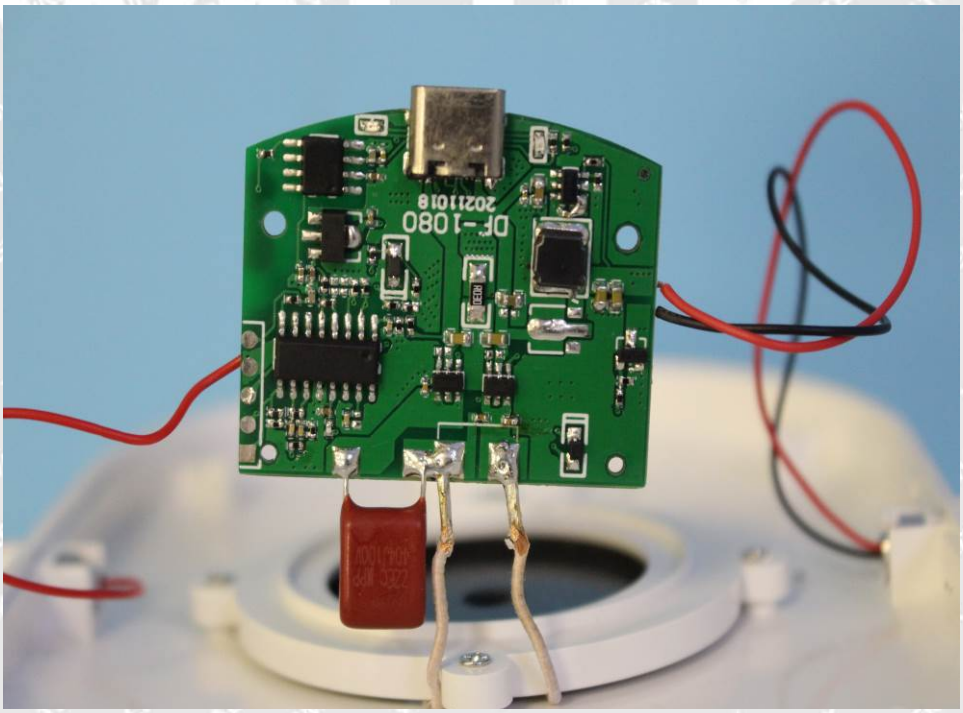

Photo 10

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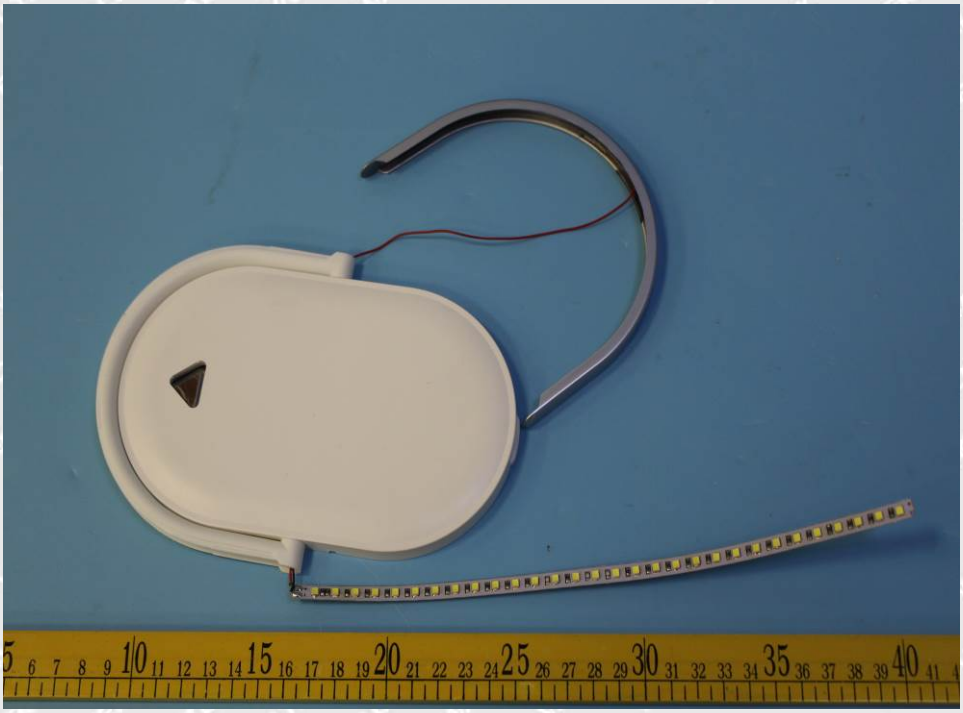

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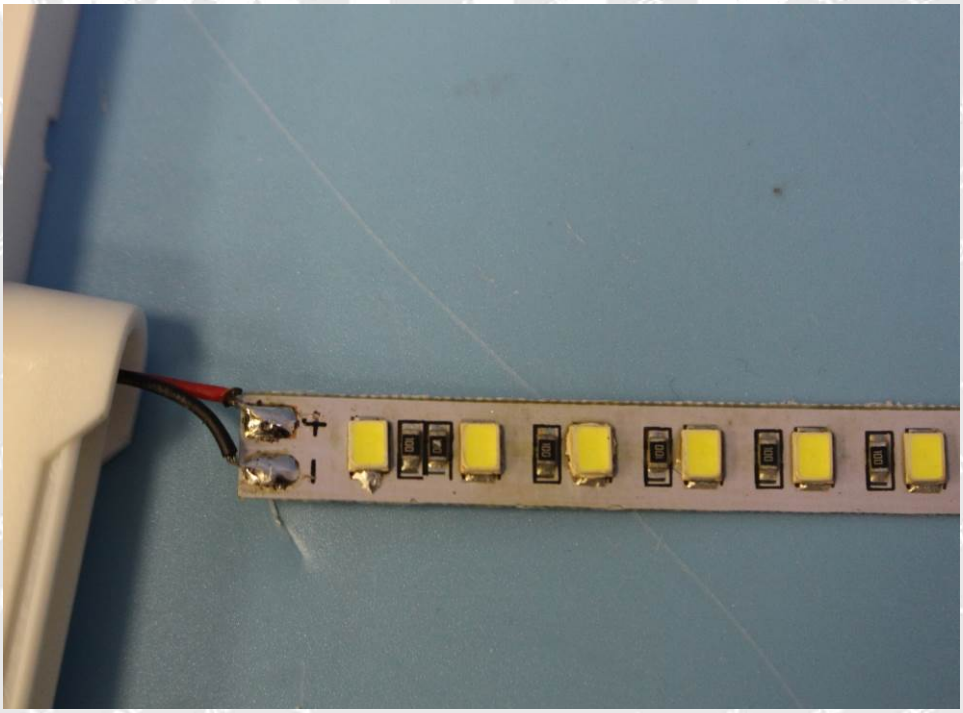

Photo 12

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