

Test Report issued under the responsibility of:

GTS

TEST REPORT

IEC 62368-1

Audio/video, information and communication technology equipment

Part 1: Safety requirements

Report Number: GTS202010000110S001

Date of issue: 2020-11-04

Total number of pages: 66 pages

Applicant's name.....: **Quanzhou SKYDROID Technology Co., Ltd.**

Address: 2nd Floor, Building A, Yucheng Base, Fengze District, Quanzhou City, Fujian Province

Test specification:

Standard: EN 62368-1:2014 / A11:2017

Test procedure: EN test report

Non-standard test method.....: N/A

Test Report Form No......: IEC62368_1B

Test Report Form(s) Originator: UL(US)

Master TRF: 2014-03

Test item description.....: H16 remote control

Trade mark.....: SKYDROID

Manufacturer.....: Same as applicant

Model/Type reference.....: H16, H16PRO

Ratings.....: Input: 9VDC, 2A

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List of Attachments (including a total number of pages in each attachment):

Attachment No. 1: 12 pages of EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES for EN 62368-1:2014+A11:2017.

Attachment No. 2: 5 pages of photograph.

Summary of testing:

Tests performed (name of test and test clause):

The submitted samples were tested and found to comply with the requirements of:

- EN 62368-1:2014/A11:2017

Testing location:

Global United Technology Services Co., Ltd.
No. 123-128, Tower A, Jinyuan Business Building, No. 2,
Laodong Industrial Zone, Xixiang Road, Baoan District,
Shenzhen, Guangdong, China

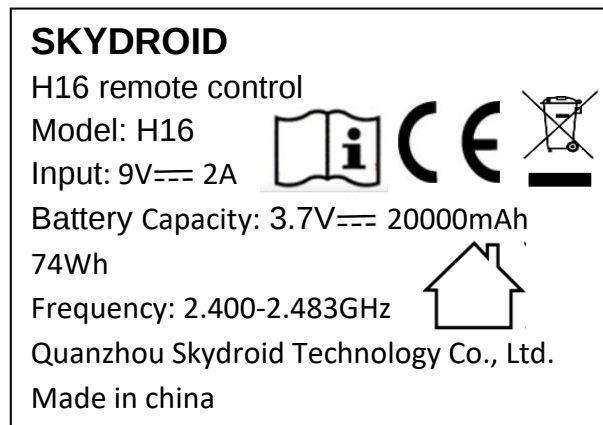
Summary of compliance with National Differences:

List of countries addressed: See the attachment No. 1 of National and Group Differences for details.

☒ **The product fulfils the requirements of IEC 62368-1:2014 (Second Edition).**

Copy of marking plate

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks



Remark:

1. The height dimension of CE mark should not be less than 5mm, the height dimension of WEEE symbol should not be less than 7mm.
2. According to the EU directives which have been aligned with EU NLF (new legislative framework), both of manufacturer and importer's name and address shall be affixed on the product or, where that is not possible, on its packaging or in a document accompany-ing the product before the product is placed on the EU market.

TEST ITEM PARTICULARS:	
Classification of use by	☒ Ordinary person ☐ Instructed person ☐ Skilled person ☐ Children likely to be present
Supply Connection.....	☐ AC Mains ☐ DC Mains ☒ External Circuit - not Mains connected - ☒ ES1 ☐ ES2 ☐ ES3
Supply % Tolerance	☐ +10%/-10% ☐ +20%/-15% ☐ + ____ %/ - ____ % ☒ None
Supply Connection – Type	☐ pluggable equipment type A - ☐ non-detachable supply cord ☐ appliance coupler ☐ direct plug-in ☐ mating connector ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☐ permanent connection ☐ mating connector ☒ other: ____ DC connector ____
Considered current rating of protective device as part of building or equipment installation	<u>No directly connected to mains</u> Installation location: ☐ building; ☐ equipment; ☐ N/A
Equipment mobility	☒ movable ☐ hand-held ☐ transportable ☐ stationary ☐ for building-in ☐ direct plug-in ☐ rack-mounting ☐ wall-mounted
Over voltage category (OVC)	☐ OVC I ☐ OVC II ☐ OVC III ☐ OVC IV ☒ other: <u>No directly connected to mains</u>
Class of equipment	☐ Class I ☐ Class II ☒ Class III
Access location	☐ restricted access location ☒ N/A
Pollution degree (PD)	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified maximum operating ambient:	<u>40°C</u>
IP protection class	☒ IPX0 ☐ IP ____
Power Systems	☐ TN ☐ TT ☐ IT - ____ V _{L-L} ☐ N/A
Altitude during operation (m)	☐ 2000 m or less ☐ ____ m
Altitude of test laboratory (m)	☒ 2000 m or less ☐ ____ m
Mass of equipment (kg)	Approx 1.1kg
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..... :	2020-10-21
Date (s) of performance of tests..... :	2020-10-21 to 2020-11-04
GENERAL REMARKS:	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(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. When determining the test conclusion, the Measurement Uncertainty of test has been considered. This report is for the exclusive use of GTS's Client and is provided pursuant to the agreement between GTS and its Client. GTS's responsibility and liability are limited to the terms and conditions of the agreement. GTS assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the GTS name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by GTS. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an GTS certification program. The test report only allows to be revised only within the report defined retention period unless standard or regulation was withdrawn or invalid.	
Name and address of factory (ies)	Same as applicant
GENERAL PRODUCT INFORMATION:	
Product Description:	
H16 remote control, supplied by 3.7VDC, 20000mAh rechargeable Li-ion battery and shall be charged by a suitable rated and certified ES1/PS2 DC power source. For indoor use only. Instructions and equipment marking related to safety is applied in the language that is acceptable in the country in which the equipment is to be sold.	
Model Differences:	
Model H16 is identical to model H16PRO except for the model name. After comparison, tests carried out on model H16 was considered representative.	
Additional application considerations – (Considerations used to test a component or sub-assembly) –	
1. The Maximum operating temperature is 40°C. 2. Clearance was evaluated for operating altitude up to 2000m above sea level.	

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:

(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.)

(Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.

Electrically-caused injury (Clause 5):

(Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification)

Example: +9 V dc input

ES1

Source of electrical energy	Corresponding classification (ES)
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All circuits inside the equipment enclosure	ES1
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Audio output terminal	ES1
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Electrically-caused fire (Clause 6):

(Note: List sub-assembly or circuit designation and corresponding energy source classification)

Example: Battery pack (maximum 85 watts):

PS2

Source of power or PIS	Corresponding classification (PS)
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DC in(Power supply output)	PS2
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Internal circuits	PS2
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Battery package output	PS1
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Battery cell output	PS2
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Injury caused by hazardous substances (Clause 7)

(Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.)

Example: Liquid in filled component

Glycol

Source of hazardous substances	Corresponding chemical
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Mechanically-caused injury (Clause 8)

(Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.)

Example: Wall mount unit

MS2

Source of kinetic/mechanical energy	Corresponding classification (MS)
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Mass of the unit	MS1
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Edges and corners	MS1
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Thermal burn injury (Clause 9)

(Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.)

Example: Hand-held scanner – thermoplastic enclosure

TS1

Source of thermal energy	Corresponding classification (TS)
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Accessible surfaces	TS1
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Radiation (Clause 10)

(Note: List the types of radiation present in the product and the corresponding energy source classification.)

Example: DVD – Class 1 Laser Product

RS1

Type of radiation	Corresponding classification (RS)
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LED Indicate lighting (for indicating lights only)	RS1
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ENERGY SOURCE DIAGRAM

Indicate which energy sources are included in the energy source diagram. Insert diagram below

☒ **ES** ☒ **PS** ☒ **MS** ☒ **TS** ☒ **RS**

(Refer to ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE for DETAIL.)

OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	Possible Hazard			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementar y	Reinforced (Enclosure)
Ordinary	ES1: All circuits inside the equipment enclosure ES1: Audio output terminal	N/A	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementar y	Reinforced
Internal & external combustible material	PS2: All Internal circuits PS2: Input terminal PS2: Battery cell output	For "N" and "A" conditions: 1, No ignition occurred. 2, No parts exceeding 90% of its spontaneous ignition temperature.	For "S" condition: 1, PCB is complied with V-0 material. 2, All other components: at least V-2 except for mounted on min. V-1 material or small parts of combustible material. 3, V-0 plastic enclosure provided.	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementar y	Reinforced
Li-ion battery pack	Complied with annex M	--	--	--
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementar y	Reinforced (Enclosure)
Ordinary person	MS1: Rounded edges and corners	--	--	--
Ordinary person	MS1: Product mass	--	--	--
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementar	Reinforced

			y	
Ordinary person	TS1: Accessible parts	--	--	--
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementar y	Reinforced
Ordinary person	RS1: LED light	--	--	--
Supplementary Information: (1) See attached energy source diagram for additional details. (2) "N" – Normal Condition; "A" – Abnormal Condition; "S" Single Fault				

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Clause	Requirement + Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS		P
4.1.1	Acceptance of materials, components and subassemblies	See clause 4.1.2	P
4.1.2	Use of components	See appended table 4.1.2	P
4.1.3	Equipment design and construction	Safeguards are provided to reduce the likelihood of injury or, in the case of fire, property damage. No parts of equipment that could cause injury can be accessible.	P
4.1.15	Markings and instructions.....:	See Annex F	P
4.4.4	Safeguard robustness	See below	P
4.4.4.2	Steady force tests.....:	(See Annex T.4)	P
4.4.4.3	Drop tests	(See Annex T.7)	P
4.4.4.4	Impact tests		N/A
4.4.4.5	Internal accessible safeguard enclosure and barrier tests.....:	No such enclosure and barrier	N/A
4.4.4.6	Glass Impact tests	No such glass within equipment	N/A
4.4.4.7	Thermoplastic material tests.....:	No such Thermoplastic material within equipment	N/A
4.4.4.8	Air comprising a safeguard.....:	No such safeguard used	N/A
4.4.4.9	Accessibility and safeguard effectiveness		P
4.5	Explosion		P
4.6	Fixing of conductors	External power or internal Li-ion battery supplied apparatus, no safeguard can be defeated after displacement of internal wires	N/A
4.6.1	Fix conductors not to defeat a safeguard		N/A
4.6.2	10 N force test applied to		N/A
4.7	Equipment for direct insertion into mains socket - outlets		N/A
4.7.2	Mains plug part complies with the relevant standard.....:		N/A
4.7.3	Torque (Nm)		N/A
4.8	Products containing coin/button cell batteries		N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery.....:		—

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Clause	Requirement + Test	Result - Remark	Verdict

4.8.4	Battery Compartment Mechanical Tests		N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object.....	(See Annex P)	P

5	ELECTRICALLY-CAUSED INJURY		P
5.2.1	Electrical energy source classifications.....	(See appended table 5.2)	P
5.2.2	ES1, ES2 and ES3 limits		P
5.2.2.2	Steady-state voltage and current.....	(See appended table 5.2)	P
5.2.2.3	Capacitance limits		N/A
5.2.2.4	Single pulse limits	No such single pulse	N/A
5.2.2.5	Limits for repetitive pulses	No such repetitive pulse	N/A
5.2.2.6	Ringing signals	No such ringing signal	N/A
5.2.2.7	Audio signals	No such audio signal	N/A
5.3	Protection against electrical energy sources		N/A
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		N/A
5.3.2.1	Accessibility to electrical energy sources and safeguards		N/A
5.3.2.2	Contact requirements		N/A
	a) Test with test probe from Annex V		N/A
	b) Electric strength test potential (V)		N/A
	c) Air gap (mm)		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	Insulation materials and requirements		N/A
5.4.1.2	Properties of insulating material		N/A
5.4.1.3	Humidity conditioning		N/A
5.4.1.4	Maximum operating temperature for insulating materials		N/A
5.4.1.5	Pollution degree		—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage		N/A
5.4.1.9	Insulating surfaces		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		N/A
5.4.1.10.2	Vicat softening temperature..... :		N/A
5.4.1.10.3	Ball pressure :		N/A
5.4.2	Clearances		N/A
5.4.2.2	Determining clearance using peak working voltage		N/A
5.4.2.3	Determining clearance using required withstand voltage :		N/A
	a) a.c. mains transient voltage :		—
	b) d.c. mains transient voltage :		—
	c) external circuit transient voltage :		—
	d) transient voltage determined by measurement :		—
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
5.4.3	Creepage distances :		N/A
5.4.3.1	General		N/A
5.4.3.3	Material Group :		—
5.4.4	Solid insulation		N/A
5.4.4.2	Minimum distance through insulation :		N/A
5.4.4.3	Insulation compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Cemented joints		N/A
5.4.4.6	Thin sheet material		N/A
5.4.4.6.1	General requirements		N/A
5.4.4.6.2	Separable thin sheet material		N/A
	Number of layers (pcs) :		N/A
5.4.4.6.3	Non-separable thin sheet material		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material :		N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		N/A
5.4.4.9	Solid insulation at frequencies >30 kHz :		N/A
5.4.5	Antenna terminal insulation	No such antenna terminal	N/A
5.4.5.1	General	See clause 5.4.5	N/A
5.4.5.2	Voltage surge test	See clause 5.4.5	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Insulation resistance (MΩ)..... :		—
5.4.6	Insulation of internal wire as part of supplementary safeguard :	No need to meet the requirement of internal wire as supplementary insulation.	N/A
5.4.7	Tests for semiconductor components and for cemented joints	See clause 5.4.4.4 and 5.4.4.5	N/A
5.4.8	Humidity conditioning	See appended table 5.4.8	N/A
	Relative humidity (%)..... :		—
	Temperature (°C) :		—
	Duration (h) :		—
5.4.9	Electric strength test..... :	See appended table 5.4.9	N/A
5.4.9.1	Test procedure for a solid insulation type test	Method 1=Method 3, as Highest	N/A
5.4.9.2	Test procedure for routine tests	Conducted by manufacturer	N/A
5.4.10	Protection against transient voltages between external circuit	No such transient voltage from external circuits	N/A
5.4.10.1	Parts and circuits separated from external circuits	see above	N/A
5.4.10.2	Test methods	See above	N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test :		N/A
5.4.10.2.3	Steady-state test..... :		N/A
5.4.11	Insulation between external circuits and earthed circuitry :	No such insulation between external circuits and earthed circuitry	N/A
5.4.11.1	Exceptions to separation between external circuits and earth	See above	N/A
5.4.11.2	Requirements	See above	N/A
	Rated operating voltage U_{op} (V)..... :		—
	Nominal voltage U_{peak} (V)..... :		—
	Max increase due to variation U_{sp} :		—
	Max increase due to ageing ΔU_{sa} :		—
	$U_{op} = U_{peak} + \Delta U_{sp} + \Delta U_{sa}$:		—
5.5	Components as safeguards		N/A
5.5.1	General		N/A
5.5.2	Capacitors and RC units		N/A
5.5.2.1	General requirement		N/A
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector..... :		N/A
5.5.3	Transformers	See Annex G.5.3	N/A
5.5.4	Optocouplers		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.5.5	Relays	No such Relays.	N/A
5.5.6	Resistors	No such components	N/A
5.5.7	SPD's	No such components	N/A
5.5.7.1	Use of an SPD connected to reliable earthing	See above	N/A
5.5.7.2	Use of an SPD between mains and protective earth	See above	N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable.....:	No such insulation between the mains and the connection to a coaxial cable.	N/A
5.6	Protective conductor		N/A
5.6.2	Requirement for protective conductors		N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm ²)		—
5.6.4	Requirement for protective bonding conductors	See clause 5.6.2	N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm ²).		—
	Protective current rating (A)		—
5.6.4.3	Current limiting and overcurrent protective devices		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Requirement		N/A
	Conductor size (mm ²), nominal thread diameter (mm).		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective system	See clause 5.6.2	N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method Resistance (Ω).....:	See table 5.6.6.2	N/A
5.6.7	Reliable earthing		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		N/A
5.7.2	Measuring devices and networks		N/A
5.7.2.1	Measurement of touch current	See appended table 5.2	N/A
5.7.2.2	Measurement of prospective touch voltage		N/A
5.7.3	Equipment set-up, supply connections and earth connections		N/A
	System of interconnected equipment (separate connections/single connection)	No such system of interconnected equipment	—

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Clause	Requirement + Test	Result - Remark	Verdict

	Multiple connections to mains (one connection at a time/simultaneous connections)	No such multiple connections to mains	—
5.7.4	Earthed conductive accessible parts	See table 5.2	N/A
5.7.5	Protective conductor current		N/A
	Supply Voltage (V)		—
	Measured current (mA)	See table 5.2	—
	Instructional Safeguard	See table 5.2	N/A
5.7.6	Prospective touch voltage and touch current due to external circuits	No such prospective touch voltage and touch current from external circuits	N/A
5.7.6.1	Touch current from coaxial cables	See above	N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits	See above	N/A
5.7.7	Summation of touch currents from external circuits	No such touch current from external circuits	N/A
	a) Equipment with earthed external circuits Measured current (mA)	See above	N/A
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA)	See above	N/A

6	ELECTRICALLY- CAUSED FIRE		P
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		P
6.2.2	Power source circuit classifications		P
6.2.2.1	General		P
6.2.2.2	Power measurement for worst-case load fault ... :	See appended table 6.2.2	P
6.2.2.3	Power measurement for worst-case power source fault	See appended table 6.2.2	P
6.2.2.4	PS1	See appended table 6.2.2	N/A
6.2.2.5	PS2	See appended table 6.2.2	P
6.2.2.6	PS3		N/A
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS	No arcing PIS exists	N/A
6.2.3.2	Resistive PIS	No resistive PIS exists	N/A
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials	See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6	P
6.3.1 (b)	Combustible materials outside fire enclosure	Enclosure and V-0 PCB used	P
6.4	Safeguards against fire under single fault conditions		P

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.1	Safeguard Method	Control of fire spread	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits	Enclosure and V-0 PCB used	P
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits	See below	N/A
6.4.3.1	General		N/A
6.4.3.2	Supplementary Safeguards		N/A
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions..... :		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits	V-0 PCB used	P
6.4.5	Control of fire spread in PS2 circuits		N/A
6.4.5.2	Supplementary safeguards :	(See appended tables 4.1.2)	N/A
6.4.6	Control of fire spread in PS3 circuit		N/A
6.4.7	Separation of combustible materials from a PIS	See below	N/A
6.4.7.1	General..... :		N/A
6.4.7.2	Separation by distance	See clause 6.4.7.1	N/A
6.4.7.3	Separation by a fire barrier	See clause 6.4.7.1	N/A
6.4.8	Fire enclosures and fire barriers	See below	P
6.4.8.1	Fire enclosure and fire barrier material properties	Overall enclosure is considered as fire enclosure	P
6.4.8.2.1	Requirements for a fire barrier	No such fire barrier	N/A
6.4.8.2.2	Requirements for a fire enclosure	1, No circuits where the available power exceeds 4000W. 2, The fire enclosure is made of approved V-0 class material.	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		N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm) :		N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm) :	See clause 6.4.8.3.1	N/A
	Flammability tests for the bottom of a fire enclosure :		N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c) :	See clause 6.4.8.3.1	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating	Smaller distances are allowed: The fire enclosure is made of V-0 class material.	P
6.5	Internal and external wiring		N/A
6.5.1	Requirements	PS1 circuit	N/A
6.5.2	Cross-sectional area (mm ²)		—
6.5.3	Requirements for interconnection to building wiring	No such wiring	N/A
6.6	Safeguards against fire due to connection to additional equipment	No such device	N/A
	External port limited to PS2 or complies with Clause Q.1	The external DC source is assumed to be PS1	N/A

7	INJURY CAUSED BY HAZARDOUS SUBSTANCES		N/A
7.2	Reduction of exposure to hazardous substances	No such hazardous substances	N/A
7.3	Ozone exposure	No ozone produced.	N/A
7.4	Use of personal safeguards (PPE)	No such PPE	N/A
	Personal safeguards and instructions		—
7.5	Use of instructional safeguards and instructions	No such instructions	N/A
	Instructional safeguard (ISO 7010)		—
7.6	Batteries	No such batteries	N/A

8	MECHANICALLY-CAUSED INJURY		P
8.1	General	Enclosure is smooth and no mechanical energy sources	P
8.2	Mechanical energy source classifications	MS1 as category Line 1 in table 35.	P
8.3	Safeguards against mechanical energy sources	No additional safeguards is needed to against mechanical energy sources	N/A
8.4	Safeguards against parts with sharp edges and corners	No sharp edges and corners.	P
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts	See below	N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment	No moving parts	N/A
8.5.2	Instructional Safeguard	See clause 8.5.1	—
8.5.4	Special categories of equipment comprising moving parts	See clause 8.5.1	N/A
8.5.4.1	Large data storage equipment		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks		N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N)		N/A
8.5.5	High Pressure Lamps	No such High pressure lamps	N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test		N/A
8.6	Stability	See below	N/A
8.6.1	Product classification	Weight: Approx 1.28kg No stability requirements for MS1	N/A
	Instructional Safeguard		—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test	No sliding or rolling	N/A
	Applied Force		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test	No need stability to relocate	N/A
	Unit configuration during 10° tilt		—
8.6.4	Glass slide test	No supporting surface made of glass	N/A
8.6.5	Horizontal force test (Applied Force)	No need such stability	N/A
	Position of feet or movable parts		—
8.7	Equipment mounted to wall or ceiling	No mounted to wall or ceiling	N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface)		N/A
8.7.2	Direction and applied force		N/A
8.8	Handles strength	No such handles	N/A
8.8.1	Classification		N/A
8.8.2	Applied Force		N/A
8.9	Wheels or casters attachment requirements	No such wheels or casters	N/A
8.9.1	Classification		N/A
8.9.2	Applied force		—
8.10	Carts, stands and similar carriers	No such devices	N/A
8.10.1	General	Not such carts, stands or similar carriers	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.10.2	Marking and instructions	See clause 8.10.1	N/A
	Instructional Safeguard :		—
8.10.3	Cart, stand or carrier loading test and compliance	See clause 8.10.1	N/A
	Applied force :		—
8.10.4	Cart, stand or carrier impact test	See clause 8.10.1	N/A
8.10.5	Mechanical stability	See clause 8.10.1	N/A
	Applied horizontal force (N)..... :		—
8.10.6	Thermoplastic temperature stability (°C) :	See clause 8.10.1	N/A
8.11	Mounting means for rack mounted equipment	Not such product	N/A
8.11.1	General	No such rack mounted equipment	N/A
8.11.2	Product Classification	See clause 8.11.1	N/A
8.11.3	Mechanical strength test, variable <i>N</i> :	See clause 8.11.1	N/A
8.11.4	Mechanical strength test 250N, including end stops	See clause 8.11.1	N/A
8.12	Telescoping or rod antennas.....	No such antennas	N/A
	Button/Ball diameter (mm) :		—

9	THERMAL BURN INJURY		P
9.2	Thermal energy source classifications	Should classified as TS1, but still failed even classified as TS2	P
9.3	Safeguard against thermal energy sources	No safeguard against thermal energy sources	N/A
9.4	Requirements for safeguards		P
9.4.1	Equipment safeguard		P
9.4.2	Instructional safeguard :	See clause 9.4.1	P

10	RADIATION		P
10.2	Radiation energy source classification		P
10.2.1	General classification		P
10.3	Protection against laser radiation		P
	Laser radiation that exists equipment:	RS1	—
	Normal, abnormal, single-fault..... :		P
	Instructional safeguard :		—
	Tool..... :		—
10.4	Protection against visible, infrared, and UV radiation		N/A
10.4.1	General	No such visible, infrared and UV	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
		radiation	
10.4.1.a)	RS3 for Ordinary and instructed persons		N/A
10.4.1.b)	RS3 accessible to a skilled person.....		N/A
	Personal safeguard (PPE) instructional safeguard		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1. :		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions		N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque		N/A
10.4.1.f)	UV attenuation		N/A
10.4.1.g)	Materials resistant to degradation UV		N/A
10.4.1.h)	Enclosure containment of optical radiation.....		N/A
10.4.1.i)	Exempt Group under normal operating conditions.....		N/A
10.4.2	Instructional safeguard	See clause 10.4.1	N/A
10.5	Protection against x-radiation		N/A
10.5.1	X- radiation energy source that exists equipment :	No such x-radiation	N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards.....		N/A
	Instructional safeguard for skilled person..... :		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation	See clause 10.5.1	—
	Abnormal and single-fault condition		N/A
	Maximum radiation (Pa/kg).....		N/A
10.6	Protection against acoustic energy sources		P
10.6.1	General		P
10.6.2	Classification	See clause 10.6.1	P
	Acoustic output, Db(A).....	RS2	P
	Output voltage, unweighted r.m.s.....	RS2	P
10.6.4	Protection of persons	See clause 10.6.1	N/A
	Instructional safeguards		N/A
	Equipment safeguard prevent ordinary person to RS2.....	See manual,  Display on screen	—
	Means to actively inform user of increase sound pressure.....		—
	Equipment safeguard prevent ordinary person to RS2.....		—
10.6.5	Requirements for listening devices (headphones,	See clause 10.6.1	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	earphones, etc.)		
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 Db(A) L_{Aeq} acoustic pressure output..... :		—
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum Db(A)..... :		—
10.6.5.3	Cordless listening device		N/A
	Maximum Db(A)..... :		—

B	NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS		P
B.2	Normal Operating Conditions		P
B.2.1	General requirements..... :	See Test Item Particulars and appended test tables	P
	Audio Amplifiers and equipment with audio amplifiers :	No such amplifiers and equipment with audio amplifiers	N/A
B.2.3	Supply voltage and tolerances	12Vdc	P
B.2.5	Input test..... :	See appended table B.2.5	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General requirements..... :		P
B.3.2	Covering of ventilation openings	See appended table B.3	P
B.3.3	D.C. mains polarity test	No D.C. mains used	N/A
B.3.4	Setting of voltage selector :	No such selector	N/A
B.3.5	Maximum load at output terminals :		N/A
B.3.6	Reverse battery polarity	No such battery	N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.	No such audio amplifier used	N/A
B.3.8	Safeguards functional during and after abnormal operating conditions		P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited :	No such controlling device	N/A
B.4.3	Motor tests	No motor	N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature :		N/A
B.4.4	Short circuit of functional insulation	12Vd.c supplied apparatus, only ES1 existed	N/A
B.4.4.1	Short circuit of clearances for functional insulation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
B.4.4.2	Short circuit of creepage distances for functional insulation		N/A
B.4.4.3	Short circuit of functional insulation on coated printed boards	No such coated PCB	N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors	See appended table B.4	N/A
B.4.6	Short circuit or disconnect of passive components	See appended table B.4	P
B.4.7	Continuous operation of components	No such motor, relay coils or the like, intended for short-time operation or intermittent operation.	N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions	No exceed the relevant energy class. No hazard involved.	N/A
B.4.9	Battery charging under single fault conditions ... :	No such battery	N/A
C	UV RADIATION		N/A
C.1	Protection of materials in equipment from UV radiation	No such UV radiation	N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A
D	TEST GENERATORS		N/A
D.1	Impulse test generators	No need impulse test	N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
E	TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS		N/A
E.1	Audio amplifier normal operating conditions	No such equipment containing the audio amplifier	N/A
	Audio signal voltage (V) :		—
	Rated load impedance (Ω) :		—
E.2	Audio amplifier abnormal operating conditions		N/A
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General requirements		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Instructions – Language	English	—
F.2	Letter symbols and graphical symbols		P
F.2.1	Letter symbols according to IEC60027-1		P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific		P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	On the external enclosure	P
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification	See page 2	—
F.3.2.2	Model identification	See page 2	—
F.3.3	Equipment rating markings		P
F.3.3.1	Equipment with direct connection to mains	No direct connection to mains	N/A
F.3.3.2	Equipment without direct connection to mains	See clause F.3.3.1	P
F.3.3.3	Nature of supply voltage.....	See page 2	—
F.3.3.4	Rated voltage	See page 2	—
F.3.3.4	Rated frequency	See page 2	—
F.3.3.6	Rated current or rated power	See page 2	—
F.3.3.7	Equipment with multiple supply connections	No multiple supply connections	N/A
F.3.4	Voltage setting device	No such device	N/A
F.3.5	Terminals and operating devices		N/A
F.3.5.1	Mains appliance outlet and socket-outlet markings.....	No such devices	N/A
F.3.5.2	Switch position identification marking	No such devices	N/A
F.3.5.3	Replacement fuse identification and rating markings.....		N/A
F.3.5.4	Replacement battery identification marking	No such devices	N/A
F.3.5.5	Terminal marking location	No terminal marking placed on screws, removable washers, or other parts that can be removed when conductors are being connected.	N/A
F.3.6	Equipment markings related to equipment classification	Class III equipment	N/A
F.3.6.1	Class I Equipment	Class III equipment	N/A
F.3.6.1.1	Protective earthing conductor terminal		N/A
F.3.6.1.2	Neutral conductor terminal	No such the terminal intended exclusively for connection of the mains neutral conductor.	N/A
F.3.6.1.3	Protective bonding conductor terminals	No such terminal.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.6.2	Class II equipment (IEC60417-5172)	Class III equipment	N/A
F.3.6.2.1	Class II equipment with or without functional earth	Class III equipment	N/A
F.3.6.2.2	Class II equipment with functional earth terminal marking	Class III equipment	N/A
F.3.7	Equipment IP rating marking	Only IPX0 equipment	—
F.3.8	External power supply output marking	Approved External power supply used	P
F.3.9	Durability, legibility and permanence of marking	All markings on the equipment are durable and legible, and be easily discernable under normal lighting conditions.	P
F.3.10	Test for permanence of markings	Conducted by rubbing the marking by hand without appreciable force for 15 s with a piece of cloth soaked with water and at a different place or on a different sample for 15 s with a piece of cloth soaked with the petroleum spirit specified the reagent grade hexane with a minimum of 85 % n-hexane. After each test, the marking remain legible, no curling and not be removable by hand.	P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present – marking	Typically applies to commercial or industrial equipment	N/A
	b) Instructions given for installation or initial use		P
	c) Equipment intended to be fastened in place		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1		N/A
	f) Protective earthing employed as safeguard		N/A
	g) Protective earthing conductor current exceeding ES 2 limits		N/A
	h) Symbols used on equipment		N/A
	i) Permanently connected equipment not provided with all-pole mains switch		N/A
	j) Replaceable components or modules providing safeguard function		N/A
F.5	Instructional safeguards		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

	Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction	Simply use method	P
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G	COMPONENTS		
G.1	Switches		N/A
G.1.1	General requirements	Not considered in this report	N/A
G.1.2	Ratings, endurance, spacing, maximum load	See clause G.1.2	N/A
G.2	Relays		N/A
G.2.1	General requirements	Not considered in this report	N/A
G.2.2	Overload test	See clause G.2.2	N/A
G.2.3	Relay controlling connectors supply power	See clause G.2.2	N/A
G.2.4	Mains relay, modified as stated in G.2	See clause G.2.2	N/A
G.3	Protection Devices		N/A
G.3.1	Thermal cut-offs	Not considered in this report	N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)	See clause G.3.1	N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure	See clause G.3.1	N/A
G.3.2	Thermal links	Not considered in this report	N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691		N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H)		—
	Single Fault Condition		—
	Test Voltage (V) and Insulation Resistance (Ω) . :		—
G.3.3	PTC Thermistors	Not considered in this report	N/A
G.3.4	Overcurrent protection devices	Not considered in this report	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.....:		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		N/A
G.5	Wound Components		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.1	Wire insulation in wound components.....		N/A
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		N/A
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components	See below	N/A
G.5.2.1	General test requirements	See clause G.5.1.2	N/A
G.5.2.2	Heat run test	See clause G.5.1.2	N/A
	Time (s)		—
	Temperature (°C)		—
G.5.2.3	Wound Components supplied by mains	See clause G.5.1.2	N/A
G.5.3	Transformers		N/A
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1).....	Comply with G.5.3.2 – G.5.3.3	N/A
	Position.....		—
	Method of protection		—
G.5.3.2	Insulation		N/A
	Protection from displacement of windings.....		—
G.5.3.3	Overload test		N/A
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding Temperatures testing in the unit	See appended table B.3	N/A
G.5.3.3.3	Winding Temperatures – Alternative test method		N/A
G.5.4	Motors		N/A
G.5.4.1	General requirements	Not considered in this report	N/A
	Position		—
G.5.4.2	Test conditions	See clause G.5.4.1	N/A
G.5.4.3	Running overload test	See clause G.5.4.1	N/A
G.5.4.4	Locked-rotor overload test	See clause G.5.4.1	N/A
	Test duration (days)		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits	See clause G.5.4.1	N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V)		—
G.5.4.5.3	Tested on the Bench – Alternative test method; test time (h)		N/A
	Electric strength test (V)		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits	See clause G.5.4.1	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature		N/A
	Electric strength test (V)		N/A
G.5.4.6.3	Tested on the bench – Alternative test method; test time (h)		N/A
	Electric strength test (V)		N/A
G.5.4.7	Motors with capacitors	See clause G.5.4.1	N/A
G.5.4.8	Three-phase motors	See clause G.5.4.1	N/A
G.5.4.9	Series motors	See clause G.5.4.1	N/A
	Operating voltage		—
G.6	Wire Insulation		N/A
G.6.1	General		N/A
G.6.2	Solvent-based enamel wiring insulation		N/A
G.7	Mains supply cords		N/A
G.7.1	General requirements		N/A
	Type.....		—
	Rated current (A)		—
	Cross-sectional area (mm ²), (AWG).....		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N)		—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm)....		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g)		—
	Diameter (m)		—
	Temperature (°C)		—
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.8	Varistors		N/A
G.8.1	General requirements	Not considered in this report	N/A
G.8.2	Safeguard against shock	See clause G.8.1	N/A
G.8.3	Safeguard against fire	See clause G.8.1	N/A
G.8.3.2	Varistor overload test		N/A
G.8.3.3	Temporary overvoltage		N/A
G.9	Integrated Circuit (IC) Current Limiters		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.	Not considered in this report	N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA		—
G.9.1 d)	IC limiter output current (max. 5A)		—
G.9.1 e)	Manufacturers' defined drift		—
G.9.2	Test Program 1	See clause G.9.1	N/A
G.9.3	Test Program 2	See clause G.9.1	N/A
G.9.4	Test Program 3	See clause G.9.1	N/A
G.10	Resistors		N/A
G.10.1	General requirements	Not considered in this report	N/A
G.10.2	Resistor test	See clause G.10.1	N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable	See clause G.10.1	N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
G.11	Capacitor and RC units		N/A
G.11.1	General requirements	Not considered in this report	N/A
G.11.2	Conditioning of capacitors and RC units	See clause G.11.1	N/A
G.11.3	Rules for selecting capacitors	Selecting capacitor according to the list in table G.8	N/A
G.12	Optocouplers		N/A
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results)		N/A
	Type test voltage Vini	See above	—
	Routine test voltage, Vini,b	See above	—
G.13	Printed boards		P
G.13.1	General requirements		P

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Clause	Requirement + Test	Result - Remark	Verdict
G.13.2	Uncoated printed boards		P
G.13.3	Coated printed boards	No such coated printed boards	N/A
G.13.4	Insulation between conductors on the same inner surface	No such insulation	N/A
	Compliance with cemented joint requirements (Specify construction)		—
G.13.5	Insulation between conductors on different surfaces	No such insulation	N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs)		—
G.13.6	Tests on coated printed boards	No such coated printed boards, see clause G.13	N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A
G.14	Coating on components terminals		N/A
G.14.1	Requirements	No such coating on components terminal	N/A
G.15	Liquid filled components		N/A
G.15.1	General requirements	No such components used	N/A
G.15.2	Requirements	See clause G.15.1	N/A
G.15.3	Compliance and test methods	See clause G.15.1	N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance	See clause G.15.1	N/A
G.16	IC including capacitor discharge function (ICX)		N/A
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours	Not considered in this report	N/A
b)	Impulse test using circuit 2 with U_c = to transient voltage		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage		—

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Clause	Requirement + Test	Result - Remark	Verdict

D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
D2)	Capacitance		—
D3)	Resistance		—

H	CRITERIA FOR TELEPHONE RINGING SIGNALS		N/A
H.1	General	Not considered in this report	N/A
H.2	Method A	See clause H.1	N/A
H.3	Method B	See clause H.1	N/A
H.3.1	Ringing signal		N/A
H.3.1.1	Frequency (Hz)		—
H.3.1.2	Voltage (V)		—
H.3.1.3	Cadence; time (s) and voltage (V)		—
H.3.1.4	Single fault current (Ma):		—
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V)		—

J	INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION		N/A
	General requirements		N/A

K	SAFETY INTERLOCKS		N/A
K.1	General requirements	Not considered in this report	N/A
K.2	Components of safety interlock safeguard mechanism	See clause K.1	N/A
K.3	Inadvertent change of operating mode	See clause K.1	N/A
K.4	Interlock safeguard override	See clause K.1	N/A
K.5	Fail-safe	See clause K.1	N/A
	Compliance		N/A
K.6	Mechanically operated safety interlocks	See clause K.1	N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method		N/A
K.7	Interlock circuit isolation	See clause K.1	N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location)		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		N/A
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		N/A
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A
L.8	Multiple power sources		N/A

M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		P
M.1	General requirements	No such batteries	P
M.2	Safety of batteries and their cells	See clause M.1	P
M.2.1	Requirements		P
M.2.2	Compliance and test method (identify method) .. :	Provided by the manufacture	P
M.3	Protection circuits	See clause M.1	P
M.3.1	Requirements		P
M.3.2	Tests		P
	- Overcharging of a rechargeable battery		P
	- Unintentional charging of a non-rechargeable battery	Not considered in this report	P
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		P
M.3.3	Compliance	No leakage, no explosion, no flame and no hazards	P
M.4	Additional safeguards for equipment containing secondary lithium battery		P
M.4.1	General	See clause M.1	P
M.4.2	Charging safeguards		P
M.4.2.1	Charging operating limits		P
M.4.2.2a)	Charging voltage, current and temperature	(See appended table M.4)	—
M.4.2.2 b)	Single faults in charging circuitry	(See appended table M.4)	—

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Clause	Requirement + Test	Result - Remark	Verdict
M.4.3	Fire Enclosure	Battery cell output complied with PS2	P
M.4.4	Endurance of equipment containing a secondary lithium battery		P
M.4.4.2	Preparation		P
M.4.4.3	Drop and charge/discharge function tests		P
	Drop		P
	Charge		P
	Discharge		P
M.4.4.4	Charge-discharge cycle test		P
M.4.4.5	Result of charge-discharge cycle test		P
M.5	Risk of burn due to short circuit during carrying	Internal battery	N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current		P
M.6.1	Short circuits		P
M.6.1.1	General requirements		P
M.6.1.2	Test method to simulate an internal fault		P
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method)	Internal short test was conducted in IEC 62133 report of built-in battery	P
M.6.2	Leakage current (Ma)		N/A
M.7	Risk of explosion from lead acid and NiCd batteries	See clause M.1	N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries	See clause M.1	N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume 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	See clause M.1	N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing)	Provided the instructions include battery charging, storage and transportation, and disposal and recycling.	P
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N	ELECTROCHEMICAL POTENTIALS		N/A
	Metal(s) used		—

O	MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		—
	Figures O.1 to O.20 of this Annex applied	complied	—

P	SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS		—
P.1	General requirements		N/A
P.2.2	Safeguards against entry of foreign object	See clause P.1	N/A
	Location and Dimensions (mm)		—
P.2.3	Safeguard against the consequences of entry of foreign object		N/A
P.2.3.1	Safeguards against the entry of a foreign object		N/A
	Openings in transportable equipment		N/A
	Transportable equipment with metalized plastic parts		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard)		N/A
P.3	Safeguards against spillage of internal liquids	See clause P.1	N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts	See clause P.1	N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C)		—
	Tr (°C)		—
	Ta (°C)		—
P.4.2 b)	Abrasion testing		N/A
P.4.2 c)	Mechanical strength testing		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		P
Q.1	Limited power sources		P
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		N/A
	- Regulating network limited output under normal operating and simulated single fault condition		N/A
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method		P
Q.2	Test for external circuits – paired conductor cable	No such circuits	N/A
	Maximum output current (A)		—
	Current limiting method		—

R	LIMITED SHORT CIRCUIT TEST		N/A
R.1	General requirements	No such equipment	N/A
R.2	Determination of the overcurrent protective device and circuit		N/A
R.3	Test method Supply voltage (V) and short-circuit current (A).		N/A

S	TESTS FOR RESISTANCE TO HEAT AND FIRE		N/A
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (°C)		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity	See clause S.1	N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (°C)		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure	See clause S.1	N/A
	Samples, material		—
	Wall thickness (mm).....		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials	See clause S.1	N/A
S.5	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W	See clause S.1	N/A
	Samples, material		—
	Wall thickness (mm).....		—
	Conditioning (test condition), (°C)		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A

T	MECHANICAL STRENGTH TESTS		P
T.1	General requirements		P
T.2	Steady force test, 10 N		N/A
T.3	Steady force test, 30 N		N/A
T.4	Steady force test, 100 N		N/A
T.5	Steady force test, 250 N	Complied	P
T.6	Enclosure impact test	Complied	P
	Fall test		P
	Swing test		N/A
T.7	Drop test	Complied	P
T.8	Stress relief test	Should double confirm	N/A
T.9	Impact Test (glass)	No such equipment	N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J)		—
	Height (m)		—
T.10	Glass fragmentation test	No such equipment	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

T.11	Test for telescoping or rod antennas	No such equipment	N/A
	Torque value (Nm):		—

U	MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N/A
U.1	General requirements		N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen.....:		N/A

V	DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)		N/A
V.1	Accessible parts of equipment	No hazards can be accessible by figure V.1 and V.2	N/A
V.2	Accessible part criterion		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

4.1.2	TABLE: List of critical components					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹	
Battery pack	Shenzhen ChengTai New Energy Co., Ltd.	1160100PL-2P- 20000mAh	3.7Vd.c, 20000mAh; 74Wh Max Charging Current: 3000mA, Max Discharging current: 3000mA, Max. charge voltage: 4.2V	IEC 62133- 2:2017	TCT Report No.: TCT2020095 3B027	
Cell	Shenzhen ChengTai New Energy Co., Ltd.	1160100	3.7Vdc, 10000mAh, 37Wh;	IEC 62133- 2:2017	TCT Report No.: TCT2020095 3B027	
PCB	Interchangeable	Interchangeable	V-0. 130 °C	UL 796	UL	
Plastic Enclosure	Sabic Innovative Plastics B V	DMX9455 (GG)	V-0, 80°C, min thickness: 1.5mm	UL 94	UL	
All internal wire	Interchangeable	3239	VW-1, 22AWG, 300V	UL 758	UL	
LCD panel	Interchangeable	Interchangeable	7.0" TFT-Liquid Crystal Display module with LED Backlight unit.	EN 62368-1	Tested with appliance	

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

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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests			N/A
(The following mechanical tests are conducted in the sequence noted.)				
4.8.4.4	TABLE: Drop test			—
Impact Area		Drop Distance	Drop No.	Observations
4.8.4.5	TABLE: Impact			—
Impacts per surface		Surface tested	Impact energy (Nm)	Comments
4.8.4.6	TABLE: Crush test			—
Test position		Surface tested	Crushing Force (N)	Duration force applied (s)
--		--	--	--
Supplementary information:				

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

5.2	Table: Classification of electrical energy sources						P
5.2.2.2 – Steady State Voltage and Current conditions							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
1	9VDC	USB input terminal	Normal	9.0VDC	--	--	ES1
			Abnormal	9.0VDC	--	--	
			Single fault –	9.0VDC	--	--	
2	Full charged battery	Battery pack output	Normal	4.2VDC	--	--	ES1
			Abnormal	4.2VDC	--	--	
			Single fault –	4.2VDC	--	--	

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

5.2	Table: Classification of electrical energy sources	P
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5.2.2.3 - Capacitance Limits

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class
				Capacitance, nF	Upk (V)	
			Normal			
			Abnormal			
			Single fault – SC/OC			

5.2.2.4 - Single Pulses

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

5.2.2.5 - Repetitive Pulses

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

Test Conditions:

Normal –

Abnormal -

Supplementary information: SC=Short Circuit, OC=Short Circuit

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements			P
	Supply voltage (V):	9VDC	4.2VDC	—
	Ambient T _{min} (°C):	--	--	—
	Ambient T _{max} (°C):	--	--	—
	Tma (°C):	See below	See below	—
Maximum measured temperature T of part/at:		T (°C)		Allowed T _{max} (°C)
Charging Condition (supply voltage: 9VDC)				
Type-C connector	52.5	--	Ref	
PCB near U800	60.6	--	130	
PCB near U600	68.3	--	130	
PCB near U501	67.8	--	130	
Surface of battery package	52.2	--	60	
Internal wire	51.6	--	80	
Enclosure inside	58.8	--	Ref.	
Ambient	40.0	--	--	
Touch temperature for accessible parts:				
Enclosure outside	36.3	--	48	
Button	32.1	--	48	
Panel	36.8	--	48	
Ambient	25.0	--	--	
Discharging Condition (supply voltage: 4.2VDC)				
PCB near U800	61.3	--	130	
PCB near U600	69.2	--	130	
PCB near U501	68.5	--	130	
Surface of battery package	52.6	--	60	
Internal wire	52.0	--	80	
Enclosure inside	59.4	--	Ref.	
Ambient	40	--	--	
Touch temperature for accessible parts:				
Enclosure outside	35.8	--	48	
Button	31.7	--	48	
Panel	34.9	--	48	
Ambient	25.0	--	--	

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:							
Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
--	--	--	--	--	--	--	--
Supplementary information:							
Note 1: T _{ma} should be considered as directed by applicable requirement							

5.4.1.8	Table: working voltage measurement			N/A
Location		RMS voltage (V)	Peak voltage (V)	Comments
supplementary information:				

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

5.4.1.10.3	TABLE: Ball pressure test of thermoplastics			N/A
Allowed impression diameter (mm)		$\leq 2 \text{ mm}$		—
Object/Part No./Material	Manufacturer/trademark	Test temperature (°C)	Impression diameter (mm)	
Supplementary information:				

5.4.2.2, 5.4.2.4 and 5.4.3	TABLE: Minimum Clearances/Creepage distance						N/A
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz) ¹	Required cl (mm)	cl (mm) ²	Required ³ cr (mm)	cr (mm)
Supplementary information:							

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.2.3	TABLE: Minimum Clearances distances using required withstand voltage			N/A
	Overvoltage Category (OV):			--
	Pollution Degree:			--
Clearance distanced between:		Required withstand voltage	Required cl (mm)	Measured cl (mm)
Supplementary information:				

5.4.2.4	TABLE: Clearances based on electric strength test			N/A
Test voltage applied between:		Required cl (mm)	Test voltage (kV) peak/ r.m.s. / d.c.	Breakdown Yes / No
--		--	--	--
Supplementary information:				

5.4.4.2, 5.4.4.5 c) 5.4.4.9	TABLE: Distance through insulation measurements					N/A
Distance through insulation di at/of:		Peak voltage (V)	Frequency (kHz)	Material	Required DTI (mm)	DTI (mm)
Supplementary information:						

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

5.5.2.2	TABLE: Stored discharge on capacitors					N/A
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification	

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

X-capacitors installed for testing are:

☐ bleeding resistor rating:

☐ ICX: see above

Notes:

A. Test Location:

Phase to Neutral; Phase to Phase; Phase to Earth; and/or Neutral to Earth

B. Operating condition abbreviations:

N – Normal operating condition (e.g., normal operation, or open fuse); S –Single fault condition

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

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part			N/A
Supply voltage			—	
Location		Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7		Touch current (mA)
		1		
		2*		
		3		
		4		
		5		
		6		
		8		

Supplementary Information:

N/A

Notes:

[1] Supply voltage is the anticipated maximum Touch Voltage

[2] Earthed neutral conductor [Voltage differences less than 1% or more]

[3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3

[4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.

[5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.

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Clause	Requirement + Test	Result - Remark	Verdict

6.2.2	TABLE: Electrical power sources (PS) measurements for classification				P
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s [*])	PS Classification
Battery output	Normal condition	Power (W)..... :	13.4	13.4	PS1
		VA (V) :	4.2	4.2	
		IA (A) :	3.2	3.2	
Battery output	IC short	Power (W)..... :	13.4	13.4	PS1
		VA (V) :	4.2	4.2	
		IA (A) :	3.2	3.2	
Battery cell	--	Power (W)..... :	37	37	PS2
		VA (V) :	3.7	3.7	
		IA (A) :	10	10	

Supplementary Information:

(*) Measurement taken only when limits at 3 seconds exceed PS1 limits.

6.2.3.1	TABLE: Determination of Potential Ignition Sources (Arcing PIS)				N/A
Location		Open circuit voltage After 3 s (V _p)	Measured r.m.s current (I _{rms})	Calculated value (V _p × I _{rms})	Arcing PIS? Yes / No

Supplementary information:

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

6.2.3.2	TABLE: Determination of Potential Ignition Sources (Resistive PIS)				N/A
Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary Information:

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

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

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

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

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	
9Vdc	1.58A	2.0	18.79	--	--	--	Battery package charging mode: USB output with load: 5 VDC, 0.5 A Icharging = 0.82A	
4.2Vdc	--	--	--	--	--	--	Battery package discharging mode: USB output with load: 5 VDC , 0.5 A Idischarging = 0.88A	

Supplementary information:

The measured input power did not exceed the marked input rating by more than 10 percent when the apparatus was operated to produce the maximum normal input power.

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Clause	Requirement + Test	Result - Remark	Verdict

B.3	TABLE: Abnormal operating condition tests							P
Ambient temperature (°C)					See below			—
Power source for EUT: Manufacturer, model/type, output rating ..					See page 2 for details			—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Test condition: battery charging and EUT working normally, with empty battery.								
USB terminal	o-l	9Vdc	4h20mins	--	--	Type K	PCB near U600: 69.4°C; Enclosure outside: 60.6°C; Ambient 28.3°C	Unit shut down when USB output overloaded with 1.6 A, No damage, no hazards. No heat 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.								

B.4	TABLE: Fault condition tests							P
Ambient temperature (°C)					25.3			—
Power source for EUT: Manufacturer, model/type, output rating ..								—
Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Test condition: battery charging and EUT working normally, with empty battery.								
USB terminal	s-c	9Vdc	10mins	--	--	--	--	Unit shut down immediately, No hazards.
battery package B+ and B-	s-c	9Vdc	10mins	--	--	--	--	Unit shut down immediately, No hazards.

Annex M	TABLE: Batteries								P
The tests of Annex M are applicable only when appropriate battery data is not available									P
Is it possible to install the battery in a reverse polarity position?:									P
	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition	--	--	--	0.82A	3000mA	0.85A	3000mA	--	--
Max. current during fault condition	--	--	--	0.88A	3000mA	0.92A	3000mA	--	--
Test results:							--		Verdict

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

- Chemical leaks	No	P
- Explosion of the battery	No	P
- Emission of flame or expulsion of molten metal	No	P
- Electric strength tests of equipment after completion of tests	--	N/A
Supplementary information:		

Annex M.4	TABLE: Additional safeguards for equipment containing secondary lithium batteries				P
Battery/Cell No.	Test conditions	Measurements			Observation
		U	I (A)	Temp (C)	
1	Normal	4.19	0.82	Battery body: 52.9°C Ambient: 40°C	No fire and no explosion occurred.
2	Abnormal	4.20	0.85	Battery body: 54.8°C Ambient: 40°C	No fire and no explosion occurred.
	Abnormal: (after drop test)	4.19	0.85	Battery body: 54.6°C Ambient: 40°C	No fire and no explosion occurred.

Supplementary Information:

Battery identification	Charging at T_{lowest} (°C)	Observation	Charging at T_{highest} (°C)	Observation
Battery's highest specified charging temperature: 60°C, Battery's lowest specified charging temperature: 10°C	<10°C	Battery charging current 0.82A	>60°C	Unit stop charging and battery charging current: 0 A

Supplementary Information:

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)					P
Note: Measured UOC (V) with all load circuits disconnected:						
Output Circuit	Components	U _{oc} (V)	I _{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
Battery"+,-"	--	4.2	3.2	8	<100	100
Battery"+,-"	B+ to P-	4.2	0	8	0	100
Call	+ to -	3.7	--	--	37	100
Supplementary Information:						

T.2, T.3, T.4, T.5	TABLE: Steady force test					P
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation	
Top enclosure	--	--	100N	5	No damaged, no hazard	
Bottom enclosure	--	--	100N	5	No damaged, no hazard	
Side enclosure	--	--	100N	5	No damaged, no hazard	
Supplementary information:						

T.6, T.9	TABLE: Impact tests				N/A
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
Supplementary information:					

T.7	TABLE: Drop tests				P
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation	
Enclosure top	Plastic	Min. 1.5	1 000 mm	No energy source exceed class 1 can be accessed	
Enclosure side	Plastic	Min. 1.5	1 000 mm	No energy source exceed class 1 can be accessed	
Enclosure Bottom	Plastic	Min. 1.5	1 000 mm	No energy source exceed class 1 can be accessed	
Supplementary information:					

Attachment No.1			
IEC 62368_1B ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT																																										
IEC 62368-1																																										
EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES																																										
(Audio/video, information and communication technology equipment - Part 1: Safety requirements)																																										
Differences according to : EN 62368-1:2014/A11:2017																																										
Attachment Form No. : EU_GD_IEC62368_1B_II																																										
Attachment Originator : Nemko AS																																										
Master Attachment : Date 2017-09-22																																										
Copyright © 2017 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.																																										
	CENELEC COMMON MODIFICATIONS (EN)					P																																				
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed “Z”.					P																																				
CONTENTS	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords					P																																				
	Delete all the “country” notes in the reference document (IEC 62368-1:2014) according to the following list: <table><tr><td>0.2.1</td><td>Note</td><td>1</td><td>Note 3</td><td>4.1.15</td><td>Note</td></tr><tr><td>4.7.3</td><td>Note 1 and 2</td><td>5.2.2.2</td><td>Note</td><td>5.4.2.3.2.2 Table 13</td><td>Note c</td></tr><tr><td>5.4.2.3.2.4</td><td>Note 1 and 3</td><td>5.4.2.5</td><td>Note 2</td><td>5.4.5.1</td><td>Note</td></tr><tr><td>5.5.2.1</td><td>Note</td><td>5.5.6</td><td>Note</td><td>5.6.4.2.1</td><td>Note 2 and 3</td></tr><tr><td>5.7.5</td><td>Note</td><td>5.7.6.1</td><td>Note 1 and 2</td><td>10.2.1 Table 39</td><td>Note 2, 3 and 4</td></tr><tr><td>10.5.3</td><td>Note 2</td><td>10.6.2.1</td><td>Note 3</td><td>F.3.3.6</td><td>Note 3</td></tr></table>					0.2.1	Note	1	Note 3	4.1.15	Note	4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c	5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note	5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3	5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4	10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3	P
0.2.1	Note	1	Note 3	4.1.15	Note																																					
4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c																																					
5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note																																					
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5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4																																					
10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3																																					
	For special national conditions, see Annex ZB.					P																																				
1	Add the following note: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.					P																																				

Attachment No.1

IEC 62368_1B ATTACHMENT

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

Attachment No.1

IEC 62368_1B ATTACHMENT

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

Attachment No.1			
IEC 62368_1B ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.7.1	Add the following note: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.		N/A
Bibliography	Add the following standards: Add the following notes for the standards indicated: IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4. IEC 60664-5 NOTE Harmonized as EN 60664-5. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1 NOTE Harmonized as EN 61508-1. IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6. IEC 61643-1 NOTE Harmonized as EN 61643-1. IEC 61643-21 NOTE Harmonized as EN 61643-21. IEC 61643-311 NOTE Harmonized as EN 61643-311. IEC 61643-321 NOTE Harmonized as EN 61643-321. IEC 61643-331 NOTE Harmonized as EN 61643-331.		P
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		P
4.1.15	Denmark, Finland, Norway and Sweden To the end of the subclause the following is added: Class I pluggable equipment type A intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment shall be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows: In Denmark: "Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord." In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In Norway: "Apparatet må tilkoples jordet stikkontakt" In Sweden: "Apparaten skall anslutas till jordat uttag"		N/A

Attachment No.1			
IEC 62368_1B ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.7.3	United Kingdom To the end of the subclause the following is added: The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex		N/A
5.2.2.2	Denmark After the 2nd paragraph add the following: A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A
5.4.11.1 and Annex G	Finland and Sweden To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5kV. It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:		N/A

Attachment No.1

IEC 62368_1B ATTACHMENT

Clause	Requirement + Test	Result - Remark	Verdict
	- the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11; - the additional testing shall be performed on all the test specimens as described in EN 60384-14; the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.		
5.5.2.1	Norway After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A
5.5.6	Finland, Norway and Sweden To the end of the subclause the following is added: Resistors used as basic safeguard or bridging basic insulation in class I pluggable equipment type A shall comply with G.10.1 and the test of G.10.2.		N/A
5.6.1	Denmark Add to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. Justification: In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N/A
5.6.4.2.1	Ireland and United Kingdom After the indent for pluggable equipment type A, the following is added: – the protective current rating is taken to be 13 A, this being the largest rating of fuse used in the mains plug.		N/A
5.6.5.1	To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm² to 1,5 mm² in cross-sectional area.		N/A

Attachment No.1			
IEC 62368_1B ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.5	Denmark To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the protective conductor current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A

Attachment No.1

IEC 62368_1B ATTACHMENT

Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.1	Norway and Sweden To the end of the subclause the following is added: The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system. It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: “Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)” NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Apparater 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.”.		N/A

Attachment No.1

IEC 62368_1B ATTACHMENT

Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.2	Denmark To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .		N/A
B.3.1 and B.4	Ireland and United Kingdom The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of direct plug-in equipment, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the direct plug-in equipment, until the requirements of Annexes B.3.1 and B.4 are met		N/A

Attachment No.1

IEC 62368_1B ATTACHMENT

Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	Denmark To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a Justification: Heavy Current Regulations, Section 6c		N/A
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

Attachment No.1

IEC 62368_1B ATTACHMENT

Clause	Requirement + Test	Result - Remark	Verdict
G.7.1	United Kingdom To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
G.7.1	Ireland To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard		N/A
G.7.2	Ireland and United Kingdom To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm² 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

Attachment No.1

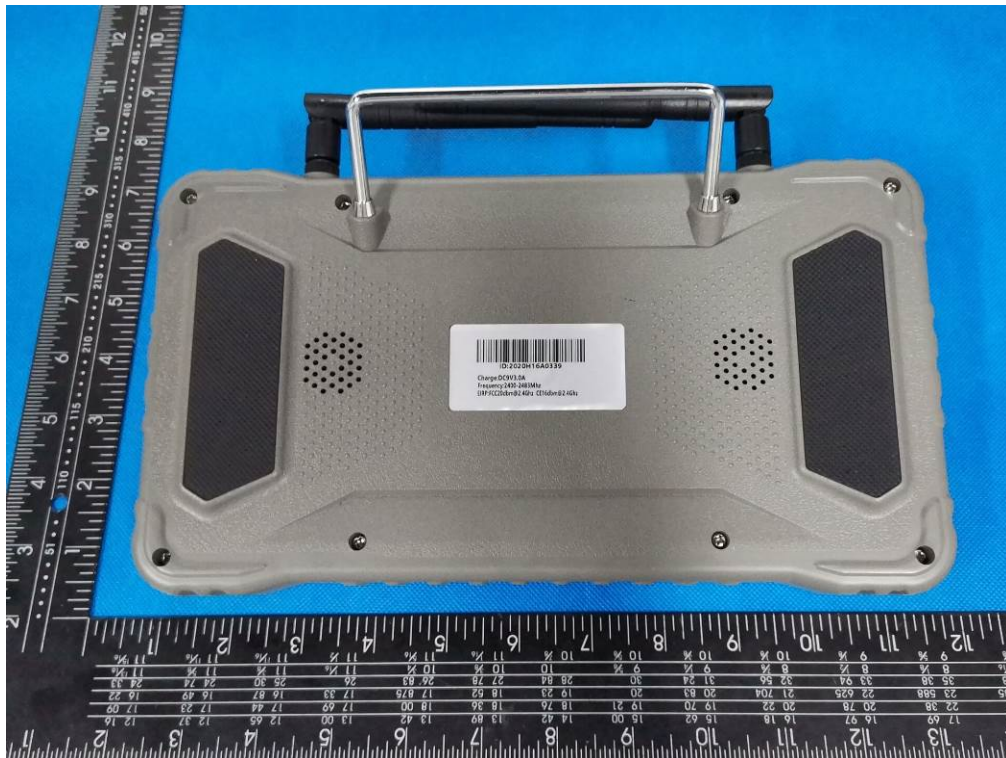
IEC 62368_1B ATTACHMENT

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

Attachment No.2– Photo Documentation



view-1



view-2

Attachment No.2– Photo Documentation

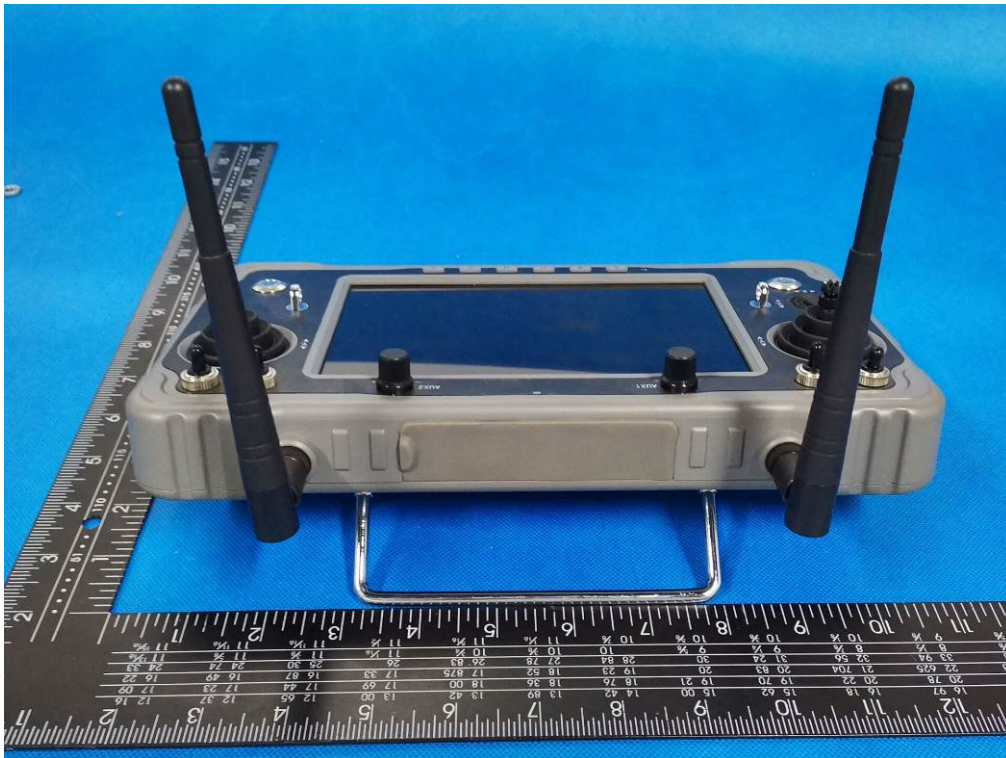


view-3

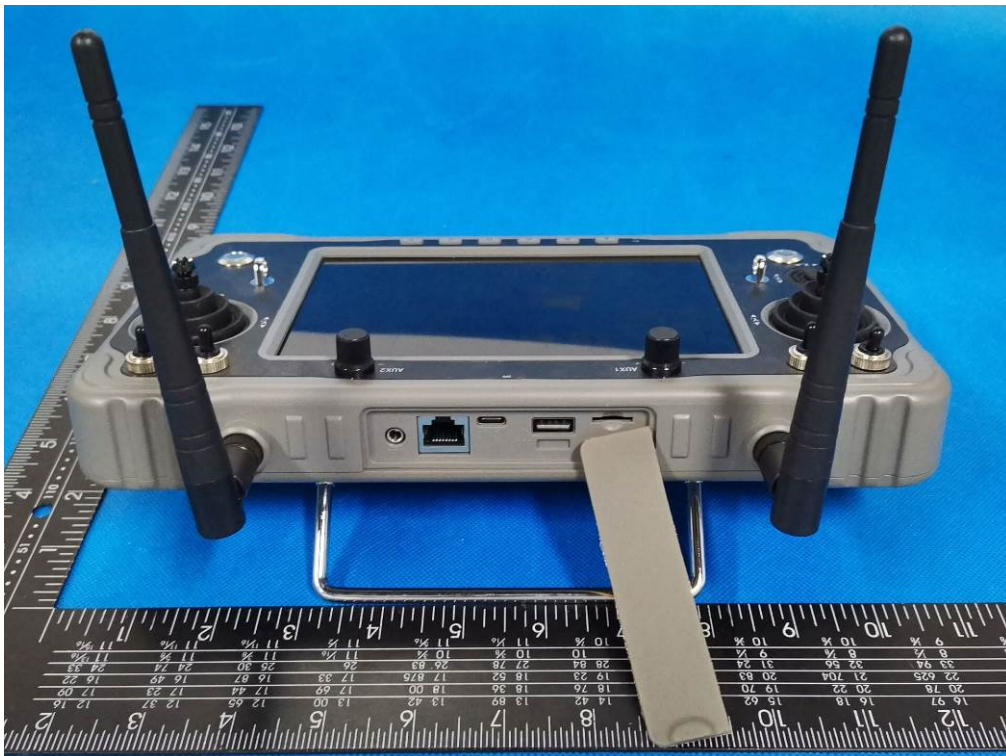


view-4

Attachment No.2– Photo Documentation

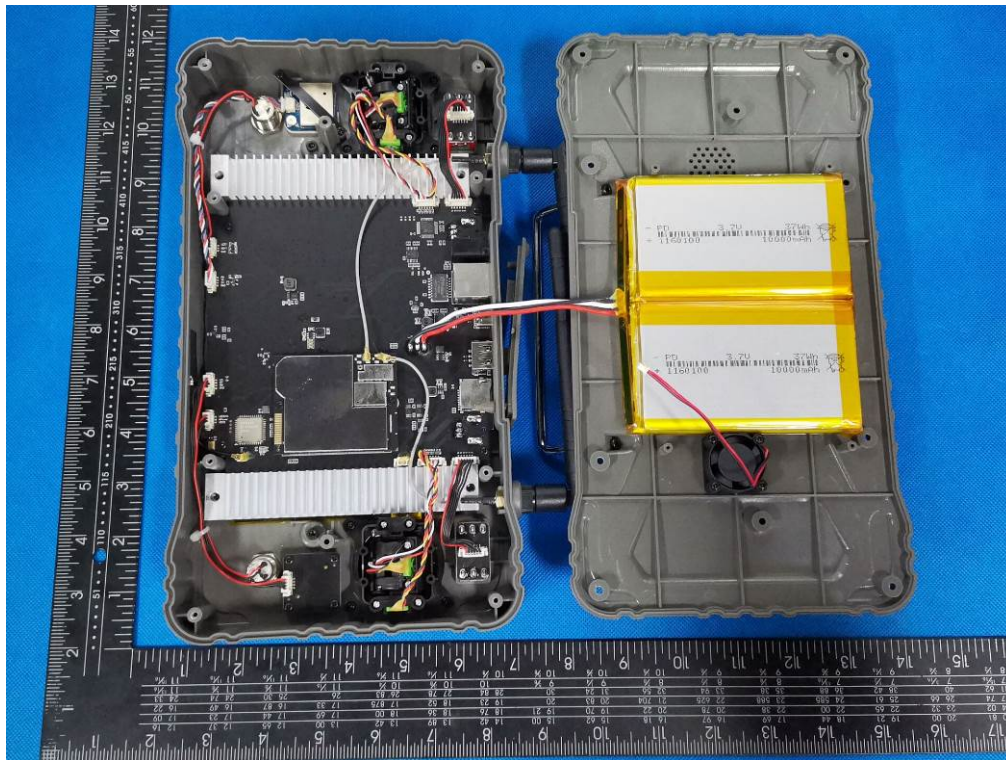


view-5

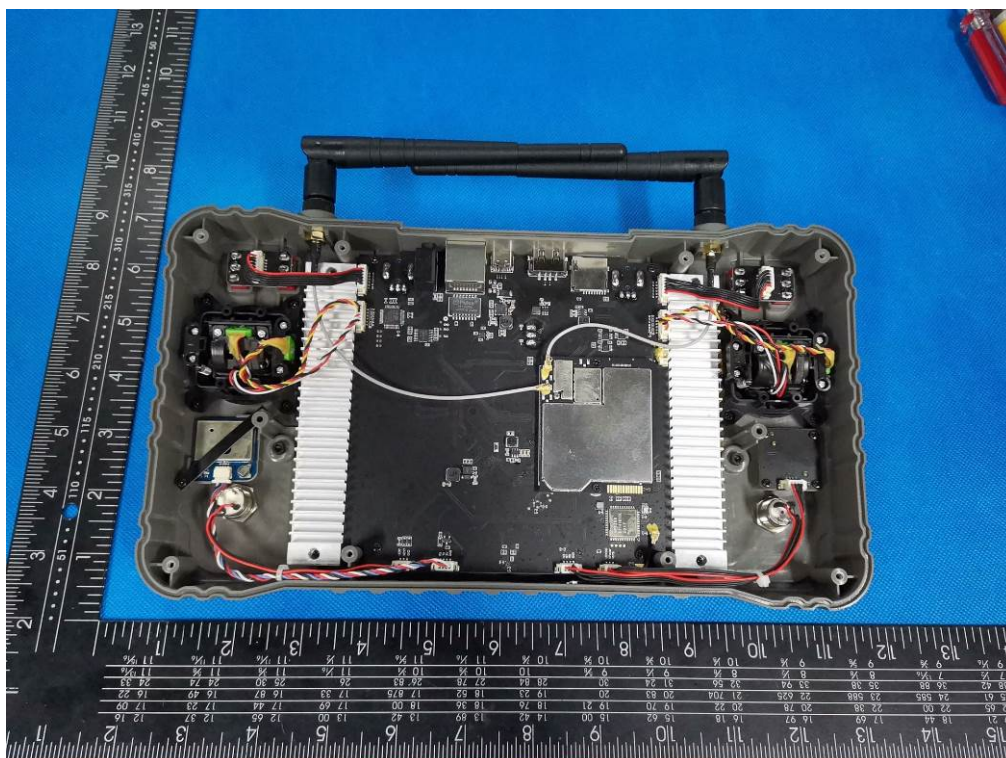


I view-6

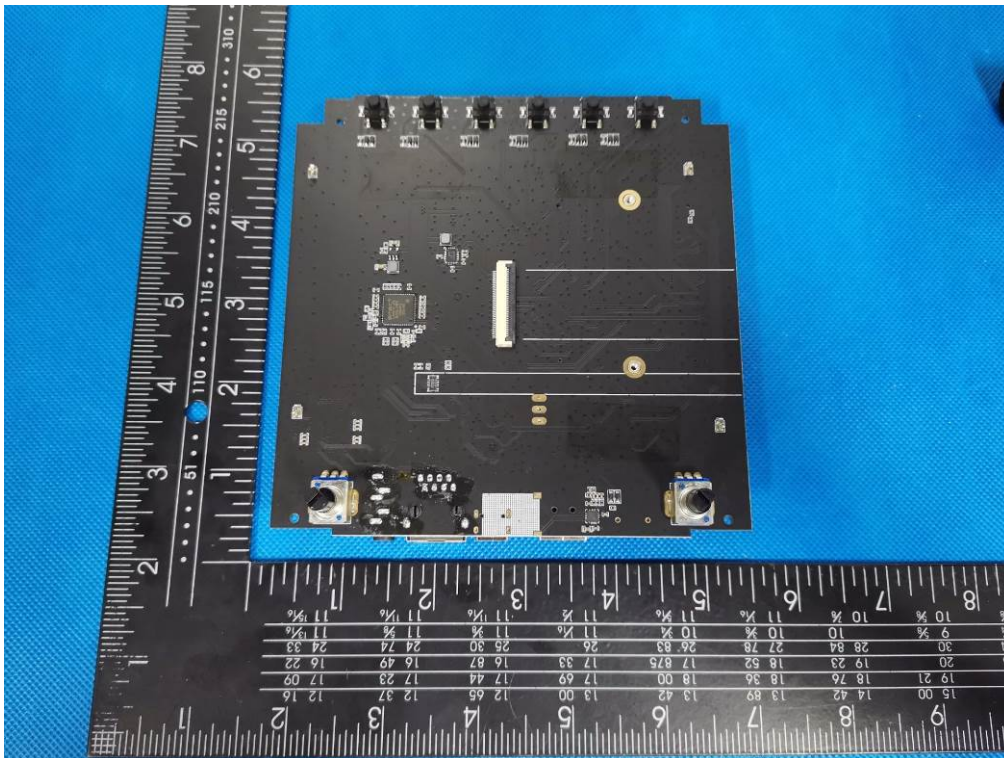
Attachment No.2- Photo Documentation



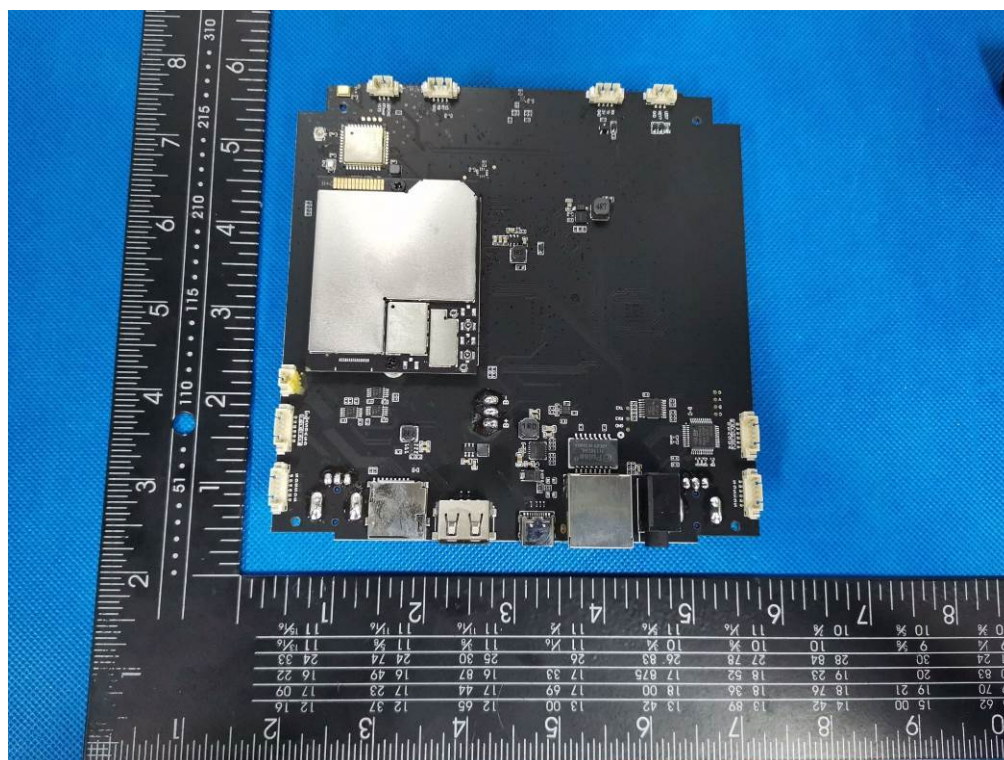
view-7



view-8



view-9



view-10

--- End of Report ---