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Global Testing Group

TEST REPORT

IEC 62368-1

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

Report Number. .....:	S04A26030820I00101R1
Date of issue .....:	2026-05-22
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Name of Testing Laboratory preparing the Report .....:	Guangdong Global Testing Technology Co., Ltd.
Applicant's name .....:	HCS KABLOLAMA SISTEMLERI SANAYI VE TICARET A.S.
Address .....:	Ikitelli OSB Mah. 8.Cad.Boypas Blok No:3/A 34490 BASAKSEHIR/ ISTANBUL TURKEY
Test specification:	
Standard .....:	IEC 62368-1: 2023
Test procedure .....:	Safety test
Non-standard test method .....:	N/A
Test Report Form No. .....:	04-S052-1A-A
Test Report Form(s) Originator .....:	GTG
Master TRF .....:	Dated 2024-07-01

General disclaimer:

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

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The authenticity of this Test Report and its contents can be verified by contacting the GTG, responsible for this Test Report.

☒ **Testing Laboratory:**	**Guangdong Global Testing Technology Co., Ltd.**
Laboratory address .....:	Room 101-105, 203-210, Building 1, No.2, Keji 8 Road, Songshan Lake Park, Dongguan city, Guangdong, People's Republic of China, 523808
Tested by (name, function, signature) .....:	Cooper Li Project Engineer
Reviewed by (name, function, signature) .....:	Jason Peng Reviewer
Approved by (name, function, signature) .....:	Jason Tong Approver

Guangdong Global Testing Technology Co., Ltd. * CERTIFICATE *

Test item description ..... :	Power Distribution Units
Trademark(s) ..... :	N/A
Manufacturer ..... :	Ningbo Haishu Chaobai Electronic Co.,Ltd 3/F,Block 2, No.7 Xiufeng Road, Gaoqiao Town, Haishu District, Ningbo, China，Zip code 315000
Model/Type reference ..... :	SBSPOX19-0616A1S-Hxx("xx" stands for letter combinations of A-Z, representing different colors)
Ratings ..... :	Input: 190-250V~ 50/60Hz, 16A Output: 190-250V~ 50/60Hz

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

- Attachment 1: National differences (23 pages)
- Attachment 2: Photos documentation (9 pages)

Summary of testing:

nless otherwise indicated, all tests were conducted at Guangdong Global Testing Technology Co., Ltd.

Room 101-105, 203-210, Building 1, No.2, Keji 8 Road, Songshan Lake Park, Dongguan city, Guangdong, People's Republic of China, 523808

If no otherwise specified, all tests were performed on model SBSPOX19-0616A1S-HBK to represent other model also.

Tests performed (name of test and test clause):	Testing location:
The submitted samples were tested and found to comply with the requirements of: ➢ Electrical safety - IEC 62368-1:2023	Guangdong Global Testing Technology Co., Ltd. Room 101-105, 203-210, Building 1, No.2, Keji 8 Road, Songshan Lake Park, Dongguan city, Guangdong, People's Republic of China, 523808

Summary of compliance with National Differences (List of countries addressed):

See Attachment 1

Copy of marking plate:

The artwork below may be only a draft.

Notes:

Remark:

1. The above marking are the minimum requirements by the safety standard. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.

2. This is a representative label, the other is identical to it except for the model number.

Test item particulars:	
Product group ..... :	☒ end product ☐ built-in component
Classification of use by ..... :	☐ Ordinary person ☐ Children likely present ☒ Instructed person ☒ Skilled person
Supply connection ..... :	☒ AC mains ☐ DC mains ☐ not mains connected: ☐ ES1 ☐ ES2 ☐ ES3
Supply tolerance ..... :	☒ +10%/-10% ☐ +20%/-15% ☐ + %/ - % ☐ None
Supply connection – type ..... :	☐ pluggable equipment type A - ☐ non-detachable supply cord ☒ appliance coupler ☐ direct plug-in ☒ pluggable equipment type B - ☒ non-detachable supply cord ☐ appliance coupler ☐ permanent connection ☐ mating connector ☐ other:
Considered current rating of protective device ..... :	☒ 16 A Location: ☒ building ☒ equipment ☒ N/A
Equipment mobility ..... :	☒ movable ☐ hand-held ☐ transportable ☐ direct plug-in ☒ stationary ☐ for building-in ☐ wall/ceiling-mounted ☒ SRME/rack-mounted ☐ other:
Overvoltage category (OVC) ..... :	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other:
Class of equipment ..... :	☒ Class I ☐ Class II ☐ Class III ☐ Not classified ☐
Special installation location ..... :	☒ N/A ☐ restricted access area ☐ outdoor location ☐
Pollution degree (PD) ..... :	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified maxium operating ambient ..... :	60°C
IP protection class ..... :	☒ IPX0 ☐ IP_20_
Power systems ..... :	☒ TN ☐ TT ☐ IT - V_{L-L} ☐ not AC mains
Altitude during operation (m) ..... :	☒ 2000 m or less ☐ m
Altitude of test laboratory (m) ..... :	☒ 2000 m or less ☐ m
Mass of equipment (kg) ..... :	3.92 kg

Possible test case verdicts:	
- test case does not apply to the test object ..... :	N/A
- test object does meet the requirement ..... :	P (Pass)
- test object does not meet the requirement ..... :	F (Fail)
Testing ..... :	
Date of receipt of test item ..... :	2026-03-30
Date (s) of performance of tests ..... :	2026-03-31 to 2026-04-17

General remarks:

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

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

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided.....:	☐ **Yes** ☒ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) ..... :	Ningbo Haishu Chaobai Electronic Co.,Ltd 3/F,Block 2, No.7 Xiufeng Road, Gaoqiao Town, Haishu District, Ningbo, China，Zip code 315000

General product information and other remarks:

1. This product is a power distribution unit (PDU) with 6 Schuko sockets, 16A single-phase, horizontally mounted. It is designed for indoor use in audio-visual, information and communication technology equipment. Power is supplied via the appliance inlet from ES3 and PS3 AC mains sources.

2. The maximum operating ambient temperature is 60°C.

Model Differences –

All models are identical, and all models have the same PCB layout, schematics and component. Only the models name and colors are different, For example, model SBSPOX19-0616A1S-HBK features a black housing; SBSPOX19-0616A1S-HRD is with a red housing; SBSPOX19-0616A1S-HBL has a blue housing; SBSPOX19-0616A1S-HGR is equipped with a green housing; SBSPOX19-0616A1S-HGY with a grey housing; SBSPOX19-0616A1S-HWH with a white housing; and SBSPOX19-0616A1S-HYL with a yellow housing.

Report Summary:

This report is revised based on the original report S04A26030820I00101. Due to customer requirements, only the manufacturer and factory information have been modified. Other unchanged, this modification does not involve testing.

OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS				
Clause	**Possible Hazard**			
5	Electrically-caused injury			
Class and Energy Source (e.g. ES3: Primary circuit)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
ES3: All internal circuits (AC mains, AC/DC power module)	Instructed person, Skilled person	N/A	N/A	Enclosure, See 5.4.2, 5.4.3, 5.4.4, 5.4.5, 5.4.9, 5.5.3 and 5.5.4
ES1: USB Ports & Network ports	Instructed person, Skilled person	N/A	N/A	N/A
6	Electrically-caused fire			
Class and Energy Source (e.g. PS2: 100 Watt circuit)	Material part (e.g. Printed board)	Safeguards		
		B	1st S	2nd S
PS3: All internal circuits	Enclosure	See 6.3	V-0	N/A
PS3: All internal circuits	PCB	See 6.3	V-1 or better	N/A
PS3: All internal circuits	The other components / material	See 6.3	See 6.4.5, 6.4.6	N/A
PS1: USB Ports & Network ports	Strain relief, Plastic of output connector	See 6.3	V-1	N/A
7	Injury caused by hazardous substances			
Class and Energy Source (e.g. Ozone)	Body Part (e.g., Skilled)	Safeguards		
		B	S	R
Non-rechargeable button cell battery	Skilled person	See 4.8	N/A	N/A
8	Mechanically-caused injury			
Class and Energy Source (e.g. MS3: Plastic fan blades)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
MS1: Sharp edges and corners	Instructed person, Skilled person	N/A	N/A	N/A
MS1: Equipment mass (<7kg)	Instructed person, Skilled person	N/A	N/A	N/A
9	Thermal burn			
Class and Energy Source (e.g. TS1: Keyboard caps)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
TS1: All accessible parts	Instructed person, Skilled person	N/A	N/A	N/A
TS3: Internal parts/circuits	Instructed person, Skilled person	N/A	N/A	Enclosure
10	Radiation			
Class and Energy Source (e.g. RS1: PMP sound output)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
RS1: LED indicator	Instructed person, Skilled person	N/A	N/A	N/A

Supplementary Information: "B" – Basic Safeguard; "S" – Supplementary Safeguard; "R" – Reinforced Safeguard

ENERGY SOURCE DIAGRAM
Optional. Manufacturers are to provide the energy sources diagram identify declared energy sources and identifying the demarcations are between power sources. Recommend diagram be provided included in power supply and multipart systems. Insert diagram below. Example diagram designs are; Block diagrams; image(s) with layered data; mechanical drawings
Refer to table 'OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS' for details ☒ **ES** ☒ **PS** ☒ **MS** ☒ **TS** ☒ **RS**

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4	**GENERAL REQUIREMENTS**		P
4.1.1	Acceptance of materials, components and subassemblies	(See appended table 4.1.2)	P
4.1.2	Use of components	Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment. See also Annex G	P
4.1.3	Equipment design and construction	Evaluation of safeguards regarding limiting the outputs to fulfill ES1 and protection in regard to risk of spread of fire, mechanical and thermal burn injury considered.	P
4.1.4	Specified ambient temperature for outdoor use (°C) .....:		N/A
4.1.5	Constructions and components not specifically covered		N/A
4.1.8	Liquids, refrigerants and liquid filled components (LFCs)		N/A
4.1.15	Markings and instructions	(See Annex F)	P
4.4.3	Safeguard robustness		P
4.4.3.1	General		P
4.4.3.2	Steady force tests	(See Clause T.2)	P
4.4.3.3	Drop tests		N/A
4.4.3.4	Impact tests		P
4.4.3.5	Internal accessible safeguard tests		N/A
4.4.3.6	Glass impact tests	No glass used	N/A
4.4.3.7	Glass fixation test	No such equipment	N/A
	Glass impact test (1J)		N/A
	Push/pull test (10 N)		N/A
4.4.3.8	Thermoplastic material tests		N/A
4.4.3.9	Air comprising a safeguard		P
4.4.3.10	Accessibility, glass, safeguard effectiveness	(See Annex T)	P
4.4.4	Displacement of a safeguard by an insulating liquid		N/A
4.4.5	Safety interlocks		N/A
4.5	**Explosion**		P
4.5.1	General		P

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Clause	Requirement + Test	Result - Remark	Verdict
4.5.2	No explosion during normal/abnormal operating conditions	No explosion occurs during normal/abnormal operating condition (See Annex B.2, B.3)	P
	No harm by explosion during single fault conditions	No explosion occurs during single fault conditions (See Annex B.4)	P
4.6	**Fixing of conductors and conductive parts**		P
	Fix conductors and conductive parts not to defeat a safeguard	Internal components	P
	Compliance is checked by test.....:	(See Clause T.2)	P
4.7	**Equipment for direct insertion into mains socket–outlets**		N/A
4.7.2	Mains plug part complies with relevant standard ... :		N/A
4.7.3	Torque (Nm) .....:		N/A
4.8	**Equipment containing coin or button cell batteries**		N/A
4.8.1	General		N/A
4.8.2	Instructional safeguard.....:		N/A
4.8.3	Coin or button cell battery compartment, door or cover construction	Equipment for use in locations where it is unlikely that children will be present	N/A
	Open torque test		N/A
4.8.4.2	Stress relief test		N/A
4.8.4.3	Battery replacement test		N/A
4.8.4.4	Drop test		N/A
4.8.4.5	Impact test		N/A
4.8.4.6	Crush test		N/A
4.8.5	Compliance		N/A
	30N force test with test probe		N/A
	20N force test with test hook		N/A
4.9	**Likelihood of fire or shock due to entry of conductive object**		P
4.10	**Component requirements**		N/A
4.10.1	Disconnect device		N/A
4.10.2	Switches and relays		N/A
4.10.3	Mains power supply cords		N/A
4.10.4	Batteries and their protection circuits		N/A

5	**ELECTRICALLY-CAUSED INJURY**		P
5.2	**Classification and limits of electrical energy sources**		P
5.2.2	ES1 and ES2 limits		P
5.2.2.2	Steady-state voltage and current limits.....:	(See appended table 5.2)	P
5.2.2.3	Capacitance limits.....:		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.2.2.4	Single pulse limits ..... :	No single pulse introduced	N/A
5.2.2.5	Limits for repetitive pulses ..... :	No repetitive pulses introduced	N/A
5.2.2.6	Ringing signals	No means for connection to telephone network and no ringing signal generated	N/A
5.2.2.7	Audio signals		P
5.3	**Protection against electrical energy sources**		P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		P
5.3.1 a)	ES2/ES3 circuits that are not ES2/ES3 mains	(See appended table 5.2)	P
5.3.1 b)	Skilled persons not unintentional contact ES3 bare conductors		P
5.3.2.1	Accessibility to electrical energy sources and safeguards		P
	Accessibility to outdoor equipment bare parts	Indoor used only	N/A
5.3.2.2	Contact requirements	No openings	P
	Test with test probe from Annex V ..... :	The test probe cannot access the hazardous live part	—
5.3.2.2 a)	Air gap – electric strength test potential (V) ..... :		N/A
5.3.2.2 b)	Air gap – distance (mm) ..... :	More than 2.0 mm	P
5.3.2.3	Compliance		P
5.3.2.4	Terminals for connecting stripped wire	No such terminals	N/A
5.4	**Insulation materials and requirements**		P
5.4.1.2	Properties of insulating material	No such hygroscopic materials	P
5.4.1.3	Compliance		P
	Non-hygroscopic materials	(See sub-clause 5.4.8)	P
5.4.1.4	Maximum operating temperature for insulating materials ..... :	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	P
5.4.1.5	Pollution degrees ..... :	Pollution degree 2 considered	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling test		N/A
5.4.1.6	Insulation in transformers with varying dimensions	No such transformer within the EUT	N/A
5.4.1.7	Insulation in circuits generating starting pulses	No such starting pulses within the EUT	N/A
5.4.1.8	Determination of working voltage ..... :		P
5.4.1.9	Insulating surfaces		P
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		P
5.4.1.10.2	Vicat test..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.10.3	Ball pressure test ..... :	(See appended table 5.4.1.10.3)	N/A
5.4.2	Clearances		P
5.4.2.1	General requirements		P
	Clearances in circuits connected to AC Mains, Alternative method		N/A
5.4.2.2	Procedure 1 for determining clearance		P
	Temporary overvoltage ..... :	2000Vpk	—
5.4.2.3	Procedure 2 for determining clearance		P
5.4.2.3.2.2	AC mains transient voltages ..... :	Overvoltage category II, 2500V peak	—
5.4.2.3.2.3	DC mains transient voltages ..... :	No such transient voltage	—
5.4.2.3.2.4	External circuit transient voltages ..... :	No such transient voltage	—
5.4.2.3.2.5	Transient voltage determined by measurement ..... :	No need to conduct this test	—
5.4.2.3.3	Exceptions of determining required withstand voltage ..... :		N/A
5.4.2.3.4	Determining clearances using required withstand voltage ..... :	(See appended table 5.4.2, 5.4.3)	P
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 ..... :	Less than 2000m	P
5.4.2.6	Clearance measurement ..... :	(See appended table 5.4.2, 5.4.3)	P
5.4.3	Creepage distances		P
5.4.3.1	General		P
5.4.3.3	Material group and CTI ..... :	IIIb	—
5.4.3.4	Creepage distances measurement ..... :	(See appended table 5.4.3)	P
5.4.4	Solid insulation		P
5.4.4.1	General requirements		P
5.4.4.2	Minimum distance through insulation ..... :	(See appended table 5.4.4.2)	P
5.4.4.3	Insulating compound forming solid insulation	Approved optocoupler used	P
5.4.4.4	Solid insulation in semiconductor devices	(See Annex G.12)	P
5.4.4.5	Insulating compound forming 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
	Number of layers (pcs) ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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, E_P, K_R, d, V_{PW} (V) ..... :		N/A
	Alternative by electric strength test, tested voltage (V), K_R ..... :		N/A
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
5.4.5.3	Insulation resistance (MΩ)..... :		N/A
	Electric strength test ..... :		N/A
5.4.6	Insulation of internal wire as part of supplementary safeguard		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		P
	Relative humidity (%), temperature (°C), duration (h) ..... :	95% RH, 40°C, 120h	—
5.4.9	Electric strength test	(See appended table 5.4.9)	P
5.4.10	Safeguards against transient voltages from external circuits	No transient voltage from external circuit	N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test ..... :		N/A
5.4.10.2.3	Steady-state test..... :		N/A
5.4.10.3	Verification for insulation breakdown..... :		N/A
5.4.11	Separation between external circuits and earth		N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	Surge suppressors bridge separation between external circuit and earth		N/A
	Rated operating voltage U_{op} (V)..... :		—
	Nominal voltage U_{peak} (V)..... :		—
	Max increase due to variation ΔU_{sp} ..... :		—
	Max increase due to ageing ΔU_{sa} ..... :		—
5.4.11.3	Test method and compliance ..... :		N/A
	Test voltage (V) of additional test..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Measured current (mA) of additional test ..... :		N/A
5.4.12	Insulating liquid		N/A
5.4.12.1	General requirements		N/A
5.4.12.2	Electric strength of an insulating liquid ..... :		N/A
5.4.12.3	Compatibility of an insulating liquid		N/A
	Thermal classification of IEC 60085 ..... :		—
5.4.12.4	Container for insulating liquid		N/A
5.5	**Components as safeguards**		P
5.5.1	General	See the following details.	P
5.5.2	Capacitors and RC units	Approved Y capacitors comply with IEC 60384-14 (See appended table 4.1.2)	P
5.5.2.1	General requirement		P
5.5.2.2	Capacitor discharge after disconnection of a connector ..... :	No X capacitors	N/A
5.5.3	Transformers	Evaluated in approved power supply unit	P
5.5.4	Optocouplers	Approved source used, see appended table 4.1.2 for details.	P
5.5.5	Relays	Approved source used, see appended table 4.1.2 for details.	N/A
5.5.6	Resistors		N/A
	Application type of resistors..... :		—
5.5.7	Surge suppressors	(See Clause G.8)	P
	GDT……:	No such construction.	N/A
5.5.8	Insulation between the mains and an external circuit consisting of a coaxial cable ..... :	No such external circuits.	N/A
	Insulation resistance (MΩ)..... :		N/A
	Electric strength test ..... :		N/A
5.5.9	Safeguards for socket-outlets in outdoor equipment		N/A
	RCD rated residual operating current (mA)..... :		—
5.6	**Protective conductor**		P
5.6.2	Requirements for protective conductors		P
5.6.2.1	General requirements		P
5.6.2.2	Colour of insulation		P
5.6.3	Requirements for protective earthing conductors		P
	Protective earthing conductor size (mm^2) ..... :	2.5 mm^2	—
	Protective earthing conductor serving as a reinforced safeguard		P
	Protective earthing conductor serving as a double safeguard		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.6.4	Requirements for protective bonding conductors		P
5.6.4.1	Protective bonding conductors		P
	Protective bonding conductor size (mm^2). ..... :	2.5 mm^2	—
5.6.4.2	Protective current rating (A)..... :	16A	—
5.6.5	Terminals for protective conductors	Approved industrial plug used	P
5.6.5.1	Terminal size for connecting protective earthing conductors (mm)..... :	Stud diameter 4.0mm	P
	Terminal size for connecting protective bonding conductors (mm) ..... :	Stud diameter 4.0mm	P
	Relevant IEC standard..... :		N/A
5.6.5.2	Corrosion		P
5.6.6	Resistance of the protective bonding system		P
5.6.6.1	Requirements		P
5.6.6.2	Test method..... :	(See appended table 5.6.6)	P
5.6.6.3	Resistance (Ω) or voltage drop..... :	(See appended table 5.6.6)	P
5.6.7	Reliable connection of a protective earthing conductor		P
5.6.8	Functional earthing		P
	Conductor size (mm^2)..... :		P
	Class II with functional earthing marking ..... :		P
	Appliance inlet cl & cr (mm)..... :		P
5.7	**Prospective touch voltage, touch current and protective conductor current**		P
5.7.2	Measuring devices and networks		P
5.7.2.1	Measurement of touch current	(See appended table 5.2)	P
5.7.2.2	Measurement of voltage		P
5.7.3	Equipment set-up, supply connections and earth connections	Clause 4.5.3 and 5.4 of IEC 60990:1999 applied.	P
5.7.4	Unearthed accessible parts ..... :	(See appended table 5.7.4)	N/A
5.7.5	Earthed accessible conductive parts..... :	(See appended table 5.7.5)	P
5.7.6	Requirements when touch current exceeds ES2 limits		N/A
	Protective conductor current (mA)..... :		N/A
	Instructional Safeguard..... :		N/A
5.7.7	Prospective touch voltage and touch current associated with external circuits		N/A
5.7.7.1	Touch current from coaxial cables		N/A
5.7.7.2	Prospective touch voltage and touch current associated with paired conductor cables		N/A
5.7.8	Summation of touch currents from external circuits		N/A
	a) Equipment connected to an earthed external circuit, current (mA) ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	b) Equipment connected to an unearthed external circuit, current (mA) ..... :		N/A
5.8	**Backfeed safeguard in battery backed up supplies**		N/A
	Mains terminal ES..... :		N/A
	Air gap (mm) ..... :		N/A

6	**ELECTRICALLY- CAUSED FIRE**		P
6.2	**Classification of power sources and potential ignition sources**		P
6.2.2	Power source circuit classifications..... :	(See appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS ..... :	(See appended table 6.2.3.1)	P
6.2.3.2	Resistive PIS ..... :	(See appended table 6.2.3.2)	P
6.3	**Safeguards against fire under normal operating and abnormal operating conditions**		P
6.3.1	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials ..... :	(See appended table 5.4.1.4, 9.3, B.1.5 and B.2.6)	P
	Combustible materials not inside a fire enclosure .... :	No such parts	N/A
6.4	**Safeguards against fire under single fault conditions**		P
6.4.1	Safeguard method ..... :	Method of control fire spread used.	—
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		P
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		P
6.4.3.1	Supplementary safeguards		P
6.4.3.2	Single fault conditions ..... :		P
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		N/A
6.4.5	Control of fire spread in PS2 circuits		P

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.5.2	Supplementary safeguards	Compliance detailed as follows: - Printed board: min. V-0. - Wire insulation: complying with Clause 6.5. The output wire is complied to UL 758 standard, which test method and testing condition equal to IEC/EN 60695-11-21. - All other components: at least V-2 except for parts mounted on min. V-1 material or small parts of combustible material) with mass less than 4g) or components complying to relevant IEC standard. - Isolating transformer: complying with G.5.3.	P
6.4.6	Control of fire spread in PS3 circuits	Refer to 6.4.5	P
6.4.7	Separation of combustible materials from a PIS		P
6.4.7.2	Separation by distance		P
6.4.7.3	Separation by a fire barrier		P
6.4.8	Fire enclosures and fire barriers		P
6.4.8.2	Fire enclosure and fire barrier material properties		P
6.4.8.2.1	Requirements for a fire barrier		P
6.4.8.2.2	Requirements for a fire enclosure		P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		P
6.4.8.3.1	Fire enclosure and fire barrier openings		P
6.4.8.3.2	Fire barrier dimensions		P
6.4.8.3.3	Top openings and properties	No top openings	N/A
	Openings dimensions (mm)..... :		N/A
	Flammability tests for the top of a fire enclosure		N/A
6.4.8.3.4	Bottom openings and properties	No bottom openings	N/A
	Openings dimensions (mm)..... :		N/A
	Flammability tests for the bottom of a fire enclosure		N/A
	Instructional Safeguard..... :		N/A
6.4.8.3.5	Side openings and properties		N/A
	Openings dimensions (mm)..... :		N/A
6.4.8.3.6	Integrity of a fire enclosure, condition met: a), b) or c)..... :		N/A
6.4.8.4	Separation of a PIS from a fire enclosure and a fire barrier distance (mm) or flammability rating ..... :	Metal enclosure and V-0 plastic enclosure used	P
6.4.9	Flammability of insulating liquid	No insulating liquid	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Auto ignition temperature (°C) ..... :		N/A
	Flashpoint temperature (°C) ..... :		N/A
6.5	**Internal and external wiring**		P
6.5.1	General requirements	UL VW-1 wire is used. UL 758 VW-1 certification is considered to be more severe than related IEC testing method	P
6.5.2	Requirements for interconnection to building wiring ..... :	No such interconnection	N/A
6.5.3	Internal wiring size (mm^2) for socket-outlets..... :		N/A
6.6	**Safeguards against fire due to the connection to additional equipment**		P

7	**INJURY CAUSED BY HAZARDOUS SUBSTANCES**		N/A
7.2	**Reduction of exposure to hazardous substances**		N/A
7.3	**Ozone exposure**		N/A
7.4	**Use of personal safeguards or personal protective equipment (PPE)**		N/A
	Personal safeguards and instructions ..... :		—
7.5	**Use of instructional safeguards and instructions**		N/A
	Instructional safeguard (ISO 7010)..... :		—

8	**MECHANICALLY-CAUSED INJURY**		P
8.2	**Mechanical energy source classifications**		P
8.3	**Safeguards against mechanical energy sources**		P
8.4	**Safeguards against parts with sharp edges and corners**		P
8.4.1	Requirements	MS1 classification	P
	Instructional Safeguard..... :		N/A
8.4.2	Compliance criteria		P
8.5	**Safeguards against moving parts**		N/A
8.5.1	Requirements	No moving parts.	N/A
	Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts		N/A
	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
	A manually activated stopping device for moving MS3		N/A
	Moving MS3 parts only accessible to skilled person		N/A
8.5.2	Instructional safeguard ..... :		N/A
8.5.4	Special categories of equipment containing moving parts		N/A
8.5.4.1	General		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.4.2	Equipment containing work cells with MS3 parts		N/A
8.5.4.2.1	Protection of persons in the work cell		N/A
8.5.4.2.2	Access protection override		N/A
8.5.4.2.2.1	Override system		N/A
8.5.4.2.2.2	Visual indicator		N/A
8.5.4.2.3	Emergency stop system		N/A
	Maximum stopping distance from the point of activation (m) ..... :		N/A
	Space between end point and nearest fixed mechanical part (mm) ..... :		N/A
8.5.4.2.4	Endurance requirements		N/A
	Mechanical system subjected to 100 000 cycles of operation		N/A
	- Mechanical function check and visual inspection		N/A
	- Cable assembly ..... :		N/A
8.5.4.3	Equipment having electromechanical device for destruction of media		N/A
8.5.4.3.1	Equipment safeguards		N/A
8.5.4.3.2	Instructional safeguards against moving parts ..... :		N/A
8.5.4.3.3	Disconnection from the supply		N/A
8.5.4.3.4	Cut type and test force (N) ..... :		N/A
8.5.4.3.5	Compliance		N/A
8.5.5	High pressure lamps		N/A
	Explosion test ..... :		N/A
8.5.5.3	Glass particles dimensions (mm) ..... :		N/A
8.6	**Stability of equipment**		N/A
8.6.1	Requirements	Equipment mass < 7.0kg and is classified as MS1	N/A
	Instructional safeguard for MS2 and MS3 television sets ..... :		N/A
8.6.2	Static stability		N/A
8.6.2.2	Static stability test ..... :		N/A
8.6.2.3	Downward force test		N/A
8.6.3	Relocation stability		N/A
	Wheels diameter (mm) ..... :		—
	Tilt test		N/A
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test ..... :		N/A
8.7	**Equipment mounted to wall, ceiling or other structure**		N/A
8.7.1	Requirements	No wall or ceiling mounted	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Mount means type .....:		N/A
8.7.2	Test methods		N/A
	Test 1, additional downwards force (N) .....:		N/A
	Horizontal force to a wall or another structure		N/A
	Test 2, number of attachment points and test force (N).....:		N/A
	Test 3, nominal diameter (mm) and applied torque (Nm).....:		N/A
8.8	**Handles strength**		N/A
8.8.1	General	No handles provided.	N/A
8.8.2	Handle strength test		N/A
	Number of handles.....:		—
	Weight applied (kg) .....:		—
8.9	**Wheels or casters attachment requirements**		N/A
8.9.2	Pull test		N/A
8.10	**Carts, stands and similar carriers**		N/A
8.10.1	General	No carts, stands or similar carriers.	N/A
8.10.2	Marking and instructions.....:		N/A
8.10.3	Cart, stand or carrier loading test		N/A
	Loading force applied (N) .....:		N/A
8.10.4	Cart, stand or carrier impact test		N/A
	Loading force applied (N) on each supporting surface.....:		N/A
8.10.5	Mechanical stability		N/A
	Force applied (N) .....:		N/A
8.10.6	Thermoplastic temperature stability		N/A
8.11	**Mounting means for slide-rail mounted equipment (SRME)**		P
8.11.1	General		P
8.11.2	Requirements		P
	Instructional Safeguard.....:	MS1	P
8.11.3	Mechanical strength test		P
8.11.3.1	Downward force test, force applied (N).....:	365	P
8.11.3.2	Lateral push force test		P
8.11.3.3	Integrity of slide rail end stops		P
8.11.4	Compliance criteria		P
8.12	**Telescoping or rod antennas**		N/A
	No sharp edges or points		N/A
	Button/ball diameter (mm) .....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
9	**THERMAL BURN INJURY**		P
9.2	**Thermal energy source classifications**		P
9.3	**Touch temperature limits**		P
9.3.1	Touch temperatures of accessible parts ..... :		P
9.3.2	Test method and compliance		P
9.4	**Safeguards against thermal energy sources**		P
9.5	**Requirements for safeguards**		P
9.5.1	Equipment safeguard		P
9.5.2	Instructional safeguard ..... :	Instructional safeguard is not required for TS1	P
9.6	**Requirements for wireless power transmitters**		N/A
9.6.1	General		N/A
9.6.2	Specification of the foreign objects		N/A
9.6.3	Test method and compliance criteria ..... :		N/A

10	**RADIATION**		P
10.2	**Radiation energy source classifications**		P
10.2.1	General classification	RS1 (The LED only used for indicating).	P
	Lasers ..... :		—
	Lamps and lamp systems ..... :		—
	Image projectors ..... :		—
	X-Ray ..... :		—
	Personal music player ..... :		—
10.3	**Safeguards against laser radiation**		N/A
	The standard(s) equipment containing laser(s) comply ..... :		N/A
10.4	**Safeguards against optical radiation from lamps and lamp systems (including LED types)**		P
10.4.1	General requirements	RS1 (The LED only used for indicating).	P
	Instructional safeguard provided for accessible radiation level needs to exceed		N/A
	Risk group marking and location ..... :		N/A
	Information for safe operation and installation		N/A
10.4.2	Requirements for equipment safeguards		N/A
	UV radiation exposure ..... :		N/A
10.4.3	Instructional safeguard ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10.5	**Safeguards against X-radiation**		N/A
10.5.1	Requirements		N/A
	Instructional safeguard for skilled persons ..... :		N/A
10.5.3	Maximum radiation (pA/kg)..... :		N/A
10.6	**Safeguards against acoustic energy sources**		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output $L_{Aeq,T}$, dB(A)..... :		N/A
	Unweighted RMS output voltage (mV)..... :		N/A
	Digital output signal (dBFS)..... :		N/A
10.6.3	Requirements for dose-based systems		N/A
10.6.3.1	General requirements		N/A
10.6.3.2	Dose-based warning and automatic decrease		N/A
10.6.3.3	Exposure-based warning and requirements		N/A
	30 s integrated exposure level (MEL30) ..... :		N/A
	Warning for MEL ≥ 100 dB(A) ..... :		N/A
10.6.4	Measurement methods		N/A
10.6.5	Protection of persons		N/A
	Instructional safeguards ..... :		N/A
10.6.6	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.6.1	Corded listening devices with analogue input		N/A
	Listening device input voltage (mV)..... :		N/A
10.6.6.2	Corded listening devices with digital input		N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A) ..... :		N/A
10.6.6.3	Cordless listening devices		N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A) ..... :		N/A

B	**NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS**		P
B.1	**General**		P
B.1.5	Temperature measurement conditions	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	P
B.1.6	Specific output conditions		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 containing an audio amplifiers..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
B.2.3	Supply voltage and tolerances	Rated input: 110V-230V~, +10 % and −10 % for AC mains	P
B.2.5	Input test ..... :	(See appended table B.2.5)	P
B.2.6.4	Equipment intended for building-in or rack-mounting		N/A
B.3	**Simulated abnormal operating conditions**		P
B.3.1	General	(See appended table B.3, B.4)	P
B.3.2	Covering of ventilation openings	No ventilation openings	N/A
	Instructional safeguard ..... :		N/A
B.3.3	DC mains polarity test	A.C. mains supply only	N/A
B.3.4	Setting of voltage selector	No such voltage selector	N/A
B.3.5	Maximum load at output terminals	(See appended table B.3, B.4)	P
B.3.6	Reverse battery polarity		N/A
B.3.7	Audio amplifier abnormal operating conditions		P
B.3.8	Safeguards functional during and after abnormal operating conditions ..... :	(See appended table B.3, B.4)	P
B.4	**Simulated single fault conditions**		P
B.4.1	General		P
B.4.2	Temperature controlling device		N/A
B.4.3	Blocked motor test	No motors	N/A
B.4.4	Functional insulation		P
B.4.4.1	Short circuit of clearances for functional insulation	(See appended table B.3, B.4)	P
B.4.4.2	Short circuit of creepage distances for functional insulation	(See appended table B.3, B.4)	P
B.4.4.3	Short circuit of functional insulation on coated printed boards		N/A
B.4.5	Short-circuit and interruption of electrodes in tubes and semiconductors	(See appended table B.3, B.4)	P
B.4.6	Short circuit or disconnection of passive components	(See appended table B.3, B.4)	P
B.4.7	Continuous operation of components		N/A
B.4.8	Compliance criteria during and after single fault conditions..... :	(See appended table B.3, B.4)	P
B.4.9	Battery charging and discharging under single fault conditions		N/A
C	**UV RADIATION**		N/A
C.1	**Protection of materials in equipment from UV radiation**		N/A
C.1.2	Requirements	No UV radiation in the equipment	N/A
C.1.3	Test method and compliance criteria		N/A
C.2	**UV light conditioning test**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
C.2.1	Test apparatus..... :		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure test		N/A
C.2.4	Xenon-arc light-exposure test		N/A
D	**TEST GENERATORS**		N/A
D.1	**Impulse test generators**		N/A
D.2	**Antenna interface test generator**		N/A
D.3	**Electronic pulse generator**		N/A
E	**TEST CONDITIONS FOR EQUIPMENT INTENDED TO AMPLIFY AUDIO SIGNALS**		N/A
E.1	**Electrical energy source classification for audio signals**		N/A
	Maximum non-clipped output power (W)..... :		—
	Rated load impedance (Ω) ..... :		—
	Open-circuit output voltage (V)..... :		—
	Instructional safeguard ..... :	See Clause F.5	—
E.2	**Audio signals used during test**		N/A
E.2.1	Pink noise test signal		N/A
E.2.2	Sine-wave signal		N/A
E.3	**Operating conditions of equipment containing an audio amplifier**		N/A
E.3.1	Normal operating conditions		N/A
E.3.2	Abnormal operating conditions		N/A
E.3.3	Audio equipment temperature measurement conditions……:	(See Table B.3, B.4)	N/A
F	**EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS**		P
F.1	**General**		P
	Language ..... :	English	—
F.2	**Letter symbols and graphical symbols**		P
F.2.1	Letter symbols according to IEC 60027-1	Letter symbols for quantities and units are complied with IEC 60027-1.	P
F.2.2	Graphic symbols according to IEC, ISO or manufacturer specific	Graphical symbols are complied with IEC 60417, ISO 3864-2, ISO 7000 or ISO 7010.	P
F.3	**Equipment markings**		P
F.3.1	Equipment marking locations	Equipment marking is located on its exterior surface and is readily visible	P
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification ..... :	See copy of marking plate for details	P

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.2.2	Model identification ..... :	See copy of marking plate for details	P
F.3.3	Equipment rating markings		P
F.3.3.1	Equipment with direct connection to mains		P
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of the supply voltage..... :	~ or AC	P
F.3.3.4	Rated voltage..... :	See copy of marking plate for details	P
F.3.3.5	Rated frequency ..... :	See copy of marking plate for details	P
F.3.3.6	Rated current or rated power..... :	See copy of marking plate for details	P
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device		N/A
F.3.5	Markings on terminals and operating devices		P
F.3.5.1	Mains appliance outlet and socket-outlet markings :		P
F.3.5.2	Switch position identification marking..... :		N/A
F.3.5.3	Replacement fuse identification and rating markings ..... :	The fuses are located within the equipment and not intended to be replaceable.	P
	Instructional safeguards for neutral fuse ..... :		N/A
F.3.5.4	Replacement battery identification marking ..... :	The battery is not replaced by an ordinary person	N/A
F.3.5.5	Neutral conductor terminal		N/A
F.3.5.6	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification		P
F.3.6.1	Class I equipment		P
F.3.6.1.1	Protective earthing conductor terminal..... :		P
F.3.6.1.2	Protective bonding conductor terminals ..... :		P
F.3.6.2	Equipment class marking ..... :		N/A
F.3.6.3	Functional earthing terminal marking ..... :		N/A
F.3.7	Equipment IP rating marking ..... :	IPX0	N/A
F.3.8	External power supply unit output marking ..... :	See copy of marking plate	P
F.3.9	Durability, legibility and permanence of markings	Marking is considered to be legible and easily discernible. See also the following details.	P

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.10	Test for permanence of markings	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 sec. And then again for 15 sec. With the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade. After each test, the marking remained legible.	P
F.4	**Instructions**		P
	– Information prior to installation and initial use		P
	– Equipment for use in locations where children not likely to be present		P
	– Instructions for installation and interconnection		P
	– Equipment intended for use only in restricted access area		N/A
	– Equipment intended to be fastened in place		N/A
	– Instructions for audio equipment terminals		P
	– Protective earthing used as a safeguard		P
	– Protective conductor current exceeding ES2 limits		N/A
	– Graphic symbols used on equipment		P
	– Permanently connected equipment not provided with all-pole mains switch		N/A
	– Replaceable components or modules providing safeguard function	No such components.	N/A
	– Equipment containing insulating liquid	No insulating liquid	N/A
	– Installation instructions for outdoor equipment	Indoor used only	N/A
F.5	Instructional safeguards		P
G	**COMPONENTS**		P
G.1	**Switches**		N/A
G.1.1	General	No switches used	N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.1.3	Test method and compliance criteria		N/A
G.2	**Relays**		P
G.2.1	Requirements and compliance criteria		P
G.2.2	Overload test		P
G.2.3	Relay controlling connectors supplying power to other equipment		P
G.2.4	Test method and compliance criteria		P
G.3	**Protective devices**		P

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Clause	Requirement + Test	Result - Remark	Verdict
G.3.1	Thermal cut-offs	No such parts	N/A
	Thermal cut-outs separately approved according to IEC 60730-1 with conditions indicated in a) & b)		N/A
	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Test method and compliance criteria		N/A
G.3.2	Thermal links	No such parts	N/A
G.3.2.1	a) Thermal links tested separately according to IEC 60691 with specifics		N/A
	b) Thermal links tested as part of the equipment		N/A
G.3.2.2	Test method and compliance criteria		N/A
G.3.3	PTC thermistors	No such parts	N/A
G.3.4	Overcurrent protection devices	Details see table 4.1.2	P
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**		P
G.4.1	Spacings	Output terminal: ES1	P
G.4.2	Mains connectors configuration ..... :	Approved according to IEC/EN 60320-1 appliance inlet was used	P
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely	The output connecter is such a shape that cannot insertion into a mains socket-outlet	P
G.5	**Wound components**		N/A
G.5.1	Wire insulation in wound components	Evaluated in approved power supply unit	N/A
G.5.1.2	Protection against mechanical stress		N/A
G.5.2	Endurance test		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Test time (days per cycle) ..... :		—
	Test temperature (°C) ..... :		—
G.5.2.3	Wound components supplied from the mains		N/A
G.5.2.4	Compliance criteria		N/A
G.5.3	Transformers		N/A
G.5.3.1	General		N/A
	Compliance method ..... :		N/A
G.5.3.2	Insulation		N/A
	Protection from displacement of windings ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.3.3	Transformer overload tests		N/A
G.5.3.3.1	Test conditions		N/A
	Position ..... :		N/A
	Method of protection ..... :		N/A
G.5.3.3.2	Winding temperatures		N/A
G.5.3.3.3	Winding temperatures - alternative test method		N/A
G.5.3.4	Transformers using FIW	No such parts	N/A
G.5.3.4.1	General		N/A
	FIW wire nominal diameter ..... :		—
G.5.3.4.2	Transformers with basic insulation only		N/A
G.5.3.4.3	Transformers with double insulation or reinforced insulation ..... :		N/A
G.5.3.4.4	Transformers with FIW wound on metal or ferrite core		N/A
G.5.3.4.5	Thermal cycling test and compliance		N/A
G.5.3.4.6	Partial discharge test		N/A
G.5.4	Motors	No motors used	N/A
G.5.4.1	General requirements		N/A
G.5.4.2	Motor overload test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days) ..... :		—
	Electric strength test ..... :		N/A
G.5.4.5	Running overload test for DC motors		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test ..... :		N/A
G.5.4.5.3	Alternative method		N/A
	Electric strength test ..... :		N/A
G.5.4.6	Locked-rotor overload test for DC motors		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature (°C) ..... :		N/A
	Electric strength test ..... :		N/A
G.5.4.6.3	Alternative method		N/A
	Electric strength test ..... :		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage (V) ..... :		—
G.6	**Wire Insulation**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.6.1	General		N/A
G.6.2	Enamelled winding wire insulation		N/A
G.7	**Mains power supply cords and interconnection cables**		N/A
G.7.1	General requirements	Approved power supply cord used	N/A
	Type ..... :		—
G.7.2	Cross sectional area (mm^2 or AWG) ..... :		P
G.7.3	Cord anchorages and strain relief		P
G.7.3.2	Cord strain relief		P
G.7.3.2.1	Requirements		P
	Strain relief test force (N) ..... :	30	P
G.7.3.2.2	Strain relief mechanism failure		P
G.7.3.2.3	Cord sheath or jacket position, distance (mm) ..... :	0.5	P
G.7.3.2.4	Strain relief and cord anchorage material		P
G.7.4	Cord Entry		P
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Test method and compliance criteria		N/A
	Overall diameter or minor overall dimension, *D* (mm) ..... :		—
	Radius of curvature after test (mm) ..... :		—
G.7.6	Supply wiring space		N/A
G.7.6.1	General requirements		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Requirements		N/A
G.7.6.2.2	Test with 8 mm strand		N/A
G.8	**Varistors**		P
G.8.1	General requirements	Approved varistors used. (See appended table 4.1.2)	P
G.8.2	Safeguards against fire	IEC 61051-2 complied	P
G.8.2.1	General		P
G.8.2.2	Varistor overload test		P
G.8.2.3	Temporary overvoltage test		P
G.9	**Integrated circuit (IC) current limiters**		N/A
G.9.1	Requirements	No such parts	N/A
	IC limiter output current (max. 5A) ..... :		—
	Manufacturers' defined drift ..... :		—
G.9.2	Test Program		N/A
G.9.3	Compliance criteria		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.10	**Resistors**		N/A
G.10.1	General	No such component used.	N/A
G.10.2	Conditioning		N/A
G.10.3	Resistor test		N/A
	Changes of resistance (%) ..... :		N/A
	Measured current with the lowest resistance value :		N/A
G.10.4	Voltage surge test		N/A
	Changes of resistance (%) ..... :		N/A
G.10.5	Impulse test		N/A
	Changes of resistance (%) ..... :		N/A
G.10.6	Overload test		N/A
	Changes of resistance (%) ..... :		N/A
G.11	**Capacitors and RC units**		N/A
G.11.1	General requirements	Evaluated in approved power supply unit	N/A
G.11.2	Conditioning of capacitors and RC units		N/A
G.11.3	Rules for selecting capacitors		N/A
G.12	**Optocouplers**		P
	Optocouplers comply with IEC 60747-5-5 with specifics	(See appended table 4.1.2)	P
	Type test voltage $V_{ini,a}$..... :	4000VDC	—
	Routine test voltage, $V_{ini,b}$ ..... :	4000VDC	—
G.13	**Printed boards**		P
G.13.1	General requirements	See the following details.	P
G.13.2	Uncoated printed boards	The insulation between conductors on the outer surfaces of an uncoated printed board or over the outer surface of coated printed boards complied with the minimum clearance and creepage requirements of 5.4.2 and 5.4.3.	P
G.13.3	Coated printed boards	No coated printed board or multilayer board applied for within the equipment.	N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation ..... :		N/A
	Number of insulation layers (pcs) ..... :		—
G.13.6	Tests on coated printed boards		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2	Test method and compliance criteria		N/A
G.14	**Coating on components terminals**		N/A
G.14.1	Requirements ..... :		N/A
G.15	**Pressurized liquid filled components or LFC assemblies**		N/A
G.15.1	Requirements	No such device provided within the equipment.	N/A
G.15.2	Test methods and compliance criteria for self-contained LFC		N/A
G.15.2.1	Hydrostatic pressure test, applied test pressure .... :		N/A
G.15.2.2	Creep resistance test		N/A
G.15.2.3	Tubing and fittings compatibility test, the change of tensile strength (%)..... :		N/A
G.15.2.4	Vibration test		N/A
G.15.2.5	Thermal cycling test, test temperature (°C)..... :		N/A
G.15.2.6	Force test		N/A
G.15.2.7	Compliance criteria		N/A
G.15.3	Test methods and compliance for a modular LFC		N/A
G.15.3.2	Hydrostatic pressure test, applied test pressure .... :		N/A
G.15.3.3	Creep resistance test		N/A
G.15.3.4	Tubing and fittings compatibility test, the change of tensile strength (%)..... :		N/A
G.15.3.5	Thermal cycle test, test temperature (°C)..... :		N/A
G.15.3.6	Force test		N/A
G.15.3.7	Compliance criteria		N/A
G.16	**IC including capacitor discharge function (ICX)**		N/A
G.16.1	Condition for fault tested is not required		N/A
	ICX with associated circuitry tested in equipment		N/A
	ICX tested separately		N/A
G.16.2	Tests		N/A
	Smallest capacitance and smallest resistance specified by ICX manufacturer for impulse test..... :		—
	Mains voltage that impulses to be superimposed on..... :		—
	Largest capacitance and smallest resistance for ICX tested by itself for 10000 cycles test ..... :		—
G.16.3	Capacitor discharge test..... :		N/A
H	**CRITERIA FOR TELEPHONE RINGING SIGNALS**		N/A
H.1	**General**		N/A
H.2	**Method A**		N/A
H.3	**Method B**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
H.3.1	Ringing signal	No telephone ringing signals produce	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 condition 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		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V) ..... :		N/A
J	**INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION**		N/A
J.1	**General**		N/A
	Winding wire insulation ..... :	(See appended table 4.1.2)	—
	Solid round winding wire, diameter (mm) ..... :		N/A
	Solid square and rectangular (flatwise bending) winding wire, cross-sectional area (mm^2) ..... :		N/A
J.2/J.3	Tests and Manufacturing		—
K	**SAFETY INTERLOCKS**		N/A
K.1	**General requirements**		N/A
	Instructional safeguard ..... :	No safety interlock provided within the equipment.	N/A
K.2	**Components of safety interlock safeguard mechanism**		N/A
K.3	**Inadvertent change of operating mode**		N/A
K.4	**Interlock safeguard override**		N/A
K.5	**Fail-safe**		N/A
K.5.1	Under single fault condition		N/A
K.6	**Mechanically operated safety interlocks**		N/A
K.6.1	Endurance requirement		N/A
K.7	**Interlock circuit isolation**		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements		N/A
	In circuit connected to mains, separation distance for contact gaps (mm) ..... :		N/A
	In circuit isolated from mains, separation distance for contact gaps (mm) ..... :		N/A
	Electric strength test before and after the test of K.7.2 ..... :		N/A
K.7.2	Overload test, Current (A) ..... :		N/A
K.7.3	Endurance test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
K.7.4	Electric strength test		N/A
L	**DISCONNECT DEVICES**		P
L.1	**General requirements**	The power plug is considered as disconnect device.	P
L.2	**Permanently connected equipment**	Not such equipment	N/A
	Instructions for permanently connected equipment		N/A
L.3	**Parts that remain energized**	No parts remain energized after the mains plug disconnected	N/A
L.4	**Single-phase equipment**	The appliance inlet disconnect both poles simultaneously	P
	Instructions for single pole disconnect device		N/A
L.5	**Three-phase equipment**	Single phase equipment	N/A
L.6	**Switches as disconnect devices**		N/A
L.7	**Plugs as disconnect devices**		P
	Instructions for pluggable equipment		—
L.8	**Multiple power sources**		N/A
	Instructional safeguard ..... :		N/A
M	**EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS**		P
M.1	**General requirements**		P
M.2	**Safety of batteries and their cells**		P
M.2.1	Batteries and their cells comply with relevant IEC standards ..... :	No batteries used	P
M.3	**Protection circuits for batteries provided within the equipment**		P
M.3.1	Requirements		P
M.3.2	Test method		P
	Overcharging of a rechargeable battery		N/A
	Excessive discharging		P
	Unintentional charging of a non-rechargeable battery		P
	Reverse charging of a rechargeable battery		N/A
M.3.3	Compliance criteria		P
M.4	**Additional safeguards for equipment containing a secondary lithium battery**		N/A
M.4.1	General	Primary battery used	N/A
	IEC 62133-2 batteries used for sub-system power powering application ..... :		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Requirements		N/A
M.4.2.2	Test		N/A
M.4.2.2.1	General		N/A
M.4.2.2.2	Abnormal operating conditions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
M.4.2.2.3	Single fault conditions		N/A
M.4.2.3	Compliance criteria ..... :		N/A
M.4.3	Fire enclosure ..... :		N/A
M.4.4	Drop test of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation and procedure for the drop test		N/A
M.4.4.3	Drop, Voltage on reference and dropped batteries (V); voltage difference during 24 h period (%): ..... :		N/A
M.4.4.4	Check of the charge/discharge function		N/A
M.4.4.5	Charge / discharge cycle test		N/A
M.4.4.6	Compliance criteria		N/A
M.5	**Risk of burn due to short-circuit during carrying**		N/A
M.5.1	Requirement		N/A
M.5.2	Test method and compliance criteria		N/A
M.6	**Safeguards against short-circuits**		N/A
M.6.1	External and internal faults		N/A
M.6.2	Compliance criteria		N/A
M.7	**Risk of explosion from lead acid and NiCd batteries**		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
	Calculated hydrogen generation rate ..... :		N/A
M.7.2	Test method and compliance criteria		N/A
	Minimum air flow rate, Q (m^3/h) ..... :		N/A
M.7.3	Ventilation tests		N/A
M.7.3.1	General		N/A
M.7.3.2	Ventilation test – alternative 1		N/A
	Hydrogen gas concentration (%) ..... :		N/A
M.7.3.3	Ventilation test – alternative 2		N/A
	Obtained hydrogen generation rate ..... :		N/A
M.7.3.4	Ventilation test – alternative 3		N/A
	Hydrogen gas concentration (%) ..... :		N/A
M.7.4	Marking ..... :		N/A
M.8	**Protection against internal ignition from external spark sources of rechargeable batteries with aqueous electrolyte**		N/A
M.8.1	General		N/A
M.8.2	Test method		N/A
M.8.2.1	General		N/A
M.8.2.2	Estimation of hypothetical volume V_Z (m^3/s) ..... :		—
M.8.2.3	Correction factors ..... :		—
M.8.2.4	Calculation of distance d (mm) ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
M.9	**Preventing electrolyte spillage**		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	**Instructions to prevent reasonably foreseeable misuse**		N/A
	Instructional safeguard ..... :		N/A
N	**ELECTROCHEMICAL POTENTIALS**		P
	Material(s) used ..... :	Aluminium alloy and copper, factors are less than 0.6V.	—
O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		P
	Value of *X* (mm) ..... :	Considered.	—
P	**SAFEGUARDS AGAINST CONDUCTIVE OBJECTS**		N/A
P.1	**General**		N/A
P.2	**Safeguards against entry or consequences of entry of a foreign object**		N/A
P.2.1	General		N/A
	Location and Dimensions (mm) ..... :		—
P.2.2	Safeguard requirements		N/A
	The ES3 and PS3 keep-out volume in Figure P.4 not applicable to transportable equipment		N/A
	Transportable equipment with metalized plastic parts ..... :		N/A
P.2.3	Consequence of entry test ..... :		N/A
P.3	**Safeguards against spillage of internal liquids**		N/A
P.3.1	General		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Compliance criteria		N/A
P.4	**Metallized coatings and adhesives securing parts**		N/A
P.4.1	General		N/A
P.4.2	Tests		N/A
	Conditioning, T_C (°C) ..... :		—
	Duration (weeks) ..... :		—
Q	**CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING**		P
Q.1	**Limited power sources**		P
Q.1.1	Requirements		P
	a) Inherently limited output		N/A
	b) Impedance limited output		P
	c) Regulating network limited output		P
	d) Overcurrent protective device limited output		N/A
	e) IC current limiter complying with G.9		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Q.1.2	Test method and compliance criteria..... :		P
	Current rating of overcurrent protective device (A) :		N/A
Q.2	**Test for external circuits – paired conductor cable**		P
	Maximum output current (A) ..... :		P
	Current limiting method ..... :		—
R	**LIMITED SHORT CIRCUIT TEST**		N/A
R.1	**General**		N/A
R.2	**Test setup**		N/A
	Overcurrent protective device for test..... :		—
R.3	**Test method**		N/A
	Cord/cable used for test ..... :		—
R.4	**Compliance criteria**		N/A
S	**TESTS FOR RESISTANCE TO HEAT AND FIRE**		N/A
S.1	**Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W**		N/A
	Samples, material..... :		—
	Wall thickness (mm) ..... :		—
	Conditioning (°C) ..... :		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	**Flammability test for fire enclosure and fire barrier integrity**		N/A
	Samples, material..... :		—
	Wall thickness (mm) ..... :		—
	Conditioning (°C) ..... :		—
	- Material did not show any additional holes for combustible materials		N/A
	- Cheesecloth did not ignite for top openings		N/A
S.3	**Flammability test for the bottom of a fire enclosure**		N/A
S.3.1	Mounting of samples		N/A
S.3.2	Test method and compliance criteria		N/A
	Mounting of samples ..... :		—
	Wall thickness (mm) ..... :		—
	Cheesecloth did not ignite		N/A
S.4	**Flammability classification of materials**		N/A
S.5	**Flammability test for fire enclosure materials of equipment with a steady state power exceeding 4 000 W**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Samples, material ..... :		—
	Wall thickness (mm) ..... :		—
	Conditioning (°C) ..... :		—
S.6	**Grille covering material, cloth, and reticulated foam**		N/A
	Samples, material ..... :		—
	Measured distance from the centre of the fuel tablet (mm)……:		N/A
T	**MECHANICAL STRENGTH TESTS**		P
T.1	**General**		P
T.2	**Steady force test, 10 N ..... :**	Evaluated in approved power supply unit	P
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 ..... :**	(See appended table T.5)	P
T.6	**Enclosure impact test**	(See appended table T.6)	P
	Fall test		P
	Swing test		P
T.7	**Drop test ..... :**		N/A
T.8	**Stress relief test..... :**	(See appended table T.8)	P
T.9	**Glass Impact Test ..... :**		N/A
T.10	**Glass fragmentation test**		N/A
	Number of particles counted..... :		N/A
T.11	**Test for telescoping or rod antennas**		N/A
	Torque value (Nm) ..... :		N/A
U	**MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION**		N/A
U.1	**General**		N/A
	Instructional safeguard **..... :**		N/A
U.2	**Test method and compliance for non-intrinsically protected CRTs**		N/A
U.3	**Protective screen**		N/A
V	**DETERMINATION OF ACCESSIBLE PARTS**		P
V.1	**Accessible parts of equipment**		P
V.1.1	General		P
V.1.2	Surfaces and openings tested with jointed test probes		P
V.1.3	Openings tested with straight unjointed test probes		P
V.1.4	Plugs, jacks, connectors tested with blunt probe		P
V.1.5	Slot openings tested with wedge probe		N/A
V.1.6	Terminals tested with rigid test wire		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
V.2	**Accessible part criterion**		P
X	**ALTERNATIVE METHOD FOR DETERMINING CLEARANCES FOR INSULATION IN CIRCUITS CONNECTED TO AN AC MAINS NOT EXCEEDING 420 V PEAK (300 V RMS)**		N/A
	Clearance ..... :		N/A
Y	**CONSTRUCTION REQUIREMENTS FOR OUTDOOR ENCLOSURES**		N/A
Y.1	**General**		N/A
Y.2	**Resistance to UV radiation**		N/A
Y.3	**Resistance to corrosion**		N/A
Y.3.1	Metallic parts of outdoor enclosures are resistant to effects of water-borne contaminants by ..... :		N/A
Y.3.2	Test apparatus		N/A
Y.3.3	Water – saturated sulphur dioxide atmosphere		N/A
Y.3.4	Test procedure ..... :		N/A
Y.3.5	Compliance criteria		N/A
Y.4	**Gaskets**		N/A
Y.4.1	General		N/A
Y.4.2	Gasket tests		N/A
Y.4.3	Tensile strength and elongation tests, changes of tensile strength and elongation ..... :		N/A
	Alternative test methods ..... :		N/A
Y.4.4	Compression test		N/A
Y.4.5	Oil resistance, change of swell / shrink (%) ..... :		N/A
Y.4.6	Securing means		N/A
Y.5	**Protection of equipment within an outdoor enclosure**		N/A
Y.5.1	General		N/A
Y.5.2	Protection from moisture		N/A
	Relevant tests of IEC 60529 or Y.5.3 ..... :		N/A
Y.5.3	Water spray test		N/A
Y.5.4	Protection from plants and vermin		N/A
Y.5.5	Protection from excessive dust		N/A
Y.5.5.1	General		N/A
	Relevant tests of IEC 60529 or Y.5.5.2 or Y.5.5.3 . :		N/A
Y.5.5.2	IP5X equipment		N/A
Y.5.5.3	IP6X equipment		N/A
Y.6	**Mechanical strength of enclosures**		N/A
Y.6.1	General		N/A
Y.6.2	Impact test ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

5.2	**TABLE: Classification of electrical energy sources**							P
Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
			U (V)	I (mA)	Type[1)]	Additional Info [2)]	
275V/60Hz	All primary circuits	Normal:	275Vrms	--	SS	--	ES3
		Abnormal:	--	--	SS	--	
		Single fault – SC/OC:	--	--	SS	--	
275V/60Hz	USB output + to -	Normal:	5.02Vdc	--	SS	--	ES1
		Abnormal: Over load	5.02Vdc	--	SS	--	
		Single fault: U1(SNMP-Board-Main) Pin 1-2 SC	5.02Vdc	--	SS	--	
		Single fault: D16 Pin 1-2 SC	0Vdc	--	SS	--	
		Single fault: C127SC	0Vdc	--	SS	--	
		Single fault: C87 SC	0Vdc	--	SS	--	
275V/60Hz	USBA-1 output +/- to earth	Normal:	--	0.256m Apk	SS	60Hz	ES1
		Abnormal: Over load	--	0.256m Apk	SS	60Hz	
		Single fault: D16 Pin 1-2 SC	--	0.312m Apk	SS	60Hz	
		Single fault: C127SC	--	0.216m Apk	SS	60Hz	
		Single fault: C87 SC	--	0.216m Apk	SS	60Hz	
		Single fault: earth OC	--	0.380m Apk	SS	60Hz	

Supplementary information:

1) Type: Steady state (SS), Capacitance (CP), Single pulse (SP), Repetitive pulses (RP), etc.

2) Additional Info: Frequency, Pulse duration, Pulse off time, Capacitance value, etc.

SC= Short-circuited, OC=Open-circuited
The results of USBA-1 and USBA-2 are the same.

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.1.8	TABLE: Working voltage measurement				N/A
Location		Peak voltage (V)	RMS voltage (V)	Frequency (KHz)	Comments
--		--	--	--	--
Supplementary information:					
Tested under					

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics			N/A
Method.....:		ISO 306 / B50		—
Object/ Part No./Material	Manufacturer/trademark	Thickness (mm)	T softening (°C)	
--	--	--	--	
Supplementary information:				

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

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.2, 5.4.3	TABLE: Minimum Clearances/Creepage distance							P
Clearance (cl) and creepage distance (cr) at/of/between:	U_p (V)	U_{rms} (V)	Freq [1] (Hz)	Required cl (mm)	cl (mm)	E.S. [2] (V)	Required cr (mm)	cr (mm)
Inlet_Board_L1								
Line to Neutral before fuse F1 (BI)	420	250	60	1.5	1.7	--	2.5	2.6
Line/ Neutral to PE(BI)	420	250	60	1.5	＞4.0	--	2.5	＞4.0
Two terminals of F1 (BI)	420	250	60	1.5	3.8	--	2.5	3.8
C44, C43 capacitor to GND(BI)	420	250	60	1.5	＞7.0	--	2.5	＞7.0
C40, C47 capacitor to GND(BI)	420	250	60	1.5	3.1	--	2.5	3.1
SNMP_Bridge_Board								
IS01 (RI)	420	250	60	3.0	6.5	--	5.0	6.5
U2(RI)	420	250	60	3.0	7.5	--	5.0	7.5
Supplementary information:								
Note 1: Only for frequency above 30 kHz Note 2: See table 5.4.2.4 if this is based on electric strength test Note 3: Provide Material Group: IIIb Note 4: BI=Basic insulation, SI=Supplementary insulation, RI=Reinforced insulation								

5.4.4.2	TABLE: Minimum distance through insulation				P
Distance through insulation (DTI) at/of	Peak voltage (V)	Insulation	Required DTI (mm)	DTI (mm)	
Insulation tape of transformer*	＜400	Reinforced insulation	Min. 2 layers	Min. 2 layers	
Isolating IC (U2)	＜400	--	Min. 0.4	Min. 0.4	
Optocoupler (ISO1)	＜400	--	Min. 0.4	Min. 0.4	
Supplementary information:					
Note: All materials listed in table 4.1.2 are considered.					

5.4.4.9	TABLE: Solid insulation at frequencies >30 kHz					N/A
Insulation material	E_P	Frequency (kHz)	K_R	Thickness d (mm)	Insulation	V_{PW} (Vpk)
--	--	--	--	--	--	--
Supplementary information:						

5.4.9	TABLE: Electric strength tests	P

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

Test voltage applied between:	Voltage shape (Surge, Impulse, AC, DC, etc.)	Test voltage (V)	Breakdown Yes / No
Basic/supplementary:			
L to N (with Fuse opened)	DC	2500	No
L/N to earth	DC	2500	No
Reinforced:			
Unit: Primary circuit to secondary circuit	DC	4000	No
Unit: Primary circuit to enclosure (with metal foil)	DC	4000	No
One layer insulation tape	DC	4000	No
Insulation tube used for reinforced insulation for internal wires connected to the secondary	DC	4000	No
Supplementary information:			
1) The routine test would be conducted in the factory. 2) Alternating polarity for electric strength test of dc voltage. 3) Core of transformer are considered as middle part.			

5.5.2.2	**TABLE: Stored discharge on capacitors**				P
Location	Supply voltage (V)	Operating and fault condition [1)]	Switch position	Measured voltage (Vpk)	ES Class
Plug pins (L-N)	275V, 60Hz	Normal	--	0	ES1
Plug pins (L-N)	275V, 60Hz	S (open R337 (Inlet board)	--	0	ES1
Supplementary information:					
X-capacitors installed for testing: CX1=CX2=0.68μF [X] bleeding resistor rating: R337=680 ohm [ ] ICX: 1) Normal operating condition (e.g., normal operation), SC= short circuit, OC= open circuit 2) N – Normal operating condition (e.g., normal operation, or open fuse); S –Single fault condition					

5.6.6	**TABLE: Resistance of protective conductors and terminations**				P
Location	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)	
Input earth pin to the farthest end of the metal enclosure	32	2	0.0864	0.068	
Input earth pin to the farthest end of the metal enclosure	40	2	2.840	0.071	
Supplementary information:					

5.7.4	**TABLE: Unearthed accessible parts**	N/A

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

Location	Operating and fault conditions	Supply Voltage (V)	Parameters			ES class
			Voltage (V_{rms} or V_{pk})	Current (A_{rms} or A_{pk})	Freq. (Hz)	
#	#	#	#	#	#	#
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit #: See table 5.2 for detail						

5.7.5	**TABLE: Earthed accessible conductive part**			P
Supply voltage (V) ..... :	275Vac			—
Phase(s) ..... :	[X] Single Phase; [ ] Three Phase: [ ] Delta [ ] Wye			
Power Distribution System ..... :	[X] TN [ ]TT [ ] IT			
Location	Fault Condition No in IEC 60990 clause 6.2.2	Touch current (mA)	Comment	
Measured to earthed point	1	Normal: 0.752mApk Reversed: 0.752mApk	--	
Supplementary Information:				
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.				

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

6.2.2	**Table: Power source circuit classifications**					
Location	Operating and fault condition	Voltage (V)	Current (A)	Max. Power[1)] (W)	Time (S)	PS class
Input	All primary circuit/ components	--	--	--	1)	PS3
USBA-1	Worst-case fault	4.76	1.21	5.76	1)	PS1
USBA-1	Single fault: U1(SNMP-Board-Main) Pin 1-2 SC	4.55	1.32	6.01	1)	PS1

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Clause	Requirement + Test	Result - Remark	Verdict

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.

The results of USBA-1 and USBA-2 are the same.

6.2.3.2	**TABLE: Determination of resistive PIS**		P
Location	Operating and fault condition	Dissipate power (W)	Resistive PIS? Yes / No
Input terminal, All Internal circuits, output	--	--	Yes (declaration)

Supplementary information:

Abbreviation: SC= short circuit; OC= open circuit

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
Lamp manufacturer	Lamp type	Explosion method	Longest axis of glass particle (mm)	Particle found beyond 1 m Yes / No	
--	--	--	--	--	

Supplementary information:

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

9.6	**TABLE: Temperature measurements for wireless power transmitters**	N/A
Supply voltage (V) ..... :		—
Max. transmitting power (W)..... :		—

Part A [1)]

Foreign objects	w/o receiver and direct contact		with receiver and direct contact		with receiver and at distance of 2 mm		with receiver and at distance of 5 mm	
	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)
Steel disc	--	--	--	--	--	--	--	--
Aluminium ring	--	--	--	--	--	--	--	--
Aluminium foil	--	--	--	--	--	--	--	--
Measurement temperature T of part/at:	w/o receiver and direct contact		with receiver and direct contact		with receiver and at distance of 2 mm		with receiver and at distance of 5 mm	
	T (°C)	Ambient (°C)	T (°C)	Ambient (°C)	T (°C)	Ambient (°C)	T (°C)	Ambient (°C)
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--

Part B [2)]

Foreign objects	w/o receiver and direct contact		with receiver and direct contact		with receiver and at distance of 2 mm		with receiver and at distance of 5 mm	
	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)
Steel disc	--	--	--	--	--	--	--	--
Aluminium ring	--	--	--	--	--	--	--	--
Aluminium foil	--	--	--	--	--	--	--	--
Measurement temperature T of part/at:	w/o receiver and direct contact		with receiver and direct contact		with receiver and at distance of 2 mm		with receiver and at distance of 5 mm	
	T (°C)	Ambient (°C)	T (°C)	Ambient (°C)	T (°C)	Ambient (°C)	T (°C)	Ambient (°C)
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--

Supplementary information:

1) The test is performed by powering up the transmitter and then placing each of the foreign objects specified in 9.6.2 in direct contact with the transmitter.

2) The test is performed by first placing each of the foreign objects specified in 9.6.2 in direct contact with the transmitter and then powering up transmitter.

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

5.4.1.4, 9.3, B.1.5, B.2.6	**TABLE: Temperature measurements**	P

Supply voltage (V)..... :	171V60Hz		275V50Hz		—
Ambient temperature during test T_{amb} (°C)..... :	--	--	--	—	—
Maximum measured temperature *T* of part/at:	*T* (°C)				Allowed T_{max} (°C)
1.LCD panel	30.7	--	31.4	--	77.0
2."ESC" Button surface	31.9	--	32.5	--	77.0
3.Metal Enclosure outside near USB-A	32.3	--	32.2	--	60.0
4."NO" Button surface	33.5	--	33.2	--	77.0
5.Metal Enclosure outside near top	32.7	--	33.5	--	60.0
6.Metal Enclosure outside near bottom	34.3	--	34.8	--	60.0
Internal components	--	--	--	--	--
7.AC input cable	39.0	72.3	36.3	69.2	105.0
8.AC output socket	52.9	86.2	48.9	81.9	105.0
9.Input wire	50.7	84.0	46.5	79.5	85.0
10.Earth wire	40.3	73.6	39.0	72.0	105.0
11.Output wire (1st AC output socket)	61.7	95.1	55.5	88.5	85.0
Input Board	--	--	--	--	--
12.Input terminal	38.9	72.3	40.4	73.4	Ref.
13.Circuit breaker	49.2	82.6	45.8	78.8	Ref.
14.C43(Y-cap)	41.3	74.7	43.4	76.4	125.0
15.L11	38.9	72.2	42.0	75.0	130.0
16.C127(X-cap)	38.1	71.5	41.9	74.9	125.0
17.R307(MOV)	37.9	71.3	41.2	74.2	85.0
18.C87(E-cap)	41.2	74.6	45.1	78.1	105.0
19.T3 coil	44.9	78.3	48.8	81.8	110.0
20.T3 core	44.2	77.6	48.0	81.0	110.0
21.IS02	45.5	78.9	48.4	81.4	100.0
22.C89(E-cap)	42.7	76.0	45.2	78.2	105.0
23.L8 coil	44.8	78.1	47.2	80.2	130.0
24.PCB near U13	47.2	80.5	50.2	83.2	130.0
25.M1 body	48.8	82.1	53.9	86.9	Ref
AC output Board	--	--	--	--	--
26.PCB near U7	47.3	80.7	48.9	81.9	130
27.RL1 body	69.0	102.4	67.2	100.2	105
28.IS01	55.2	88.6	62.5	95.5	100

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

SNMP-Bridge-Board	--	--	--	--	--
29.IS01	35.6	68.9	36.9	69.8	100
30.U2	36.1	69.4	37.2	70.2	100
SNMP-Board-Main	--	--	--	--	--
31.PCB near U16	43.5	76.9	44.4	77.4	130
32.Ambient	26.6	60.0	27.0	60.0	--

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:

- Thermal coupler method used for above temperature tests.
- The maximum operating temperature is 60°C.

The Switching Power Supply was mounted on the aluminium board during heating tests as the applicant's request. The dimension of aluminium board is approx. 320 x 200 mm with min. thickness 25.7mm.

B.2.5	**TABLE: Input test**							P
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
171	50	16.01	--	2725	--	--	--	--
171	60	16.01	--	2726	--	--	--	
190	50	16.01	16	3032	3680	--	--	
190	60	16.01	16	3033	3680	--	--	
250	50	14.74	16	3673	3680	--	--	
250	60	14.74	16	3673	3680	--	--	
275	50	13.41	--	3673	--	--	--	
275	60	13.41	--	3674	--	--	--	

Supplementary information:

B.2.5, E.3.1	**TABLE: Input test for equipment containing audio amplifiers**											N/A
Operation Condition:	Signal type		Frequency (Hz)		Output loads (Ω)		Load setup					
--	--		--		--		--					
Input									Amplifier Output			
Cond.	U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Ch.	U (V)	P (W)	Load (Ω)

Supplementary information:

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Clause	Requirement + Test	Result - Remark	Verdict

B.3, B.4	**TABLE: Abnormal operating and fault condition tests**	**P**
Ambient temperature T_{amb} (°C) .....:	See below	—
Power source for EUT: Manufacturer, model/type, outputrating...:	--	—

Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation
USB-A	OL	275Vac 60Hz	2hrs 14mins	--	--	Output maximum loaded current was 1.1A and ran for thermal equilibrium under it. Over 1.2A unit shut down. Output + to -: 5.02VDC Output to earth: 0.256mApk 1.Metal Enclosure outside near bottom: 35.4°C 2.Ambient: 24.6°C
USB-A	SC	253Vac 50Hz	10 min	--	--	Unit shut down immediately, recoverable, No hazard. Output + to -: 0VDC Output to earth: 0.256mApk
AC	OL	275Vac 60Hz	2hrs 14mins	--	--	Output maximum loaded was 25% and ran for thermal equilibrium under it. Over 35% unit shut down. 1.Metal Enclosure outside near bottom: 53.5 2.T3 coil: 50.9 3.T3 core: 46.9 4.PCB near U13: 35.3 5.Ambient: 24.3
AC	SC	275Vac 60Hz	2hrs 14mins	--	--	Unit shut down immediately, recoverable, No hazard. Output + to -: 5.02VDC Output to earth: 0.256mApk
D16 pin 1-2(Inlet-board)	SC	253Vac 50Hz	1S	--	--	F3 opened immediately, No hazard. Output + to -: 0VDC Output to earth: 0.312mApk Enclosure to earth: 0.010mApk
C127 (Inlet-board)	SC	253Vac 50Hz	10 min	--	--	F3 opened immediately, No hazard. Output + to -: 0VDC Output to earth: 0.312mApk Enclosure to earth: 0.010mApk
C87 (Inlet-board)	SC	253Vac 50Hz	10 min	--	--	F3 opened immediately, No hazard. Output + to -: 0VDC Output to earth: 0.312mApk Enclosure to earth: 0.010mApk

Supplementary information:

1. SC: short circuit, OL: overload, OC: open circuit; CD: components damaged;
2. All tests were considered in AC 90V also, same result generated.
3 # means all types of current fuse listed in table 4.1.2 are considered for test and same result came out.
4. The Hi-pot test conducted successfully after the completion of fault condition test.

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Clause	Requirement + Test	Result - Remark	Verdict

5. Output circuit is under ES1 limit.

6. During and after abnormal operating conditions, the output voltage did not increase by more than 10% of its rated output voltage under normal operating condition. (For other outlet or connector at ES1)

7. Transformer winding and core temperature limit is 190°C.

M.3	**TABLE: Protection circuits for batteries provided within the equipment**	P
Is it possible to install the battery in a reverse polarity position?.....:	No	—

Equipment Specification	Charging	
	Voltage (V)	Current (A)

Manufacturer/type	Battery specification					
	Non-rechargeable batteries		Rechargeable batteries			
	Discharging current (A)	Unintentional charging current (A)	Charging		Discharging current (A)	Reverse charging current (A)
			Voltage (V)	Current (A)		

Note: The tests of M.3.2 are applicable only when above appropriate data is not available.		
Specified battery temperature (°C) .....:		

Component No.	Fault condition	Charge/ discharge mode	Test time	Temp. (°C)	Current (A)	Voltage (V)	Observation

Supplementary information:

Abbreviation: SC= short circuit; OC= open circuit NL= no chemical leakage; NS= no spillage of liquid; NE= no explosion; NF= no emission of flame or expulsion of molten metal.

M.4.2	**TABLE: Charging safeguards for equipment containing a secondary lithium battery**	N/A
Maximum specified charging voltage (V).....:		—
Maximum specified charging current (A) .....:		—
Highest specified charging temperature (°C) .....:		
Lowest specified charging temperature (°C) .....:		

Battery manufacturer/type	Operating and fault condition	Measurement			Observation
		Charging voltage (V)	Charging current (A)	Temp. (°C)	

Supplementary information:

Abbreviation: SC= short circuit; OC= open circuit; MSCV= maximum specified charging voltage; MSCC= maximum specified charging current; HSCT= highest specified charging temperature; LSCT= lowest specified charging temperature

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

Q.1	**TABLE: Circuits intended for interconnection with building wiring (LPS)**						P
Output Circuit	Condition	U_{oc} (V)	Time (s)	I_{sc} (A)		S (VA)	
				Meas.	Limit	Meas.	Limit
USBA-1	Normal operation	5.02	5	1.21	8	5.76	100
USBA-1	Single fault: U1(SNMP-Board-Main) Pin 1-2 SC	5.02	5	1.32	8	6.01	100
Supplementary Information:							
SC=Short circuit, OC=Open circuit							

T.2, T.3, T.4, T.5	**TABLE: Steady force test**					P
Location/Part	Material	Thickness (mm)	Probe	Force (N)	Test Duration (s)	Observation
Internal Components	--	--	V.2	10	5	No insulation breakdown. No reduction the clearances and creepage distances
Enclosure (Side, bottom, top)	See table 4.1.2	Min. 2.0	--	250	5	No damaged, no hazard
Supplementary information:						

T.6, T.9	**TABLE: Impact test**				P
Location/Part	Material	Thickness (mm)	Height (mm)	Observation	
Enclosure top (T.6)	1)	Min. 2.0	1300	Enclosure remained intact, no crack / opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown	
Enclosure bottom (T.6)	1)	Min. 2.0	1300	Enclosure remained intact, no crack / opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown	
Enclosure side (T.6)	1)	Min. 2.0	1300	Enclosure remained intact, no crack / opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown	
Supplementary information:					

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

1) Material in table 4.1.2 had been tested.

T.7	**TABLE: Drop test**				N/A
Location/Part		Material	Thickness (mm)	Height (mm)	Observation
--		--	--	--	--
--		--	--	--	--
--		--	--	--	--
Supplementary information:					

T.8	**TABLE: Stress relief test**					P
Location/Part	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
Complete Unit	1)	Min. 2.0	107	7	Enclosure and insulation sheet remained intact, no shrinkage or distortion after test.	
Supplementary information:						
1) Material in table 4.1.2 had been tested.						

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

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

4.1.2	**TABLE: Critical components information**	**P**

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Metal Enclosure	Shenzhen Hongmingsheng Technology Co., Ltd.	MT0348	Min thickness: 1.2mm	IEC 62368-1	Tested with appliance
Plugs with cord	Yi Huan Precision Industry Co.,Ltd	IH-303	250V/16A, 3Gx1.5mm^2	DIN VDE 0620-2-1	VDE 40017893
Appliance outlet	Envalior	SG-KGS6/HV	250V/16A, 125℃	UL 94	UL E47960
Wire connector	WAGO Kontakttechnik GmbH&Co.,KG	221-412&221-413	450V/32A	EN60998-1:2004 EN60998-2:2004	KEMA 71-104798
Internal line （AC）	Shenzhen Tongyuan Industrial Co.,Ltd	H05VV-F 1Gx1.5mm^2	250V/16A, V-0, 1.5mm^2	DIN EN 50525-2-11:2012-01	VDE 101980
Internal line （DC）	PUYER CABLE CO LTD	1007	300V, 80℃, 26AWG&28AWG	UL 758	UL E350147
Ground wire	Shenzhen Tongyuan Industrial Co.,Ltd	H05VV-F 1Gx1.5mm2/Yellow&Green	250V/16A	DIN EN 50525-2-11:2012-01	VDE 101980
Heat shrink able tube	GUANGDONG SHENGPAI INSULATION MATERIAL CO LTD	SP-A	600V, 125℃	UL224	UL E513563
Mylar sheet	Chendu Kanglongxin Plastics Co.,Ltd	OFM76XXP(BK4)	V-0, 0.4mm	UL94	UL E207780
Circuit breaker	CARLING TECHNOLOGIES	PA061-0	250V/16A	UL 489	UL E129899
Inlet_Board_L1					
Terminal block (J3)	ANYTEK TECHNOLOGY CORP	HB0421800000G	300V,10A	UL 1059	UL E202113
Fuse (F3, F5)	Littelfuse Inc.	39212000000	250V/2A	EN 60127-1 EN 60127-3	VDE 126983
Y-Cap (C43, C44)	PROSPERITY DIELECTRICS CO., LTD.	FK21X222K502EGQ	2200PF/400V, 125℃	IEC 62368-1	Tested with appliance
C127	HJC	MKP-684K0310AB1151-PV	680N/310, 110℃	IEC 62368-1	Tested with appliance
Varistor (R306, R307, R308,R316)	Littelfuse Inc.	V250LA20AP	250V 85℃	IEC 61051-1 IEC 61051-2 IEC 61051-2-2	VDE 116895

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

Inductance/Chock/Inductor（L11）	SPEEDA International Corp.	HUU1003	120℃	IEC 62368-1	Tested with appliance
E-Cap(C87, C88)	NICHICON (TAIWAN) CO., LTD	UCS2G220MHD1TO	22uF/400V 105℃	IEC 62368-1	Tested with appliance
Optocoupler (ISO2)	Lite-On Technology Corporation	LTV-817S-TA-C	Int.Dcr/cl≥ 7mm Ext.Dcr/cl≥ 8mm 110°C	DIN EN IEC 60747-5-5 EN IEC 60747-5-5	VDE 40015248
Switching power supply	MEAN WELL Enterprises Co., Ltd.	IRM-15-12	Input: 100-240VAC 0.35A 50/60Hz Ouput:12V ⎓ 1.25A	IEC/EN 62368-1	Test Report: E183223-A6134-CB-1
Transformer	Speeda International Corp.	SDE1908H	Class B, 110℃	IEC/EN 62368-1	Tested with appliance
-Bobbin	SUMITOMO BAKELITE CO LTD	PM9630	150℃	UL 94	UL E41429
-Magnet Wire	TA YA ELECTRIC WIRE & CABLE CO LTD	MW 79C	155℃	ANSI/CAN/UL 1446	UL E84201
-Alt.	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	MW 82-C	180℃	ANSI/CAN/UL 1446	UL E201757
-Insulation tape	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	1350F-1 (b)	130℃	CAN/UL 510A	UL E17385
Outlet PMU Board C13_C19*6					
Relay (RL1, RL2, RL3, RL4, RL5, RL6)	Xiamen Hongfa Electroacoustic Co., Ltd.	HF163F-L16_12-HLT-L2	227VAC/16A, 85°C	IEC 61810-1	VDE 40051265
Optocoupler (ISO1, ISO2, ISO3, ISO4, ISO5, ISO6)	Lite-On Technology Corporation	LTV-814S-TA1	Int.Dcr/cl≥ 7mm Ext.Dcr/cl≥ 8mm 110°C	DIN EN IEC 60747-5-5 EN IEC 60747-5-5	VDE 40015248
SNMP_Bridg_Board					
Solating IC (U2)	Texas Instruments Deutschland GmbH	ISO1042 DWVR, ISO1042BDWVR	8KV	DIN EN IEC 60747-17 N IEC 60747-17	VDE 40015248
Optocoupler (ISO1)	Lite-On Technology Corporation	LTV-817S-TA-	Int.Dcr/cl≥ 7mm Ext.Dcr/cl≥ 8mm 110°C	DIN EN IEC 60747-5-5 EN IEC 60747-5-5	VDE 40015248
Supplementary information: 1) An asterisk indicates a mark which assures the agreed level of surveillance					

IEC62368_1F 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 IEC 62368-1-2024 + A11:2024			
TRF template used .....: IECEE OD-2020-F2:2022, Ed. 1.2			
Attachment Form No. .....: EU_GD_IEC 62368_1F **Attachment Originator .....**: UL Solutions (Demko) **Master Attachment** .....: 2024-05-16			
	CENELEC COMMON MODIFICATIONS (EN)		**P**
	Clause numbers in the cells that are shaded light grey are clause references in EN IEC 62368-1:2024+A11:2024. All other clause numbers in that column, except for those in the paragraph below, refers to IEC 62368-1:2023. Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2023 are prefixed “Z”.		P
	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 cord		P
1	**MODIFICATION to the whole document**		--

IEC62368_1F ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Delete all the “country” notes in the reference document according to the following list: 0.2.1 Note 1 and Note 2; 1 Note 4 and Note 5; 3.3.8.1 Note 2 3.3.8.3 Note 1; 4.1.15 Note; 4.7.3 Note 1 and Note 2 5.4.2.3.2.2 Table 12 Note c; 5.4.2.3.2.4 Note 1 and Note 3; 5.4.2.3.2.4 Table 13 Note 2 5.4.2.5 Note 2; 5.4.5.1 Note; 5.4.10.2.1 Note 5.4.10.2.2 Note; 5.4.10.2.3 Note 5.5.2.1 Note; 5.5.6 Note; 5.6.4.2.1 Note 2 and Note 3 and Note 4 5.6.8 Note 2; 5.7.7.1 Note 1 and Note 2; 8.5.4.2.3 Note 10.2.1 Table 39 Note 3 and Note 4 and Note 5; 10.5.3 Note 2; 10.6.1 Note 3 F.3.3.4 Note 2; F.3.3.6 Note 3; Y.4.1 Note Y.4.5 Note		N/A
2	**Modification to Clause 1**		--
1	**Add** the following note at the end of Clause 1: “NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.” **Add** the following paragraph and note after Note 5: “This document is a type test standard. NOTE Z2 **Routine tests** of complete equipment, sub-assemblies or components are covered by EN 62911.”		N/A
3	**Modification to Clause 2**		--

IEC62368_1F ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
2	***Add*** *the following references:* *EN 71-1:2014+A1:2018, Safety of toys - Part 1: Mechanical and physical properties* *EN 50332-1:2013, Sound system equipment: Headphones and earphones associated with personal music players - Maximum sound pressure level measurement methodology - Part 1: General method for "one package equipment"* *EN 50332-2:2013, Sound system equipment: Headphones and earphones associated with personal music players - Maximum sound pressure level measurement methodology - Part 2: Matching of sets with headphones if either or both are offered separately, or are offered as one package equipment but with standardised connectors between the two allowing to combine components of different manufacturers or different design* *EN 50332-3:2017, Sound system equipment: headphones and earphones associated with personal music players - Maximum sound pressure level measurement methodology - Part 3: Measurement method for sound dose management* *IEC/TR 62471-2, Photobiological safety of lamps and lamp systems - Part 2: Guidance on manufacturing requirements relating to non-laser optical radiation safety*		N/A
4	**Modification to Clause 4**		--
4	**Add** the following new subclause 4.Z1 after subclause 4.9: “For compliance with B.3 and B.4 in circuits connected to an AC **mains**, protective **devices** shall be provided, subject to the following: - for **pluggable equipment type A**, the protective **devices** shall be included as parts of the equipment, with the exception of components in series with the **mains** input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, for which the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet;		P

IEC62368_1F ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	- for **pluggable equipment type B** or **permanently connected equipment**, the protection may be the dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, for example a fuse or circuit breaker, is fully specified in the installation instructions. Where protective **devices** are required within the equipment, the protective **devices** within the equipment shall operate before or at the same time the expected building installation protection will operate. For earth faults in single-phase equipment, it is not necessary to provide 2 protective **devices**. It is expected that the building installation will protect against earth faults. This applies also in countries where an IT power distribution system is used."		
5	**Modification to subclause 4.1.9**		--
4.1.9	Add the following paragraph at the end of this subclause: "Products need to comply with the requirements of this document with appropriate measurement uncertainty. NOTE Z1 See also the RED ADCO position on 'Measurement uncertainty in published harmonized standards'."		N/A
6	**Modification to subclause 5.4.9.1**		--
5.4.9.1	**Add** the following note after the 5th paragraph: "NOTE Z1 For guidance on the use of high voltage source, see IEC 60060-1, Clause 8 of IEC 60243-1 and IEC 61180."		N/A
7	**Modification to subclause 5.4.2.3.2.4**		--
5.4.2.3.2.4	**Add** the following at the end of this subclause: "The requirement for interconnection with **external circuit** in a HBES/BACS network is in addition given in EN IEC 63044-3:2018."		N/A
8	**Modification to subclause 5.6.6.2**		--
5.6.6.2	**Replace** item d) with the following: "d) For equipment powered from a DC mains, if the protective current rating of the circuit under test exceeds 25 A, the test current shall be minimum as required in item a), unless the manufacturer specifies a higher value."		N/A
9	**Modification to subclause 9.3.1**		--

IEC62368_1F ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
9.3.1	**Replace** the second paragraph with the following: "An **accessible** part that, while in contact with the body, is likely to drop in temperature upon touch can be evaluated under the limits of Annex A of IEC Guide 117:2010 using the test method of 4.5 of IEC Guide 117."		N/A
10	**Modification to subclause 10.2.1**		--
10.2.1	**Add** the following to c) and d) in Table 38: "For additional requirements, see 10.5.1."		N/A
11	**Modification to subclause 10.4.1**		--
10.4.1	**Replace** the second paragraph of 10.4.1 with: "Electronic light effect equipment does not have to comply with the requirements of 10.4. However, 114 IEC/TR 62471-2 shall be considered and proper installation instructions shall be provided. **Replace** the ninth paragraph of 10.4.1 with: The following information shall be provided in the user manual for safe operation and installation. This information shall also be provided for safe operation by a skilled person who may be exposed to Risk Group 3 energy levels. Adequate instructions for proper assembly, installation, maintenance and safe use, including clear warnings concerning precautions to avoid possible exposure to hazardous optical radiation; and Advice on safe operating procedures and warnings concerning **reasonably foreseeable misuse,** malfunctions and hazardous failure modes. Where servicing and maintenance procedures are detailed, they shall include explicit instructions on safe procedures to be followed; and The marking on the equipment shall be reproduced in the user manual. A yellow background is not required in the user manual.		N/A
12	**Modification to subclause 10.4.4**		--
10.4.4	**Replace** the last paragraph of 10.4.4 with: "Compliance against material degradation from UV radiation is checked by the applicable tests of Annex C."		N/A
13	**Modification to subclause 10.5.1**		--

IEC62368_1F ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.5.1	**Add** the following after the first paragraph: "For RS1 compliance is checked by measurement under the following conditions: In addition to the **normal operating conditions**, all controls adjustable from the outside of the equipment by hand, by any object such as a **tool** or a coin, and those internal adjustments or pre-sets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made. NOTE Z1 Soldered joints and paint lockings are examples of adequate locking. The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm2, at any point at a distance of 10 cm from the outer surface of the equipment. Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made. For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level. NOTE Z2 These values appear in Directive 2013/59/Euratom of 5 December 2013."		N/A
14	**Modification to subclause 10.5.3**		--
10.5.3	**Replace** the second paragraph of 10.5.3 with: "The amount of radiation is determined by means of a radiation monitor of the ionizing chamber type with an effective area of 1 000 mm2 ± 10 mm2 or by measuring equipment of other types giving equivalent results."		N/A
15	**Modification to Clause 10**		--
	Replace 10.6 with the following:		N/A
10.6	**Safeguards against acoustic energy sources**		N/A
10.6.1	**General**		N/A

IEC62368_1F ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.1.1	**Introduction** **Safeguard** requirements for protection against long-term exposure to excessive sound pressure levels from personal music players closely coupled to the ear are specified below. Requirements for earphones and headphones intended for use with personal music players are also covered. A personal music player is a portable equipment intended for use by an **ordinary person**, that: - is designed to allow the user to listen to audio or audiovisual content / material; and - uses a listening **device**, such as headphones or earphones that can be worn in or on or around the ears; and - has a player that can be body worn (of a size suitable to be carried in a clothing pocket) and is intended for the user to walk around with while in continuous use (for example, on a street, in a subway, at an airport, etc.). EXAMPLES Portable CD players, MP3 audio players, mobile phones with MP3 type features, PDAs or similar equipment. Personal music players shall comply with the requirements of either 10.6.2 or 10.6.3. NOTE 1 Protection against acoustic energy sources from telecom applications is referenced to ITU-T P.360. NOTE 2 It is the intention of the Committee to allow the alternative methods for now, but to only use the dose measurement method as given in 10.6.5 in future. Therefore, manufacturers are encouraged to implement 10.6.5 as soon as possible.		N/A

IEC62368_1F ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Listening **devices** sold separately shall comply with the requirements of 10.6.6. These requirements are valid for music or video mode only. The requirements do not apply to: - **professional equipment**; NOTE 3 **Professional equipment** is equipment sold through special sales channels. All products sold through normal electronics stores or general public sales channels are considered not to be **professional equipment**. - hearing aid equipment and other devices for assistive listening; - the following type of analogue personal music players: - long distance radio receiver (for example, a multiband radio receiver or world band radio receiver, an AM radio receiver), and - cassette player/recorder; NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies. - a player while connected to an external amplifier that does not allow the user to walk around while in use; - hearing protection devices (HPD) that comply with EN 352-8 For equipment that is clearly designed or intended primarily for use by children, the limits of the relevant toy standards may apply. The relevant requirements are given in EN 71-1:2014+A1:2018, 4.20 and the related tests methods and measurement distances apply.		N/A
10.6.2	**Classification of devices without the capacity to estimate sound dose**		N/A

IEC62368_1F ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.2.1	**General** This standard is transitioning from short-term based (30 s) requirements to long-term based (40 h) requirements. These clauses remain in effect only for devices that do not comply with sound dose estimation as stipulated in EN 50332-3:2017. For classifying the acoustic output *L*Aeq,*T*, measurements are based on the A-weighted equivalent sound pressure level over a 30 s period. For music where the average sound pressure (long term *L*Aeq,*T*) measured over the duration of the song is lower than the average produced by the programme simulation noise, measurements may be done over the duration of the complete song. In this case, *T* becomes the duration of the song. NOTE Classical music, acoustic music and broadcast typically has an average sound pressure (long term *L*Aeq,*T*) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the content and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song does not exceed the required limit. For example, if the player is set with the programme simulation noise to 85 dB, but the average music level of the song is only 65 dB, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dB.		N/A

IEC62368_1F ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.2.2	**RS1 limits (to be superseded, see 10.6.3.2)** RS1 is a class 1 acoustic energy source that does not exceed the following: for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the *L*Aeq,*T* acoustic output shall be ≤ 85 dB when playing the fixed "programme simulation noise" described in EN 50332-1:2013. for equipment provided with a standardized connector (for example, a 3,5 mm headphone/earphone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 27 mV (analogue interface) or −25 dBFS (digital interface) when playing the fixed 214 "programme simulation noise" described in EN 50332-1:2013. The RS1 limits will be updated for all devices as per 10.6.3.2.		N/A
10.6.2.3	**RS2 limits (to be superseded, see 10.6.3.3)** RS2 is a class 2 acoustic energy source that does not exceed the following: for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or when the combination of player and listening device is known by other means such as setting or automatic detection, the LAeq,T acoustic output shall be ≤ 100 dB(A) when playing the fixed "programme simulation noise" as described in EN 50332-1:2013. for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 150 mV (analogue interface) or −10 dBFS (digital interface) when playing the fixed "programme simulation noise" as described in 226 EN 50332-1:2013.		N/A
10.6.2.4	**RS3 limits** RS3 is a class 3 acoustic energy source that exceeds RS2 limits.		N/A
10.6.3	**Classification of devices (new)**		N/A
10.6.3.1	**General** Previous limits (10.6.2) created abundant false negative and false positive PMP sound level warnings. New limits, compliant with The Commission Decision 2009/490/EC of 23 June 2009, are given below.		N/A

IEC62368_1F ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.3.2	**RS1 limits (new)** RS1 is a class 1 acoustic energy source that does not exceed the following: for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the LAeq,T acoustic output shall be ≤ 80 dB when playing the fixed “programme simulation noise” described in EN 50332-1:2013. for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 15 mV (analogue interface) or −30 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1:2013.		N/A
10.6.3.3	**RS2 limits (new)** RS2 is a class 2 acoustic energy source that does not exceed the following: for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the weekly **sound exposure level**, as described in EN 50332-3:2017, shall be ≤ 80 dB when playing the fixed “programme simulation noise” described in 249 EN 50332-1:2013. for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output level, integrated over one week, as described in EN 50332-3:2017, shall be ≤ 15 mV (analogue interface) or −30 dBFS		N/A
10.6.4	**Requirements for maximum sound exposure**		N/A
10.6.4.1	**Measurement methods** All volume controls shall be turned to maximum during tests. Measurements shall be made in accordance with EN 50332-1:2013 or EN 50332-2:2013 as applicable.		N/A

IEC62368_1F ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.4.2	**Protection of persons** Except as given below, protection requirements for parts **accessible** to **ordinary persons**, **instructed persons** and **skilled persons** are given in 4.3. NOTE 1 Volume control is not considered to be a **safeguard.** Between RS2 and an **ordinary person**, the **basic safeguard** may be replaced by an **instructional safeguard** in accordance with Clause F.5, except that the **instructional safeguard** shall be placed on the equipment, or on the packaging, or in the instruction manual. Alternatively, the **instructional safeguard** may be given through the equipment display during use. The elements of the **instructional safeguard** shall be as follows: - element 1a: the symbol  , IEC 60417-6044 (2011–01) - element 2: “High sound pressure” or equivalent text - element 3: “Hearing damage risk” or equivalent text - element 4: “Do not listen at high volume levels for long periods.” or equivalent text An **equipment safeguard** shall prevent exposure of an **ordinary person** to an RS2 source without intentional physical action from the **ordinary person** and shall automatically return to an output level not exceeding what is specified for an RS1 source when the power is switched off. The equipment shall provide a means to actively inform the user of the increased sound level when the equipment is operated with an output level exceeding RS1 limits. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an output level exceeding RS1 limits. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time.		N/A
	NOTE 2 Examples of means include visual or audible signals. Action from the user is always needed. NOTE 3 The 20 h listening time is the accumulative listening time, independent of how often and how long the personal music player has been switched off. A **skilled person** shall not be unintentionally exposed to RS3.		
10.6.5	**Requirements for dose-based systems**		N/A

IEC62368_1F ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.5.1	**General requirements** Personal music players shall give the warnings as provided below when tested according to 281 EN 50332-3:2017, using the limits from this clause. The manufacturer may offer optional settings to allow the users to modify when and how they wish to receive the notifications and warnings to promote a better user experience without defeating the **safeguards**. This allows the users to be informed in a method that best meets their physical capabilities and device usage needs. If such optional settings are offered, an administrator (for example, parental restrictions, business/educational administrators, etc.) shall be able to lock any optional settings into a specific configuration. The personal music player shall be supplied with easy to understand explanation to the user of the dose management system, the risks involved, and how to use the system safely. The user shall be made aware that other sources may significantly contribute to their sound exposure, for example work, transportation, concerts, clubs, cinema, car races, etc.		N/A
10.6.5.2	**Dose-based warning and requirements** When a dose of 100 % CSD is reached, and at least at every 100 % further increase of CSD, the device shall warn the user and require an acknowledgement. In case the user does not acknowledge, the output level shall automatically decrease to a level in compliance with class RS1 limits. The warning shall at least clearly indicate that listening above 100 % CSD leads to the risk of hearing damage or loss.		N/A

IEC62368_1F ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.5.3	**Exposure-based requirements** With only dose-based requirements, cause and effect could be far separated in time, defying the purpose of educating users about safe listening practice. In addition to dose-based requirements, a PMP shall therefore also put a limit to the short-term sound level a user can listen at. The exposure-based limiter (EL) shall automatically reduce the sound level not to exceed 100 dB(A) or 150 mV integrated over the past 180 s, based on methodology defined in EN 50332-3:2017. The EL settling time (time from starting level reduction to reaching target output level) shall be 10 s or less. Test of EL functionality is conducted according to EN 50332-3:2017, using the limits from this clause. For equipment provided as a package (player with its listening device), the level integrated over 180 s shall be 100 dB or lower. For equipment provided with a standardized connector, the un-weighted level integrated over 180 s shall be no more than 150 mV for an analogue interface and no more than −10 dBFS for a digital interface. In case the source is known not to be music (or test signal), the EL may be disabled.		N/A
10.6.6	**Requirements for listening devices (headphones, earphones, etc.)**		N/A
10.6.6.1	**Corded listening devices with analogue input** With 94 dB *L*Aeq acoustic pressure output of the listening device, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximizes the measured acoustic output level, the input voltage of the listening device when playing the fixed “programme simulation noise” as described in EN 50332-1:2013 shall be ≥ 75 mV. NOTE The values of 94 dB and 75 mV correspond with 85 dB and 27 mV in 10.6.2.2. or 100 dB and 150 mV in 10.6.2.3.		N/A
10.6.6.2	**Corded listening devices with digital input** With any playing device playing the fixed “programme simulation noise” described in EN 50332-1:2013, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the *L*Aeq,*T* acoustic output of the listening device shall be ≤ 100 dB with an input signal of −10 dBFS.		N/A

IEC62368_1F ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.6.3	**Cordless listening devices** In cordless mode, with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1:2013; and respecting the cordless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and with volume and sound settings in the receiving device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the above mentioned programme simulation noise, the *L*Aeq,*T* acoustic output of the listening device shall be ≤ 100 dB with an input signal of −10 dBFS.		N/A
10.6.6.4	**Measurement method** Measurements shall be made in accordance with EN 50332-2:2013 as applicable.”		N/A
16	**Modification to subclause G.3.1.2**		--
	Add the following note after the first paragraph: “NOTE Z1 An IEC 60730 series standard is considered relevant if the component in question falls within its scope.”		N/A
17	**Modification to subclause G.7.1**		--
	Add the following note at the end of the subclause: “NOTE Z1 The harmonized code designations corresponding to the IEC cable types are given in Annex ZD.”		N/A
18	**Modification to subclause M.2**		--
	Add the following paragraph after the first paragraph: “The size of the battery compartment shall be designed taking into account the battery compartment recommendations of the relevant battery standard. NOTE For general guidance on the design of the battery compartment, see Clause 8 of IEC 62485-4.”		N/A
19	**Modification to Bibliography**		--

IEC62368_1F ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Add the following notes for the standards indicated: IEC 60060-1 NOTE Harmonized as EN 60060-1. IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60204-1 NOTE Harmonized as EN IEC 60204-1. IEC 60204-11 NOTE Harmonized as EN IEC 60204-11. IEC 60243-1 NOTE Harmonized as EN 60243-1. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4. IEC 60664-5:2005 NOTE Harmonized as EN 60664-5:2007. IEC 60721-3-4 NOTE Harmonized as EN IEC 60721-3-4. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61180 NOTE Harmonized as EN 61180. IEC 61508-1 NOTE Harmonized as EN 61508-1. IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6. IEC 61643-21 NOTE Harmonized as EN 61643-21. IEC 61643-311 NOTE Harmonized as EN 61643-311. IEC 61643-321 NOTE Harmonized as EN 61643-321. IEC 61643-331 NOTE Harmonized as EN IEC 61643-331. IEC 61140:2016 NOTE Harmonized as EN 61140:2016. IEC 61439-5:2014 NOTE Harmonized as EN 61439-5:2015. IEC 61969-3 NOTE Harmonized as EN 61969-3. IEC 62040:2017 NOTE Harmonized as EN IEC 62040:2019. IEC 62305-1 NOTE Harmonized as EN 62305-1. IEC 62368-3 NOTE Harmonized as EN 62368-3. IEC 62485-4 NOTE Harmonized as EN IEC 62485-4. ISO 10218-1 NOTE Harmonized as EN ISO 10218-1. ISO 10218-2 NOTE Harmonized as EN ISO 10218-2. ISO 13482 NOTE Harmonized as EN ISO 13482. ISO 13850 NOTE Harmonized as EN ISO 13850.		N/A
20	**Addition of annexes**		--
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		N/A

IEC62368_1F ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.1.15	**Finland, Norway** and **Sweden** To the end of the subclause the following is added: **Class I pluggable equipment type A** intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and **accessible** parts, have a marking stating that the equipment shall be connected to an earthed **mains** socket-outlet. The marking text in the applicable countries shall be as follows: 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
4.7.3	**United Kingdom** To the end of the subclause the following is added: The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex.		N/A
5.4.11.1 and Annex G	**Finland and Sweden** To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.		N/A

IEC62368_1F ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that **clearances** and **creepage distances** do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition - passes the tests and inspection criteria of 5.4.7 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and - is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5 kV. It is permitted to bridge this insulation with a capacitor complying with EN 60384-14, subclass Y2. A capacitor classified Y3 according to EN 60384-14, may bridge this insulation under the following conditions: - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.10; - the additional testing shall be performed on all the test specimens as described in EN 60384-14; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.		
5.5.2.1	**Norway** After the 3rd paragraph the following is added: Due to the IT power distribution system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A
5.5.6	**Finland, Norway** and **Sweden** To the end of the subclause the following is added: Resistors used as **basic safeguard** or bridging **basic insulation** in **class I pluggable equipment type A** shall comply with G.10.1 and the test of G.10.3.		N/A

IEC62368_1F ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.6.4.2.1	**Ireland and United Kingdom** After the indent for **pluggable equipment type A**, the following is added: - the **protective current rating** is taken to be 13 A, this being the largest rating of fuse used in the **mains** plug.		N/A
5.6.4.2.1	**France** After the indent for **pluggable equipment type A**, the following is added: - in certain cases, the **protective current rating** of the circuit supplied from the **mains** is taken as 20 A instead of 16 A. *Justification:* In France, according to NF C15-100 standard, in certain cases, the maximum rated current of the protective **device** circuit-breaker is 20 A.		N/A
5.6.5.1	**Ireland and United Kingdom** To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm2 to 1,5 mm2 in cross-sectional area.		N/A
5.6.8	**Norway** To the end of the subclause the following is added: Equipment connected with an earthed mains plug is classified as **class I equipment**. See the Norway marking requirement in 4.1.15. The symbol IEC 60417-6092, as specified in F.3.6.2, is accepted.		N/A
5.7.7.1	**Norway and Sweden** To the end of the subclause the following is added: The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system.		N/A

IEC62368_1F ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: “Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)” NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV RMS, 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.” Translation to Swedish: ”Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”.		
8.5.4.2.3	**United Kingdom** Add the following after the 2nd dash bullet in 3rd paragraph: An emergency stop system complying with the requirements of EN IEC 60204-1 and EN ISO 13850 is required where there is a risk of personal injury.		N/A

IEC62368_1F ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
B.3.1 and B.4	**Ireland and United Kingdom** The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of **direct plug-in equipment**, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the **direct plug-in equipment**, until the requirements of Annexes B.3.1 and B.4 are met		N/A
G.4.2	**United Kingdom** To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A
G.7.1	**United Kingdom** To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc. (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
G.7.1	**Ireland** To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard		N/A

IEC62368_1F ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.7.2	**Ireland and United Kingdom** To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm^2 is allowed for equipment which is rated over 10 A and up to and including 13 A.		N/A
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		N/A
10.5.2	**Germany** The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking. *Justification*: German ministerial decree against ionizing 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
ZD	**IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS**		N/A

IEC62368_1F ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
			N/A

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

Figure 1. Overall view

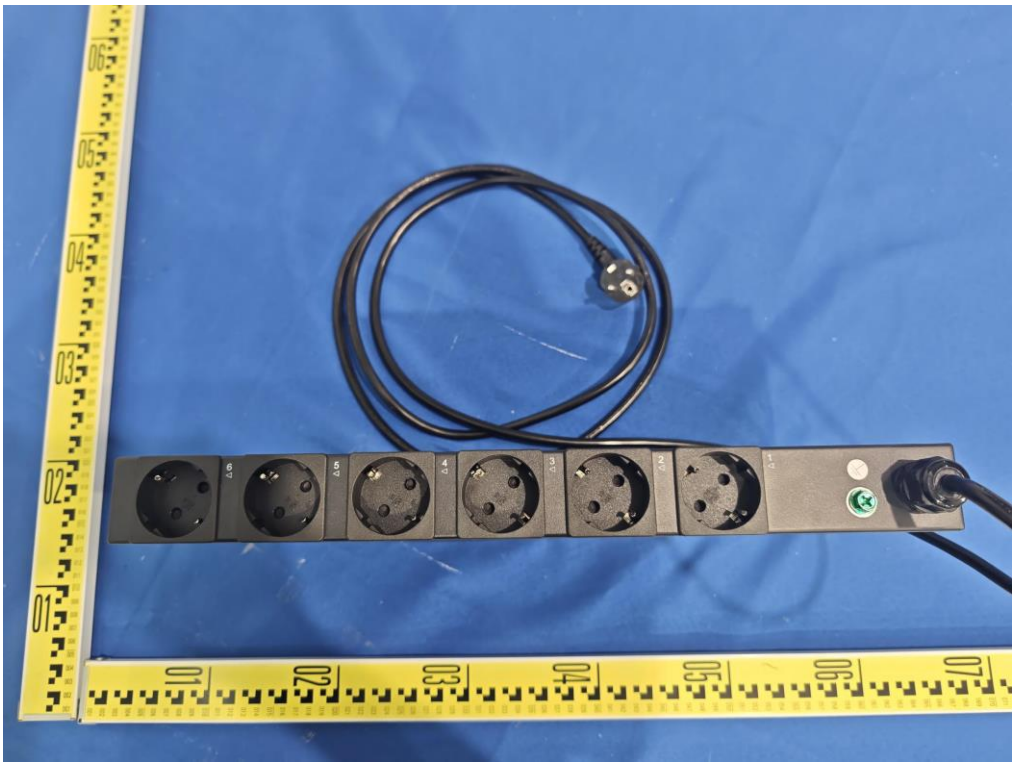

Figure 2. Overall view

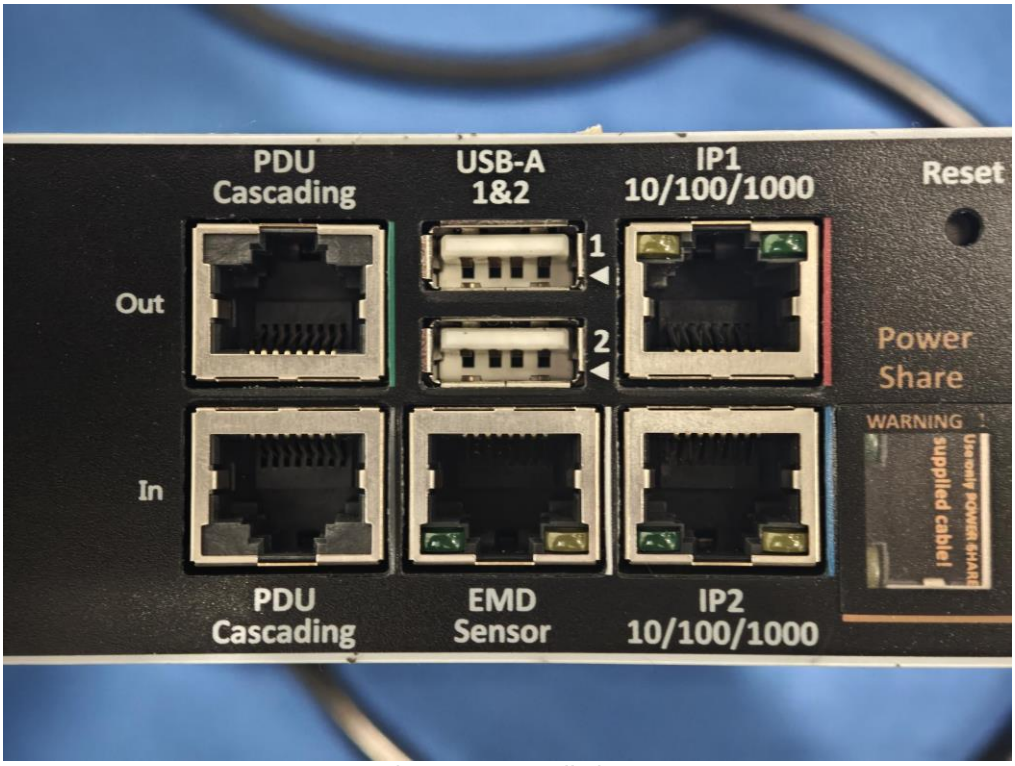

Figure 3. Overall view

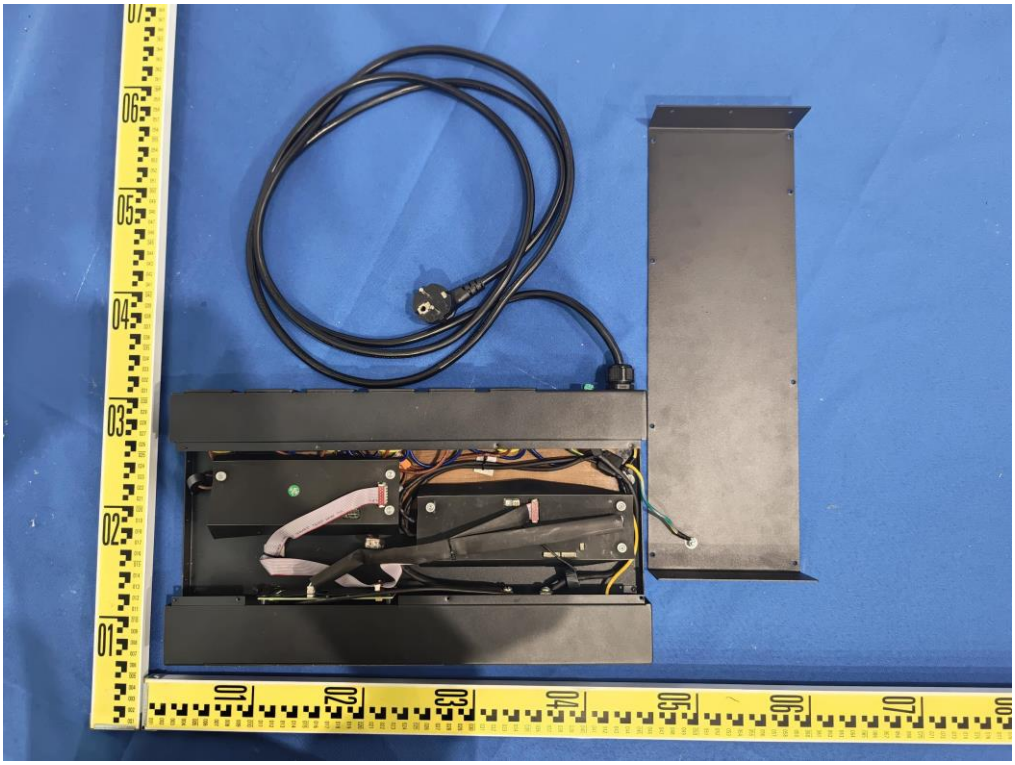

Figure 4. Internal view

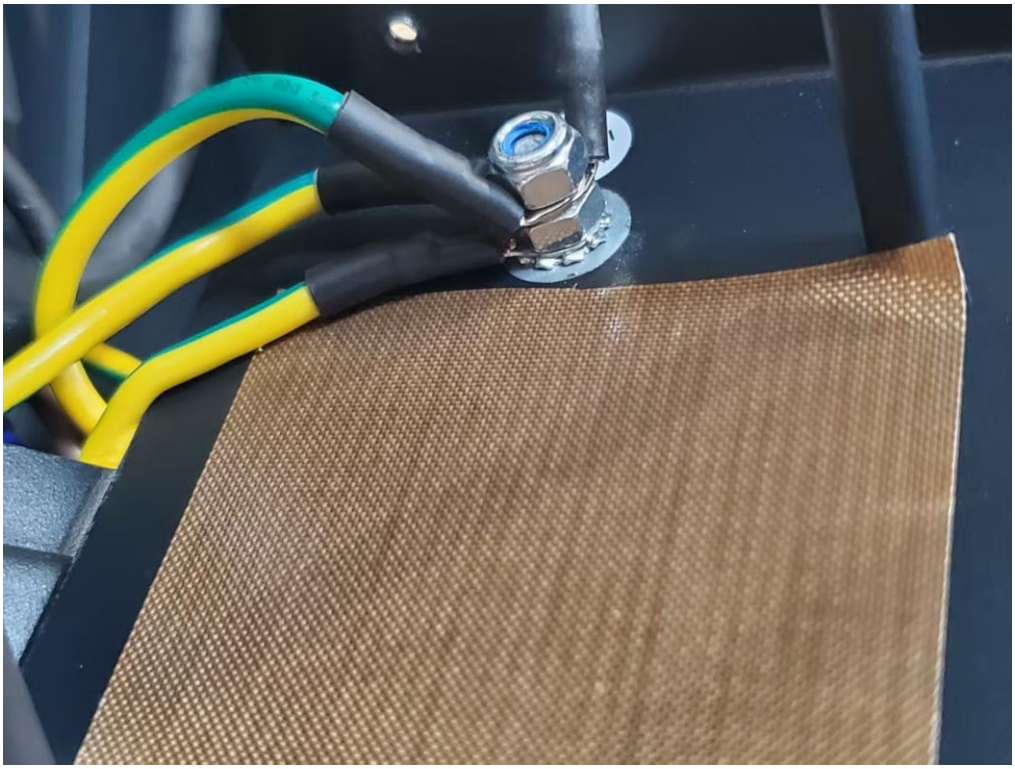

Figure 5. Internal view

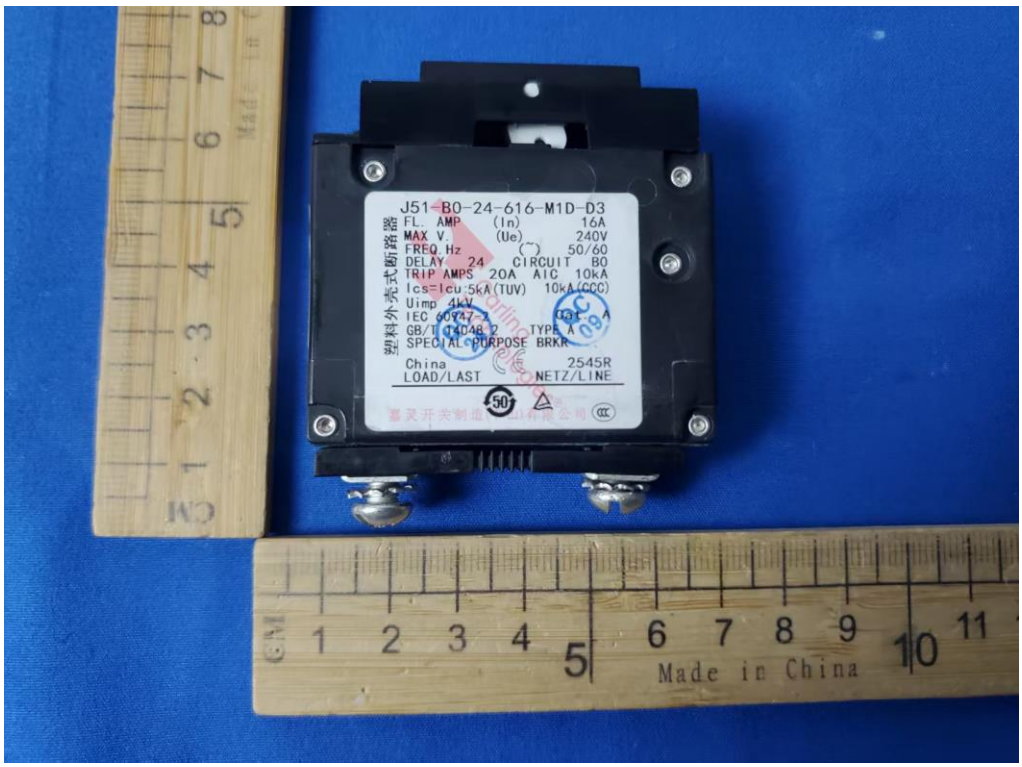

Figure 6. Circuit breaker

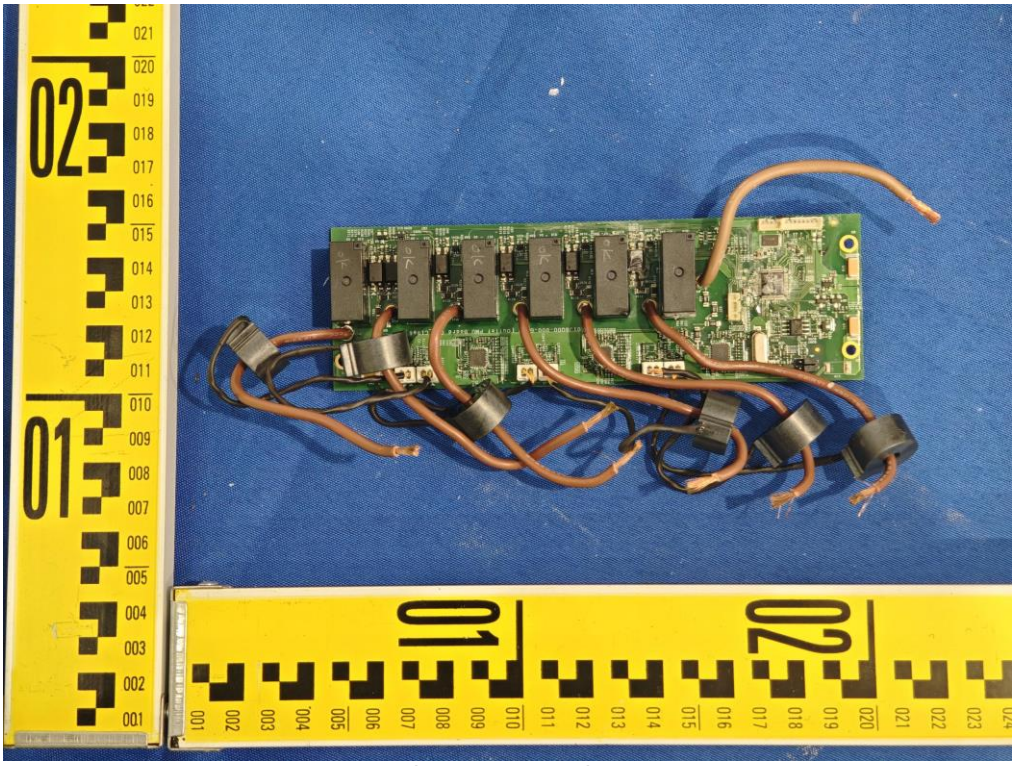

Figure 7. PCB view

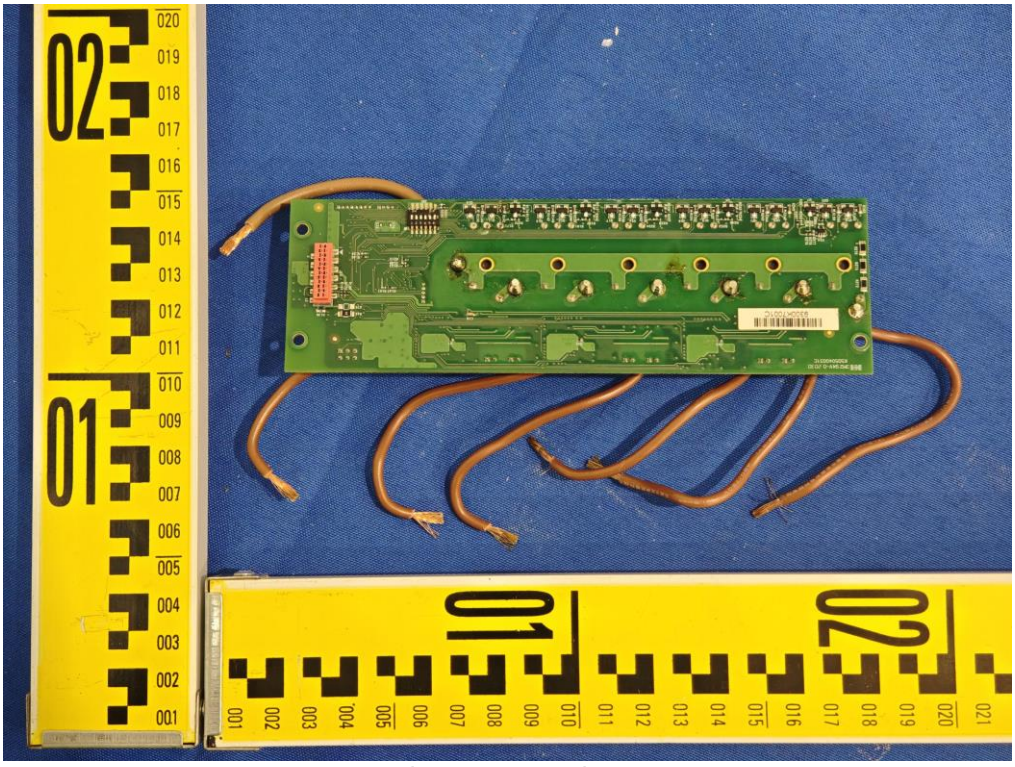

Figure 8. PCB view

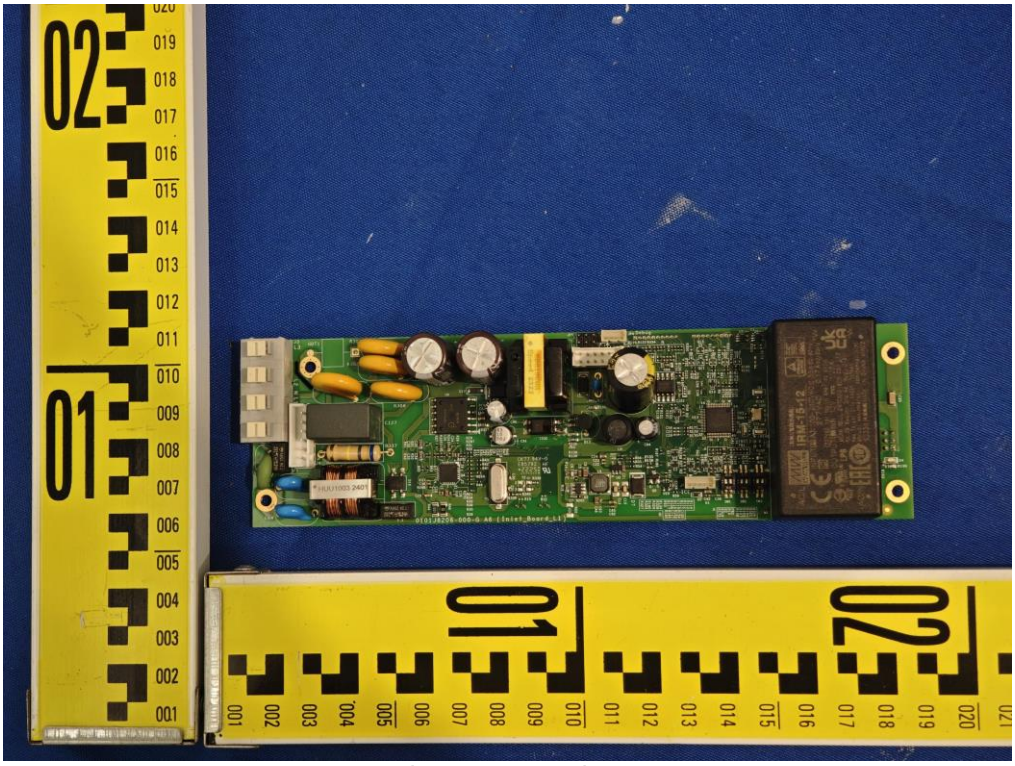

Figure 9. PCB view

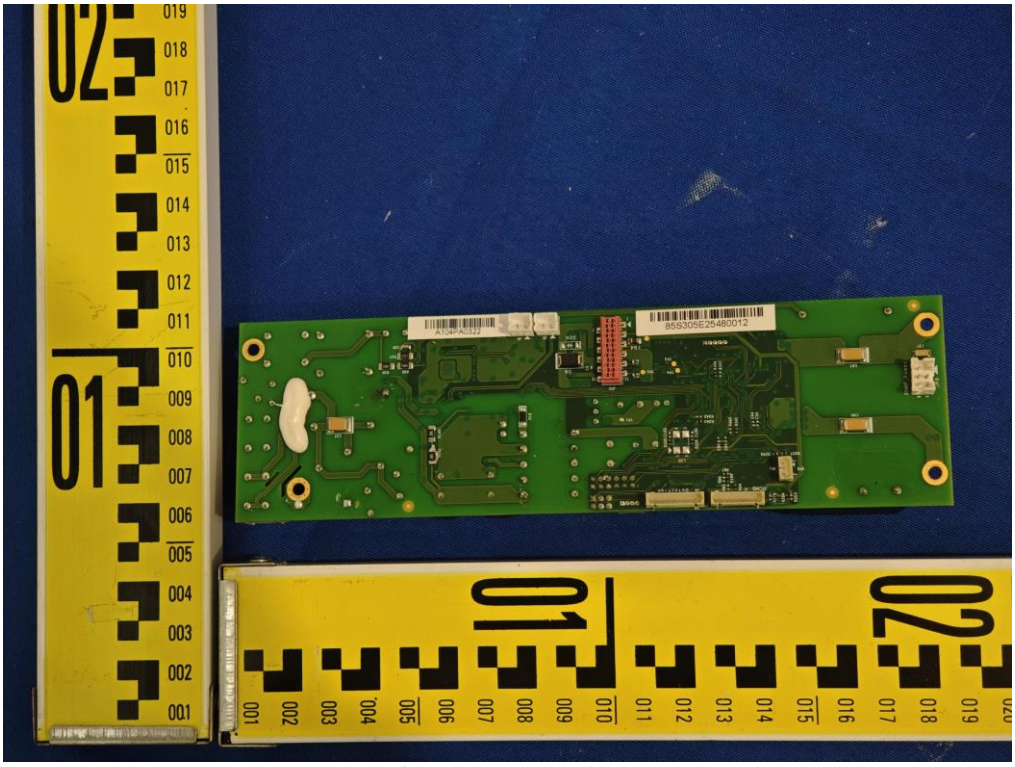

Figure 10. PCB view

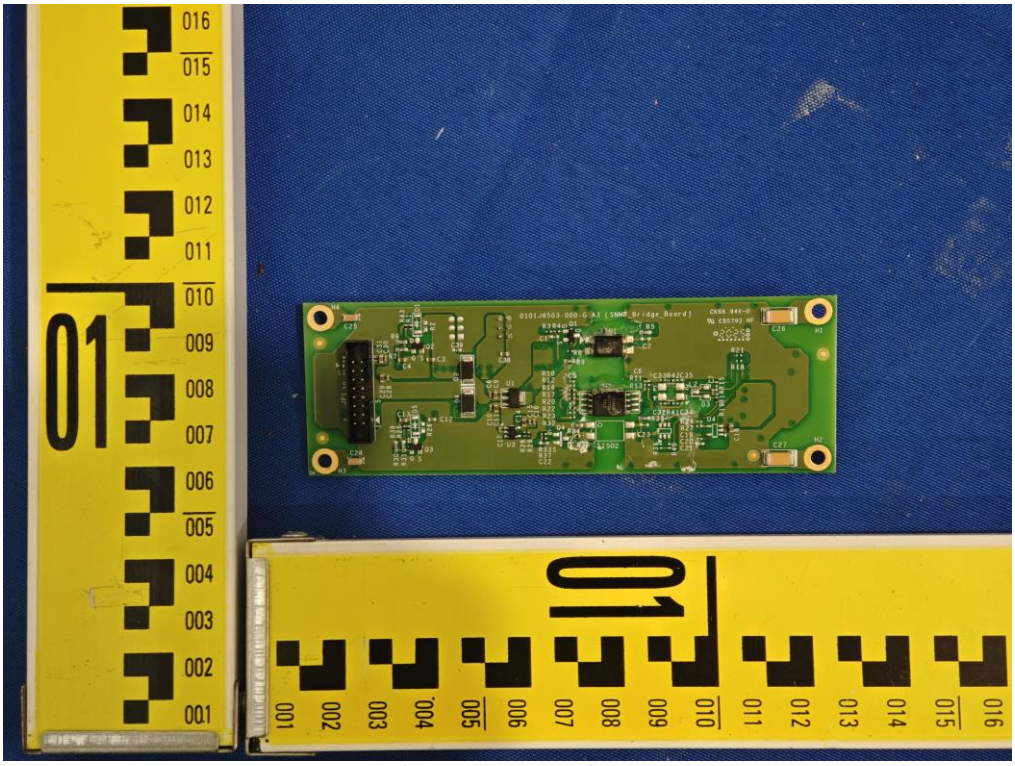

Figure 11. PCB view

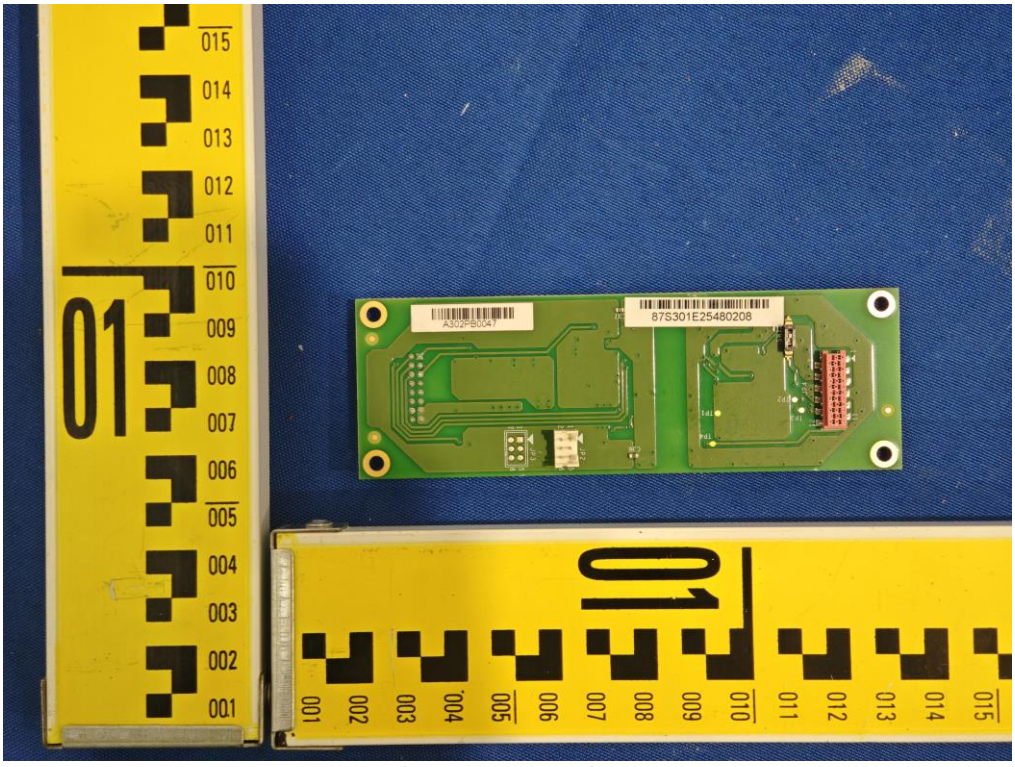

Figure 12. PCB view

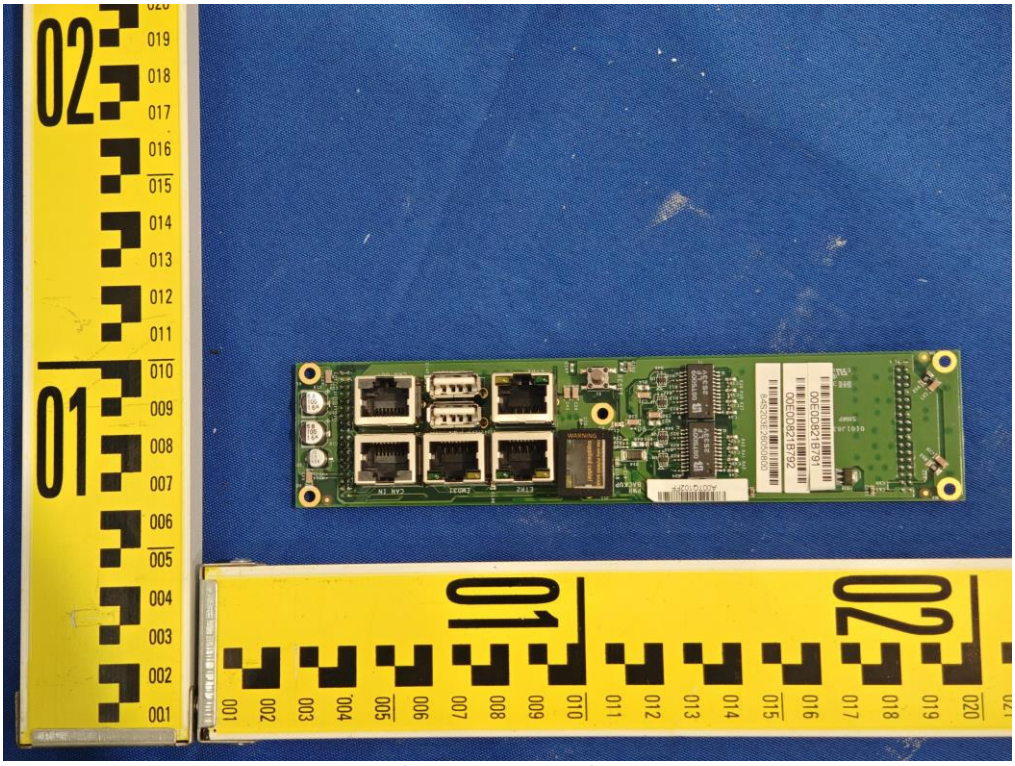

Figure 13. PCB view

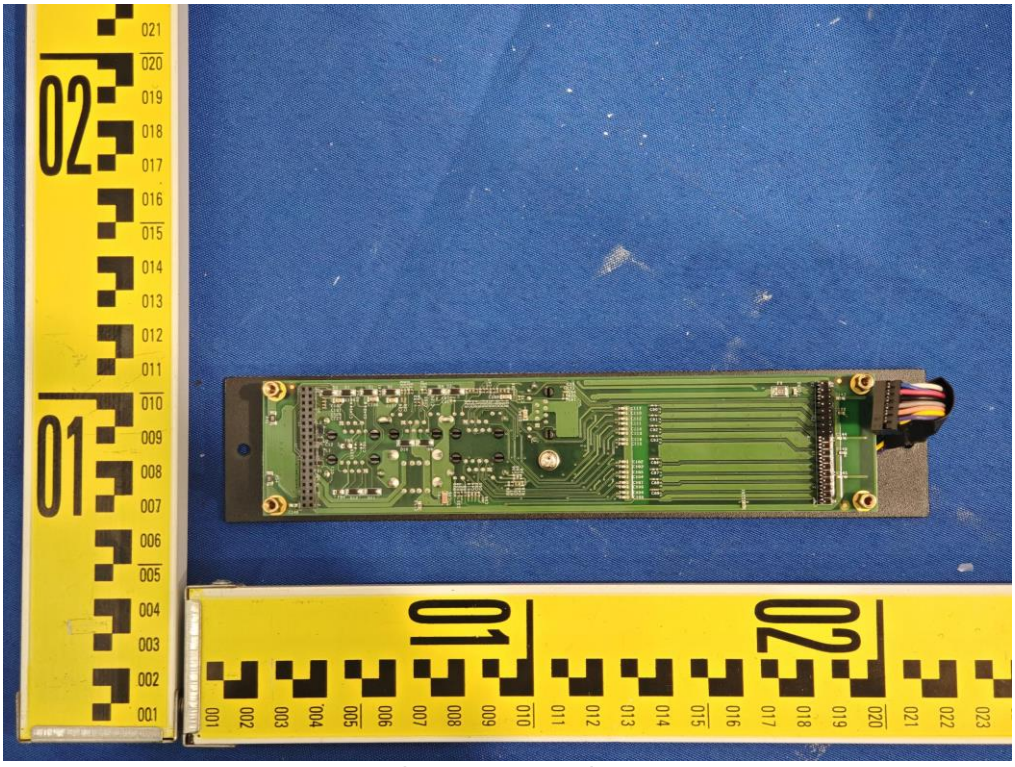

Figure 14. PCB view

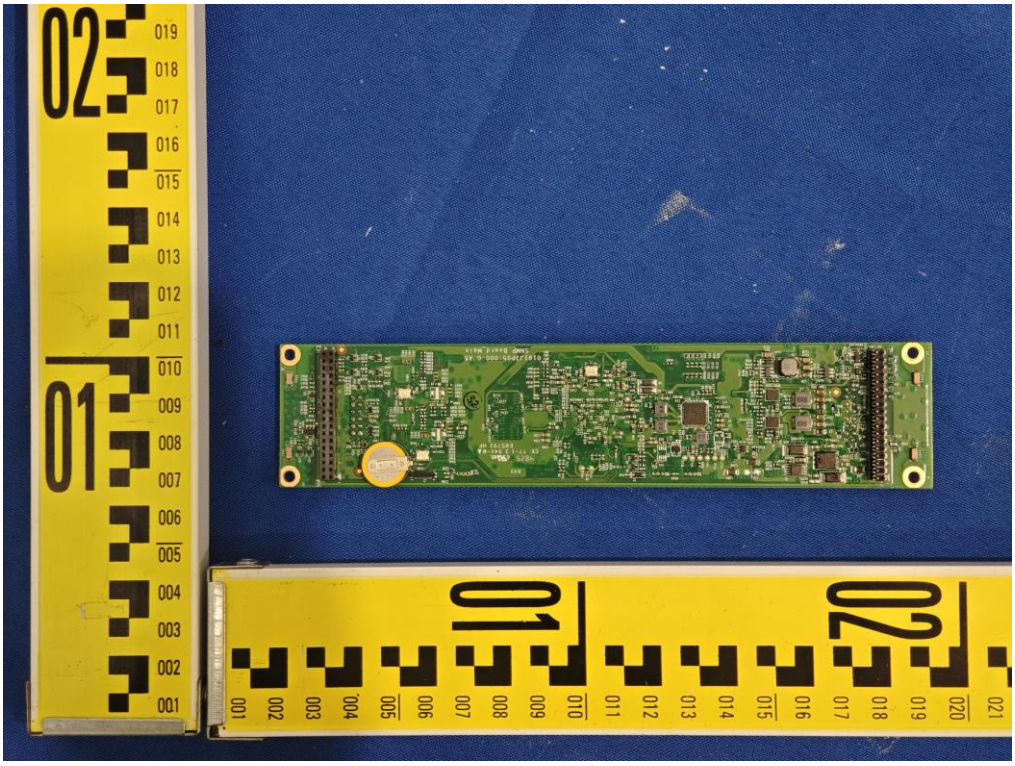

Figure 15. PCB view

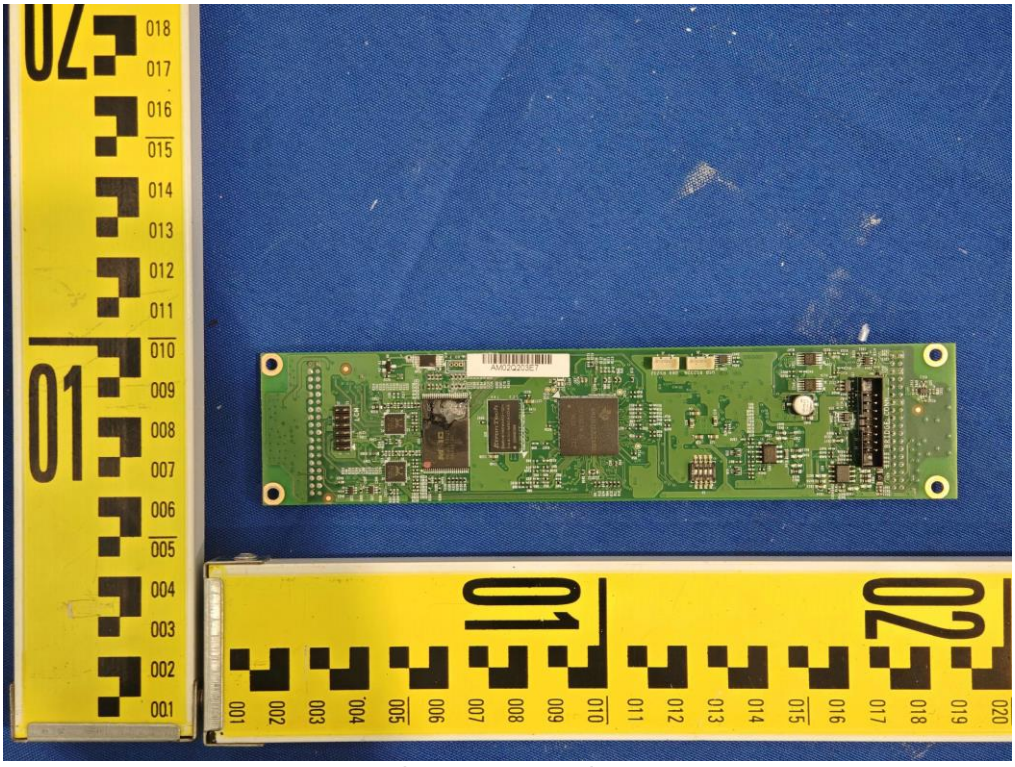

Figure 16. PCB view

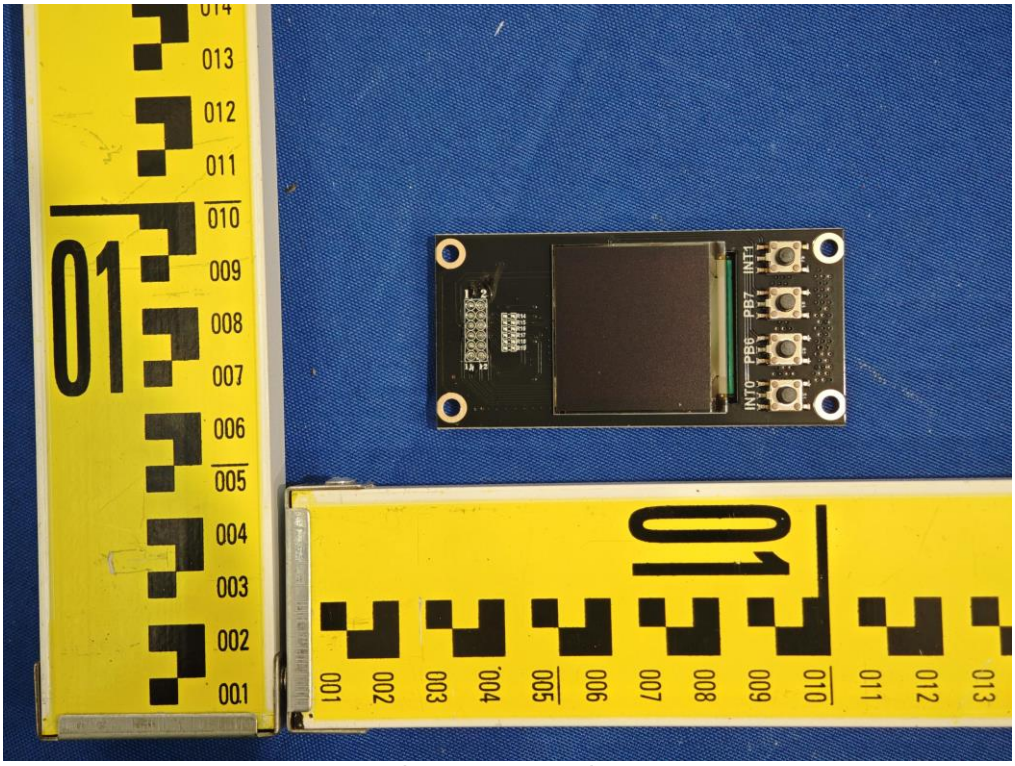

Figure 17. PCB view

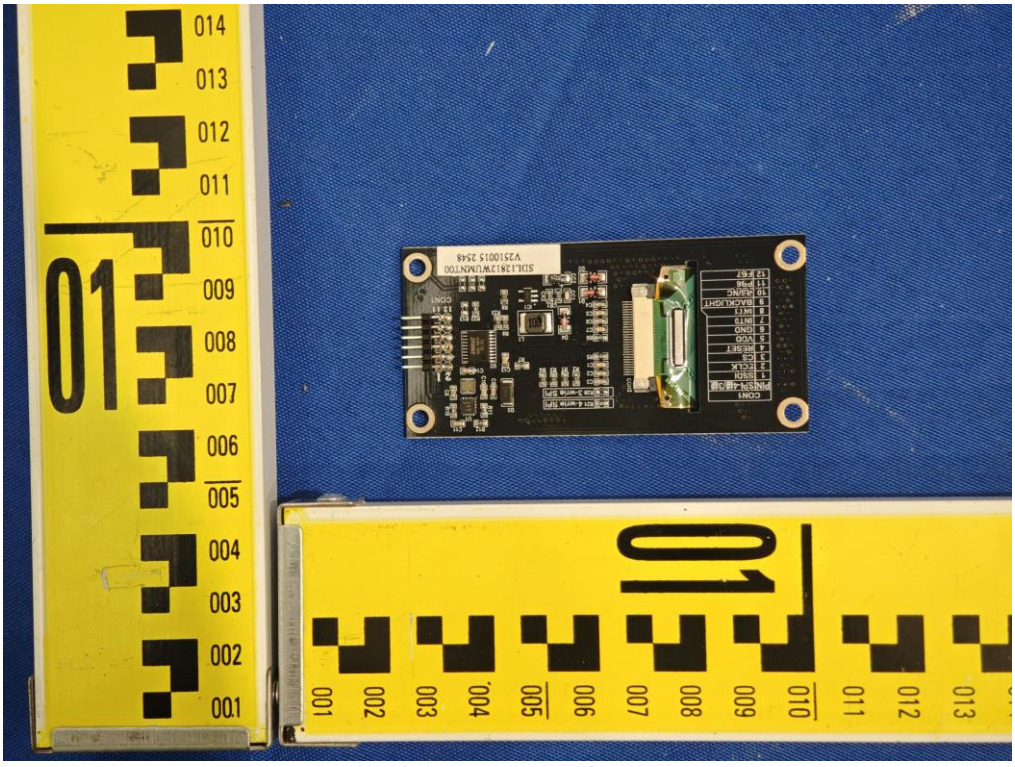

Figure 18. PCB view

END OF REPORT