TEST REPORT

EN IEC 62368-1

Audio/video, information and communication technology equipment

Part 1: Safety requirements

Report Number.....:	RKEYS250901345
Total number of pages.....	83 pages
Tested by (name + signature)..... :	Echo Zhong
Approved by (name + signature)...:	Eason.zeng
Testing Laboratory Name.....:	Guangdong KEYS Testing Technology Co., Ltd.
Address.....:	Building 1, No.18, Shihuan Road, Dongcheng Subdistrict, Dongguan, Guangdong, China
Applicant's name.....:	Mid Ocean Brands B.V.
Address.....:	Unit 711-716, 7/F., Tower A, 83 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong
Manufacturer's name.....:	117486
Address.....:	N/A
Test specification:	
Standard.....:	EN IEC 62368-1:2024/A11:2024
Test procedure..... :	Safety report
Non-standard test method..... :	N/A
Test item description.....:	Wireless Speaker
Trade Mark.....:	N/A
Model/Type reference.....:	MO9806
Ratings.....:	Type-C Input : DC 5V, 1A Battery :DC 3.7V, 500mAh,1.85Wh

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General disclaimer:

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List of Attachments:

- Measurement Section
- Attachment No.1: European National Differences. (35 pages)
- Attachment No.2:Photo document (4 pages)

Total number of pages in each attachment is indicated in each individual attachment.

Summary of testing:

The tested samples fulfilled the requirements of specified standards.

Testing location:

Guangdong KEYS Testing Technology Co., Ltd.

Building 1, No.18, Shihuan Road, Dongcheng Subdistrict, Dongguan, Guangdong, China

Summary of compliance with National Differences:

List of countries addressed:

European National Differences.

☒ The product fulfils the requirements of **EN IEC 62368-1:2024/A11:2024**

Remark:

/

Copy of marking plate:

The artwork below may be only a draft.

Wireless Speaker
Model: MO9806
Type-C Input : DC 5V, 1A
Battery :DC 3.7V, 500mAh,1.85Wh

117486
MADE IN CHINA

Importer: xxx
Address: yyy

Note:

1. xxx means importer company name; yyy means importer company address information.
2. The marking for the other models are identical as above except the model no. only.
3. As declared by client that the name (or registered trade mark) and address of the certificate holder (manufacturer) or the importer or authorized representative based within the European Economic Area will be clearly affixed on the product or where that is not possible, on the packaging or in a document accompanying the product.
4. The height of letters and numerals was not less than 2mm.
5. The height of symbol "  " was not less than 7mm.
6. The height of the other graphical symbols was not less than 5mm.

Test item particulars.....:	See test report
Product group.....:	☒ end product ☐ built-in component
Classification of use by.....:	☒ Ordinary person ☐ Instructed person ☐ Skilled person
Supply connection..... :	☐ AC mains..... ☐ DC mains ☒ not mains connected: ☒ ES1 ☐ ES2 ☐ ES3
Supply tolerance..... :	☐ +10%/-10% ☐ +20%/-15% ☐ + %/ - % ☒ None
Supply connection – type..... :	☐ pluggable equipment type A - ☐ non-detachable supply cord ☐ appliance coupler ☐ direct plug-in ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☐ permanent connection ☐ mating connector ☒ other: Not directly connected to mains
Considered current rating of protective device..... :	☐ 16 A; Location:☐ building☐ equipment ☐ N/A
Equipment mobility.....:	☒ movable☐ hand-held☐ transportable ☐ direct plug-in☐ stationary☐ for building-in ☐ wall/ceiling-mounted ☐ SRME/rack-mounted ☐ other:

Overvoltage category (OVC).....:	☐ OVC I ☐ OVC II ☐ OVC III ☐ OVC IV..... ☒ other: Not directly connected to mains
Class of equipment.....:	☐ Class I ☐ Class II ☐ Class II with functional earthing ☒ Class III ☐ Not classified ☐
Special installation location.....:	☒ N/A ☐ restricted access area ☐ outdoor location ☐
Special installation location.....:	☒ N/A ☐ restricted access area ☐ outdoor location ☐
Pollution degree (PD).....:	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified T_{ma}.....:	25 °C ☐ Outdoor: minimum °C
IP protection class.....:	☒ IPX0 ☐ IP_ __
Power systems.....:	☐ TN ☐ TT ☐ IT - V_{L-L}..... ☒ not AC mains
Altitude during operation (m).....:	☒ 2000 m or less ☐ m
Altitude of test laboratory (m).....:	☒ 2000 m or less ☐ m
Mass of equipment (kg).....:	0.76 kg
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.....:	Aug. 28, 2025
Date (s) of performance of tests.....:	Aug. 28, 2025 to Sep. 5, 2025

General remarks: "(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.**
Name and address of factory (ies).....: --
General product informRation: 1.The appliance/equipment is “Wireless Speaker” with models “Test Model : MO9806. ”, class III appliance. 2. All test mode on MO9806. 3.The ambient temperature is 25℃.

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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
4.1.4	Specified ambient temperature for outdoor use (°C) :	25	P
4.1.5	Constructions and components not specifically covered		N/A
4.1.8	Liquids and liquid filled components (LFC)	No such components	N/A
4.1.15	Markings and instructions	(See Annex F)	P
4.4.3	Safeguard robustness		P
4.4.3.1	General		P
4.4.3.2	Steady force tests	(See Annex T.2, T.4)	P
4.4.3.3	Drop tests	(See Annex T.7)	P
4.4.3.4	Impact tests	(See Annex T.6)	N/A
4.4.3.5	Internal accessible safeguard tests	No internal accessible safeguard	N/A
4.4.3.6	Glass impact tests	No glass used	N/A
4.4.3.7	Glass fixation tests	No such equipment	N/A
	Glass impact test (1J)		N/A
	Push/pull test (10 N)		N/A
4.4.3.8	Thermoplastic material tests	(See Clause T.8)	P
4.4.3.9	Air comprising a safeguard	Considered	P
4.4.3.10	Accessibility, glass, safeguard effectiveness	All safeguards remain effective	P
4.4.4	Displacement of a safeguard by an insulating liquid	No insulating liquids	N/A
4.4.5	Safety interlocks	No safety interlocks	N/A
4.5	**Explosion**		**P**
4.5.1	General	No explosion occurs during normal/abnormal operation and single fault conditions	P
4.5.2	No explosion during normal/abnormal operating condition	(See Clause B.2, B.3)	P
	No harm by explosion during single fault conditions	(See Clause B.4)	P
4.6	**Fixing of conductors and conductive parts**		**P**
	Fix conductors not to defeat a safeguard		P
	Compliance is checked by test :	(See Clause T.2)	P

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Clause	Requirement + Test	Result - Remark	Verdict
4.7	**Equipment for direct insertion into mains socket–outlets**		N/A
4.7.2	Mains plug part complies with relevant standard :		N/A
4.7.3	Torque (Nm) :		N/A
4.8	**Equipment containing coin/button cell batteries**		**N/A**
4.8.1	General	No such coin/button battery	N/A
4.8.2	Instructional safeguard :		N/A
4.8.3	Battery compartment door/cover construction		N/A
	Open torque test		N/A
4.8.4.2	Stress relief test		N/A
4.8.4.3	Battery replacement test		N/A
4.8.4.4	Drop test		N/A
4.8.4.5	Impact test		N/A
4.8.4.6	Crush test		N/A
4.8.5	Compliance		N/A
	30N force test with test probe		N/A
	20N force test with test hook		N/A
4.9	**Likelihood of fire or shock due to entry of conductive object**		**P**
4.10	**Component requirements**		**P**
4.10.1	Disconnect Device	(See Annex L)	P
4.10.2	Switches and relays	No switches and relays used	N/A
4.10.3	Mains power supply cords	(See Clause G.7)	N/A
4.10.4	Batteries and their protection circuits	(See Annex M)	**P**
5	**Electrically-caused injury**		**P**
5.2	**Classification and limits of electrical energy sources**		**P**
5.2.2	ES1, ES2 and ES3 limits	ES1	P
5.2.2.2	Steady-state voltage and current limits :	(See appended table 5.2)	P
5.2.2.3	Capacitance limits :	(See appended table 5.2)	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 means for connection to telephone network and no ringing signal generated	N/A
5.2.2.7	Audio signals	No audio signal terminals	N/A
5.3	**Protection against electrical energy sources**		**P**

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Clause	Requirement + Test	Result - Remark	Verdict
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		P
5.3.1 a)	Accessible ES1/ES2 derived from ES2/ES3 circuits		P
5.3.1 b)	Skilled persons not unintentional contact ES3 bare conductors		P
5.3.2.1	Accessibility to electrical energy sources and safeguards		P
	Accessibility to outdoor equipment bare parts		N/A
5.3.2.2	Contact requirements		N/A
	Test with test probe from Annex V		—
5.3.2.2 a)	Air gap – electric strength test potential (V) :		N/A
5.3.2.2 b)	Air gap – distance (mm) :		N/A
5.3.2.3	Compliance		N/A
5.3.2.4	Terminals for connecting stripped wire	No such terminals	N/A
5.4	**Insulation materials and requirements**		**P**
5.4.1.2	Properties of insulating material		P
5.4.1.3	Material is non-hygroscopic	No hygroscopic insulating material used as insulation	N/A
5.4.1.4	Maximum operating temperature for insulating materials :	(See appended table 5.4.1.4)	P
5.4.1.5	Pollution degrees :	Pollution degree 2 considered	P
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 test		N/A
5.4.1.6	Insulation in transformers with varying dimensions	No such transformer	N/A
5.4.1.7	Insulation in circuits generating starting pulses	No such circuit	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 test:	Compliance is checked by ball pressure test	N/A
5.4.1.10.3	Ball pressure test :	(See appended table 5.4.1.10.3)	N/A
5.4.2	Clearances		N/A
5.4.2.1	General requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Clearances in circuits connected to AC Mains, Alternative method		N/A
5.4.2.2	Procedure 1 for determining clearance	(See appended table 5.4.2)	N/A
	Temporary overvoltage :		—
5.4.2.3	Procedure 2 for determining clearance	(See appended table 5.4.2)	N/A
5.4.2.3.2.2	a.c. mains transient voltage :		—
5.4.2.3.2.3	d.c. mains transient voltage :	No such transient voltage	—
5.4.2.3.2.4	External circuit transient voltage :	No such transient voltage	—
5.4.2.3.2.5	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 :		N/A
5.4.2.5	Multiplication factors for clearances and test voltages :		N/A
5.4.2.6	Clearance measurement :	(See appended table 5.4.2)	N/A
5.4.3	Creepage distances	(See appended table 5.4.2 and 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	—
5.4.3.4	Creepage distances measurement:	(See appended table 5.4.3)	N/A
5.4.4	Solid insulation		N/A
5.4.4.1	General requirements		N/A
5.4.4.2	Minimum distance through insulation :	(See appended table 5.4.4.2)	N/A
5.4.4.3	Insulating compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Insulating compound forming cemented joints	No such components	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
	Number of layers (pcs) :		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components	(See Annex G.6)	N/A
5.4.4.9	Solid insulation at frequencies >30 kHz, E_P, K_R, d, V_{PW} (V) :	(See appended table 5.4.4.9)	N/A
	Alternative by electric strength test, tested voltage (V), K_R :	(See appended table 5.4.4.9)	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
5.4.5.3	Insulation resistance (MΩ) :		N/A
	Electric strength test :	(See appended table 5.4.9)	N/A
5.4.6	Insulation of internal wire as part of supplementary safeguard	No such insulation	N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
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 type test of solid insulation :	(See appended table 5.4.9)	N/A
5.4.9.2	Test procedure for routine test		N/A
5.4.10	Safeguards against transient voltages from external circuits	No external circuits	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
5.4.10.3	Verification for insulation breakdown for impulse test :		N/A
5.4.11	Separation between external circuits and earth	No external circuits	N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	SPDs bridge separation between external circuit and earth		N/A
	Rated operating voltage U_{op} (V) :		—
	Nominal voltage U_{peak} (V) :		—
	Max increase due to variation ΔU_{sp} :		—
	Max increase due to ageing ΔU_{sa} :		—
5.4.11.3	Test method and compliance :		N/A
5.4.12	Insulating liquid	No such insulating liquid	N/A
5.4.12.1	General requirements		N/A
5.4.12.2	Electric strength of an insulating liquid :		N/A
5.4.12.3	Compatibility of an insulating liquid :		N/A
5.4.12.4	Container for insulating liquid :		N/A
5.5	**Components as safeguards**		N/A
5.5.1	General		N/A
5.5.2	Capacitors and RC units	(See appended table 4.1.2)	N/A
5.5.2.1	General requirement		N/A
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector :	(See appended table 5.5.2.2)	N/A
5.5.3	Transformers	(See Annex G.5.3)	N/A
5.5.4	Optocouplers	optocouplers used	N/A
5.5.5	Relays	No relay used	N/A
5.5.6	Resistors	No such resistors	N/A
	Application type of resistors:		—
5.5.7	Surge suppressors	(See Clause G.8)	N/A
	GDT……..:		N/A
5.5.8	Insulation between the mains and an external circuit consisting of a coaxial cable:		N/A
	Insulation resistance (MΩ) :		N/A
	Electric strength test :	(See appended table 5.4.9)	N/A
5.5.9	Safeguards for socket-outlets in outdoor equipment		N/A
	RCD rated residual operating current (mA) :		—
5.6	**Protective conductor**		N/A
5.6.2	Requirement for protective conductors		N/A
5.6.2.1	General requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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) :	See above	—
	Protective earthing conductor serving as a reinforced safeguard		N/A
	Protective earthing conductor serving as a double safeguard		N/A
5.6.4	Requirements for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm^2). :	See appended table 4.1.2	—
5.6.4.2	Protective current rating (A):		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Terminal size for connecting protective earthing conductors (mm) :	See above	N/A
	Terminal size for connecting protective bonding conductors (mm) :		N/A
	Relevant IEC standard :		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective bonding system		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method :		N/A
5.6.6.3	Resistance (Ω) or voltage drop :	See appended table 5.6.6	N/A
5.6.7	Reliable connection of a protective earthing conductor		N/A
5.6.8	Functional earthing		N/A
	Conductor size (mm^2) :		N/A
	Class II with functional earthing marking :		N/A
	Appliance inlet cl & cr (mm) :		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 voltage		N/A
5.7.3	Equipment set-up, supply connections and earth connections		N/A
5.7.4	Unearthed accessible parts :	(See appended table 5.7.4)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.7.5	Earthed accessible conductive parts :		N/A
5.7.6	Requirements when touch current exceeds ES2 limits		N/A
	Protective conductor current (mA) :		N/A
	Instructional Safeguard :		N/A
5.7.7	Prospective touch voltage and touch current associated with external circuits	No external circuits	N/A
5.7.7.1	Touch current from coaxial cables		N/A
5.7.7.2	Prospective touch voltage and touch current associated with paired conductor cables		N/A
5.7.8	Summation of touch currents from external circuits	No external circuits	N/A
	a) Equipment connected to earthed external circuits, current (mA) :		N/A
	b) Equipment connected to unearthed external circuits, current (mA) :		N/A
5.8	**Backfeed safeguard in battery backed up supplies**		**N/A**
	Mains terminal ES :		N/A
	Air gap (mm) :		N/A
6	**Electrically- caused fire**		**P**
6.2	**Classification of PS and PIS**		**P**
6.2.2	Power source circuit classifications :	(See appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS :	(See appended table 6.2.3.1)	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	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials :	(See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6)	P
	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

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits	.	N/A
6.4.3.1	Supplementary safeguards		N/A
6.4.3.2	Single Fault Conditions:	(See appended table B.3, B.4)	P
	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		N/A
6.4.5.2	Supplementary safeguards	(See appended table 4.1.2 and Annex G)	N/A
6.4.6	Control of fire spread in PS3 circuits		P
6.4.7	Separation of combustible materials from a PIS	No separation of combustible materials by distance or by a fire barrier	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		P
6.4.8.2	Fire enclosure and fire barrier material properties	Plastic Enclosure:V-0	P
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure	Plastic Enclosure:V-0	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		N/A
6.4.8.3.1	Fire enclosure and fire barrier openings	No openings on the fire enclosure	N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top openings and properties	No openings on the fire enclosure	N/A
	Openings dimensions (mm) :		N/A
6.4.8.3.4	Bottom openings and properties	No openings on the fire enclosure	N/A
	Openings dimensions (mm) :		N/A
	Flammability tests for the bottom of a fire enclosure		N/A
	Instructional Safeguard :		N/A
6.4.8.3.5	Side openings and properties	No openings on the fire enclosure	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Openings dimensions (mm) :		N/A
6.4.8.3.6	Integrity of a fire enclosure, condition met: a), b) or c) :		N/A
6.4.8.4	Separation of a PIS from a fire enclosure and a fire barrier distance (mm) or flammability rating :	Plastic Enclosure:V-0	P
6.4.9	Flammability of insulating liquid:		N/A
	Auto ignition temperature (°C) :		N/A
	Flashpoint temperature (°C) :		N/A
6.5	**Internal and external wiring**		N/A
6.5.1	General requirements	Approved input wire and output wire used	N/A
6.5.2	Requirements for interconnection to building wiring:		N/A
6.5.3	Internal wiring size (mm^2) for socket-outlets :		N/A
6.6	**Safeguards against fire due to the connection to additional equipment**		N/A
7	**INJURY CAUSED BY HAZARDOUS SUBSTANCES**		**N/A**
7.2	**Reduction of exposure to hazardous substances**		**N/A**
7.3	**Ozone exposure**		**N/A**
7.4	**Use of personal safeguards or personal protective equipment (PPE)**		**N/A**
	Personal safeguards and instructions :		—
7.5	**Use of instructional safeguards and instructions**		**N/A**
	Instructional safeguard (ISO 7010) :		—
8	**MECHANICALLY-CAUSED INJURY**		**P**
8.2	**Mechanical energy source classifications**		**P**
8.3	**Safeguards against mechanical energy sources**		**P**
8.4	**Safeguards against parts with sharp edges and corners**		**P**
8.4.1	Safeguards	Sharp edges and corners: MS1 classification; Equipment mass: MS1 classification	P
	Instructional Safeguard :		N/A
8.4.2	Sharp edges or corners	MS1 classification, no safeguard required	P
8.5	**Safeguards against moving parts**		**N/A**
8.5.1	Requirements	No moving parts	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts		N/A
	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
	A manually activated stopping device for moving MS3		N/A
	Moving MS3 parts only accessible to skilled person		N/A
8.5.2	Instructional safeguard :		N/A
8.5.4	Special categories of equipment containing moving parts		N/A
8.5.4.1	General		N/A
8.5.4.2	Equipment containing work cells with MS3 parts		N/A
8.5.4.2.1	Protection of persons in the work cell		N/A
8.5.4.2.2	Access protection override		N/A
8.5.4.2.2.1	Override system		N/A
8.5.4.2.2.2	Visual indicator		N/A
8.5.4.2.3	Emergency stop system		N/A
	Maximum stopping distance from the point of activation (m):		N/A
	Space between end point and nearest fixed mechanical part (mm) :		N/A
8.5.4.2.4	Endurance requirements		N/A
	Mechanical system subjected to 100 000 cycles of operation		N/A
	- Mechanical function check and visual inspection		N/A
	- Cable assembly :		N/A
8.5.4.3	Equipment having electromechanical device for destruction of media		N/A
8.5.4.3.1	Equipment safeguards		N/A
8.5.4.3.2	Instructional safeguards against moving parts :		N/A
8.5.4.3.3	Disconnection from the supply		N/A
8.5.4.3.4	Cut type and test force (N) :		N/A
8.5.4.3.5	Compliance		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.5	High pressure lamps		N/A
	Explosion test:		N/A
8.5.5.3	Glass particles dimensions (mm) :		N/A
8.6	**Stability of equipment**		**N/A**
8.6.1	General	Equipment mass < 7.0kg and is classified as MS1	N/A
	Instructional safeguard :		N/A
8.6.2	Static stability		N/A
8.6.2.2	Static stability test :		N/A
8.6.2.3	Downward force test		N/A
8.6.3	Relocation stability		N/A
	Wheels diameter (mm) :		—
	Tilt test		N/A
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test :		N/A
8.7	**Equipment mounted to wall, ceiling or other structure**		**N/A**
8.7.1	Mount means type :		N/A
	Mount means type :		N/A
8.7.2	Test methods		N/A
	Test 1, additional downwards force (N) :		N/A
	Test 2, number of attachment points and test force (N) :		N/A
	Test 3 Nominal diameter (mm) and applied torque (Nm) :		N/A
8.8	**Handles strength**		**N/A**
8.8.1	General		N/A
8.8.2	Handle strength test		N/A
	Number of handles :		—
	Force applied (N) :		—
8.9	**Wheels or casters attachment requirements**		**N/A**
8.9.2	Pull test		N/A
8.10	**Carts, stands and similar carriers**		**N/A**

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Clause	Requirement + Test	Result - Remark	Verdict
8.10.1	General		N/A
8.10.2	Marking and instructions :		N/A
8.10.3	Cart, stand or carrier loading test		N/A
	Loading force applied (N) :		N/A
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Force applied (N) :		—
8.10.6	Thermoplastic temperature stability		N/A
8.11	**Mounting means for slide-rail mounted equipment (SRME)**		**N/A**
8.11.1	General		N/A
8.11.2	Requirements for slide rails		N/A
	Instructional Safeguard :		N/A
8.11.3	Mechanical strength test		N/A
8.11.3.1	Downward force test, force (N) applied :		N/A
8.11.3.2	Lateral push force test		N/A
8.11.3.3	Integrity of slide rail end stops		N/A
8.11.4	Compliance		N/A
8.12	**Telescoping or rod antennas**		**N/A**
	No sharp edges or points		N/A
	Button/ball diameter (mm) :		N/A
9	**Thermal burn injury**		**P**
9.2	**Thermal energy source classifications**		**P**
9.3	**Touch temperature limits**		**P**
9.3.1	Touch temperatures of accessible parts :	Accessible plastic enclosure: TS1 classification; (See appended table)	P
9.3.2	Test method and compliance		P
9.4	**Safeguards against thermal energy sources**		**N/A**
9.5	**Requirements for safeguards**		**N/A**
9.5.1	Equipment safeguard	No safeguard is not required for TS1 classification	N/A
9.5.2	Instructional safeguard :	Instructional safeguard is not required	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
9.6	**Requirements for wireless power transmitters**		**N/A**
9.6.1	General	No wireless power transmitters	N/A
9.6.2	Specification of the foreign objects		N/A
9.6.3	Test method and compliance :	(See appended table 9.6)	N/A
9.5.2	Instructional safeguard :	Instructional safeguard is not required	N/A
9.6	**Requirements for wireless power transmitters**		**N/A**
9.6.1	General	No wireless power transmitters	N/A
9.6.2	Specification of the foreign objects		N/A
9.6.3	Test method and compliance :	(See appended table 9.6)	N/A
10	**RADIATION**		**N/A**
10.2	**Radiation energy source classification**		**N/A**
10.2.1	General classification		N/A
	Lasers :	No laser radiation	—
	Lamps and lamp systems :	No lamps and lamp systems	—
	Image projectors :	Not such equipment	—
	X-Ray :	No X-Ray	—
	Personal music player :	Not such equipment	—
10.3	**Safeguards against laser radiation**		**N/A**
	The standard(s) equipment containing laser(s) comply :		N/A
10.4	**Safeguards against optical radiation from lamps and lamp systems (including LED types)**		**N/A**
10.4.1	General requirements		N/A
	Instructional safeguard provided for accessible radiation level needs to exceed		N/A
	Risk group marking and location :		N/A
	Information for safe operation and installation		N/A
10.4.2	Requirements for enclosures		N/A
	UV radiation exposure :		N/A
10.4.3	Instructional safeguard :		N/A
10.5	**Safeguards against X-radiation**		**N/A**
10.5.1	Requirements	No such X-radiation	N/A
	Instructional safeguard for skilled persons :		—

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Clause	Requirement + Test	Result - Remark	Verdict
10.5.3	Maximum radiation (pA/kg):	(See appended tables B.3 & B.4)	—
10.6	**Safeguards against acoustic energy sources**		**N/A**
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output $L_{Aeq,T}$, dB(A) :		N/A
	Unweighted RMS output voltage (mV) :		N/A
	Digital output signal (dBFS):		N/A
10.6.3	Requirements for dose-based systems		N/A
10.6.3.1	General requirements		N/A
10.6.3.2	Dose-based warning and automatic decrease		N/A
10.6.3.3	Exposure-based warning and requirements		N/A
	30 s integrated exposure level (MEL30) :		N/A
	Warning for MEL ≥ 100 dB(A) :		N/A
10.6.4	Measurement methods		N/A
10.6.5	Protection of persons		N/A
	Instructional safeguards :		N/A
10.6.6	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.6.1	Corded listening devices with analogue input		N/A
	Listening device input voltage (mV) :		N/A
10.6.6.2	Corded listening devices with digital input		N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A) :		N/A
10.6.6.3	Cordless listening devices		N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A) :		N/A
B	**NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS**		**P**
B.1	**General**		**P**
B.1.5	Temperature measurement conditions	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	P
B.1.6	Specific output conditions		N/A
B.2	**Normal operating conditions**		**P**
B.2.1	General requirements :	(See Test Item Particulars and appended test tables)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	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.2.6.4	Equipment intended for building-in or rack-mounting		N/A
B.3	**Simulated abnormal operating conditions**		**P**
B.3.1	General		P
B.3.2	Covering of ventilation openings	No ventilation openings	N/A
	Instructional safeguard :		N/A
B.3.3	DC mains polarity test		N/A
B.3.4	Setting of voltage selector	No voltage selector	N/A
B.3.5	Maximum load at output terminals	(See appended table B.3, B.4)	P
B.3.6	Reverse battery polarity		N/A
B.3.7	Audio amplifier abnormal operating conditions	No audio amplifiers	N/A
B.3.8	Safeguards functional during and after abnormal operating conditions :	(See appended table B.3)	P
B.4	**Simulated single fault conditions**		**P**
B.4.1	General		P
B.4.2	Temperature controlling device	No such device used	N/A
B.4.3	Blocked motor test	No motors used	N/A
B.4.4	Functional insulation		N/A
B.4.4.1	Short circuit of clearances for functional insulation	(See appended table B.3, B.4)	P
B.4.4.2	Short circuit of creepage distances for functional insulation	(See appended table B.3, B.4)	P
B.4.4.3	Short circuit of functional insulation on coated printed boards	No coated printed boards used.	N/A
B.4.5	Short-circuit and interruption of electrodes in tubes and semiconductors	(See appended table B.3, B.4)	P
B.4.6	Short circuit or disconnection of passive components	(See appended table B.3, B.4)	P
B.4.7	Continuous operation of components	Not intermittent or short-time operation equipment	N/A
B.4.8	Compliance during and after single fault conditions :	(See appended table B.4)	P
B.4.9	Battery charging and discharging under single fault conditions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
C	**UV RADIATION**		**N/A**
C.1	**Protection of materials in equipment from UV radiation**		**N/A**
C.1.2	Requirements	No UV radiation in the equipment	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 test		N/A
C.2.4	Xenon-arc light-exposure test		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	**Electrical energy source classification for audio signals**		**N/A**
	Maximum non-clipped output power (W) :		—
	Rated load impedance (Ω) :		—
	Open-circuit output voltage (V) :		—
	Instructional safeguard :		—
E.2	**Audio amplifier normal operating conditions**		**N/A**
E.2.1	Pink noise test signal		—
E.2.2	Sine-wave signal		—
E.3	**Operating conditions of equipment containing an audio amplifier**		—
E.3.1	Normal operating conditions	(See appended table B.2.5, E.3.1)	—
E.3.2	Abnormal operating conditions	(See appended table B.3, B.4)	N/A
E.3.3	Audio equipment temperature measurement conditions……:		N/A
F	**EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS**		**P**
F.1	**General**		**P**
	Language :	English version checked	—
F.2	**Letter symbols and graphical symbols**		**P**

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Clause	Requirement + Test	Result - Remark	Verdict
F.2.1	Letter symbols according to IEC60027-1		P
F.2.2	Graphic symbols according to IEC, ISO or manufacturer specific		P
F.3	**Equipment markings**		**P**
F.3.1	Equipment marking locations	The marking is located on external enclosure of the equipment and easily visible	P
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification :	See copy of marking plate	P
F.3.2.2	Model identification :	See copy of marking plate	P
F.3.3	Equipment rating markings		P
F.3.3.1	Equipment with direct connection to mains		P
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of the supply voltage:		N/A
F.3.3.4	Rated voltage :	See marking plate	P
F.3.3.5	Rated frequency :		N/A
F.3.3.6	Rated current or rated power :	See marking plate	P
F.3.3.7	Equipment with multiple supply connections	Single supply connection	N/A
F.3.4	Voltage setting device	No voltage setting 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 and socket-outlet	N/A
F.3.5.2	Switch position identification marking :	Not such switch	N/A
F.3.5.3	Replacement fuse identification and rating markings:		N/A
	Instructional safeguards for neutral fuse :		N/A
F.3.5.4	Replacement battery identification marking :		N/A
F.3.5.5	Neutral conductor terminal		N/A
F.3.5.6	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification		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	Protective bonding conductor terminals :		N/A
F.3.6.2	Equipment class marking :		N/A
F.3.6.3	Functional earthing terminal marking :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.7	Equipment IP rating marking :		N/A
F.3.8	External power supply output marking :	See copy of marking plate	P
F.3.9	Durability, legibility and permanence of marking		P
F.3.10	Test for permanence of markings		P
F.4	**Instructions**		**P**
	a) Information prior to installation and initial use		P
	b) Equipment for use in locations where children not likely to be present		N/A
	c) Instructions for installation and interconnection		P
	d) Equipment intended for use only in restricted access area		N/A
	e) Equipment intended to be fastened in place		N/A
	f) Instructions for audio equipment terminals		N/A
	g) Protective earthing used as a safeguard		N/A
	h) Protective conductor current exceeding ES2 limits		N/A
	i) Graphic symbols used on equipment		N/A
	j) Permanently connected equipment not provided with all-pole mains switch		N/A
	k) Replaceable components or modules providing safeguard function		N/A
	l) Equipment containing insulating liquid		N/A
	m) Installation instructions for outdoor equipment		N/A
F.5	**Instructional safeguards**		**N/A**
G	**COMPONENTS**		**P**
G.1	**Switches**		**N/A**
G.1.1	General		N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.1.3	Test method and compliance		N/A
G.2	**Relays**		**N/A**
G.2.1	Requirements	No relays used	N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supplying power to other equipment		N/A
G.2.4	Test method and compliance		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.3	**Protective devices**		**N/A**
G.3.1	Thermal cut-offs	No thermal cut-off used	N/A
	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Test method and compliance		N/A
G.3.2	Thermal links	No thermal links used	N/A
G.3.2.1	a) Thermal links tested separately according to IEC 60691 with specifics		N/A
	b) Thermal links tested as part of the equipment		N/A
G.3.2.2	Test method and compliance		N/A
G.3.3	PTC thermistors	No PTC thermistors used	N/A
G.3.4	Overcurrent protection devices		N/A
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.4		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		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	The output connecter is such a shape that cannot insertion into a mains socket-outlet	P
G.5	**Wound components**		N/A
G.5.1	Wire insulation in wound components	Approved source of triple insulated wire used as secondary winding for reinforced insulation	N/A
G.5.1.2	Protection against mechanical stress	Separated by the insulation tube	N/A
G.5.2	Endurance test		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Test time (days per cycle) :		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Test temperature (°C) :		—
G.5.2.3	Wound components supplied from the mains		N/A
G.5.2.4	No insulation breakdown		N/A
G.5.3	Transformers		N/A
G.5.3.1	Compliance method :	The isolation transformer meets the requirements given in G.5.3.2 and G.5.3.3	N/A
	Compliance method :	Electronic protection	N/A
G.5.3.2	Insulation		N/A
	Protection from displacement of windings :	Fixed by bobbin and insulation tape	—
G.5.3.3	Transformer overload tests	(See appended table B.3, B.4)	N/A
G.5.3.3.1	Test conditions		N/A
	Position :		N/A
	Method of protection :		N/A
G.5.3.3.2	Winding temperatures		N/A
G.5.3.3.3	Winding temperatures - alternative test method		N/A
G.5.3.4	Transformers using FIW		N/A
G.5.3.4.1	General		N/A
	FIW wire nominal diameter :		—
G.5.3.4.2	Transformers with basic insulation only		N/A
G.5.3.4.3	Transformers with double insulation or reinforced insulation :		N/A
G.5.3.4.4	Transformers with FIW wound on metal or ferrite core		N/A
G.5.3.4.5	Thermal cycling test and compliance		N/A
G.5.3.4.6	Partial discharge test		N/A
G.5.3.4.7	Routine test		N/A
G.5.4	Motors		N/A
G.5.4.1	General requirements	No motor used	N/A
G.5.4.2	Motor overload 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) :		N/A
	Electric strength test :	(See appended table 5.4.9)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.4.5	Running overload test for DC motors		N/A
G.5.4.5.2	Tested in the unit		N/A
G.5.4.5.3	Alternative method		N/A
	Electric strength test :	(See appended table 5.4.9)	N/A
G.5.4.6	Locked-rotor overload test for DC motors		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature :		N/A
	Electric strength test :	(See appended table 5.4.9)	N/A
G.5.4.6.3	Alternative method		N/A
	Electric strength test :	(See appended table 5.4.9)	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	Not such TIW used	N/A
G.6.2	Enamelled winding wire insulation		N/A
G.7	**Mains power supply cords and interconnection cables**		**N/A**
G.7.1	General requirements	No mains supply cords used	N/A
	Type :		—
G.7.2	Cross sectional area (mm^2 or AWG) :		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
	Strain relief test force (N) :		N/A
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm) :		N/A
G.7.3.2.4	Strain relief and cord anchorage 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	Test method and compliance		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Overall diameter or minor overall dimension, *D* (mm) :		—
	Radius of curvature after test (mm) :		—
G.7.6	Supply wiring space		N/A
G.7.6.1	General requirements		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Requirements		N/A
G.7.6.2.2	Test with 8 mm strand		N/A
G.8	**Varistors**		**N/A**
G.8.1	General requirements		N/A
G.8.2	Safeguards against fire		N/A
G.8.2.1	General		N/A
G.8.2.2	Varistor overload test		N/A
G.8.2.3	Temporary overvoltage test		N/A
G.9	**Integrated circuit (IC) current limiters**		**N/A**
G.9.1	Requirements	No such IC used	N/A
	IC limiter output current (max. 5A) :		—
	Manufacturers' defined drift :		—
G.9.2	Test Program		N/A
G.9.3	Compliance		N/A
G.10	**Resistors**		N/A
G.10.1	General		N/A
G.10.2	Conditioning		N/A
G.10.3	Resistor test		N/A
	Changes of resistance (%) :		N/A
	Measured current with the lowest resistance value :		N/A
G.10.4	Voltage surge test		N/A
	Changes of resistance (%) :		N/A
G.10.5	Impulse test		N/A
	Changes of resistance (%) :		N/A
G.10.6	Overload test		N/A
	Changes of resistance (%) :		N/A
G.11	**Capacitors and RC units**		N/A
G.11.1	General requirements	(See appended table 4.1.2)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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 with specifics		N/A
	Type test voltage $V_{ini,a}$:		—
	Routine test voltage, $V_{ini,b}$:		—
G.13	**Printed boards**		P
G.13.1	General requirements	(See appended table 4.1.2)	P
G.13.2	Uncoated printed boards	The insulation between conductors on the outer surfaces of an uncoated printed board is compliant with the minimum requirements of clearances (5.4.2) and creepage distances (5.4.3)	P
G.13.3	Coated printed boards	No coated printed boards	N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
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.13.6.2	Test method and compliance		N/A
G.14	**Coating on components terminals**		**N/A**
G.14.1	Requirements :		N/A
G.15	**Pressurized liquid filled components or LFC assemblies**		**N/A**
G.15.1	Requirements		N/A
G.15.2	Test methods and compliance criteria for self-contained LFC		N/A
G.15.2.1	Hydrostatic pressure test, applied test pressure :		N/A
G.15.2.2	Creep resistance test		N/A
G.15.2.3	Tubing and fittings compatibility test, the change of tensile strength (%) :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.15.2.4	Vibration test		N/A
G.15.2.5	Thermal cycling test, test temperature (°C):		N/A
G.15.2.6	Force test		N/A
G.15.2.7	Compliance criteria		N/A
G.15.3	Test methods and compliance for a modular LFC		N/A
G.15.3.2	Hydrostatic pressure test, applied test pressure :		N/A
G.15.3.3	Creep resistance test		N/A
G.15.3.4	Tubing and fittings compatibility test, the change of tensile strength (%) :		N/A
G.15.3.5	Thermal cycle test, test temperature (°C) :		N/A
G.15.3.6	Force test		N/A
G.15.3.7	Compliance criteria		N/A
G.16	**IC including capacitor discharge function (ICX)**		**N/A**
G.16.1	Condition for fault tested is not required		N/A
	ICX with associated circuitry tested in equipment		N/A
	ICX tested separately		N/A
G.16.2	Tests		N/A
	Smallest capacitance and smallest resistance specified by ICX manufacturer for impulse test :		—
	Mains voltage that impulses to be superimposed on :		—
	Largest capacitance and smallest resistance for ICX tested by itself for 10000 cycles test :		—
G.16.3	Capacitor discharge test :		N/A
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	No telephone ringing signals	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

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Clause	Requirement + Test	Result - Remark	Verdict
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V) :		N/A
J	**INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION**		**N/A**
J.1	**General**		N/A
	Winding wire insulation :	Approved triple insulated wires complied with Annex J of IEC 62368-1	—
	Solid round winding wire, diameter (mm) :		N/A
	Solid square and rectangular (flatwise bending) winding wire, cross-sectional area (mm^2) :		N/A
J.2/J.3	Tests and Manufacturing		—
K	**SAFETY INTERLOCKS**		**N/A**
K.1	**General requirements**		**N/A**
	Instructional safeguard :	No safety interlocks	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**
K.5	**Fail-safe**		**N/A**
K.5.1	Under single fault condition		N/A
K.6	**Mechanically operated safety interlocks**		**N/A**
K.6.1	Endurance requirement		N/A
K.6.2	Test method and compliance :		N/A
K.7	**Interlock circuit isolation**		**N/A**
K.7.1	Separation distance for contact gaps & interlock circuit elements		N/A
	In circuit connected to mains, separation distance for contact gaps (mm) :		N/A
	In circuit isolated from mains, separation distance for contact gaps (mm) :		N/A
	Electric strength test before and after the test of K.7.2 :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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**	The appliance coupler used as disconnect device	N/A
L.2	**Permanently connected equipment**	Not such equipment	N/A
L.3	**Parts that remain energized**	No parts remain energized after the mains plug disconnected	N/A
L.4	**Single-phase equipment**	The appliance coupler disconnects both poles simultaneously	N/A
L.5	**Three-phase equipment**	Single phase equipment	N/A
L.6	**Switches as disconnect devices**	No switches used as disconnect devices	N/A
L.7	**Plugs as disconnect devices**		N/A
L.8	**Multiple power sources**		N/A
	Instructional safeguard :		N/A
M	**EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS**		**P**
M.1	**General requirements**		**P**
M.2	**Safety of batteries and their cells**		**P**
M.2.1	Batteries and their cells comply with relevant IEC standards:	IEC 62133-2	P
M.3	**Protection circuits for batteries provided within the equipment**		P
M.3.1	Requirements		P
M.3.2	Test method		P
	Overcharging of a rechargeable battery		P
	Excessive discharging		P
	Unintentional charging of a non-rechargeable battery		N/A
	Reverse charging of a rechargeable battery		N/A
M.3.3	Compliance		P
M.4	**Additional safeguards for equipment containing a secondary lithium battery**		P
M.4.1	General		P

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Clause	Requirement + Test	Result - Remark	Verdict
	IEC 62133-2 batteries used for sub-system power powering application :		P
M.4.2	Charging safeguards		P
M.4.2.1	Requirements		P
M.4.2.2	Test		P
M.4.2.2.1	General		P
M.4.2.2.2	Abnormal operating conditions		P
M.4.2.2.3	Single fault conditions		P
M.4.2.3	Compliance criteria :	(See appended table M.4.2)	P
M.4.3	Fire enclosure:		P
M.4.4	Drop test of equipment containing a secondary lithium battery		P
M.4.4.2	Preparation and procedure for the drop test		P
M.4.4.3	Drop, Voltage on reference and dropped batteries (V); voltage difference during 24 h period (%): :		P
M.4.4.4	Check of the charge/discharge function		P
M.4.4.5	Charge / discharge cycle test		P
M.4.4.6	Compliance		P
M.5	**Risk of burn due to short-circuit during carrying**		**N/A**
M.5.1	Requirement		N/A
M.5.2	Test method and compliance		N/A
M.6	**Safeguards against short-circuits**		P
M.6.1	External and internal faults		P
M.6.2	Compliance		P
M.7	**Risk of explosion from lead acid and NiCd batteries**		**N/A**
M.7.1	Ventilation preventing explosive gas concentration		N/A
	Calculated hydrogen generation rate :		N/A
M.7.2	Test method and compliance		N/A
	Minimum air flow rate, Q (m^3/h) :		N/A
M.7.3	Ventilation tests		N/A
M.7.3.1	General		N/A
M.7.3.2	Ventilation test – alternative 1		N/A
	Hydrogen gas concentration (%) :		N/A
M.7.3.3	Ventilation test – alternative 2		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Obtained hydrogen generation rate :		N/A
M.7.3.4	Ventilation test – alternative 3		N/A
	Hydrogen gas concentration (%) :		N/A
M.7.4	Marking :		N/A
M.8	**Protection against internal ignition from external spark sources of batteries with aqueous electrolyte**		**N/A**
M.8.1	General		N/A
M.8.2	Test method		N/A
M.8.2.1	General		N/A
M.8.2.2	Estimation of hypothetical volume V_Z (m^3/s) :		—
M.8.2.3	Correction factors :		—
M.8.2.4	Calculation of distance d (mm) :		—
M.9	**Preventing electrolyte spillage**		P
M.9.1	Protection from electrolyte spillage		P
M.9.2	Tray for preventing electrolyte spillage	Not stationary equipment	N/A
M.10	**Instructions to prevent reasonably foreseeable misuse**		P
	Instructional safeguard :	Specified in user manual	P
N	**ELECTROCHEMICAL POTENTIALS**		**N/A**
	Material(s) used :	Pollution degree considered	—
O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		**P**
	Value of X (mm) :	Considered	—
P	**SAFEGUARDS AGAINST CONDUCTIVE OBJECTS**		**P**
P.1	**General**		**P**
P.2	**Safeguards against entry or consequences of entry of a foreign object**		**P**
P.2.1	General		N/A
P.2.2	Safeguard requirements	No openings	N/A
	The ES3 and PS3 keep-out volume in Figure P.4 not applicable to transportable equipment	No openings	—
	Transportable equipment with metalized plastic parts :		
P.2.3	Consequence of entry test :		N/A
P.3	**Safeguards against spillage of internal liquids**		**N/A**
P.3.1	General		N/A
P.3.2	Determination of spillage consequences		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
P.3.3	Spillage safeguards		N/A
P.3.4	Compliance		N/A
P.4	**Metallized coatings and adhesives securing parts**		**N/A**
P.4.1	General		N/A
P.4.2	Tests		N/A
	Conditioning, T_C (°C) :		—
	Duration (weeks) :		—
Q	**CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING**		N/A
Q.1	**Limited power sources**		N/A
Q.1.1	Requirements		N/A
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A
	c) Regulating network limited output	(See appended table Annex Q.1)	N/A
	d) Overcurrent protective device limited output		N/A
	e) IC current limiter complying with G.9		N/A
Q.1.2	Test method and compliance :	(See appended table Annex Q.1)	N/A
	Current rating of overcurrent protective device (A) :		N/A
Q.2	**Test for external circuits – paired conductor cable**	No such external circuits	**N/A**
	Maximum output current (A) :		N/A
	Current limiting method :		—
R	**LIMITED SHORT CIRCUIT TEST**		**N/A**
R.1	**General**		**N/A**
R.2	**Test setup**		**N/A**
	Overcurrent protective device for test :		—
R.3	**Test method**		**N/A**
	Cord/cable used for test:		—
R.4	**Compliance**		**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) :		—

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Clause	Requirement + Test	Result - Remark	Verdict
	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) :		—
	- Material did not show any additional holes for combustible materials		N/A
	- Cheesecloth did not ignite for top openings		N/A
S.3	**Flammability test for the bottom of a fire enclosure**		**N/A**
S.3.1	Mounting of samples		N/A
S.3.2	Test method and compliance		N/A
	Mounting of samples :		—
	Wall thickness (mm) :		—
	Cheesecloth did not ignite		—
S.4	**Flammability classification of materials**		**N/A**
S.5	**Flammability test for fire enclosure materials of equipment with a steady state power exceeding 4 000 W**		**N/A**
	Samples, material :		—
	Wall thickness (mm) :		—
	Conditioning (°C) :		—
S.6	**Grille covering material, cloth, and reticulated foam**		—
	Samples, material :		N/A
	Measured distance from the centre of the fuel tablet (mm)……..:		N/A
T	**MECHANICAL STRENGTH TESTS**		**P**
T.1	**General**		**P**

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Clause	Requirement + Test	Result - Remark	Verdict
T.2	**Steady force test, 10 N :**	(See appended table T.2)	**P**
T.3	**Steady force test, 30 N :**		**N/A**
T.4	**Steady force test, 100 N :**	(See appended table T.4)	**P**
T.5	**Steady force test, 250 N :**		N/A
T.6	**Enclosure impact test**		N/A
	Fall test		N/A
	Swing test		N/A
T.7	**Drop test :**	(See appended table T.7)	**P**
T.8	**Stress relief test :**	(See appended table T.8)	P
T.9	**Glass Impact Test :**	No glass used	**N/A**
T.10	**Glass fragmentation test**		**N/A**
	Number of particles counted:	No glass used	N/A
T.11	**Test for telescoping or rod antennas**		**N/A**
	Torque value (Nm) :	No telescoping or rod antennas used	N/A
U	**MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION**		**N/A**
U.1	**General**		**N/A**
	Instructional safeguard **:**	No CRTs	N/A
U.2	**Test method and compliance for non-intrinsically protected CRTs**		**N/A**
U.3	**Protective screen**		**N/A**
V	**DETERMINATION OF ACCESSIBLE PARTS**		**N/A**
V.1	**Accessible parts of equipment**		N/A
V.1.1	General		N/A
V.1.2	Surfaces and openings tested with jointed test probes		N/A
V.1.3	Openings tested with straight unjointed test probes	No openings	N/A
V.1.4	Plugs, jacks, connectors tested with blunt probe		N/A
V.1.5	Slot openings tested with wedge probe		N/A
V.1.6	Terminals tested with rigid test wire		N/A
V.2	**Accessible part criterion**		**N/A**

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Clause	Requirement + Test	Result - Remark	Verdict
X	**ALTERNATIVE METHOD FOR DETERMINING CLEARANCES FOR INSULATION IN CIRCUITS CONNECTED TO AN AC MAINS NOT EXCEEDING 420 V PEAK (300 V RMS)**		**N/A**
	Clearance :		N/A
Y	**CONSTRUCTION REQUIREMENTS FOR OUTDOOR ENCLOSURES**		**N/A**
Y.1	**General**		**N/A**
Y.2	**Resistance to UV radiation**		**N/A**
Y.3	**Resistance to corrosion**		**N/A**
Y.3	**Resistance to corrosion**		**N/A**
Y.3.1	Metallic parts of outdoor enclosures are resistant to effects of water-borne contaminants by :		N/A
Y.3.2	Test apparatus		N/A
Y.3.3	Water – saturated sulphur dioxide atmosphere		N/A
Y.3.4	Test procedure :		N/A
Y.3.5	Compliance		N/A
Y.4	**Gaskets**		**N/A**
Y.4.1	General		N/A
Y.4.2	Gasket tests		N/A
Y.4.3	Tensile strength and elongation tests		N/A
	Alternative test methods :		N/A
Y.4.4	Compression test		N/A
Y.4.5	Oil resistance		N/A
Y.4.6	Securing means		N/A
Y.5	**Protection of equipment within an outdoor enclosure**		**N/A**
Y.5.1	General		N/A
Y.5.2	Protection from moisture		N/A
	Relevant tests of IEC 60529 or Y.5.3 :		N/A
Y.5.3	Water spray test		N/A
Y.5.4	Protection from plants and vermin		N/A
Y.5.5	Protection from excessive dust		N/A
Y.5.5.1	General		N/A
Y.5.5.2	IP5X equipment		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Y.5.5.3	IP6X equipment		N/A
Y.6	**Mechanical strength of enclosures**		**N/A**
Y.6.1	General		N/A
Y.6.2	Impact test :		N/A

4.1.2	TABLE: List of critical components				P
Object / part No.	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity1**
Battery	BJY	503035	3.7V 500mAh, 1.85Wh	IEC 62133-2	IEC
PCB	Interchangeable	KSX-08	V-0,130℃	UL 94 UL 796	UL
Plastic enclosure	Interchangeable	Interchangeable	V-0,130℃	UL 94	UL
Speaker	ZB	Interchangeable	4Ω3W	--	--
Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039. 2) Description line content is optional. Main line description needs to clearly detail the component used for testing					

5.2	TABLE: Classification of electrical energy sources						P
Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
			U (V)	I (mA)	Type1)	Additional Info 2)	
5Vdc	EUT input	Normal	5	--	--	DC	ES1
		Abnormal:	--	--	--	--	
		Single fault – SC/OC	--	--	--	--	
5Vdc	Battery circuit	Normal	3.7	--	--	DC	ES1
		Abnormal:	--	--	--	--	
		Single fault – SC/OC	--	--	--	--	
Supplementary information: 1) Type: Steady state (SS), Capacitance (CP), Single pulse (SP), Repetitive pulses (RP), etc. 2) Additional Info: Frequency, Pulse duration, Pulse off time, Capacitance value, etc. 3) SC - Short-circuited; OC - Open-circuited.							

5.4.1.8	TABLE: Working voltage measurement				N/A
Location		RMS voltage (V)	Peak voltage (V)	Frequency (Hz)	Comments
--		--	--	--	--
--		--	--	--	--

Supplementary information:
Tested under 240V, 60Hz

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics		N/A
Method :		ISO 306 / B50	—
Object/ Part No./Material	Manufacturer/trademark	Thickness (mm)	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	Thickness (mm)	Test temperature (°C)	Impression diameter (mm)
Supplementary information:				
T1 bobbin is phenolic, no test require.				

5.4.2, 5.4.3	TABLE: Minimum Clearances/Creepage distance							N/A
Clearance (cl) and creepage distance (cr) at/of/between:	U_p (V)	U_{rms} (V)	Freq [1] (Hz)	Required* cl (mm)	cl (mm)	E.S. [2] (V)	Required cr (mm)	cr (mm)
Supplementary information:								
1) Only for frequency above 30 kHz. 2) Complete Electric Strength voltage (E.S. (V) when 5.4.2.4 applied). 3) * Both frequencies lower than 30 kHz and higher than 30 kHz are present. Limit from Table 11 based on the temporary overvoltage (2000Vpeak) which is higher than Table 12. 4) BI: basic insulation; SI: supplementary insulation; DI: double insulation; RI: reinforced insulation. 5) Ferrite core of transformer T1 considered as primary live part. 6) The clearance is evaluated up to 5000m above sea level and the multiplication factor for altitude is 1.48 7) If no specified, the worst conditions were recorded.								

5.4.4.2	TABLE: Minimum distance through insulation			N/A
Distance through insulation	Peak voltage (V)	Insulation	Required DTI	Measured DTI

(DTI) at/of			(mm)	(mm)
Supplementary information:				
--				

5.4.4.9	TABLE: Solid insulation at frequencies >30 kHz						N/A
Insulation material	E_P	Frequency (kHz)	K_R	Thickness d (mm)	Insulation	V_{PW} (Vpk)	
Supplementary information:							
As an alternative to the above, the electric strength test according to clause 5.4.9 and see table 5.4.9 for details.							

5.4.9	TABLE: Electric strength tests			N/A
Test voltage applied between:	Voltage shape (Surge, Impulse, AC, DC, etc.)	Test voltage (V)	Breakdown Yes / No	
Supplementary information:				

5.5.2.2	TABLE: Stored discharge on capacitors				N/A
Location	Supply voltage (V)	Operating and fault condition [1)]	Switch position	Measured voltage (Vpk)	ES Class
Supplementary information:					
X-capacitors installed for testing: see table 4.1.2 [X] bleeding resistor rating: see table 4.1.2 [] ICX: 1) Normal operating condition (e.g., normal operation, or open fuse), SC= short circuit, OC= open circuit					

5.6.6	TABLE: Resistance of protective conductors and terminations			N/A
Location	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)

Supplementary information:

5.7.4	TABLE: Unearthed accessible parts					N/A
Location	Operating and fault conditions	Supply Voltage (V)	Parameters			ES class
			Voltage (V_{rms} or V_{pk})	Current (A_{rms} or A_{pk})	Freq. (Hz)	
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit.						
#: Current (U_2 / 500 peak value) is measured using the measuring network specified in Figure 4, IEC 60990:2016.						
*: Current (U3 / 500 peak value) is measured using the measuring network specified in Figure 5, IEC 60990: 2016.						

5.7.5	TABLE: Earthed accessible conductive part			N/A
Supply voltage (V) :				—
Phase(s) :	[ ] Single Phase; [ ] Three Phase: [ ] Delta [ ] Wye			
Power Distribution System :	[ ] TN [ ]TT [ ] IT			
Location	Fault Condition No in IEC 60990 clause 6.2.2	Touch current (mA)	Comment	
Supplementary Information:				

5.8	TABLE: Backfeed safeguard in battery backed up supplies					N/A
Location	Supply voltage (V)	Operating and fault condition	Time (s)	Open-circuit voltage (V)	Touch current (A)	ES Class
--	--	--	--	--	--	--
Supplementary information:						

6.2.2	TABLE: Power source circuit classifications					P
Location	Operating and fault condition	Voltage (V)	Current (A)	Max. Power[1)] (W)	Time (S)	PS class
EUT input	--	--	--	--	--	PS3 (Declared)

USB-C output	Normal	4.63	0.269	1.2	3	PS1
Supplementary information:						
1) Measured after 3 s for PS1 and measured after 5 s for PS2 and PS3.						

6.2.3.1	**TABLE: Determination of Arcing PIS**			**N/A**
Location	Open circuit voltage after 3 s (Vpk)	Measured r.m.s current (A)	Calculated value	Arcing PIS? Yes / No
Supplementary information:				
1) 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. 2) All primary circuit/components were considered as arcing PIS, the max. open circuit voltage of output for all models were not exceeded 50V.				

6.2.3.2	**TABLE: Determination of resistive PIS**		**P**
Location	Operating and fault condition	Dissipate power (W)	Arcing PIS? Yes / No
Input terminal	--	--	Yes (Declared)
Supplementary information:			
1. All primary/secondary components except output terminal were considered as resistive PIS. 2. 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. 3. 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**
Lamp manufacturer	Lamp type	Explosion method	Longest axis of glass particle (mm)	Particle found beyond 1 m Yes / No
--	--	--	--	--
Supplementary information:				

5.4.1.4, 9.3, B.1.5, B.2.6	TABLE: Temperature measurements						P
Supply voltage (V) :		Charging		Discharge			—
Ambient temperature during test T_{amb} (°C) :		25.0					—
Maximum measured temperature T of part/at:		T (°C)					Allowed T_{max} (°C)
PCB near U3		44.2	--	46.9	--		130
Plastic enclosure (outside)		36.5	--	37.2	--		77
Plastic enclosure (inside)		38.7	--	40.6	--		.Ref
Battery		36.4	--	37.2	--		.Ref
Internal wire		37.5		38.6			110
Tma		23.9		24.2			--
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:

1. Thermocouple method used.
2. The maximum operation ambient temperature is 25°C. The test data for external enclosure are adjusted at 25°C.
3. #: External surfaces touched occasionally for very short periodes: 1s<t<10s.

B.2.5	TABLE: Input test						P
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
5	0.412	1	2.06	--	--	--	Charge by Type-C port

Supplementary information:
Equipment may be have rated current or rated power or both. Both should be measured.

B.3, B.4	TABLE: Abnormal operating and fault condition tests					P
Ambient temperature T_{amb} (°C) :				See below		—
Power source for EUT: Manufacturer, model/type, outputrating :				See page 2		—
Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation
Y2	SC	5	1s	--	--	Unit become steady state, no damage, no hazard.
U3(pin 1-16)	SC	5	1s	--	--	Unit shut down immediately, recoverable. No damage, no hazard.

Supplementary information:
Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column "Abnormal/Fault." Specify if test condition by indicating "Abnormal" then the condition for a Clause B.3 test or "Single Fault" then the condition for Clause B.4. 1) SC: Short-circuited; OC: Open-circuited; OL: Overloaded; BL: Blocked. 2) The test result shown all safeguards remained effective and didn't lead to a single fault condition during abnormal operating condition; In addition all safeguards complied with applicable requirements in this standard after restoration of normal operating conditions.

M.3	**TABLE: Protection circuits for batteries provided within the equipment**						**P**
Is it possible to install the battery in a reverse polarity position? :				No			—
Equipment Specification	Charging						
	Voltage (V)			Current (A)			
	5			1			
Manufacturer/type	Battery specification						
	Non-rechargeable batteries		Rechargeable batteries				
	Discharging current (A)	Unintentional charging current (A)	Charging		Discharging current (A)	Reverse charging current (A)	
			Voltage (V)	Current (A)			
503035	--	--	4.2	0.25	0.5	0	
Note: The tests of M.3.2 are applicable only when above appropriate data is not available.							
Specified battery temperature (°C) :				--			

Component No.	Fault condition	Charge/ discharge mode	Test time	Temp. (°C)	Current (A)	Voltage (V)	Observation
Q1 pin 3-6	SC	Charge	7h	40.5	0.5	4.2	NL,NS,NE,NF
Q1 pin 3-6	SC	Discharge	7h	44.5	0.5	4.2	NL,NS,NE,NF
Supplementary information:							
Abbreviation: SC= short circuit; OC= open circuit NL= no chemical leakage; NS= no spillage of liquid; NE= no explosion; NF= no emission of flame or expulsion of molten metal.							

M.4.2	**TABLE: Charging safeguards for equipment containing a secondary lithium battery**			**P**
Maximum specified charging voltage (V) :		4.2		—
Maximum specified charging current (A) :		0.5		—
Highest specified charging temperature (°C) :		45		—
Lowest specified charging temperature (°C) :		0		—
Battery	Operating and	Measurement	Observation	

manufacturer/type	fault condition	Charging voltage (V)	Charging current (A)	Temp. (°C)	
Li-ion battery	Normal operation	4.2	0.5	43.8	No abnormal, no hazard.
Li-ion battery	Battery pack (B- to P- SC of battery PCB)	4.2	0.5	44.9	No abnormal, no hazard.
Supplementary information:					
Abbreviation: SC= short circuit; OC= open circuit; MSCV= maximum specified charging voltage; MSCC= maximum specified charging current; HSCT= highest specified charging temperature; LSCT= lowest specified charging temperature.					

Q.1	**TABLE: Circuits intended for interconnection with building wiring (LPS)**						**N/A**
Output Circuit	Condition	U_{oc} (VDC)	Time (s)	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**
Location/Part	Material	Thickness (mm)	Probe	Force (N)	Test Duration (s)	Observation
Top enclosure	Plastic	Min. 1.0	Circular plane surface 30 mm in diameter	100	5	Enclosure remained intact, no crack/opening developed. Internal ES3 were not accessible after test. No insulation breakdown.

Bottom enclosure	Plastic	Min. 1.0	Circular plane surface 30 mm in diameter	100	5	Enclosure remained intact, no crack/opening developed. Internal ES3 were not accessible after test. No insulation breakdown.
Side enclosure	Plastic	Min. 1.0	Circular plane surface 30 mm in diameter	100	5	Enclosure remained intact, no crack/opening developed. Internal ES3 were not accessible after test. No insulation breakdown.
Supplementary information:						

T.6, T.9	TABLE: Impact test				N/A
Location/Part	Material	Thickness (mm)	Height (mm)	Observation	
--	--	--	--	--	
--	--	--	--	--	
--	--	--	--	--	
Supplementary information:					

T.7	TABLE: Drop test			P
Location/Part	Material	Thickness (mm)	Height (mm)	Observation
Top enclosure	Plastic	Min. 1.0	1000	No damage, no hazardous
Bottom enclosure	Plastic	Min. 1.0	1000	No damage, no hazardous
Side enclosure	Plastic	Min. 1.0	1000	No damage, no hazardous
Supplementary information:				

T.8	TABLE: Stress relief test				P
Location/Part	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation
Completed sample	Plastic	Min. 1.0	70	7	No distortion, no hazard
Supplementary information:					

X	TABLE: Alternative method for determining minimum clearances distances		N/A
Clearance distanced between:	Peak of working voltage (V)	Required cl (mm)	Measured cl (mm)
--	--	--	--
Supplementary information:			

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 IEC 62368-1-2024 + A11:2024
TRF template used..... :	IECEE OD-2020-F2:2022, Ed. 1.2
Attachment Form No..... :	EU_GD_IEC 62368_1F
Attachment Originator..... :	UL Solutions (Demko)
Master Attachment.....:	2024-05-16

	CENELEC COMMON MODIFICATIONS (EN)	N/A
	Clause numbers in the cells that are shaded light grey are clause references in EN IEC 62368-1:2024+A11:2024. All other clause numbers in that column, except for those in the paragraph below, refers to IEC 62368-1:2023. Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2023 are prefixed "Z".	N/A
	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	N/A
1	**MODIFICATION to the whole document**	N/A
	Delete all the "country" notes in the reference document according to the following list:	N/A

0.2.1	Note 1 and Note 2		1	Note 4 and Note 5		3.3.8.1	Note 2
3.3.8.3	Note 1		4.1.15	Note		4.7.3	Note 1 and Note 2
5.4.2.3.2.2 Table 12	Note c		5.4.2.3.2.4	Note 1 and Note 3		5.4.2.3.2.4 Table 13	Note 2
5.4.2.5	Note 2		5.4.5.1	Note		5.4.10.2.1	Note
5.4.10.2.2	Note		5.4.10.2.3	Note			
5.5.2.1	Note		5.5.6	Note		5.6.4.2.1	Note 2 and Note 3 and Note 4
5.6.8	Note 2		5.7.7.1	Note 1 and Note 2		8.5.4.2.3	Note
10.2.1 Table 39	Note 3 and Note 4 and Note 5		10.5.3	Note 2		10.6.1	Note 3
F.3.3.4	Note 2		F.3.3.6	Note 3		Y.4.1	Note
Y.4.5	Note						

2	**Modification to Clause 1**		N/A
1	**Add** the following note at the end of Clause 1: "NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU." **Add** the following paragraph and note after Note 5: "This document is a type test standard. NOTE Z2 **Routine tests** of complete equipment, sub-assemblies or components are covered by EN 62911."		N/A
3	**Modification to Clause 2**		N/A
2	***Add** the following references:*		N/A

	EN 71-1:2014+A1:2018, Safety of toys - Part 1: Mechanical and physical properties *EN 50332-1:2013, Sound system equipment: Headphones and earphones associated with personal music players - Maximum sound pressure level measurement methodology - Part 1: General method for "one package equipment"* *EN 50332-2:2013, Sound system equipment: Headphones and earphones associated with personal music players - Maximum sound pressure level measurement methodology - Part 2: Matching of sets with headphones if either or both are offered separately, or are offered as one package equipment but with standardised connectors between the two allowing to combine components of different manufacturers or different design* *EN 50332-3:2017, Sound system equipment: headphones and earphones associated with personal music players - Maximum sound pressure level measurement methodology - Part 3: Measurement method for sound dose management* *IEC/TR 62471-2, Photobiological safety of lamps and lamp systems - Part 2: Guidance on manufacturing requirements relating to non-laser optical radiation safety*		
4	**Modification to Clause 4**		N/A
4	**Add** the following new subclause 4.Z1 after subclause 4.9: "For compliance with B.3 and B.4 in circuits connected to an AC **mains**, protective **devices** shall be provided, subject to the following: - for **pluggable equipment type A**, the protective		N/A

	devices shall be included as parts of the equipment, with the exception of components in series with the **mains** input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, for which the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet;		
	- for **pluggable equipment type B** or **permanently connected equipment**, the protection may be the dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, for example a fuse or circuit breaker, is fully specified in the installation instructions. Where protective **devices** are required within the equipment, the protective **devices** within the equipment shall operate before or at the same time the expected building installation protection will operate. For earth faults in single-phase equipment, it is not necessary to provide 2 protective **devices**. It is expected that the building installation will protect against earth faults. This applies also in countries where an IT power distribution system is used.”		
5	**Modification to subclause 4.1.9**		N/A
4.1.9	Add the following paragraph at the end of this subclause: “Products need to comply with the requirements of this document with appropriate measurement uncertainty.		N/A

	NOTE Z1 See also the RED ADCO position on 'Measurement uncertainty in published harmonized standards'."		
6	**Modification to subclause 5.4.9.1**		N/A
5.4.9.1	**Add** the following note after the 5th paragraph: "NOTE Z1 For guidance on the use of high voltage source, see IEC 60060-1, Clause 8 of IEC 60243-1 and IEC 61180."		N/A
7	**Modification to subclause 5.4.2.3.2.4**		N/A
5.4.2.3.2.4	**Add** the following at the end of this subclause: "The requirement for interconnection with **external circuit** in a HBES/BACS network is in addition given in EN IEC 63044-3:2018."		N/A
8	**Modification to subclause 5.6.6.2**		N/A
5.6.6.2	**Replace** item d) with the following: "d) For equipment powered from a DC mains, if the protective current rating of the circuit under test exceeds 25 A, the test current shall be minimum as required in item a), unless the manufacturer specifies a higher value."		N/A
9	**Modification to subclause 9.3.1**		N/A
9.3.1	**Replace** the second paragraph with the following: "An **accessible** part that, while in contact with the body, is likely to drop in temperature upon touch can be evaluated under the limits of Annex A of IEC Guide 117:2010 using the test method of 4.5 of IEC Guide 117."		N/A
10	**Modification to subclause 10.2.1**		N/A
10.2.1	**Add** the following to [c] and [d] in Table 38: "For additional requirements, see 10.5.1."		N/A

11	**Modification to subclause 10.4.1**		N/A
10.4.1	**Replace** the second paragraph of 10.4.1 with: "Electronic light effect equipment does not have to comply with the requirements of 10.4. However, 114 IEC/TR 62471-2 shall be considered and proper installation instructions shall be provided. **Replace** the ninth paragraph of 10.4.1 with: The following information shall be provided in the user manual for safe operation and installation. This information shall also be provided for safe operation by a skilled person who may be exposed to Risk Group 3 energy levels. Adequate instructions for proper assembly, installation, maintenance and safe use, including clear warnings concerning precautions to avoid possible exposure to hazardous optical radiation; and Advice on safe operating procedures and warnings concerning **reasonably foreseeable misuse,** malfunctions and hazardous failure modes. Where servicing and maintenance procedures are detailed, they shall include explicit instructions on safe procedures to be followed; and The marking on the equipment shall be reproduced in the user manual. A yellow background is not required in the user manual.		N/A
12	**Modification to subclause 10.4.4**		N/A
10.4.4	**Replace** the last paragraph of 10.4.4 with:		N/A

	"Compliance against material degradation from UV radiation is checked by the applicable tests of Annex C."		
13	**Modification to subclause 10.5.1**		N/A
10.5.1	**Add** the following after the first paragraph: "For RS1 compliance is checked by measurement under the following conditions: In addition to the **normal operating conditions**, all controls adjustable from the outside of the equipment by hand, by any object such as a **tool** or a coin, and those internal adjustments or pre-sets 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 at a distance of 10 cm from the outer surface of the equipment. 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 2013/59/Euratom of 5 December 2013."		N/A
14	**Modification to subclause 10.5.3**		N/A
10.5.3	**Replace** the second paragraph of 10.5.3 with:		N/A

	"The amount of radiation is determined by means of a radiation monitor of the ionizing chamber type with an effective area of 1 000 mm2 ± 10 mm2 or by measuring equipment of other types giving equivalent results."		
15	**Modification to Clause 10**		N/A
	Replace 10.6 with the following:		N/A
10.6	**Safeguards against acoustic energy sources**		N/A
10.6.1	**General**		N/A
10.6.1.1	**Introduction** **Safeguard** requirements for protection against long-term exposure to excessive sound pressure levels from personal music players closely coupled to the ear are specified below. Requirements for earphones and headphones intended for use with personal music players are also covered. A personal music player is a portable equipment intended for use by an **ordinary person**, that: - is designed to allow the user to listen to audio or audiovisual content / material; and - uses a listening **device**, such as headphones or earphones that can be worn in or on or around the ears; and - has a player that can be body worn (of a size suitable to be carried in a clothing pocket) and is intended for the user to walk around with while in continuous use (for example, on a street, in a subway, at an airport, etc.). EXAMPLES Portable CD players, MP3 audio players, mobile phones with MP3 type features, PDAs or similar		N/A

	equipment. Personal music players shall comply with the requirements of either 10.6.2 or 10.6.3. NOTE 1 Protection against acoustic energy sources from telecom applications is referenced to ITU-T P.360. NOTE 2 It is the intention of the Committee to allow the alternative methods for now, but to only use the dose measurement method as given in 10.6.5 in future. Therefore, manufacturers are encouraged to implement 10.6.5 as soon as possible.		
	Listening **devices** sold separately shall comply with the requirements of 10.6.6. These requirements are valid for music or video mode only. The requirements do not apply to: - **professional equipment**; NOTE 3 **Professional equipment** is equipment sold through special sales channels. All products sold through normal electronics stores or general public sales channels are considered not to be **professional equipment**. - hearing aid equipment and other devices for assistive listening; - the following type of analogue personal music players: - long distance radio receiver (for example, a multiband radio receiver or world band radio receiver, an AM radio receiver), and - cassette player/recorder;		

	NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies. - a player while connected to an external amplifier that does not allow the user to walk around while in use; - hearing protection devices (HPD) that comply with EN 352-8 For equipment that is clearly designed or intended primarily for use by children, the limits of the relevant toy standards may apply. The relevant requirements are given in EN 71-1:2014+A1:2018, 4.20 and the related tests methods and measurement distances apply.		
10.6.2	**Classification of devices without the capacity to estimate sound dose**		N/A
10.6.2.1	**General** This standard is transitioning from short-term based (30 s) requirements to long-term based (40 h) requirements. These clauses remain in effect only for devices that do not comply with sound dose estimation as stipulated in EN 50332-3:2017. For classifying the acoustic output LAeq,T, measurements are based on the A-weighted equivalent sound pressure level over a 30 s period. For music where the average sound pressure (long term LAeq,T) measured over the duration of the song is lower than the average produced by the programme simulation noise, measurements may be done over the duration of the complete song. In this case, T becomes the duration of the song. NOTE Classical music, acoustic music and		N/A

	broadcast typically has an average sound pressure (long term *L*Aeq,*T*) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the content and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song does not exceed the required limit. For example, if the player is set with the programme simulation noise to 85 dB, but the average music level of the song is only 65 dB, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dB.		
10.6.2.2	**RS1 limits (to be superseded, see 10.6.3.2)** RS1 is a class 1 acoustic energy source that does not exceed the following: for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the *L*Aeq,*T* acoustic output shall be ≤ 85 dB when playing the fixed "programme simulation noise" described in EN 50332-1:2013. for equipment provided with a standardized connector (for example, a 3,5 mm headphone/earphone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 27 mV (analogue interface) or −25 dBFS (digital interface) when playing the fixed 214 "programme simulation noise" described in EN 50332-1:2013.		N/A

	The RS1 limits will be updated for all devices as per 10.6.3.2.		
10.6.2.3	**RS2 limits (to be superseded, see 10.6.3.3)** RS2 is a class 2 acoustic energy source that does not exceed the following: for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or when the combination of player and listening device is known by other means such as setting or automatic detection, the LAeq,T acoustic output shall be ≤ 100 dB(A) when playing the fixed “programme simulation noise” as described in EN 50332-1:2013. for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 150 mV (analogue interface) or −10 dBFS (digital interface) when playing the fixed “programme simulation noise” as described in 226 EN 50332-1:2013.		N/A
10.6.2.4	**RS3 limits** RS3 is a class 3 acoustic energy source that exceeds RS2 limits.		N/A
10.6.3	**Classification of devices (new)**		N/A
10.6.3.1	**General** Previous limits (10.6.2) created abundant false negative and false positive PMP sound level warnings. New limits, compliant with The Commission Decision 2009/490/EC of 23 June 2009, are given below.		N/A
10.6.3.2	**RS1 limits (new)**		N/A

	RS1 is a class 1 acoustic energy source that does not exceed the following: for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the LAeq,T acoustic output shall be ≤ 80 dB when playing the fixed “programme simulation noise” described in EN 50332-1:2013. for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 15 mV (analogue interface) or −30 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1:2013.		
10.6.3.3	**RS2 limits (new)** RS2 is a class 2 acoustic energy source that does not exceed the following: for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the weekly **sound exposure level**, as described in EN 50332-3:2017, shall be ≤ 80 dB when playing the fixed “programme simulation noise” described in 249 EN 50332-1:2013. for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output level, integrated		N/A

	over one week, as described in EN 50332-3:2017, shall be ≤ 15 mV (analogue interface) or −30 dBFS		
10.6.4	**Requirements for maximum sound exposure**		N/A
10.6.4.1	**Measurement methods** All volume controls shall be turned to maximum during tests. Measurements shall be made in accordance with EN 50332-1:2013 or EN 50332-2:2013 as applicable.		N/A
10.6.4.2	**Protection of persons** Except as given below, protection requirements for parts **accessible** to **ordinary persons**, **instructed** **persons** and **skilled persons** are given in 4.3. NOTE 1 Volume control is not considered to be a **safeguard.** Between RS2 and an **ordinary person**, the **basic safeguard** may be replaced by an **instructional safeguard** in accordance with Clause F.5, except that the **instructional safeguard** shall be placed on the equipment, or on the packaging, or in the instruction manual. Alternatively, the **instructional safeguard** may be given through the equipment display during use. The elements of the **instructional safeguard** shall be as follows: - element 1a: the symbol  , IEC 60417-6044 (2011–01) - element 2: “High sound pressure” or equivalent text - element 3: “Hearing damage risk” or equivalent text		N/A

	- element 4: “Do not listen at high volume levels for long periods.” or equivalent text An **equipment safeguard** shall prevent exposure of an **ordinary person** to an RS2 source without intentional physical action from the **ordinary person** and shall automatically return to an output level not exceeding what is specified for an RS1 source when the power is switched off. The equipment shall provide a means to actively inform the user of the increased sound level when the equipment is operated with an output level exceeding RS1 limits. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an output level exceeding RS1 limits. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time.		
	NOTE 2 Examples of means include visual or audible signals. Action from the user is always needed. NOTE 3 The 20 h listening time is the accumulative listening time, independent of how often and how long the personal music player has been switched off. A **skilled person** shall not be unintentionally exposed to RS3.		
10.6.5	**Requirements for dose-based systems**		N/A
10.6.5.1	**General requirements** Personal music players shall give the warnings as provided below when tested according to 281 EN 50332-3:2017, using the limits from this clause. The manufacturer may offer optional settings to		N/A

	allow the users to modify when and how they wish to receive the notifications and warnings to promote a better user experience without defeating the **safeguards**. This allows the users to be informed in a method that best meets their physical capabilities and device usage needs. If such optional settings are offered, an administrator (for example, parental restrictions, business/educational administrators, etc.) shall be able to lock any optional settings into a specific configuration. The personal music player shall be supplied with easy to understand explanation to the user of the dose management system, the risks involved, and how to use the system safely. The user shall be made aware that other sources may significantly contribute to their sound exposure, for example work, transportation, concerts, clubs, cinema, car races, etc.		
10.6.5.2	**Dose-based warning and requirements** When a dose of 100 % CSD is reached, and at least at every 100 % further increase of CSD, the device shall warn the user and require an acknowledgement. In case the user does not acknowledge, the output level shall automatically decrease to a level in compliance with class RS1 limits. The warning shall at least clearly indicate that listening above 100 % CSD leads to the risk of hearing damage or loss.		N/A
10.6.5.3	**Exposure-based requirements** With only dose-based requirements, cause and effect could be far separated in time, defying the purpose of educating users about safe listening practice. In addition to dose-based requirements, a PMP shall therefore also put a limit to the short-term sound level a user can listen at. The exposure-based limiter (EL) shall		N/A

	automatically reduce the sound level not to exceed 100 dB(A) or 150 mV integrated over the past 180 s, based on methodology defined in EN 50332-3:2017. The EL settling time (time from starting level reduction to reaching target output level) shall be 10 s or less. Test of EL functionality is conducted according to EN 50332-3:2017, using the limits from this clause. For equipment provided as a package (player with its listening device), the level integrated over 180 s shall be 100 dB or lower. For equipment provided with a standardized connector, the un-weighted level integrated over 180 s shall be no more than 150 mV for an analogue interface and no more than −10 dBFS for a digital interface. In case the source is known not to be music (or test signal), the EL may be disabled.		
10.6.6	**Requirements for listening devices (headphones, earphones, etc.)**		N/A
10.6.6.1	**Corded listening devices with analogue input** With 94 dB *L*Aeq acoustic pressure output of the listening device, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximizes the measured acoustic output level, the input voltage of the listening device when playing the fixed "programme simulation noise" as described in EN 50332-1:2013 shall be ≥ 75 mV. NOTE The values of 94 dB and 75 mV correspond with 85 dB and 27 mV in 10.6.2.2. or 100 dB and 150 mV in 10.6.2.3.		N/A
10.6.6.2	**Corded listening devices with digital input** With any playing device playing the fixed "programme simulation noise" described in EN		N/A

	50332-1:2013, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the *L*Aeq,*T* acoustic output of the listening device shall be ≤ 100 dB with an input signal of −10 dBFS.		
10.6.6.3	**Cordless listening devices** In cordless mode, with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1:2013; and respecting the cordless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and with volume and sound settings in the receiving device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the above mentioned programme simulation noise, the *L*Aeq,*T* acoustic output of the listening device shall be ≤ 100 dB with an input signal of −10 dBFS.		N/A
10.6.6.4	**Measurement method** Measurements shall be made in accordance with EN 50332-2:2013 as applicable.”		N/A
16	**Modification to subclause G.3.1.2**		N/A
	Add the following note after the first paragraph: “NOTE Z1 An IEC 60730 series standard is considered relevant if the component in question falls within its scope.”		N/A
17	**Modification to subclause G.7.1**		
	Add the following note at the end of the subclause:		N/A

	"NOTE Z1 The harmonized code designations corresponding to the IEC cable types are given in Annex ZD."		
18	**Modification to subclause M.2**		N/A
	Add the following paragraph after the first paragraph: "The size of the battery compartment shall be designed taking into account the battery compartment recommendations of the relevant battery standard. NOTE For general guidance on the design of the battery compartment, see Clause 8 of IEC 62485-4."		N/A
19	**Modification to Bibliography**		N/A
	Add the following notes for the standards indicated: IEC 60060-1 NOTE Harmonized as EN 60060-1. IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60204-1 NOTE Harmonized as EN IEC 60204-1. IEC 60204-11 NOTE Harmonized as EN IEC 60204-11. IEC 60243-1 NOTE Harmonized as EN 60243-1. 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 60664-5:2005 NOTE Harmonized as EN 60664-5:2007. IEC 60721-3-4 NOTE Harmonized as EN IEC 60721-3-4. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61180 NOTE Harmonized as EN 61180.		N/A

	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 61643-21	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 IEC 61643-331.	
	IEC 61140:2016	NOTE	Harmonized as EN 61140:2016.	
	IEC 61439-5:2014	NOTE	Harmonized as EN 61439-5:2015.	
	IEC 61969-3	NOTE	Harmonized as EN 61969-3.	
	IEC 62040:2017	NOTE	Harmonized as EN IEC 62040:2019.	
	IEC 62305-1	NOTE	Harmonized as EN 62305-1.	
	IEC 62368-3	NOTE	Harmonized as EN 62368-3.	
	IEC 62485-4	NOTE	Harmonized as EN IEC 62485-4.	
	ISO 10218-1	NOTE	Harmonized as EN ISO 10218-1.	
	ISO 10218-2	NOTE	Harmonized as EN ISO 10218-2.	
	ISO 13482	NOTE	Harmonized as EN ISO 13482.	
	ISO 13850	NOTE	Harmonized as EN ISO 13850.	
20	**Addition of annexes**			N/A
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**			N/A
4.1.15	**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:			N/A

	In **Finland**: “Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan” In **Norway**: “Apparatet må tilkoples jordet stikkontakt” In **Sweden**: “Apparaten skall anslutas till jordat uttag”		
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
5.4.11.1 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.		N/A
	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 5.4.7 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 1,5 kV. It is permitted to bridge this insulation with a capacitor complying with EN 60384-14, subclass Y2. A capacitor classified Y3 according to EN 60384-14, 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 5.4.10; - 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.		

5.5.2.1	**Norway** After the 3rd paragraph the following is added: Due to the IT power distribution 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.10.3.		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
5.6.4.2.1	**France** After the indent for **pluggable equipment type A**, the following is added: - in certain cases, the **protective current rating** of the circuit supplied from the **mains** is taken as 20 A instead of 16 A. *Justification:* In France, according to NF C15-100 standard, in certain cases, the maximum rated current of the protective **device** circuit-breaker is 20 A.		N/A
5.6.5.1	**Ireland and United Kingdom** 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 mm2 to 1,5 mm2 in cross-sectional area.		N/A

5.6.8	**Norway** To the end of the subclause the following is added: Equipment connected with an earthed mains plug is classified as **class I equipment**. See the Norway marking requirement in 4.1.15. The symbol IEC 60417-6092, as specified in F.3.6.2, is accepted.		N/A
5.7.7.1	**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.		N/A
	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 RMS, 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): "Apparater som er 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 installeres 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 vissa 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.".		
8.5.4.2.3	**United Kingdom** Add the following after the 2nd dash bullet in 3rd paragraph: An emergency stop system complying with the requirements of EN IEC 60204-1 and EN ISO 13850 is required where there is a risk of personal injury.		N/A
B.3.1 and	**Ireland and United Kingdom**		N/A

B.4	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		
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.		N/A

	NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		
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
ZC	*ANNEX ZC, NATIONAL DEVIATIONS (EN)*		N/A
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		N/A

	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		
ZD	**IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS**		N/A

Type of flexible cord	Code designations	
	IEC	CENELEC
PVC insulated cords		
Flat twin tinsel cord	60227 IEC 41	H03VH-Y
Light polyvinyl chloride sheathed flexible cord	60227 IEC 52	H03VV-F H03VVH2-F
Ordinary polyvinyl chloride sheathed flexible cord	60227 IEC 53	H05VV-F H05VVH2-F
Rubber insulated cords		
Braided cord	60245 IEC 51	H03RT-F
Ordinary tough rubber sheathed flexible cord	60245 IEC 53	H05RR-F
Ordinary polychloroprene sheathed flexible cord	60245 IEC 57	H05RN-F
Heavy polychloroprene sheathed flexible cord	60245 IEC 66	H07RN-F
Cords having high flexibility		
Rubber insulated and sheathed cord	60245 IEC 86	H03RR-H
Rubber insulated, crosslinked PVC sheathed cord	60245 IEC 87	H03RV4-H
Crosslinked PVC insulated and sheathed cord	60245 IEC 88	H03V4V4-H
Cords insulated and sheathed with halogen-free thermoplastic compounds		
Light halogen-free thermoplastic insulated and sheathed flexible cords		H03Z1Z1-F H03Z1Z1H2-F
Ordinary halogen-free thermoplastic insulated and sheathed flexible cords		H05Z1Z1-F H05Z1Z1H2-F

Photo documentation

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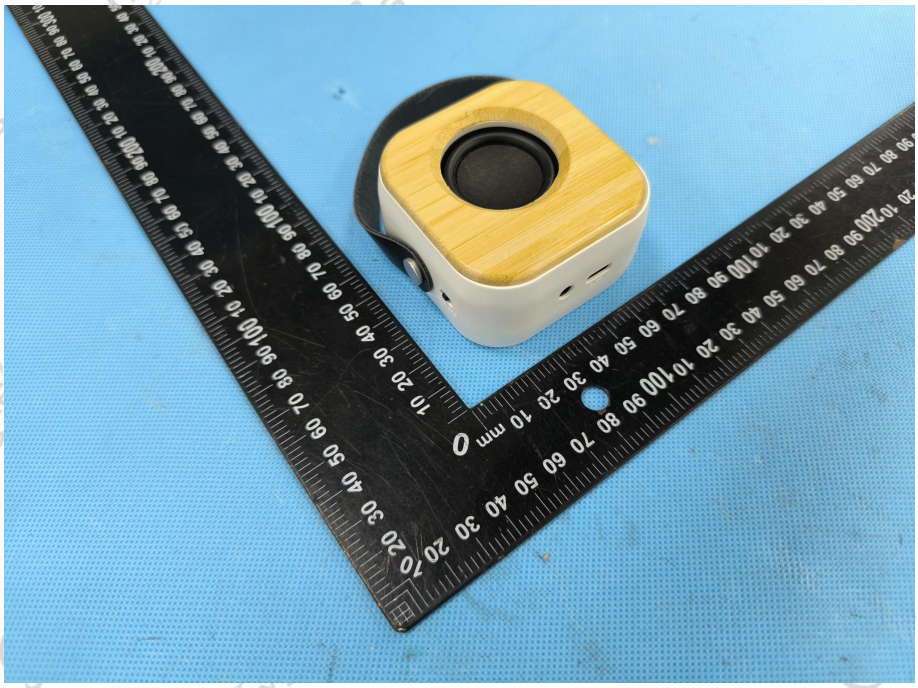

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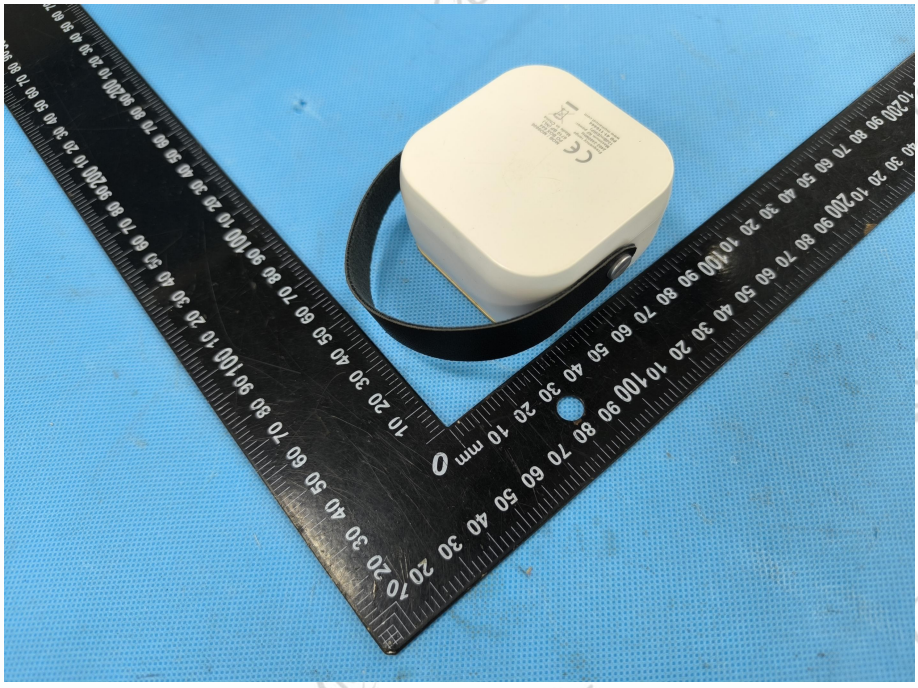

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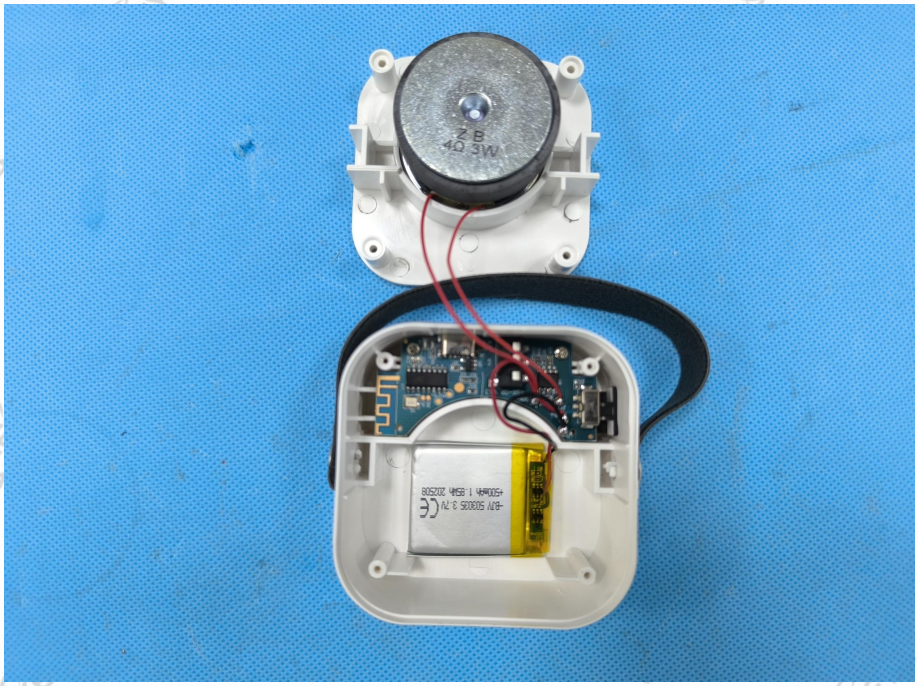

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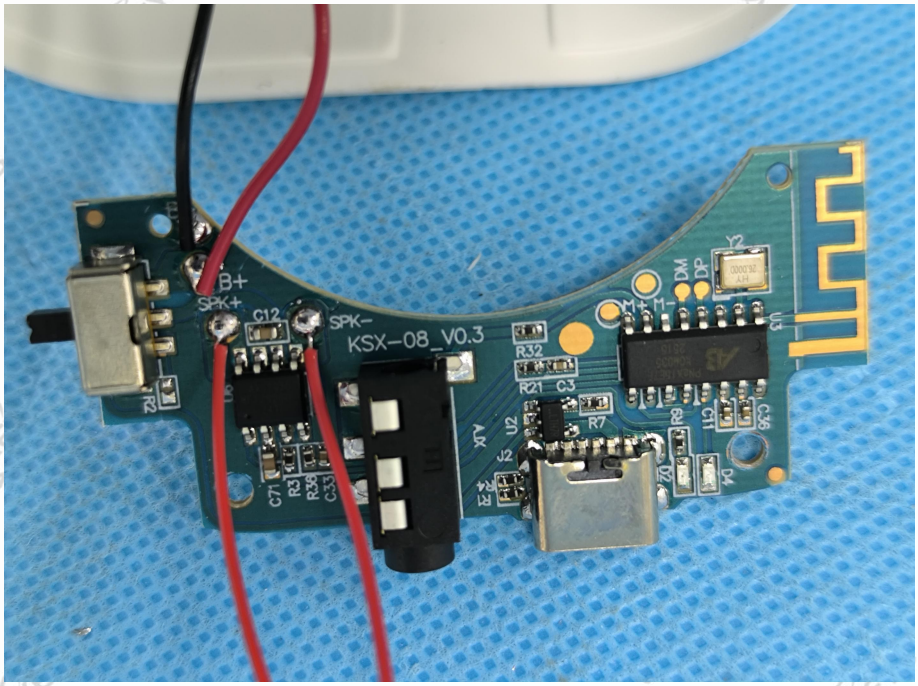

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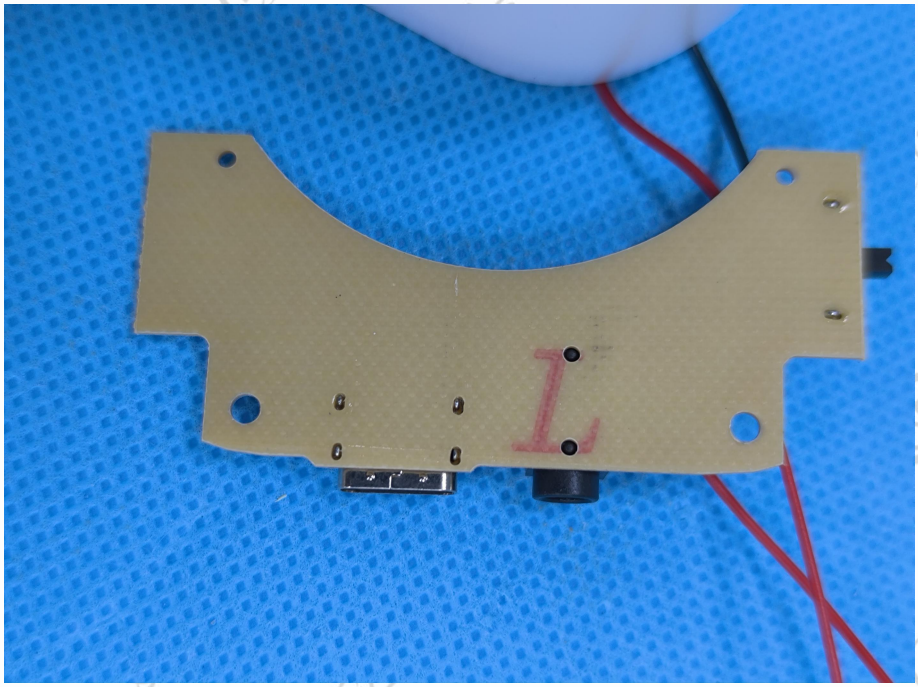

*** End of Report ***