Test Report issued under the responsibility of:

intertek
Total Quality. Assured.

TEST REPORT
IEC 62368-1
Audio/video, information and communication technology equipment
Part 1: Safety requirements

Report Number..... :	240507052SZN-001
Date of issue ..... :	September 7, 2024
Total number of pages ..... :	Refer to page 3 for details
Name of Testing Laboratory preparing the Report ..... :	Intertek Testing Services Shenzhen Ltd. Longhua Branch
Applicant's name..... :	LEA, LLC
Address ..... :	635 S. LAFAYETTE BLVD BUILDING 113 SUITE 109 SOUTH BEND IN 46601 UNITED STATES OF AMERICA.
Test specification:	
Standard ..... :	IEC 62368-1:2018
Test procedure..... :	CB Scheme
Non-standard test method..... :	N/A
TRF template used ..... :	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No. ..... :	IEC62368_1E
Test Report Form(s) Originator.... :	UL(US)
Master TRF ..... :	Dated 2022-04-14

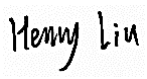
If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description .....:	LEA Professional Connect Series (Audio amplifier)
Trade Mark(s) .....:	
Manufacturer.....:	IVEMSA, D.A. DE C.V. DIVISION VTECH CALZ. ABELARDO L. RODRIGUEZ #885 INT. B COLONIA CALLES MEXICALI BC MEXICO C.P 21226, TECATE, B.C.
Model/Type reference .....:	34, 64, 124, 34D, 64D, 124D
Ratings .....:	Input: 100-240V~, 50-60Hz, 150W

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
☒	**CB Testing Laboratory:**	Intertek Testing Services Shenzhen Ltd. Longhua Branch	
Testing location/ address ..... :		No.101&201, Building B, No.308, Wuhe Avenue, Zhangkengjing, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China	
Tested by (name, function, signature) ..... :		Henry Liu /Engineer	
Approved by (name, function, signature) .. :		Jacky Chen /Sr. Project Engineer	
☐	**Testing procedure: CTF Stage 1:**		
Testing location/ address ..... :			
Tested by (name, function, signature) ..... :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address ..... :			
Tested by (name, function, signature)			
Witnessed by (name, function, signature) . :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 3:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address ..... :			
Tested by (name, function, signature) ..... :			
Witnessed by (name, function, signature) . :			
Approved by (name, function, signature) .. :			
Supervised by (name, function, signature) :			

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

- Pages 1 to 70 for IEC 62368-1 TRF (main report)
- Appendix 1 (22 pages): EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES
- Appendix 2 (7 pages): National differences of United States of America (US) and Canada (CA)
- Appendix 3 (6 pages): National differences of Australia (AU), New Zealand (NZ)
- Appendix 4 (1 page): National differences of Saudi Arabia (SA)
- Appendix 5 (5 pages): National differences of China (CN)
- Appendix 6 (5 pages): National differences of Japan (JP)
- Appendix 7 (18 pages): Product photos

Summary of testing:

The sample(s) tested complies with the requirements of IEC 62368-1: 2018

Tests performed (name of test and test clause):	**Testing location:**
Refer to content of this test report	Intertek Testing Services Shenzhen Ltd. Longhua Branch No.101&201, Building B, No.308, Wuhe Avenue, Zhangkengjing, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China

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

Group and national differences of all CENELEC countries have been considered.

National differences of United States of America (US), Canada (CA), Australia (AU), New Zealand (NZ), Saudi Arabia (SA), China (CN) and Japan (JP) were checked.

☒ **The product fulfils the requirements of:** IEC 62368-1: 2018.

Use of uncertainty of measurement for decisions on conformity (decision rule):

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty (“simple acceptance” decision rule, previously known as “accuracy method”).

☐ Other: (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)

Information on uncertainty of measurement:

The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.

IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

Copy of marking plate:

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

100-240V~, 50-60Hz , 150W

Note:

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

- The models can be replaced by others which listed in this report.

- Size of CE mark must be in correct ratio and ≥ 5mm in height, and size of WEEE mark must be in correct ratio and ≥ 7mm in height.

- When placing electrical equipment on the EU market, according to EU NLF (new legislative framework), the importer (and manufacturer, if it is different from importer)'s name registered trade name or registered trade mark and the postal address at which he can be contacted shall be marked on the product or, where that is not possible, on its packaging or in a document accompanying the product. The contact details shall be in a language easily understood by end-users and market surveillance authorities.

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 (20A for US and Canada, 13A for UK); 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 T_{ma}.....:	60 °C ☐ Outdoor: minimum °C
IP protection class .....:	☒ IPX0 ☐ IP___
Power systems .....:	☒ TN ☐ TT ☐ IT - V_{L-L} ☐ not AC mains
Altitude during operation (m) .....:	☒ 2000 m or less ☐ m
Altitude of test laboratory (m) .....:	☒ 2000 m or less ☐ m
Mass of equipment (kg) .....:	2.14kg

Possible test case verdicts:	
- test case does not apply to the test object....:	N/A
- test object does meet the requirement.....:	P (Pass)
- test object does not meet the requirement....:	F (Fail)
Testing:	
Date of receipt of test item .....:	May 7, 2024
Date (s) of performance of tests .....:	May 7, 2024 to August 16, 2024

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.

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program. The test report only allows to be revised only within the report defined retention period unless standard or regulation was withdrawn or invalid.

The clause which indicated with * is the subcontract test item. (if there is subcontracting test).

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) ..... :	1) IVEMSA, D.A. DE C.V. DIVISION VTECH AV. LA VENDIMIA #8000, INT. C y D PARQUE INDUSTRIAL EL BAJIO C.P. 21503, TECATE, B.C. MEXICO 2) VTECH COMMUNICATIONS LTD XIA LING BEI MANAGEMENT ZONE, VTECH SCIENCE PARK, LIAOBU DONGGUAN, GUANGDONG, 523411, CHINA

General product information and other remarks:

1. The EUT covered by this report is a LEA Professional Connect Series (Audio amplifier), it is supplied by AC mains supply through detachable power supply cord.

2. Specified maximum ambient temperature is 60°C and altitude during operation is 2000m.

3. All models are identical to each other except for model number, DANTE agreement, output channel power and some non-critical components. 34D, 64D, 124D have DANTE agreement, 34, 64, 124 have no DANTE agreement. All tests were performed on the representative model 124D if no specified.

Model	Each output channel power (W)
34	30W
64	60W
124	120W
34D	30W
64D	60W
124D	120W

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: Primary circuit connect to AC mains	Ordinary	Equipment safeguards	Equipment safeguards	1. Sufficient clearances and creepage distances 2. Verified the test of prospective touch voltage and touch current
ES3: AC plug (stored charge on capacitor)	Ordinary	N/A	N/A	X-capacitor, discharge resistors
ES1: All accessible terminals and enclosure	Ordinary	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: Circuit supplied by AC mains (power board)	External enclosure and Internal combustible material	See 6.3	See 6.4.6	See 6.4.8
PS2: Speaker output	Combustible material	See 6.3	See 6.4.5	N/A
PS1: all other terminals	Combustible material	N/A	N/A	N/A
7	Injury caused by hazardous substances			
Class and Energy Source (e.g. Ozone)	Body Part (e.g., Skilled)	Safeguards		
		B	S	R
N/A	N/A	N/A	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: Mass of equipment	Ordinary	N/A	N/A	N/A
MS1: Rounded edges and corners	Ordinary	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: Accessible Part	Ordinary	N/A	N/A	N/A
10	Radiation			
Class and Energy Source (e.g. RS1: PMP sound output)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
RS1: LED for indicating	Ordinary	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
☐ **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		P
4.1.2	Use of components	(See append table 4.1.2)	P
4.1.3	Equipment design and construction		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 and liquid filled components (LFC)	(See G.15)	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.3, T.4, T.5)	P
4.4.3.3	Drop tests	(See Clause T.7)	P
4.4.3.4	Impact tests	(See Clause T.6)	P
4.4.3.5	Internal accessible safeguard tests		N/A
4.4.3.6	Glass impact tests	(See Clause T.9, Annex U)	N/A
4.4.3.7	Glass fixation tests		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		P
4.4.4	Displacement of a safeguard by an insulating liquid		N/A
4.4.5	Safety interlocks	(See Annex K)	N/A
4.5	**Explosion**		P
4.5.1	General		P
4.5.2	No explosion during normal/abnormal operating condition	(See Clause B.2, B.3)	P
	No harm by explosion during single fault conditions	(See Clause B.4)	P
4.6	**Fixing of conductors**		P
	Fix conductors not to defeat a safeguard		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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.8	**Equipment containing coin/button cell batteries**		N/A
4.8.1	General		N/A
4.8.2	Instructional safeguard ..... :		N/A
4.8.3	Battery compartment door/cover construction		N/A
	Open torque test		N/A
4.8.4.2	Stress relief test		N/A
4.8.4.3	Battery replacement test		N/A
4.8.4.4	Drop test		N/A
4.8.4.5	Impact test		N/A
4.8.4.6	Crush test		N/A
4.8.5	Compliance		N/A
	30N force test with test probe		N/A
	20N force test with test hook		N/A
4.9	**Likelihood of fire or shock due to entry of conductive object**		P
4.10	**Component requirements**		P
4.10.1	Disconnect Device	(See Annex L)	P
4.10.2	Switches and relays	(See Annex G)	P

5	**ELECTRICALLY-CAUSED INJURY**		P
5.2	**Classification and limits of electrical energy sources**		P
5.2.2	ES1, ES2 and ES3 limits		P
5.2.2.2	Steady-state voltage and current limits .....:	(See appended table 5.2)	P
5.2.2.3	Capacitance limits .....:	(See appended table 5.2)	P
5.2.2.4	Single pulse limits .....:	(See appended table 5.2)	N/A
5.2.2.5	Limits for repetitive pulses .....:	(See appended table 5.2)	P
5.2.2.6	Ringing signals	(See Annex H)	N/A
5.2.2.7	Audio signals	(See Clause E.1)	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)	Accessible ES1/ES2 derived from ES2/ES3 circuits		P
5.3.1 b)	Skilled persons not unintentional contact ES3 bare conductors		N/A
5.3.2.1	Accessibility to electrical energy sources and safeguards		P
	Accessibility to outdoor equipment bare parts		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.3.2.2	Contact requirements		P
	Test with test probe from Annex V		—
5.3.2.2 a)	Air gap – electric strength test potential (V) .....:		N/A
5.3.2.2 b)	Air gap – distance (mm) .....:		N/A
5.3.2.3	Compliance		P
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	**Insulation materials and requirements**		P
5.4.1.2	Properties of insulating material		P
5.4.1.3	Material is non-hygroscopic		P
5.4.1.4	Maximum operating temperature for insulating materials.....:	(See appended table 5.4.1.4)	P
5.4.1.5	Pollution degrees .....:	PD2	P
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling test		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage .....:	(See appended table 5.4.1.8)	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.....:	(See appended table 5.4.1.10.2)	N/A
5.4.1.10.3	Ball pressure test .....:	(See appended table 5.4.1.10.3)	P
5.4.2	Clearances		P
5.4.2.1	General requirements		P
	Clearances in circuits connected to AC Mains, Alternative method	(See Annex X)	N/A
5.4.2.2	Procedure 1 for determining clearance		P
	Temporary overvoltage .....:	2000Vpeak	—
5.4.2.3	Procedure 2 for determining clearance		P
5.4.2.3.2.2	a.c. mains transient voltage.....:	2500Vpeak	—
5.4.2.3.2.3	d.c. mains transient voltage .....:	--	—
5.4.2.3.2.4	External circuit transient voltage.....:	--	—
5.4.2.3.2.5	Transient voltage determined by measurement .....:	--	—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.2.4	Determining the adequacy of a clearance using an electric strength test .....:	(See appended table 5.4.2)	N/A
5.4.2.5	Multiplication factors for clearances and test voltages .....:	2000 m above sea level	N/A
5.4.2.6	Clearance measurement .....:	(See appended table 5.4.2)	P
5.4.3	Creepage distances		P
5.4.3.1	General		P
5.4.3.3	Material group .....:	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		N/A
5.4.4.4	Solid insulation in semiconductor devices	Certified opto-couple used	P
5.4.4.5	Insulating compound forming cemented joints		N/A
5.4.4.6	Thin sheet material		P
5.4.4.6.1	General requirements		P
5.4.4.6.2	Separable thin sheet material		P
	Number of layers (pcs) .....:	Min 2 layers	P
5.4.4.6.3	Non-separable thin sheet material		N/A
	Number of layers (pcs) .....:		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material .....:	(See appended table 5.4.9)	N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		P
5.4.4.9	Solid insulation at frequencies >30 kHz, E_P, K_R, d, V_{PW} (V) .....:	(See appended Table 5.4.4.9)	N/A
	Alternative by electric strength test, tested voltage (V), K_R .....:	(See appended Tables 5.4.4.9 and 5.4.9)	N/A
5.4.5	Antenna terminal insulation		P
5.4.5.1	General		P
5.4.5.2	Voltage surge test		P
5.4.5.3	Insulation resistance (MΩ).....:	>4	P
	Electric strength test .....:	(See appended table 5.4.9)	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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.8	Humidity conditioning		P
	Relative humidity (%), temperature (°C), duration (h) ..... :	93%, 40°C, 120h	—
5.4.9	Electric strength test		P
5.4.9.1	Test procedure for type test of solid insulation.....:	(See appended table 5.4.9)	P
5.4.9.2	Test procedure for routine test		N/A
5.4.10	Safeguards against transient voltages from external circuits		N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test ..... :	(See appended table 5.4.9)	N/A
5.4.10.2.3	Steady-state test..... :	(See appended table 5.4.9)	N/A
5.4.10.3	Verification for insulation breakdown for impulse test ..... :		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
	SPDs bridge separation between external circuit and earth		N/A
	Rated operating voltage U_{op} (V)..... :		—
	Nominal voltage U_{peak} (V)..... :		—
	Max increase due to variation ΔU_{sp} ..... :		—
	Max increase due to ageing ΔU_{sa} ..... :		—
5.4.11.3	Test method and compliance ..... :	(See appended table 5.4.9)	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 ..... :	(See appended table 5.4.9)	N/A
5.4.12.3	Compatibility of an insulating liquid ..... :	(See appended table 5.4.9)	N/A
5.4.12.4	Container for insulating liquid ..... :		N/A
5.5	**Components as safeguards**		P
5.5.1	General		P
5.5.2	Capacitors and RC units		P
5.5.2.1	General requirement		P
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector..... :	(See appended table 5.5.2.2)	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.3	Transformers		P
5.5.4	Optocouplers	(See sub-clause 5.4 or Clause G.12)	P
5.5.5	Relays		N/A
5.5.6	Resistors	(See Clause G.10)	P
5.5.7	SPDs	(See Clause G.8)	P
5.5.8	Insulation between the mains and an external circuit consisting of a coaxial cable ..... :		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	Requirement for protective conductors		P
5.6.2.1	General requirements		P
5.6.2.2	Colour of insulation		P
5.6.3	Requirement for protective earthing conductors		P
	Protective earthing conductor size (mm^2) ..... :	Provide approved appliance inlet	—
	Protective earthing conductor serving as a reinforced safeguard		P
	Protective earthing conductor serving as a double safeguard		N/A
5.6.4	Requirements for protective bonding conductors		P
5.6.4.1	Protective bonding conductors		P
	Protective bonding conductor size (mm^2). ..... :	earth wire: min. 16AWG	—
5.6.4.2	Protective current rating (A)..... :	16A, 20A for US and Canada, 13A for UK	P
5.6.5	Terminals for protective conductors		P
5.6.5.1	Terminal size for connecting protective earthing conductors (mm)..... :	Provide approved appliance inlet	P
	Terminal size for connecting protective bonding conductors (mm) .....:	Screw thread diameter min. 3.5mm	P
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..... :		P
5.6.6.3	Resistance (Ω) or voltage drop..... :		P
5.6.7	Reliable connection of a protective earthing conductor		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.6.8	Functional earthing		N/A
	Conductor size (mm^2) ..... :		N/A
	Class II with functional earthing marking ..... :		N/A
	Appliance inlet cl & cr (mm) ..... :		N/A
5.7	**Prospective touch voltage, touch current and protective conductor current**		P
5.7.2	Measuring devices and networks		P
5.7.2.1	Measurement of touch current		P
5.7.2.2	Measurement of voltage		P
5.7.3	Equipment set-up, supply connections and earth connections		P
5.7.4	Unearthed accessible parts ..... :	(See appended table 5.7.4)	P
5.7.5	Earthed accessible conductive parts ..... :		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 earthed external circuits, current (mA) ..... :		N/A
	b) Equipment connected to unearthed external circuits, current (mA) ..... :		N/A
5.8	**Backfeed safeguard in battery backed up supplies**		N/A
	Mains terminal ES ..... :	(See appended table 5.8)	N/A
	Air gap (mm) ..... :		N/A

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

6	**ELECTRICALLY- CAUSED FIRE**		P
6.2	**Classification of PS and PIS**		P
6.2.2	Power source circuit classifications.....:	(See appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS .....:	(See appended table 6.2.3.1)	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 B.1.5 and B.3)	P
	Combustible materials outside fire enclosure .....:		N/A
6.4	**Safeguards against fire under single fault conditions**		P
6.4.1	Safeguard method	Method of control fire spread used	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	Supplementary safeguards		N/A
6.4.3.2	Single Fault Conditions ..... :		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		P
6.4.5	Control of fire spread in PS2 circuits		P
6.4.5.2	Supplementary safeguards	Compliance detailed as follows: - Printed board: rated V-0. - Wire insulation (tubing): complying with Clause 6 (See Table 4.1.2 for wiring used). - All other components: at least V-2/VTM-2 except for mounted on min. V-0 material or small parts (<4g) of combustible material. - Isolating transformer: complying with G.5.3. (See appended tables 4.1.2 and Annex G).	P
6.4.6	Control of fire spread in PS3 circuits		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
6.4.7	Separation of combustible materials from a PIS		N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers	Metal enclosure	P
6.4.8.2	Fire enclosure and fire barrier material properties		P
6.4.8.2.1	Requirements for a fire barrier		N/A
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		N/A
6.4.8.3.3	Top openings and properties	No such openings	N/A
	Openings dimensions (mm)..... :		N/A
6.4.8.3.4	Bottom openings and properties		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		P
	Openings dimensions (mm)..... :	PIS distance is more than 30mm to the opening	P
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	P
6.4.9	Flammability of insulating liquid.....:		N/A
6.5	**Internal and external wiring**		P
6.5.1	General requirements	(See append table 4.1.2)	P
6.5.2	Requirements for interconnection to building wiring ..... :		N/A
6.5.3	Internal wiring size (mm^2) for socket-outlets..... :		N/A
6.6	**Safeguards against fire due to the connection to additional equipment**		N/A

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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
7.5	**Use of instructional safeguards and instructions**		N/A
	Instructional safeguard (ISO 7010)..... :		—
7.6	**Batteries and their protection circuits**		N/A
8	**MECHANICALLY-CAUSED INJURY**		P
8.2	**Mechanical energy source classifications**		P
8.3	**Safeguards against mechanical energy sources**		P
8.4	**Safeguards against parts with sharp edges and corners**		P
8.4.1	Safeguards	Sharp edges and corners, classified as MS1	N/A
	Instructional Safeguard.....:	Accessible edges and corners of the equipment are rounded and are classified as MS1.	N/A
8.4.2	Sharp edges or corners		P
8.5	**Safeguards against moving parts**		N/A
8.5.1	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
	Moving MS3 parts only accessible to skilled person		N/A
8.5.2	Instructional safeguard.....:		N/A
8.5.4	Special categories of equipment containing moving parts		N/A
8.5.4.1	General		N/A
8.5.4.2	Equipment containing work cells with MS3 parts		N/A
8.5.4.2.1	Protection of persons in the work cell		N/A
8.5.4.2.2	Access protection override		N/A
8.5.4.2.2.1	Override system		N/A
8.5.4.2.2.2	Visual indicator		N/A
8.5.4.2.3	Emergency stop system		N/A
	Maximum stopping distance from the point of activation (m).....:		N/A
	Space between end point and nearest fixed mechanical part (mm) .....:		N/A
8.5.4.2.4	Endurance requirements		N/A
	Mechanical system subjected to 100 000 cycles of operation		N/A
	- Mechanical function check and visual inspection		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	- 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	General		N/A
	Instructional safeguard.....:		N/A
8.6.2	Static stability		N/A
8.6.2.2	Static stability test .....:		N/A
8.6.2.3	Downward force test		N/A
8.6.3	Relocation stability		N/A
	Wheels diameter (mm) .....:		—
	Tilt test		N/A
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test.....:		N/A
8.7	**Equipment mounted to wall, ceiling or other structure**		N/A
8.7.1	Mount means type .....:		N/A
8.7.2	Test methods		N/A
	Test 1, additional downwards force (N).....:		N/A
	Test 2, number of attachment points and test force (N).....:		N/A
	Test 3 Nominal diameter (mm) and applied torque (Nm).....:		N/A
8.8	**Handles strength**		N/A
8.8.1	General		N/A
8.8.2	Handle strength test		N/A
	Number of handles.....:		—
	Force applied (N) .....:		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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		N/A
8.10.2	Marking and instructions.....:		N/A
8.10.3	Cart, stand or carrier loading test		N/A
	Loading force applied (N) .....:		N/A
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Force applied (N) .....:		—
8.10.6	Thermoplastic temperature stability		N/A
8.11	**Mounting means for slide-rail mounted equipment (SRME)**		N/A
8.11.1	General		N/A
8.11.2	Requirements for slide rails		N/A
	Instructional Safeguard.....:		N/A
8.11.3	Mechanical strength test		N/A
8.11.3.1	Downward force test, force (N) applied.....:		N/A
8.11.3.2	Lateral push force test		N/A
8.11.3.3	Integrity of slide rail end stops		N/A
8.11.4	Compliance		N/A
8.12	**Telescoping or rod antennas**		N/A
	Button/ball diameter (mm) .....:	No such parts.	—

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.....:	(See appended table 9.3)	P
9.3.2	Test method and compliance		P
9.4	**Safeguards against thermal energy sources**		N/A
9.5	**Requirements for safeguards**		N/A
9.5.1	Equipment safeguard		N/A
9.5.2	Instructional safeguard.....:		N/A
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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
9.6.3	Test method and compliance .....:	(See appended table 9.6)	N/A

10	**RADIATION**		P
10.2	**Radiation energy source classification**		P
10.2.1	General classification		P
	Lasers ..... :	--	—
	Lamps and lamp systems ..... :	RS1	—
	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 Indicating lights used	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 enclosures		N/A
	UV radiation exposure .....:	(See Annex C)	N/A
10.4.3	Instructional safeguard ..... :		N/A
10.5	**Safeguards against X-radiation**		N/A
10.5.1	Requirements		N/A
	Instructional safeguard for skilled persons ..... :		—
10.5.3	Maximum radiation (pA/kg)..... :	(See appended tables B.3 & B.4)	—
10.6	**Safeguards against acoustic energy sources**		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output $L_{Aeq,T}$, dB(A).....:		N/A
	Unweighted RMS output voltage (mV).....:		N/A
	Digital output signal (dBFS).....:		N/A
10.6.3	Requirements for dose-based systems		N/A
10.6.3.1	General requirements		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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 B.1.5)	P
B.2	**Normal operating conditions**		P
B.2.1	General requirements..... :	(See Test Item Particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers ..... :	(See Annex E)	P
B.2.3	Supply voltage and tolerances		P
B.2.5	Input test..... :	(See appended table B.2.5)	P
B.3	**Simulated abnormal operating conditions**		P
B.3.1	General		P
B.3.2	Covering of ventilation openings	(See appended table B.3)	P
	Instructional safeguard ..... :		N/A
B.3.3	DC mains polarity test		N/A
B.3.4	Setting of voltage selector		N/A
B.3.5	Maximum load at output terminals		P
B.3.6	Reverse battery polarity		N/A
B.3.7	Audio amplifier abnormal operating conditions		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
B.3.8	Safeguards functional during and after abnormal operating conditions ..... :	(See appended table B.3)	P
B.4	**Simulated single fault conditions**		P
B.4.1	General		P
B.4.2	Temperature controlling device		N/A
B.4.3	Blocked motor test		P
B.4.4	Functional insulation		P
B.4.4.1	Short circuit of clearances for functional insulation		P
B.4.4.2	Short circuit of creepage distances for functional insulation		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		P
B.4.6	Short circuit or disconnection of passive components		P
B.4.7	Continuous operation of components		N/A
B.4.8	Compliance during and after single fault conditions ..... :	(See appended table B.4)	P
B.4.9	Battery charging and discharging under single fault conditions		N/A
C	**UV RADIATION**		N/A
C.1	**Protection of materials in equipment from UV radiation**		N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	**UV light conditioning test**		N/A
C.2.1	Test apparatus..... :		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure test		N/A
C.2.4	Xenon-arc light-exposure test		N/A
D	**TEST GENERATORS**		N/A
D.1	**Impulse test generators**		N/A
D.2	**Antenna interface test generator**		N/A
D.3	**Electronic pulse generator**		N/A
E	**TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS**		P
E.1	**Electrical energy source classification for audio signals**		P
	Maximum non-clipped output power (W)..... :	(See append table B.3)	—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Rated load impedance (Ω) ..... :	(See append table 4.1.2)	—
	Open-circuit output voltage (V)..... :	(See append table B.3, B.4)	—
	Instructional safeguard ..... :		—
E.2	**Audio amplifier normal operating conditions**		P
	Audio signal source type ..... :	(See append table B.2.5)	—
	Audio output power (W)..... :	(See append table B.2.5)	—
	Audio output voltage (V)..... :	(See append table B.2.5)	—
	Rated load impedance (Ω) ..... :	(See append table B.2.5)	—
	Requirements for temperature measurement	(See Table B.1.5)	P
E.3	Audio amplifier abnormal operating conditions	(See Table B.3, B.4)	P
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 IEC60027-1		P
F.2.2	Graphic symbols according to IEC, ISO or manufacturer specific		P
F.3	**Equipment markings**		P
F.3.1	Equipment marking locations	Located on rear enclosure surface	P
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification ..... :	See Copy of marking plate	P
F.3.2.2	Model identification ..... :	See Copy of marking plate	P
F.3.3	Equipment rating markings		P
F.3.3.1	Equipment with direct connection to mains		P
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of the supply voltage..... :	See Copy of marking plate	P
F.3.3.4	Rated voltage..... :	See Copy of marking plate	P
F.3.3.5	Rated frequency ..... :	See Copy of marking plate	P
F.3.3.6	Rated current or rated power..... :	See Copy of marking plate	P
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device		N/A
F.3.5	Terminals and operating devices		P
F.3.5.1	Mains appliance outlet and socket-outlet markings ..... :		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
F.3.5.2	Switch position identification marking..... :	See Copy of marking plate	P
F.3.5.3	Replacement fuse identification and rating markings ..... :	Marking on PCB near Fuse	P
	Instructional safeguards for neutral fuse ..... :		N/A
F.3.5.4	Replacement battery identification marking ..... :		N/A
F.3.5.5	Neutral conductor terminal		N/A
F.3.5.6	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification		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 ..... :		N/A
F.3.8	External power supply output marking ..... :		N/A
F.3.9	Durability, legibility and permanence of marking		P
F.3.10	Test for permanence of markings		P
F.4	**Instructions**		P
	a) Information prior to installation and initial use		P
	b) Equipment for use in locations where children not likely to be present		N/A
	c) Instructions for installation and interconnection		P
	d) Equipment intended for use only in restricted access area		N/A
	e) Equipment intended to be fastened in place		N/A
	f) Instructions for audio equipment terminals		N/A
	g) Protective earthing used as a safeguard		P
	h) Protective conductor current exceeding ES2 limits		N/A
	i) Graphic symbols used on equipment		P
	j) Permanently connected equipment not provided with all-pole mains switch		N/A
	k) Replaceable components or modules providing safeguard function		N/A
	l) Equipment containing insulating liquid		N/A
	m) Installation instructions for outdoor equipment		N/A
F.5	Instructional safeguards		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G	**COMPONENTS**		P
G.1	**Switches**		P
G.1.1	General		P
G.1.2	Ratings, endurance, spacing, maximum load		P
G.1.3	Test method and compliance		P
G.2	**Relays**		N/A
G.2.1	Requirements		N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supplying power to other equipment		N/A
G.2.4	Test method and compliance		N/A
G.3	**Protective devices**		P
G.3.1	Thermal cut-offs		N/A
	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Test method and compliance		N/A
G.3.2	Thermal links		N/A
G.3.2.1	a) Thermal links tested separately according to IEC 60691 with specifics		N/A
	b) Thermal links tested as part of the equipment		N/A
G.3.2.2	Test method and compliance		N/A
G.3.3	PTC thermistors		N/A
G.3.4	Overcurrent protection devices		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..... :	(See appended table B.4)	N/A
G.4	**Connectors**		P
G.4.1	Spacings		P
G.4.2	Mains connector configuration..... :	(See appended table 4.1.2)	P
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		P
G.5	**Wound components**		P
G.5.1	Wire insulation in wound components		P
G.5.1.2	Protection against mechanical stress		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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	No insulation breakdown		N/A
G.5.3	Transformers		P
G.5.3.1	Compliance method..... :	Complied with G.5.3.2 and G.5.3.3	P
	Position ..... :		P
	Method of protection ..... :	Protection by inherent or external impedance	P
G.5.3.2	Insulation		P
	Protection from displacement of windings..... :	Triple insulation wire used, bobbin and insulation tapes provided.	—
G.5.3.3	Transformer overload tests		P
G.5.3.3.1	Test conditions		P
G.5.3.3.2	Winding temperatures		P
G.5.3.3.3	Winding temperatures - alternative test method		N/A
G.5.3.4	Transformers using FIW		N/A
G.5.3.4.1	General		N/A
	FIW wire nominal diameter..... :		—
G.5.3.4.2	Transformers with basic insulation only		N/A
G.5.3.4.3	Transformers with double insulation or reinforced insulation..... :		N/A
G.5.3.4.4	Transformers with FIW wound on metal or ferrite core		N/A
G.5.3.4.5	Thermal cycling test and compliance		N/A
G.5.3.4.6	Partial discharge test		N/A
G.5.3.4.7	Routine test		N/A
G.5.4	Motors		P
G.5.4.1	General requirements		P
G.5.4.2	Motor overload test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4.2	Locked-rotor overload test		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Test duration (days) ..... :		—
G.5.4.5	Running overload test for DC motors		N/A
G.5.4.5.2	Tested in the unit		N/A
G.5.4.5.3	Alternative method		N/A
G.5.4.6	Locked-rotor overload test for DC motors		P
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature ..... :		N/A
G.5.4.6.3	Alternative method		P
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage ..... :		—
G.6	**Wire Insulation**		P
G.6.1	General		P
G.6.2	Enamelled winding wire insulation		N/A
G.7	**Mains supply cords**		P
G.7.1	General requirements		P
	Type..... :	(See append table 4.1.2)	—
G.7.2	Cross sectional area (mm^2 or AWG) ..... :	(See append table 4.1.2)	P
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N)..... :		N/A
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm) ..... :		N/A
G.7.3.2.4	Strain relief and cord anchorage material		N/A
G.7.4	Cord Entry		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Test method and compliance		N/A
	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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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		P
G.8.2	Safeguards against fire		P
G.8.2.1	General		P
G.8.2.2	Varistor overload test	Used metal enclosure	N/A
G.8.2.3	Temporary overvoltage test		N/A
G.9	**Integrated circuit (IC) current limiters**		N/A
G.9.1	Requirements		N/A
	IC limiter output current (max. 5A)..... :		—
	Manufacturers' defined drift ..... :		—
G.9.2	Test Program		N/A
G.9.3	Compliance		N/A
G.10	**Resistors**		P
G.10.1	General		P
G.10.2	Conditioning		P
G.10.3	Resistor test		P
G.10.4	Voltage surge test		N/A
G.10.5	Impulse test		N/A
G.10.6	Overload test		N/A
G.11	**Capacitors and RC units**		P
G.11.1	General requirements		P
G.11.2	Conditioning of capacitors and RC units		P
G.11.3	Rules for selecting capacitors		P
G.12	**Optocouplers**		P
	Optocouplers comply with IEC 60747-5-5 with specifics		P
	Type test voltage $V_{ini,a}$..... :	Considered	—
	Routine test voltage, $V_{ini,b}$ ..... :	Considered	—
G.13	**Printed boards**		P
G.13.1	General requirements		P
G.13.2	Uncoated printed boards		P
G.13.3	Coated printed boards		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.13.4	Insulation between conductors on the same inner surface		N/A
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation ..... :		N/A
	Number of insulation layers (pcs) ..... :		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2	Test method and compliance		N/A
G.14	**Coating on components terminals**		N/A
G.14.1	Requirements ..... :	(See Clause G.13)	N/A
G.15	**Pressurized liquid filled components**		N/A
G.15.1	Requirements		N/A
G.15.2	Test methods and compliance		N/A
G.15.2.1	Hydrostatic pressure test		N/A
G.15.2.2	Creep resistance test		N/A
G.15.2.3	Tubing and fittings compatibility test		N/A
G.15.2.4	Vibration test		N/A
G.15.2.5	Thermal cycling test		N/A
G.15.2.6	Force test		N/A
G.15.3	Compliance		N/A
G.16	**IC including capacitor discharge function (ICX)**		P
G.16.1	Condition for fault tested is not required	Provide Approved ICX	P
	ICX with associated circuitry tested in equipment		N/A
	ICX tested separately		P
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..... :		P
H	**CRITERIA FOR TELEPHONE RINGING SIGNALS**		N/A
H.1	**General**		N/A
H.2	**Method A**		N/A
H.3	**Method B**		N/A
H.3.1	Ringing signal		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
H.3.1.1	Frequency (Hz) ..... :		—
H.3.1.2	Voltage (V) ..... :		—
H.3.1.3	Cadence; time (s) and voltage (V) ..... :		—
H.3.1.4	Single fault current (mA): ..... :		—
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage		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**		P
J.1	**General**		P
	Winding wire insulation ..... :	Approved triple insulated used.	—
	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 ..... :		N/A
K.2	**Components of safety interlock safeguard mechanism**		N/A
K.3	**Inadvertent change of operating mode**		N/A
K.4	**Interlock safeguard override**		N/A
K.5	**Fail-safe**		N/A
K.5.1	Under single fault condition		N/A
K.6	**Mechanically operated safety interlocks**		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Test method and compliance ..... :		N/A
K.7	**Interlock circuit isolation**		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements		N/A
	In circuit connected to mains, separation distance for contact gaps (mm) ..... :		N/A
	In circuit isolated from mains, separation distance for contact gaps (mm) ..... :		N/A
	Electric strength test before and after the test of K.7.2 ..... :	(See appended table 5.4.9)	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
K.7.2	Overload test, Current (A) ..... :		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A
L	**DISCONNECT DEVICES**		P
L.1	**General requirements**	AC inlet used as disconnect device	P
L.2	**Permanently connected equipment**		N/A
L.3	**Parts that remain energized**		N/A
L.4	**Single-phase equipment**	AC inlet disconnects both poles simultaneously.	P
L.5	**Three-phase equipment**		N/A
L.6	**Switches as disconnect devices**		N/A
L.7	**Plugs as disconnect devices**		P
L.8	**Multiple power sources**		N/A
	Instructional safeguard ..... :		N/A
M	**EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS**		N/A
M.1	**General requirements**		N/A
M.2	**Safety of batteries and their cells**		N/A
M.2.1	Batteries and their cells comply with relevant IEC standards ..... :		N/A
M.3	**Protection circuits for batteries provided within the equipment**		N/A
M.3.1	Requirements		N/A
M.3.2	Test method		N/A
	Overcharging of a rechargeable battery		N/A
	Excessive discharging		N/A
	Unintentional charging of a non-rechargeable battery		N/A
	Reverse charging of a rechargeable battery		N/A
M.3.3	Compliance	(See appended table M.3)	N/A
M.4	**Additional safeguards for equipment containing a portable secondary lithium battery**		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Requirements		N/A
M.4.2.2	Compliance ..... :	(See appended table M.4.2)	N/A
M.4.3	Fire enclosure ..... :		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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		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		N/A
M.6	**Safeguards against short-circuits**		N/A
M.6.1	External and internal faults		N/A
M.6.2	Compliance		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		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 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) ..... :		—

IEC 62368-1			
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 ..... :	See user manual	N/A
N	**ELECTROCHEMICAL POTENTIALS**		N/A
	Material(s) used ..... :		—
O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		P
	Value of *X* (mm) ..... :	Considered	—
P	**SAFEGUARDS AGAINST CONDUCTIVE OBJECTS**		P
P.1	**General**		P
P.2	**Safeguards against entry or consequences of entry of a foreign object**		P
P.2.1	General		P
P.2.2	Safeguards against entry of a foreign object		P
	Location and Dimensions (mm) ..... :		—
P.2.3	Safeguards against the consequences of entry of a foreign object		N/A
P.2.3.1	Safeguard requirements		N/A
	The ES3 and PS3 keep-out volume in Figure P.3 not applicable to transportable equipment		N/A
	Transportable equipment with metalized plastic parts ..... :		N/A
P.2.3.2	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		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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
Q.1.1	Requirements		P
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A
	c) Regulating network limited output		P
	d) Overcurrent protective device limited output		N/A
	e) IC current limiter complying with G.9		N/A
Q.1.2	Test method and compliance ..... :	(See appended table Q.1)	P
	Current rating of overcurrent protective device (A) ..... :		N/A
Q.2	**Test for external circuits – paired conductor cable**		N/A
	Maximum output current (A) ..... :		N/A
	Current limiting method ..... :		—
R	**LIMITED SHORT CIRCUIT TEST**		N/A
R.1	**General**		N/A
R.2	**Test setup**		N/A
	Overcurrent protective device for test..... :		—
R.3	**Test method**		N/A
	Cord/cable used for test ..... :		—
R.4	**Compliance**		N/A
S	**TESTS FOR RESISTANCE TO HEAT AND FIRE**		N/A
S.1	**Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W**		N/A
	Samples, material..... :		—
	Wall thickness (mm) ..... :		—
	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) ..... :		—
S.3	**Flammability test for the bottom of a fire enclosure**		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
S.3.1	Mounting of samples		N/A
S.3.2	Test method and compliance		N/A
	Mounting of samples ..... :		—
	Wall thickness (mm) ..... :		—
S.4	**Flammability classification of materials**		N/A
S.5	**Flammability test for fire enclosure materials of equipment with a steady state power exceeding 4 000 W**		N/A
	Samples, material..... :		—
	Wall thickness (mm) ..... :		—
	Conditioning (°C) ..... :		—
T	**MECHANICAL STRENGTH TESTS**		P
T.1	**General**		P
T.2	**Steady force test, 10 N ..... :**	(See appended table T.2)	P
T.3	**Steady force test, 30 N ..... :**	(See appended table T.3)	N/A
T.4	**Steady force test, 100 N ..... :**	(See appended table T.4)	P
T.5	**Steady force test, 250 N ..... :**	(See appended table T.5)	P
T.6	**Enclosure impact test**	(See appended table T.6)	P
	Fall test		P
	Swing test		P
T.7	**Drop test ..... :**	(See appended table T.7)	P
T.8	**Stress relief test..... :**	(See appended table T.8)	P
T.9	**Glass Impact Test .....:**	(See appended table T.9)	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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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		P
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 ..... :	(See appended table X)	N/A
Y	**CONSTRUCTION REQUIREMENTS FOR OUTDOOR ENCLOSURES**		N/A
Y.1	**General**		N/A
Y.2	**Resistance to UV radiation**		N/A
Y.3	**Resistance to corrosion**		N/A
Y.3	**Resistance to corrosion**		N/A
Y.3.1	Metallic parts of outdoor enclosures are resistant to effects of water-borne contaminants by ..... :		N/A
Y.3.2	Test apparatus		N/A
Y.3.3	Water – saturated sulphur dioxide atmosphere		N/A
Y.3.4	Test procedure ..... :		N/A
Y.3.5	Compliance		N/A
Y.4	**Gaskets**		N/A
Y.4.1	General		N/A
Y.4.2	Gasket tests		N/A
Y.4.3	Tensile strength and elongation tests		N/A
	Alternative test methods ..... :		N/A
Y.4.4	Compression test		N/A
Y.4.5	Oil resistance		N/A
Y.4.6	Securing means	(See Annex P.4)	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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
Y.5.5	Protection from excessive dust		N/A
Y.5.5.1	General		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 ..... :	(See Table T.6)	N/A

IEC 62368-1			
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)]	
264Vac, 60Hz	Primary circuits supplied by a.c. mains supply	Normal	264Vrms	--	SS	60Hz	ES3
264Vac, 60Hz	Audio output connectors (CH1-CH4) connected to 8ohm speakers	Normal	3.9Vrms	--	SS	1kHz	ES1
		Abnormal- Max available output power	11.0Vrms	--	SS	1kHz	ES1
		Single fault: U1_9 pin 28-26 SC	0	--	SS	1kHz	ES1
264Vac, 60Hz	+12V (connector J6)	Normal	12.03VDC	--	SS	--	ES1
		Abnormal- Max available output power	11.86VDC	--	SS	--	ES1
		Single fault: U31 pin 1-2 SC	12.03VDC	--	SS	--	ES1
264Vac, 60Hz	Between L and N	Normal	376Vpeak	--	CP	C1_2=C2_2=C29_2=0.82µF C32_2=C33_2=1µF	ES3
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.							

5.4.1.8	TABLE: Working voltage measurement			P
Location	RMS voltage (V)	Peak voltage (V)	Frequency (Hz)	Comments
X1_1 pin 1-7	173	528	1.3k	--
X1_1 pin 1-9	175	536	1.4k	--
X1_1 pin 1-10	176	512	1.4k	--
X1_1 pin 1-12	175	512	1.5k	--
X1_1 pin 2-7	176	528	1.3k	--
X1_1 pin 2-9	178	546	1.4k	--
X1_1 pin 2-10	178	518	1.4k	--

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

X1_1 pin 2-12	176	512	1.5k	--
X1_1 pin 4-7	343	548	4.4k	--
X1_1 pin 4-9	347	568	4.5k	--
X1_1 pin 4-10	348	576	4.1k	Max. Vpeak, Max. Vrms for X1_1
X1_1 pin 4-12	345	568	5.1k	--
X1_1 pin 6-7	322	460	160.2	--
X1_1 pin 6-9	324	456	166.4	--
X1_1 pin 6-10	324	448	158.3	--
X1_1 pin 6-12	320	448	1.3k	--
X1_3 pin 1,2-8	159	296	60	--
X1_3 pin 1,2-9,10	153	248	60	--
X1_3 pin 1,2-11	151	244	60	--
X1_3 pin 4-8	256	536	6.2k	Max. Vpeak, Max. Vrms for X1_3
X1_3 pin 4-9,10	210	472	12.1k	--
X1_3 pin 4-11	207	468	10.4k	--
U3_3 pin 1-3	169	360	60	--
U3_3 pin 1-4	168	368	60	--
U3_3 pin 2-3	169	360	60	--
U3_3 pin 2-4	168	360	60	--
U4_3 pin 1-3	200	344	60	--
U4_3 pin 1-4	198	342	60	--
U4_3 pin 2-3	198	342	60	--
U4_3 pin 2-4	200	344	60	--
U7_2 pin 1-3	168	368	60	--
U7_2 pin 1-4	168	368	60	--
U7_2 pin 2-3	169	360	60	--
U7_2 pin 2-4	168	368	60	--
U1_1 pin 13-1,2	312	448	166.4	--
U1_1 pin 13-3	310	448	160.2	--
U1_1 pin 13-4	308	440	1.6k	--
U1_1 pin 13-5	324	456	166.4	--

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

U1_1 pin 13-6	320	468	160.2	--
U1_1 pin 13-7	307	440	1.6k	--
U1_1 pin 14-1,2	282	440	166.4	--
U1_1 pin 14-3	280	448	160.2	--
U1_1 pin 14-4	278	436	1.605K	--
U1_1 pin 14-5	294	448	166.6	--
U1_1 pin 14-6	290	456	160.2	--
U1_1 pin 14-7	277	440	1.4k	--
U1_1 pin 16-1,2	282	440	166.4	--
U1_1 pin 16-3	280	448	160.2	--
U1_1 pin 16-4	278	436	1.6k	--
U1_1 pin 16-5	294	448	166.6	--
U1_1 pin 16-6	290	456	160.2	--
U1_1 pin 16-7	277	440	1.4k	--
U1_1 pin 24-1,2	353	546	3.5k	Max. Vpeak, Max. Vrms for U1_1
U1_1 pin 24-3	179	360	60	--
U1_1 pin 24-4	178	360	60	--
U1_1 pin 24-5	178	368	60	--
U1_1 pin 24-6	178	368	60	--
U1_1 pin 24-7	179	360	60	--
U3_2 pin 1,2,3,4-10	235	360	60	--
U3_2 pin 1,2,3,4-11	238	368	60	--
U3_2 pin 1,2,3,4-12	235	362	60	--
U3_2 pin 1,2,3,4-13	242	372	60	Max. Vpeak, Max. Vrms for U3_2
U3_2 pin 1,2,3,4-14	240	368	60	--
U3_2 pin 1,2,3,4-15	240	360	60	--
U3_2 pin 5,6,7,8-10	233	356	60	--
U3_2 pin 5,6,7,8-11	235	360	60	--
U3_2 pin 5,6,7,8-12	231	368	60	--
U3_2 pin 5,6,7,8-13	240	368	60	--
U3_2 pin 5,6,7,8-14	238	360	60	--

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

U3_2 pin 5,6,7,8-15	238	356	60	--
Supplementary information:				

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**			P
Allowed impression diameter (mm).....:		≤ 2 mm		—

Object/Part No./Material	Manufacturer/trademark	Thickness (mm)	Test temperature (°C)	Impression diameter (mm)
Connector (J1_2)/ WF3963-WS03W02	WCON ELECTRONICS (GUANGDONG) CO LTD	Min. 2.5	125	1.0
Supplementary information:				

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)
L and N before fuse F1_2 (BI)	420	250	60	1.5	3.2	--	2.5	3.2
Two poles of fuse F1_2 (BI)	420	250	60	1.5	9.6	--	2.5	9.6
Primary trace to PCB copper foil of screws (RI)	420	250	60	3.0	5.2	--	5.0	5.2
Primary and secondary aisles of PCB top surface (RI)	420	250	60	3.0	5.2	--	5.0	5.2
Primary and secondary aisles of PCB bottom surface (RI)	420	250	60	3.0	5.2	--	5.0	5.2

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
Primary trace to secondary trace of Y-Cap. C30_2, C31_2, C3_2, C4_2, C34_3 (RI)	420	250	60	3.0	5.2	--	5.0	5.2
Primary trace to secondary trace of IC U1_1 (RI)	546	353	3.5k	3.0	>10	--	7.2	>10
Primary trace to secondary trace of IC U3_2 (RI)	420	250	60	3.0	8.0	--	5.0	8.0
Primary trace to secondary trace of Optocoupler U7_2, U3_3, U4_3 (RI)	420	250	60	3.0	5.2	--	5.0	5.2
Primary winding to secondary winding of transformer X1_1 (RI)	576	348	5.1k	3.0	7.2	--	7.0	7.2
Core to secondary winding of transformer X1_1 (RI)	576	348	5.1k	3.0	8.0	--	7.0	7.8
Primary winding to secondary winding of transformer X1_3 (RI)	536	256	12.1k	3.0	7.0	--	5.2	7.0
Core to secondary winding of transformer X1_3 (RI)	536	256	12.1k	3.0	5.4	--	5.2	7.0
Primary trace of PCB to metal enclosure (BI)	420	250	60	1.5	3.2	--	2.5	>10
Transformer X1_3 to metal enclosure (BI)	420	250	60	1.5	5.0	--	2.5	>10
Inductor L1_2, L3_2 to metal enclosure (BI)	420	250	60	1.5	6.0	--	2.5	>10
E-Cap. C12_2, C24_2 to metal enclosure (BI)	420	250	60	1.5	3.6	--	2.5	>10
Primary trace to secondary trace of Resistors R25_2 to R40_2 (RI)	420	250	60	3.0	5.2	--	5.0	5.2
Supplementary information:								

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

1) Only for frequency above 30 kHz

2) Complete Electric Strength voltage (E.S. (V) when 5.4.2.4 applied)

3) BI=Basic 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)	Measured DTI (mm)
Enclosure	420	Reinforced insulation	0.4	0.4
Insulation tape used for transformer (X1_1)	576	Reinforced insulation	Min. two layers	Min. two layers
Bobbin in transformer (X1_1)	576	Reinforced insulation	0.4	0.4
Insulation tape used for transformer (X1_3)	536	Reinforced insulation	Min. two layers	Min. two layers
Bobbin in transformer (X1_3)	536	Reinforced insulation	0.4	0.4
Opto-coupler (U7_2, U3_3, U4_3)	546	Reinforced insulation	0.4	0.4
Non-optical Isolating Devices (U1_1)	420	Reinforced insulation	0.4	0.4
AMR current sensors (U3_2)	420	Reinforced insulation	0.4	0.4
Insulation sheet	420	Reinforced insulation	0.4	0.4
Heat shrinkable	420	Reinforced insulation	0.4	0.4
Supplementary information:				
--				

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

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
Line to Neutral (with fuse disconnect)	DC	2500Vdc	No
L/N and earthed metal enclosure	DC	2500Vdc	No
Transformer X1_1: core to secondary winding	DC	4000Vdc	No
Transformer X1_1: primary pins/ coil to secondary pins/ coil	DC	4000Vdc	No
Transformer X1_3: core to secondary winding	DC	4000Vdc	No
Transformer X1_3: primary pins/ coil to secondary pins/ coil	DC	4000Vdc	No
L/N to Accessible terminals	DC	4000Vdc	No
L/N to Plastic enclosure with foil	DC	4000Vdc	No
One layer insulation tape (all source)	DC	4000Vdc	No
Insulation sheet	DC	4000Vdc	No
Heat shrinkable	DC	4000Vdc	No
Supplementary information:			

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
L to N	264	Operating	On	8.0V	ES1
L to N	264	Operating	Off	0V	ES1
Supplementary information:					
X-capacitors installed for testing: Refer to table 4.1.2 [x] bleeding resistor rating: Refer to table 4.1.2 [x] ICX: Refer to table 4.1.2 1) Normal operating condition (e.g., normal operation, or open fuse), SC= short circuit, OC= open circuit					

5.6.6	**TABLE: Resistance of protective conductors and terminations**			P
Location	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)
Metal enclosure to inlet protective earthing conductor	32	2	0.256	0.008
Metal enclosure to inlet protective earthing conductor	40	2	0.400	0.010
Supplementary information:				

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

5.7.4	TABLE: Unearthed accessible parts					P
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)	
L/N to Accessible parts	Normal	264Vac/60Hz	--	0.025mArms	60	ES1
	Abnormal Output overload	264Vac/60Hz	--	0.025mArms	60	
	Single fault: C12_2 SC	264Vac/60Hz	--	0.025mArms	60	
L/N to plastic enclosure with foil	Normal	264Vac/60Hz	--	0.005mArms	60	ES1
	Abnormal Output overload	264Vac/60Hz	--	0.005mArms	60	
	Single fault: C12_2 SC	264Vac/60Hz	--	0.005mArms	60	
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit						

5.7.5	TABLE: Earthed accessible conductive part			P
Supply voltage (V) ..... :	264			—
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	
Earthed metal parts	1 (earth open)	Switch: ON 0.98 Switch: OFF 0.01	No exceed ES2 limit	
Earthed metal parts	1 (earth open, p reverse)	Switch: ON 0.98 Switch: OFF 0.01	No exceed ES2 limit	
Supplementary Information:				

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

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

--	--	--	--	--	--	--
Supplementary information:						
Abbreviation: SC= short circuit, OC= open circuit						

6.2.2	**TABLE: Power source circuit classifications**					P
Location	Operating and fault condition	Voltage (V)	Current (A)	Max. Power[1)] (W)	Time (S)	PS class
All primary circuits	--	--	--	>100	5	PS3 (Declared)
Connector J1_20 connected to fan	Overload operation	--	--	≤15	3	PS1 (declared)
Connector U12_20 connected to mARC/mDARC board	Overload operation	--	--	≤15	3	PS1 (declared)
+12V (connector J6)	Overload operation	11.86	0.09	1.07	3	PS1
	Single fault: U31 pin 1-2 SC	11.86	0.09	1.07	3	PS1
Audio output connectors (CH1-CH4) connected to 8ohm speakers	Max. available	11.0	--	15.13	5	PS2
Supplementary information:						
Abbreviation: 1) Measured after 3 s for PS1 and measured after 5 s for PS2 and PS3.						

6.2.3.1	**TABLE: Determination of Arcing PIS**			P
Location	Open circuit voltage after 3 s (Vpk)	Measured r.m.s current (A)	Calculated value	Arcing PIS? Yes / No
All primary circuits	--	--	--	Yes (declared)
Supplementary information:				
--				

6.2.3.2	**TABLE: Determination of resistive PIS**		P
Location	Operating and fault condition	Dissipate power (W)	Resistive

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

			PIS? Yes / No
All internal circuits except for Connector J1_20, U12_20, J6	--	--	Yes (declared)
Supplementary information:			
--			

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:				
--				

9.6	TABLE: Temperature measurements for wireless power transmitters								N/A
Supply voltage (V)..... :	--								—
Max. transmit power of transmitter (W)..... :	--								—
	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		
Foreign objects	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	
--	--	--	--	--	--	--	--	--	
Supplementary information:									
--									

5.4.1.4, 9.3, B.1.5, B.2.6	TABLE: Temperature measurements				P
Supply voltage (V)	90Vac/60Hz	264Vac/50Hz	--	--	—
Ambient temperature during test T_{amb} (°C)	See below	See below	--	--	—
Maximum measured temperature *T* of part/at:	*T* (°C)				Allowed T_{max} (°C)
Appliance inlet	83.9	85.9	--	--	105
Internal earthed wire	83.5	85.5	--	--	105
Internal primary wire	80.0	81.6	--	--	105
Varistor R1_2 body	87.1	89.2	--	--	125
X-Cap. C1_2 body	85.8	88.0	--	--	110

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Inductor L1_2 winding	90.3	92.6	--	--	130
X-Cap. C29_2 body	87.2	90.5	--	--	110
Y-Cap. C30_2 body	88.8	92.0	--	--	110
Y-Cap. C31_2 body	88.7	91.8	--	--	110
Inductor L3_2 winding	86.0	90.4	--	--	130
X-Cap. C2_2 body	83.3	88.5	--	--	110
Y-Cap. C3_2 body	84.1	89.6	--	--	110
Y-Cap. C4_2 body	84.6	90.1	--	--	110
Y-Cap. C34_2 body	92.7	95.0	--	--	110
Varistor R2_2 body	92.0	94.1	--	--	125
E-Cap. C15_1 body	90.9	92.8	--	--	105
PCB near D3_2	89.5	94.3	--	--	130
Transformer X1_1 winding	106.2	108.8	--	--	110
Transformer X1_1 core	104.8	107.2	--	--	Ref.
X-Cap. C32_2 & C33_2 body	83.4	85.9	--	--	110
Inductor L2_2 winding	86.8	91.5	--	--	130
PCB near D5_2	86.2	88.7	--	--	130
E-Cap. C12_2 & C24_2 body	83.3	84.9	--	--	105
Inductor L1_3 winding	88.0	90.0	--	--	130
Transformer X1_3 winding	93.8	95.7	--	--	110
Transformer X1_3 core	89.2	90.7	--	--	Ref.
E-Cap. C29_3 body	84.0	85.2	--	--	105
Inductor L5_11 winding	88.7	90.2	--	--	130
Inductor L5_13 winding	100.3	102.1	--	--	130
PCB near Q4_11	86.4	87.9	--	--	130
PCB near Q1_12	95.6	97.4	--	--	130
PCB near Q1_13	96.2	98.1	--	--	130
E-Cap. C27_3 body	95.3	96.9	--	--	105
PCB near U1_9	98.8	100.8	--	--	130
PCB near U2_12	93.2	94.9	--	--	130
PCB near U2_13	96.3	98.2	--	--	130
PCB near U1_1	97.1	99.7	--	--	130
PCB near U3_2	92.9	95.5	--	--	130
Optocoupler U3_3 & U4_3 body	93.5	98.3	--	--	125
Optocoupler U7_2 body	92.8	97.5	--	--	125
Insulation sheet	75.5	76.8	--	--	115

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

Plastic enclosure inside near X1_3	71.0	72.5	--	--	Ref.
Ambient	60.0	60.0	--	--	--
Accessible parts under 25°C ambient:					
Metal enclosure outside near X1_3	37.9	39.2	--	--	60
Metal enclosure outside near Q1_12	40.2	41.3	--	--	60
Power switch	25.5	26.0	--	--	77
Plastic enclosure outside near X1_3	31.9	32.8	--	--	77
Ambient	25.0	25.0	--	--	--

Plastic enclosure inside near T1	t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed T_{max} (°C)	Insulation class
--	--	--	--	--	--	--	--

Supplementary information:

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
90	50	0.458	--	39.10	--	F1_2	0.458	1) 1/8 of Max. available output power with 1KHz signal input. 2) +12V (connector J6) loading 0.09A Max. 3) Speaker output(8Ω): 3.9Vrms/1.9W*4
90	60	0.466	--	39.12	--	F1_2	0.466	
100	50	0.427	--	39.15	150	F1_2	0.427	
100	60	0.438	--	39.18	150	F1_2	0.438	
240	50	0.312	--	39.33	150	F1_2	0.312	
240	60	0.300	--	39.29	150	F1_2	0.300	
264	50	0.257	--	39.77	--	F1_2	0.257	
264	60	0.255	--	39.71	--	F1_2	0.255	

Supplementary information:

B.3, B.4	TABLE: Abnormal operating and fault condition tests	P

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

Ambient temperature T_{amb} (°C)..... :	25.0	—
Power source for EUT: Manufacturer, model/type, outputrating .. :	--	—

Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation
Ventilation openings	BL	264Vac	2hrs 02mins	F1_2	0.257	In(A)= 0.257 Pn(W)=39.77 Unit works normally, no damage, no hazards. Max. temperature (°C): X1_1 winding: 80.4 X1_1 core: 75.2 X1_3 winding: 64.7 X1_3 core: 61.0 Metal enclosure outside near X1_3: 41.2 Metal enclosure outside near Q1_12: 42.8 Power switch: 26.4 Plastic enclosure outside near X1_3: 34.0 Ambient: 25.0
DC Fan	BL	264Vac	1hr 42mins	F1_2	0.257→ 0.257	In(A)= 0.257→0.240 Pn(W)= 39.77→37.65 Fan stop running, others work normally, no damage, no hazards. Max. temperature (°C): X1_1 winding: 91.1 X1_1 core: 85.0 X1_3 winding: 78.5 X1_3 core: 69.3 Metal enclosure outside near X1_3: 47.7 Metal enclosure outside near Q1_12: 48.0 Power switch: 28.4 Plastic enclosure outside near X1_3: 40.4 Ambient: 25.0
Transformer X1_1 pin7-9(after Q1_1)	OL	264Vac	4hrs 10mins	F1_2	0.257→ 0.291→ 0.309→ 0.083	In(A)= 0.257→0.291→0.309→0.083 Pn(W)=39.77→58.68→66.15→1.69 Max. output overload current was

IEC 62368-1							
Clause	Requirement + Test				Result - Remark		Verdict
						0.93A, if the current reaches to 0.94A, unit shutdown, no damage, no hazards. Po(A)=0→0.50→0.93→0.94 Po(W)=0→8.25→15.28→0 Max. temperature (°C): X1_1 winding: 80.3 X1_1 core: 75.8 X1_3 winding: 63.5 X1_3 core: 59.1 Metal enclosure outside near X1_3: 41.0 Metal enclosure outside near Q1_12: 42.8 Power switch: 26.2 Plastic enclosure outside near X1_3: 33.3 Ambient: 25.0	
Transformer X1_1 pin12-10(after D7_1)	OL	264Vac	4hrs 01mins	F1_2	0.257→ 0.278→ 0.298→ 0.083	In(A)= 0.257→0.278→0.298→0.083 Pn(W)=39.77→53.58→62.10→1.69 Max. output overload current was 0.80A, if the current reaches to 0.81A, unit shutdown, no damage, no hazards. Po(A)=0→0.40→0.80→0.81 Po(W)=0→6.34→12.55→0 Max. temperature (°C): X1_1 winding: 79.1 X1_1 core: 74.4 X1_3 winding: 62.0 X1_3 core: 58.8 Metal enclosure outside near X1_3: 40.2 Metal enclosure outside near Q1_12: 42.0 Power switch: 26.2 Plastic enclosure outside near X1_3: 33.0 Ambient: 25.0	
Transformer X1_3 pin10-8(after D2_3)	OL	264Vac	4hrs 28mins	F1_2	0.257→ 0.393→ 0.553→	In(A)= 0.257→0.393→0.553→0.083 Pn(W)=39.77→91.15→142.39→1.	

IEC 62368-1						
Clause	Requirement + Test				Result - Remark	Verdict
					0.083	69 Max. output overload current was 1.05A, if the current reaches to 1.06A, unit shutdown, no damage, no hazards. Po(A)=0→0.50→1.05→1.06 Po(W)=0→39.86→83.81→0 Max. temperature (°C): X1_1 winding: 84.8 X1_1 core: 79.5 X1_3 winding: 88.6 X1_3 core: 84.7 Metal enclosure outside near X1_3: 47.6 Metal enclosure outside near Q1_12: 49.2 Power switch: 27.8 Plastic enclosure outside near X1_3: 40.5 Ambient: 25.0
Speaker	Max. available output power	264Vac	1hr 30mins	F1_2	0.257→ 0.534	In(A)= 0.257→0.534 Pn(W)= 39.77→136.33 Unit works normally, no damage, no hazards. Speaker output(8Ω): 11.0V / 15.13W Max. temperature (°C): X1_1 winding: 81.7 X1_1 core: 77.3 X1_3 winding: 66.7 X1_3 core: 62.7 Metal enclosure outside near X1_3: 42.4 Metal enclosure outside near Q1_12: 45.1 Power switch: 26.6 Plastic enclosure outside near X1_3: 35.4 Ambient: 25.0
Speaker	SC	264Vac	10mins	F1_2	0.257→ 0.128	In(A)= 0.257→0.128 Pn(W)=39.77→10.85 Speaker has no output, no damage, no hazards.
U1_9 pin 28-	SC	264Vac	10mins	F1_2	0.257→	In(A)= 0.257→0.128

IEC 62368-1							
Clause	Requirement + Test				Result - Remark		Verdict
26					0.128	Pn(W)=39.77→10.85 Speaker has no output, no damage, no hazards.	
D3_2 pin1-3	SC	264Vac	1s	F1_2	0.257→0	F1_2 opened immediately, no hazards.	
D3_2 pin1-3	SC	90Vac	1s	F1_2	0.466→0	F1_2 opened immediately, no hazards.	
C12_2	SC	264Vac	1s	F1_2	0.257→0	F1_2 opened immediately, no hazards.	
C12_2	SC	90Vac	1s	F1_2	0.466→0	F1_2 opened immediately, no hazards.	
Q1_2 pin D-S	SC	264Vac	1s	F1_2	0.257→0	F1_2 opened immediately, no hazards.	
Q1_2 pin D-S	SC	90Vac	1s	F1_2	0.466→0	F1_2 opened immediately, no hazards.	
Q1_2 pin D-G	SC	264Vac	1s	F1_2	0.257→0	F1_2 opened immediately, no hazards.	
Q1_2 pin D-G	SC	90Vac	1s	F1_2	0.466→0	F1_2 opened immediately, no hazards.	
Q1_2 pin G-S	SC	264Vac	10mins	F1_2	0.257→0.083	In(A)= 0.257→0.083 Pn(W)=39.77→1.69 Unit shutdown immediately, no damage, no hazards.	
Q1_3 pin D-S	SC	264Vac	1s	F1_2	0.257→0	F1_2 opened immediately, no hazards.	
Q1_3 pin D-S	SC	90Vac	1s	F1_2	0.466→0	F1_2 opened immediately, no hazards.	
Q1_3 pin D-G	SC	264Vac	1s	F1_2	0.257→0	F1_2 opened immediately, no hazards.	
Q1_3 pin D-G	SC	90Vac	1s	F1_2	0.466→0	F1_2 opened immediately, no hazards.	
Q1_3 pin G-S	SC	264Vac	10mins	F1_2	0.257→0.083	In(A)= 0.257→0.083 Pn(W)=39.77→1.69 Unit shutdown immediately, no damage, no hazards.	
U1_2 pin 11-13	SC	264Vac	10mins	F1_2	0.257→0.083	In(A)= 0.257→0.083 Pn(W)=39.77→1.69 Unit shutdown immediately, no damage, no hazards.	
U1_2 pin 11-16	SC	264Vac	10mins	F1_2	0.257→0.083	In(A)= 0.257→0.083 Pn(W)=39.77→1.69 Unit shutdown immediately, no damage, no hazards.	
X1_1 pin 1-2	SC	264Vac	10mins	F1_2	0.257→	In(A)= 0.257→0.083	

IEC 62368-1							
Clause	Requirement + Test					Result - Remark	Verdict
SC					0.083	Pn(W)=39.77→1.69 Unit shutdown immediately, no damage, no hazards.	
X1_1 pin 4-5 SC	SC	264Vac	10mins	F1_2	0.257→ 0.083	In(A)= 0.257→0.083 Pn(W)=39.77→1.69 Unit shutdown immediately, no damage, no hazards.	
X1_1 pin 7-9 SC	SC	264Vac	10mins	F1_2	0.257→ 0.083	In(A)= 0.257→0.083 Pn(W)=39.77→1.69 Unit shutdown immediately, no damage, no hazards.	
X1_1 pin 12-10 SC	SC	264Vac	10mins	F1_2	0.257→ 0.083	In(A)= 0.257→0.083 Pn(W)=39.77→1.69 Unit shutdown immediately, no damage, no hazards.	
X1_3 pin 1,2-4 SC	SC	264Vac	10mins	F1_2	0.257→ 0.083	In(A)= 0.257→0.083 Pn(W)=39.77→1.69 Unit shutdown immediately, no damage, no hazards.	
X1_3 pin 10-8 SC	SC	264Vac	10mins	F1_2	0.257→ 0.083	In(A)= 0.257→0.083 Pn(W)=39.77→1.69 Unit shutdown immediately, no damage, no hazards.	
X1_3 pin 9-11 SC	SC	264Vac	10mins	F1_2	0.257→ 0.083	In(A)= 0.257→0.083 Pn(W)=39.77→1.69 Unit shutdown immediately, no damage, no hazards.	
U3_3 pin 1-2	SC	264Vac	10mins	F1_2	0.257→ 0.088	In(A)= 0.257→0.088 Pn(W)=39.77→1.73 Unit shutdown immediately, no damage, no hazards.	
U3_3 pin 3-4	SC	264Vac	10mins	F1_2	0.257→ 0.088	In(A)= 0.257→0.088 Pn(W)=39.77→1.73 Unit shutdown immediately, no damage, no hazards.	
U3_3 pin 1	OC	264Vac	10mins	F1_2	0.257→ 0.088	In(A)= 0.257→0.088 Pn(W)=39.77→1.73 Unit shutdown immediately, no damage, no hazards.	
U3_3 pin 3	OC	264Vac	10mins	F1_2	0.257→ 0.088	In(A)= 0.257→0.088 Pn(W)=39.77→1.73 Unit shutdown immediately, no damage, no hazards.	

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

U4_3 pin 1-2	SC	264Vac	10mins	F1_2	0.257→0.088	In(A)= 0.257→0.088 Pn(W)=39.77→1.73 Unit shutdown immediately, no damage, no hazards.
U4_3 pin 3-4	SC	264Vac	10mins	F1_2	0.257→0.088	In(A)= 0.257→0.088 Pn(W)=39.77→1.73 Unit shutdown immediately, no damage, no hazards.
U4_3 pin 1	OC	264Vac	10mins	F1_2	0.257→0.088	In(A)= 0.257→0.088 Pn(W)=39.77→1.73 Unit shutdown immediately, no damage, no hazards.
U4_3 pin 3	OC	264Vac	10mins	F1_2	0.257→0.088	In(A)= 0.257→0.088 Pn(W)=39.77→1.73 Unit shutdown immediately, no damage, no hazards.
U7_2 pin 1-2	SC	264Vac	10mins	F1_2	0.257→0.088	In(A)= 0.257→0.088 Pn(W)=39.77→1.73 Unit shutdown immediately, no damage, no hazards.
U7_2 pin 3-4	SC	264Vac	10mins	F1_2	0.257→0.088	In(A)= 0.257→0.088 Pn(W)=39.77→1.73 Unit shutdown immediately, no damage, no hazards.
U7_2 pin 1	OC	264Vac	10mins	F1_2	0.257→0.088	In(A)= 0.257→0.088 Pn(W)=39.77→1.73 Unit shutdown immediately, no damage, no hazards.
U7_2 pin 3	OC	264Vac	10mins	F1_2	0.257→0.088	In(A)= 0.257→0.088 Pn(W)=39.77→1.73 Unit shutdown immediately, no damage, no hazards.
Q1_1 pin D-S	SC	264Vac	10mins	F1_2	0.257→0.083	In(A)= 0.257→0.083 Pn(W)=39.77→1.69 Unit shutdown immediately, no damage, no hazards.
D2_3	SC	264Vac	10mins	F1_2	0.257→0.083	In(A)= 0.257→0.083 Pn(W)=39.77→1.69 Unit shutdown immediately, no damage, no hazards.
C15_1	SC	264Vac	10mins	F1_2	0.257→0.083	In(A)= 0.257→0.083 Pn(W)=39.77→1.69 Unit shutdown immediately, no

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

						damage, no hazards.
C36_3	SC	264Vac	10mins	F1_2	0.257→ 0.083	In(A)= 0.257→0.083 Pn(W)=39.77→1.69 Unit shutdown immediately, no damage, no hazards.
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit; OL: Overload; BL: Block. Comply with Hi-pot test including insulation component after the abnormal and single fault test.						

M.3	**TABLE: Protection circuits for batteries provided within the equipment**						N/A
Is it possible to install the battery in a reverse polarity position? ..... :							—
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:							
--							

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)	
--	--	--	--	--	--

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

Supplementary information:
--

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
+12V (connector J6)	Normal	12.03	5	0.09	8	1.07	100
	Single fault: U31 pin 1-2 SC	12.03	5	1.02	8	11.93	100
Supplementary Information:							
Abbreviation:							

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 / parts (T.2)	--	--	--	10	5	Enclosure remained intact, no crack/ opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.
Enclosure (T.5)	1)	1)	--	250	5	Enclosure remained intact, no crack/ opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.
Supplementary information:						
1)Refer to table 4.1.2 for details.						

T.6, T.9	**TABLE: Impact test**			P
Location/Part	Material	Thickness (mm)	Height (mm)	Observation
Enclosure	1)	1)	1300	Enclosure remained intact, no crack/ opening developed. Internal ES3,

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

				TS3 were not accessible after test. No insulation breakdown.
Supplementary information:				
1)Refer to table 4.1.2 for details.				

T.7	**TABLE: Drop test**			P
Location/Part	Material	Thickness (mm)	Height (mm)	Observation
Enclosure	1)	1)	1000	Enclosure remained intact and internal live parts were not accessible after test. No insulation breakdown. All safeguard remains effective
Supplementary information:				
1)Refer to table 4.1.2 for details.				

T.8	**TABLE: Stress relief test**				P
Location/Part	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation
Enclosure	1)	1)	83	7	No shrinkage, warpage, or other distortion, class 3 energy sources did not become accessible. All safeguards remain effective
Supplementary information:					
1)Refer to table 4.1.2 for details.					

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: List of critical components**				P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity[1])
Plug (US type)	I-SHENG ELECTRIC WIRE & CABLE CO LTD	SP-305B	125V~, 10A	UL 817	UL E55943
(Alternative)	Interchangeable	Interchangeable	125V~, 10A	UL 817	UL
Flexible cord (US type)	I-SHENG MFG (SONG GANG) FACTORY	SVT	18AWG*3, 105°C, VW-1, length cord large than 1.5m	UL 62	UL E315167
(Alternative)	Interchangeable	Interchangeable	18AWG*3, 105°C, VW-1, length cord large than 1.5m	UL 62	UL
Connector (US type)	I-SHENG ELECTRIC WIRE & CABLE CO LTD	IS-14N	125V~, 10A	UL 60320-1 CSA C22.2 No. 60320-1	UL E55943
(Alternative)	Interchangeable	Interchangeable	125V~, 10A	UL 60320-1 CSA C22.2 No. 60320-1	UL
Appliance inlet with integrated switch	SCHURTER AG	DC11 Series	250V~, 10A, type C14	IEC 60320-1 EN IEC 60320-1 UL 60320-1 CSA C22.2 No. 60320-1	VDE 40007009 UL E96454
(Alternative)	Interchangeable	Interchangeable	250V~, 10A, type C14	IEC 60320-1 EN IEC 60320-1 UL 60320-1 CSA C22.2 No. 60320-1	ENEC, UL or VDE
Appliance switch	Alysia Electronics & Hardware Co Ltd	D9 Series	10(4)A, 250VAC, 5E4 16(4)A, 250VAC, 1E4 T105/55, complied with 10000 operating cycles and glow wire test (850°C)	EN 61058-1-1 EN IEC 61058-1 UL 61058-1 CSA-C22.2 No. 61058-1	ENEC ENEC-03832-M1 UL E524325
(Alternative)	Interchangeable	Interchangeable	10(4)A, 250VAC, 5E4 16(4)A, 250VAC, 1E4 T105/55, complied with 10000 operating cycles and glow wire test (850°C)	EN 61058-1-1 EN IEC 61058-1 UL 61058-1 CSA-C22.2 No. 61058-1	ENEC, UL or VDE

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

Metal enclosure	Interchangeable	Interchangeable	Min. thickness: 1.0mm	IECEN//UL 62368-1	Tested with appliance
Plastic enclosure (front cover)	TORAY INDUSTRIES INC	920 555 U	HB, min. thickness: 1.2mm, 50°C	UL 94	UL E41797
Insulation sheet (between primary part/components and metal enclosure)	FORMEX, DIV OF ILLINOIS TOOL WORKS INC	GK-17, FORMEX GK-(a)(b)(f1)	V-0, min. thickness: 0.4 mm, 115°C	UL 94	UL E121855
Adhesive glue (fixed part/components and secondary wire)	SHENZHEN TOSHIN SILICONE MATERIAL CO LTD	TS-46N	V-0, 105°C	UL 94	UL E345066
(Alternative)	Interchangeable	Interchangeable	V-0, min. 105°C	UL 94	UL
Heat shrinkable tube (wrapped fuse and secondary wire)	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD	RSFR	600V, 125°C, VW-1, min. thickness: 0.4 mm	UL 224	UL E203950
DC Fan	Evercool Tech Co Ltd	EC3010SH12BA	12VDC, 0.15A, 12000±30%rpm, 1pcs	UL 507 EN 62368-1:2014/A11:2017	UL E199144 TÜV SÜD B 044784 0046 REV. 00
(Alternative)	COOLTRON INDUSTRIAL SUPPLY INC	FD3010B12W9-87B-3R	12VDC, 0.17A, 10500±10%rpm, 1pcs	UL 507 EN IEC 62368-1:2020/A11:2020	UL E194726 TÜV SÜD B 057907 0056 REV. 00
(Alternative)	Y. S. TECH USA	NYW03015012BS-5	12VDC, 0.09A, 11500±10%rpm, 1pcs	UL 507 EN IEC 62368-1:2020/A11:2020	UL E223068 TÜV Rheinland R 50036021
Internal primary wire	DONG GUAN SHENG PAI ELECTRIC WIRE & CABLE CO LTD	3173	105°C, 600V, 16AWG, VW-1, double insulation	UL 758	UL E347603
(Alternative)	Interchangeable	Interchangeable	Min. 105°C, min. 300V, min. 16AWG, VW-1, double insulation	UL 758	UL

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

Internal earthed wire	DONG GUAN SHENG PAI ELECTRIC WIRE & CABLE CO LTD	3173	105°C, 600V, 16AWG, VW-1, double insulation, green-and-yellow	UL 758	UL E347603
(Alternative)	Interchangeable	Interchangeable	Min. 105°C, min. 300V, min. 16AWG, VW-1, double insulation, green-and-yellow	UL 758	UL
Internal secondary wire	LENGSEM ELECTRONICS CO LTD	2743	105°C, 90V, VW-1, min. 36AWG	UL 758	UL E361651
(Alternative)	TUNG HING ELECTRIC WIRE CO LTD	20861	105°C, 60V, VW-1, min. 40AWG	UL 758	UL E118147
(Alternative)	Interchangeable	Interchangeable	Min. 80°C, min. 300V, min. 40AWG, VW-1	UL 758	UL
All PCB	WINGLUNG(HUI ZHOU)PCB CO LTD	WLM03	V-0, 130°C	UL 796	UL E301369
(Alternative)	Interchangeable	Interchangeable	V-0, 130°C	UL 796	UL
Connector (J1_2)	WCON ELECTRONICS (GUANGDONG) CO LTD	WF3963-WS03W02	250V~, 7.0A, 105°C	UL 1977	UL E248993
ICX (U1_2)	NXP Semiconductors Taiwan Ltd	TEA2017AAT	Rated 100-240Vac, 47-63Hz, 150°C. Evaluated for Annex G.16	IEC 62368-1	Approved by TÜV Rheinland Report No.: CN20TJ0U 001 Certif. No.: JPTUV-119189
Resistors (R3_2, R4_2)	Interchangeable	Interchangeable	10MΩ for each one, 0.75W	IEC/EN//UL 62368-1	Tested with appliance

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

Resistors (R25_2, R26_2, R27_2, R28_2, R29_2, R30_2, R31_2, R32_2, R33_2, R34_2, R35_2, R36_2, R37_2, R38_2, R39_2, R40_2)	STACKPOLE PANASONIC YAGEO VISHAY	RMCF1206FG1M00, ERJ-8ENF1004V, RC1206FR-071ML, CRCW12061M00FKEA	1.0MΩ for each one, 0.25W, complied with Annex G.10 test.	IEC/EN//UL 62368-1	Tested with appliance
Fuse (F1_2)	COOPER BUSSMANN LLC	S505SC-10-R	T10AL, 250V~	UL 248-1 UL 248-14 EN 60127-1 EN 60127-2	UL E19180 TÜV Rheinland J 50233218
Varistor (R1_2, R2_2)	Panasonic Industry Co., Ltd. (for VDE), PANASONIC CORPORATION, PANASONIC CORPORATION OF NORTH AMERICA (for UL)	E11431	Max. Continuous voltage: 350V, 125°C, fulfil with 6KV/3KA, pulse test. The varistor body complied with the needle flame according to IEC 60695-11-5.	IEC/EN 61051-1 IEC 61051-2 IEC 61051-2-2 UL 1449	VDE 40035231 UL E321499
X-Cap. (C1_2, C2_2, C29_2)	KEMET ELECTRONICS ITALIA SRL	R.46	Max. 0.82µF, min. 275Vac, 40/110/56, X2 type	IEC/EN/UL 60384-14	ENEC V4413 UL E97797
(Alternative)	Guangdong Kwok Tran Electronics Technology Co., Ltd.	MPX/MKP	Max. 0.82µF, min. 275Vac, 40/110/56, X2 type	IEC/EN/UL 60384-14	VDE 40053558 UL E523385
(Alternative)	DONG GUAN HONGFARAD ELECTRONICS CO LTD	HMKP	Max. 0.82µF, min. 275Vac, 40/110/56, X2 type	IEC/EN/UL 60384-14	VDE 40044173 UL E484578
X-Cap. (C32_2, C33_2)	KEMET ELECTRONICS ITALIA SRL	R.46	Max. 1µF, 310Vac, 40/110/56, X2 type	IEC/EN/UL 60384-14	ENEC V4413 UL E97797
(Alternative)	DONG GUAN HONGFARAD ELECTRONICS CO LTD	HMKP	Max. 1µF, 310Vac, 40/110/56, X2 type	IEC/EN/UL 60384-14	VDE 40044173 UL E484578

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

Y-Cap. (C30_2, C31_2, C3_2, C4_2, C34_3)	TDK (Zhuhai FTZ) Co., Ltd.	B3202	Max. 4700pF, 300Vac, 40/110/56, Y2 type	IEC/EN/UL 60384-14	VDE 40018909 UL E97863
(Alternative)	DONG GUAN HONGFARAD ELECTRONICS CO LTD	HMKP	Max. 4700pF, 300Vac, 40/110/56, Y2 type	IEC/EN/UL 60384-14	ENEC SE-ENEC-2301324 UL E537882
Opto-coupler (U7_2, U3_3, U4_3)	Toshiba Electronic Devices & Storage Corporation	TLP293	External Cr.&Cl≥5.0mm, Dti.≥0.4mm, 125ºC, Vin,a=Vin,b: 4000V, reinforced isolation	IEC/EN 60747-5-5 UL 1577	VDE 40009347 UL E67349
AMR current sensors (U3_2)	ACEINNA TRANSDUCER SYSTEMS CO.,LTD	MCR1101-50-5	External Cr.&Cl≥8.0mm, thermal cycling temperature: 135ºC, tested for 4800Vac for 1 minute, reinforced isolation	IEC/UL 62368-1	Approved by UL Report No.: E535588-A6001-CB-1 Certif. No.: DK-145842-UL UL E535588
Non-optical Isolating Devices (U1_1)	POWER INTEGRATIONS INC	INN3675C-H606-TL	External Cr.&Cl≥10.8mm, Dti.≥0.4mm, 125ºC, isolation voltage: 4000Vac, reinforced isolation	EN IEC 60747-17 UL 1577	VDE 40050377 UL E358471
Relay (K1_2)	Panasonic Industry Co., Ltd.	ALQ series	12VDC, 10A/250Vac	IEC/EN/ 61810-1 UL 508	VDE 40032836 UL E43028
(Alternative)	XIAMEN HONGFA ELECTROACOUSTIC CO LTD	HF3F series	12VDC, 10A/250Vac	IEC/EN/UL 61810-1	VDE 125661 UL E504085
Thermistor (RT1_2)	Interchangeable	Interchangeable	10Ω at 25°C ambient	IEC/EN//UL 62368-1	Tested with appliance
Bridge rectifier (D3_2)	Interchangeable	Interchangeable	600V, 10A	IEC/EN//UL 62368-1	Tested with appliance
MOSFET (Q1_2, Q1_3, Q2_3)	Interchangeable	Interchangeable	650V, 8A	IEC/EN//UL 62368-1	Tested with appliance

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

Electrolytic capacitor (C12_2, C24_2)	Interchangeable	Interchangeable	220µF, 420V, 105°C	IEC/EN//UL 62368-1	Tested with appliance
Inductor (L1_2, L3_2)	Better Magnetics Corp	LCT10019-2, R023-0012	130°C	IEC/EN//UL 62368-1	Tested with appliance
- Magnet wire	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	UEW	130°C	UL 1446	UL E201757
(Alternative)	Interchangeable	Interchangeable	Min. 130°C	UL 1446	UL
- PCB	KINGBOARD LAMINATES HOLDINGS LTD	FR-4.0	V-0, 130°C	UL 796	UL E123995
(Alternative)	Interchangeable	Interchangeable	V-0, 130°C	UL 796	UL
Inductor (L2_2)	Better Magnetics Corp	LCT10020-2, P023-0007	130°C	IEC/EN//UL 62368-1	Tested with appliance
- Bobbin	CHANG CHUN PLASTICS CO LTD	T375HF	V-0, min. thickness: 0.4mm, 150°C, Phenolic	UL 94	UL E59481
(Alternative)	SUMITOMO BAKELITE CO LTD	PM-9820	V-0, min. thickness: 0.4mm, 150°C, Phenolic	UL 94	UL E41429
- Magnet wire	ZHUHAI WEIHAN WIRE CO LTD	UEW	130°C	UL 1446	UL E339217
(Alternative)	Interchangeable	Interchangeable	Min. 130°C	UL 1446	UL
- Insulation tape	3M COMPANY	1350F-1 (b)	130°C, Polyester	UL 510A	UL E17385
(Alternative)	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	CT* (c)(g)	130°C, Polyester	UL 510A	UL E165111
- Tubing	DONGGUAN CITY CHANGJIE METALS & PLASTIC PRODUCTS CO LTD	CJ-TT-L	150V, 200°C, VW-1	UL 224	UL E338209
(Alternative)	DONG GUAN NAN DIAN INSULATION MATERIALS CO LTD	ND-LL	150V, 200°C, VW-1	UL 224	UL E350651

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

- Varnishes	John C Dolph Co	BC-359	180°C	UL 1446	UL E317427
(Alternative)	Resonac Corporation	WP-2952F-2G(Y)	130°C	UL 1446	UL E72979
(Alternative)	Interchangeable	Interchangeable	Min. 130°C	UL 1446	UL
Inductor (L1_3)	Better Magnetics Corp	LCT10018-1, F023-0005	130°C	IEC/EN//UL 62368-1	Tested with appliance
- Bobbin	CHANG CHUN PLASTICS CO LTD	T375HF	V-0, min. thickness: 0.4mm, 150°C, Phenolic	UL 94	UL E59481
(Alternative)	SUMITOMO BAKELITE CO LTD	PM-9820	V-0, min. thickness: 0.4mm, 150°C, Phenolic	UL 94	UL E41429
- Magnet wire	ZHUHAI WEIHAN WIRE CO LTD	UEW	130°C	UL 1446	UL E339217
(Alternative)	Interchangeable	Interchangeable	Min. 130°C	UL 1446	UL
- Insulation tape	3M COMPANY	1350F-1 (b)	130°C, Polyester	UL 510A	UL E17385
(Alternative)	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	CT* (c)(g)	130°C, Polyester	UL 510A	UL E165111
- Tubing	DONGGUAN CITY CHANGJIE METALS & PLASTIC PRODUCTS CO LTD	CJ-TT-L	150V, 200°C, VW-1	UL 224	UL E338209
(Alternative)	DONG GUAN NAN DIAN INSULATION MATERIALS CO LTD	ND-LL	150V, 200°C, VW-1	UL 224	UL E350651
- Varnishes	John C Dolph Co	BC-359	180°C	UL 1446	UL E317427
(Alternative)	Resonac Corporation	WP-2952F-2G(Y)	130°C	UL 1446	UL E72979
(Alternative)	Interchangeable	Interchangeable	Min. 130°C	UL 1446	UL
Transformer (X1_1)	Better Magnetics Corp	XCT10085-1, F022-0038	Class B	IEC/EN//UL 62368-1	Tested with appliance
- Insulation system	Better Magnetics Corp	BMC-B9	Class B	UL 1446	UL E243644

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

- Bobbin	CHANG CHUN PLASTICS CO LTD	T375HF	V-0, min. thickness: 0.4mm, 150°C, Phenolic	UL 94	UL E59481
(Alternative)	SUMITOMO BAKELITE CO LTD	PM-9820	V-0, min. thickness: 0.4mm, 150°C, Phenolic	UL 94	UL E41429
- Base	CHANG CHUN PLASTICS CO LTD	T375HF	V-0, min. thickness: 0.4mm, 150°C, Phenolic	UL 94	UL E59481
(Alternative)	SUMITOMO BAKELITE CO LTD	PM-9820	V-0, min. thickness: 0.4mm, 150°C, Phenolic	UL 94	UL E41429
- Magnet wire	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	UEW	130°C	UL 1446	UL E201757
(Alternative)	Interchangeable	Interchangeable	Min. 130°C	UL 1446	UL
- Triple insulated wire	SHENZHEN KAIZHONG HEDONG NEW MATERIALS CO LTD	TIW-B	130°C	IEC 62368-1:2018 EN IEC 62368-1:2020+A11:2020 UL 2353	VDE 40038861 UL E357240
- Insulation tape	3M COMPANY	1350F-1 (b)	130°C, Polyester	UL 510A	UL E17385
(Alternative)	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	CT* (c)(g)	130°C, Polyester	UL 510A	UL E165111
- Tubing	GREAT HOLDING INDUSTRIAL CO LTD	TFL	150V, 200°C, VW-1	UL 224	UL E156256
(Alternative)	DONG GUAN NAN DIAN INSULATION MATERIALS CO LTD	ND-LL	150V, 200°C, VW-1	UL 224	UL E350651
- Varnishes	John C Dolph Co	BC-359	180°C	UL 1446	UL E317427
(Alternative)	Resonac Corporation	WP-2952F-2G(Y)	130°C	UL 1446	UL E72979
(Alternative)	Interchangeable	Interchangeable	Min. 130°C	UL 1446	UL
Transformer (X1_3)	Better Magnetics Corp	XCT10086-1, P023-0006	Class B	IEC/EN//UL 62368-1	Tested with appliance

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

- Insulation system	Better Magnetics Corp	BMC-B9	Class B	UL 1446	UL E243644
- Bobbin	CHANG CHUN PLASTICS CO LTD	T375HF	V-0, min. thickness: 0.4mm, 150°C, Phenolic	UL 94	UL E59481
(Alternative)	SUMITOMO BAKELITE CO LTD	PM-9820	V-0, min. thickness: 0.4mm, 150°C, Phenolic	UL 94	UL E41429
- Base	CHANG CHUN PLASTICS CO LTD	T375HF	V-0, min. thickness: 0.4mm, 150°C, Phenolic	UL 94	UL E59481
(Alternative)	SUMITOMO BAKELITE CO LTD	PM-9820	V-0, min. thickness: 0.4mm, 150°C, Phenolic	UL 94	UL E41429
- Magnet wire	ZHUHAI WEIHAN WIRE CO LTD	UEW	130°C	UL 1446	UL E339217
(Alternative)	Interchangeable	Interchangeable	Min. 130°C	UL 1446	UL
- Triple insulated wire	SHENZHEN KAIZHONG HEDONG NEW MATERIALS CO LTD	TIW-B	130°C	IEC 62368-1:2018 EN IEC 62368-1:2020+A11:2020 UL 2353	VDE 40038861 UL E357240
- Insulation tape	3M COMPANY	1350F-1 (b)	130°C, Polyester	UL 510A	UL E17385
(Alternative)	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	CT* (c)(g)	130°C, Polyester	UL 510A	UL E165111
- Margin tape	3M COMPANY	44 (a)	130°C, Composite film	UL 510A	UL E17385
(Alternative)	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	WF* (c)(h)	130°C, Composite film	UL 510A	UL E165111
- Tubing	DONGGUAN CITY CHANGJIE METALS & PLASTIC PRODUCTS CO LTD	CJ-TT-L	150V, 200°C, VW-1	UL 224	UL E338209

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

(Alternative)	DONG GUAN NAN DIAN INSULATION MATERIALS CO LTD	ND-LL	150V, 200°C, VW-1	UL 224	UL E350651
- Varnishes	John C Dolph Co	BC-359	180°C	UL 1446	UL E317427
(Alternative)	Resonac Corporation	WP-2952F-2G(Y)	130°C	UL 1446	UL E72979
(Alternative)	Interchangeable	Interchangeable	Min. 130°C	UL 1446	UL
Supplementary information:					
1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

IEC62368_1E - 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 62368-1:2020+A11:2020

Attachment Form No.....: EU_GD_IEC62368_1E

Attachment Originator .....: UL(Demko)

Master Attachment.....: 2021-02-04

	CENELEC COMMON MODIFICATIONS (EN)	--
	Clause numbers in the cells that are shaded light grey are clause references in EN IEC 62368-1:2020+A11:2020. All other clause numbers in that column, except for those in the paragraph below, refers to IEC 62368-1:2018. Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2018 are prefixed “Z”.	--
	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords	--
1	**Modification to Clause 3 .**	N/A
3.3.19	**Sound exposure** *Replace 3.3.19 of IEC 62368-1 with the following definitions:*	N/A
3.3.19.1	**momentary exposure level, MEL** metric for estimating 1 s sound exposure level from the HD 483-1 S2 test signal applied to both channels, based on EN 50332-1:2013, 4.2. Note 1 to entry: MEL is measured as A-weighted levels in dB. Note 2 to entry: See B.3 of EN 50332-3:2017 for additional information.	N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
3.3.19.3	**sound exposure, *E*** A-weighted sound pressure (p) squared and integrated over a stated period of time, T Note 1 to entry: The SI unit is Pa^2 s. $E = \int_0^T p(t)^2 \, dt$		N/A
3.3.19.4	**sound exposure level, *SEL*** logarithmic measure of sound exposure relative to a reference value, E_0, typically the 1 kHz threshold of hearing in humans. Note 1 to entry: *SEL* is measured as A-weighted levels in dB. $SEL = 10 \lg\left(\frac{E}{E_0}\right)$ dB Note 2 to entry: See B.4 of EN 50332-3:2017 for additional information.		N/A
3.3.19.5	**digital signal level relative to full scale, dBFS** levels reported in dBFS are always r.m.s. Full scale level, 0 dBFS, is the level of a dc-free 997-Hz sine wave whose undithered positive peak value is positive digital full scale, leaving the code corresponding to negative digital full scale unused Note 1 to entry: It is invalid to use dBFS for non-r.m.s. levels. Because the definition of full scale is based on a sine wave, the level of signals with a crest factor lower than that of a sine wave may exceed 0 dBFS. In particular, square wave signals may reach +3,01 dBFS.		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
2	**Modification to Clause 10**		N/A
10.6	**Safeguards against acoustic energy sources** Replace 10.6 of IEC 62368-1 with the following:		N/A
10.6.1.1	**Introduction** **Safeguard** requirements for protection against long-term exposure to excessive sound pressure levels from personal music players closely coupled to the ear are specified below. Requirements for earphones and headphones intended for use with personal music players are also covered. A personal music player is a portable equipment intended for use by an **ordinary person**, that: – is designed to allow the user to listen to audio or audiovisual content / material; and – uses a listening device, such as headphones or earphones that can be worn in or on or around the ears; and – has a player that can be body worn (of a size suitable to be carried in a clothing pocket) and is intended for the user to walk around with while in continuous use (for example, on a street, in a subway, at an airport, etc.). EXAMPLES Portable CD players, MP3 audio players, mobile phones with MP3 type features, PDAs or similar equipment. Personal music players shall comply with the requirements of either 10.6.2 or 10.6.3. NOTE 1 Protection against acoustic energy sources from telecom applications is referenced to ITU-T P.360. NOTE 2 It is the intention of the Committee to allow the alternative methods for now, but to only use the dose measurement method as given in 10.6.5 in future. Therefore, manufacturers are encouraged to implement 10.6.5 as soon as possible. Listening devices sold separately shall comply with the requirements of 10.6.6. These requirements are valid for music or video mode only. The requirements do not apply to: – professional equipment; NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment. – hearing aid equipment and other devices for assistive listening;		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	– 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. 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: 2011, 4.20 and the related tests methods and measurement distances apply.		N/A
10.6.1.2	**Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz** The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz). For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body mounted devices, attention is drawn to EN 50360 and EN 50566.		N/A
10.6.2	**Classification of devices without the capacity to estimate sound dose**		N/A
10.6.2.1	**General** This standard is transitioning from short-term based (30 s) requirements to long-term based (40 hour) requirements. These clauses remain in effect only for devices that do not comply with sound dose estimation as stipulated in EN 50332-3. 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		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	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.		
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. – 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 ≤ 27 mV (analogue interface) or -25 dBFS (digital interface) when playing the fixed "programme simulation noise" described in EN 50332-1. – 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 130 detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 100 dB(A) when playing the fixed "programme simulation noise" as		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	described in EN 50332-1. – 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 EN 50332-1.		
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 of 23 June 2009, are given below.		N/A
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 $L_{Aeq,T}$ acoustic output shall be ≤ 80 dB when playing the fixed “programme simulation noise” described in EN 50332-1. – 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.		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		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	exposure level, as described in EN 50332-3, shall be ≤ 80 dB when playing the fixed "programme simulation noise" described in EN 50332-1. – 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 EN50332-3, shall be ≤ 15 mV (analogue interface) or -30 dBFS (digital interface) when playing the fixed "programme simulation noise" described in EN 50332-1.		
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 or EN 50332-2 as applicable.		N/A
10.6.4.2	**Protection of persons** Except as given below, protection requirements for parts **accessible** to **ordinary persons**, **instructed persons** and **skilled persons** are given in 4.3. NOTE 1 Volume control is not considered 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 wording – element 3: "Hearing damage risk" or equivalent wording – element 4: "Do not listen at high volume levels for long periods." or equivalent wording An **equipment safeguard** shall prevent exposure		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	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 exceeding RS1. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an output exceeding RS1. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time. NOTE 2 Examples of means include visual or audible signals. Action from the user is always needed. NOTE 3 The 20 h listening time is the accumulative listening time, independent of how often and how long the personal music player has been switched off. A **skilled person** shall not be unintentionally exposed to RS3.		
10.6.5	**Requirements for dose-based systems**		N/A
10.6.5.1	**General requirements** Personal music players shall give the warnings as provided below when tested according to EN 50332-3, 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		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	work, transportation, concerts, clubs, cinema, car races, etc.		
10.6.5.2	**Dose-based warning and requirements** When a dose of 100 % *CSD* is reached, and at least at every 100 % further increase of *CSD*, the device shall warn the user and require an acknowledgement. In case the user does not acknowledge, the output level shall automatically decrease to compliance with class RS1. The warning shall at least clearly indicate that listening above 100 % *CSD* leads to the risk of hearing damage or loss.		N/A
10.6.5.3	**Exposure-based requirements** With only dose-based requirements, cause and effect could be far separated in time, defying the purpose of educating users about safe listening practice. In addition to dose-based requirements, a PMP shall therefore also put a limit to the short-term sound level a user can listen at. The exposure-based limiter (EL) shall 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. The EL settling time (time from starting level reduction to reaching target output) shall be 10 s or faster. Test of EL functionality is conducted according to EN 50332-3, 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 unweighted 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. NOTE 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		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	positions that maximize the measured acoustic output, the input voltage of the listening device when playing the fixed “programme simulation noise” as described in EN 50332-1 shall be ≥ 75 mV. NOTE The values of 94 dB and 75 mV correspond with 85 dB and 27 mV or 100 dB and 150 mV.		
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, 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
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; 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 as applicable.*		N/A
3	**Modification to the whole document**		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Delete all the “country” notes in the reference document according to the following list:		N/A

0.2.1	Note 1 and 2	1	Note 4 and 5	3.3.8.1	Note 2
3.3.8.3	Note 1	4.1.15	Note	4.7.3	Note 1 and 2
5.2.2.2	Note	5.4.2.3.2.2 Table 12	Note c	5.4.2.3.2.4	Note 1 and 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 3 and 4
5.6.8	Note 2	5.7.6	Note	5.7.7.1	Note 1 and Note 2
8.5.4.2.3	Note	10.2.1 Table 39	Note 3 and 4 and 5	10.5.3	Note 2
~~10.6.1~~	Note 3	F.3.3.6	Note 3	Y.4.1	Note
Y.4.5	Note				

4	**Modification to Clause 1**		N/A
1	***Add** the following note:* *NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.*		N/A
5	**Modification to 4.Z1**		P

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.Z1	***Add*** *the following new subclause after 4.9:* To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. **mains**, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for **pluggable equipment type B** or **permanently connected equipment**, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for **pluggable equipment type A** the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.		P
6	**Modification to 5.4.2.3.2.4**		N/A
5.4.2.3.2.4	***Add*** *the following to the end of this subclause:* The requirement for interconnection with **external circuit** is in addition given in EN 50491-3:2009.		N/A
7	**Modification to 10.2.1**		N/A
10.2.1	Add the following to [c] and [d] in table 39: For additional requirements, see 10.5.1.		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
8	**Modification to 10.5.1**		N/A
10.5.1	***Add*** *the following after the first paragraph:* For RS 1 compliance is checked by measurement under the following conditions: In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or 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 cm^2, at any point 10 cm from the outer surface of the apparatus. Moreover, the measurement shall be made under fault conditions causing an increase of the high voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made. For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level. NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.		N/A
9	**Modification to G.7.1**		N/A
G.7.1	***Add*** *the following note:* NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10	**Modification to Bibliography**		N/A
	Add the following notes for the standards indicated: IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4. IEC 60664-5 NOTE Harmonized as EN 60664-5. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1 NOTE Harmonized as EN 61508-1. IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6. IEC 61643-1 NOTE Harmonized as EN 61643-1. IEC 61643-21 NOTE Harmonized as EN 61643-21. IEC 61643-311 NOTE Harmonized as EN 61643-311. IEC 61643-321 NOTE Harmonized as EN 61643-321. IEC 61643-331 NOTE Harmonized as EN 61643-331.		N/A
11	**ADDITION OF ANNEXES**		N/A
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		N/A
4.1.15	**Denmark, Finland, Norway** and **Sweden** To the end of the subclause the following is added: **Class I pluggable equipment type A** intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and **accessible** parts, have a marking stating that the equipment shall be connected to an earthed **mains** socket-outlet. The marking text in the applicable countries shall be as follows: In **Denmark**: “Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord.” In **Finland**: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In **Norway**: “Apparatet må tilkoples jordet stikkontakt” In **Sweden**: “Apparaten skall anslutas till jordat uttag”		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.7.3	**United Kingdom** To the end of the subclause the following is added: The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex		N/A
5.2.2.2	**Denmark** After the 2nd paragraph add the following: A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A
5.4.11.1 and Annex G	**Finland and Sweden** To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5 kV. It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14: 2005, may bridge this insulation under the		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	following conditions: • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11; • the additional testing shall be performed on all the test specimens as described in EN 60384-14; the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.		
5.5.2.1	**Norway** After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A
5.5.6	**Finland, Norway** and **Sweden** To the end of the subclause the following is added: Resistors used as **basic safeguard** or bridging **basic insulation** in **class I pluggable equipment type A** shall comply with G.10.1 and the test of G.10.2.		N/A
5.6.1	**Denmark** **Add** to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. *Justification:* In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N/A
5.6.4.2.1	**Ireland and United Kingdom** After the indent for **pluggable equipment type A**, the following is added: – the **protective current rating** is taken to be 13 A, this being the largest rating of fuse used in the **mains** plug.		N/A
5.6.4.2.1	**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.		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.6.5.1	To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm^2 to 1,5 mm^2 in cross-sectional area.		N/A
5.6.8	**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
5.7.6	**Denmark** To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the **protective conductor current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A
5.7.6.2	**Denmark** To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA.		N/A
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. 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		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)" NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): "Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet." Translation to Swedish: "Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.".		
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 IEC 60204-1 and ISO 13850 is required where there is a risk of personal injury.		N/A
B.3.1 and B.4	**Ireland and United Kingdom** The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of **direct plug-in equipment**, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the **direct plug-in equipment**, until the requirements of Annexes B.3.1 and B.4 are met		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	**Denmark** To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a polyphase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a *Justification:* Heavy Current Regulations, Section 6c		N/A
G.4.2	**United Kingdom** To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.7.1	**United Kingdom** To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc. (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
G.7.1	**Ireland** To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard		N/A
G.7.2	**Ireland and United Kingdom** To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm^2 is allowed for equipment which is rated over 10 A and up to and including 13 A.		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

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

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

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT

IEC 62368-1
U.S.A. AND CANADA NATIONAL DIFFERENCES
(Audio/video, information and communication technology equipment – Part 1: Safety requirements)

Differences according to ..... : CSA/UL 62368-1:2019

TRF template used:..... : IECEE OD-2020-F3, Ed. 1.1

Attachment Form No. ..... : US_CA_ND_IEC62368_1E

Attachment Originator ..... : UL(US)

Master Attachment..... : Dated 2022-03-04

IEC 62368-1 - US and Canadian National Differences
Special National Conditions based on Regulations and Other National Differences

1 (1DV.1) (1.3)	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part 1, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, for such equipment marked or otherwise identified, installation is allowed per the Standard for the Protection of Information Technology Equipment, ANSI/NFPA 75.		N/A
1 (1DV.2.1)	This standard includes additional requirements for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities. See Annex DVB.		N/A
1 (1DV.2.2)	This standard includes additional requirements for equipment intended for mounting under cabinets. See Annex DVC.		N/A
1 (1DV.2.3)	IEC 62368-3 clause 5 for DC power transfer at ES1 or ES2 voltage levels is considered informative. IEC 62368-3 clause 6 for remote power feeding telecommunication (RFT) circuits is considered normative (see ITU K.50). Alternatively, equipment with RFT circuits are given in either UL 2391 or CSA/UL 60950-21. RFT-C circuits are not permitted unless the RFT-C circuit complies with RFT-V limits (≤ 200V per conductor to earth).		N/A
1 (1DV.3)	For protection against direct lightning strikes, reference is made to NFPA 780 and CAN/CSA-B72 for additional requirements.		N/A
1 (DV.5)	Additional requirements apply to some forms of power distribution equipment, including sub-assemblies.		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.1 (4.1.17)	For lengths exceeding 3.05 m, external interconnecting cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the NEC.		N/A
	For lengths 3.05 m or less, external interconnecting cable assemblies that are not types specified in the NEC generally are required to have special construction features and identification markings.		N/A
4.6 (4.6.2)	Wire-wrap terminals have special construction and performance requirements.		N/A
4.8 (4.8.3, 4.8.4.5, 4.8.5)	Coin / button cell batteries have modified special construction and performance requirements.		N/A
5.4.2.3.2 (5.4.2.3.2.1)	Surge Arrestors and Transient Voltage Surge Suppressors installed external to the equipment are required to comply with the appropriate NEC and CEC requirements.		N/A
5.5.9	Receptacles, rated 125-V, single phase, 15- or 20-A accessible to either ordinary, instructed, or skilled persons are required to be provided with GFCI Protection for Personnel if the equipment containing the receptacles is installed outdoors. The protection devices are required to comply with UL 943, and CAN/CSA C22.2 No.144.		N/A
5.6.3	Protective earthing conductors comply with the minimum conductor sizes in Table G.7, except as required by Table G.7ADV.1 for cord connected equipment, or Annex DVH for permanently connected equipment.		N/A
5.7.8 (5.7.8.1)	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.		N/A
6.5.1	PS3 wiring outside a fire enclosure is required to comply with single fault testing in B.4, or be current limited per one of the permitted methods.		N/A
Annex F (F.3.3.9)	Output terminals provided for supply of other equipment, except mains supply, are required to be marked with a maximum rating or reference to equipment permitted to be connected.		N/A
Annex F (F.3.7)	Outdoor Enclosures are required to be classified and marked in accordance with UL 50 or 50E, or CAN/CSA C22.2 No. 94.1 or 94.2.		N/A
Annex G (G.7)	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.		N/A
	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.		N/A
	Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Power supply cords are required to be no longer than 4.5 m in length if used in ITE Rooms.		N/A
	Power supply cords for outdoor equipment are required to be suitable outdoor use type as required by Section 400.4 of the NEC and Rule 4-012 of the CEC, i.e., marked “W.”		N/A
Annex H.2	Continuous ringing signals under normal operating conditions up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.		N/A
Annex H.4	For circuits with other than ringing signals and with voltages exceeding 42.4 Vpeak or 60 Vd.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.		N/A
Annex Q (Q.3)	Equipment with paired conductor and/or coax communications cables/wiring connected to building wiring are required to have special voltage, current, power and marking requirements.		N/A
Annex DVA (1)	Equipment that is designed such that it may be powered from a separate electrical service, is required to meet applicable requirements for service equipment for control and protection of services and their installation and complies with Article 230 of the National Electrical Code (NEC), NFPA 70 and Section 6 of the Canadian Electrical Code, Part I, CSA C22.1.		N/A
	Equipment intended for use in spaces used for environmental air (plenums) are subjected to special flammability requirements for heat and visible smoke release.		N/A
	For ITE room applications, automated information storage systems with combustible media greater than 0.76 m^3 (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N/A
	Consumer products designed or intended primarily for children 12 years of age or younger are subject to additional requirements in accordance with U.S. and Canadian Regulations.		N/A
	Baby monitors are required to additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.		N/A
	Storage batteries and battery management equipment, other than associated with lead-acid batteries, and including battery backup systems that are not an integral part of stationary AV and ICT equipment, such as provided in separate cabinets, are required to be certified (listed) to the appropriate standard(s) for such storage batteries and equipment.		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (5.6)	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.		P
Annex DVA (6.3)	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.		N/A
Annex DVA (6.4.8)	For ITE room applications, enclosures with combustible material measuring greater than 0.9 m^2 (10 sq ft) or a single dimension greater than 1.8 m (6 ft) are required to have a flame spread rating of 50 or less. For equipment with the same dimensions for other applications, an external surface that is not a fire enclosure requires a minimum flammability classification of V-1.		N/A
Annex DVA (10.3)	Equipment with lasers is required to meet the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
Annex DVA (10.5)	Equipment that produces ionizing radiation is required to comply with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
Annex DVA (F.3.3.4)	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. Additional considerations apply for voltage ratings that exceed the attachment cap rating or that are lower than the “Normal Operating Condition” in Table 2 of CAN/CSA C22.2 No. 235.”		N/A
Annex DVA (F.3.3.6)	Equipment identified for ITE (computer) room installation is required to be marked with the rated current.		N/A
Annex DVA (G.1)	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position, where mounted in an enclosure, vertically mounted **disconnect switches** and **circuit breakers** with vertical operating means extending outside the enclosure are required to indicate in a location visible when accessing the external operating means whether the switch or circuit breaker is in the open (off) or closed (on) position.		N/A
Annex DVA (G.3.4)	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.		N/A
	Where a fuse is used to provide Class 2 or Class 3 current limiting, it is not operator-accessible unless it is non- interchangeable.		N/A
Annex DVA (G.4.2)	Equipment with isolated ground (earthing) receptacles is required to comply with NEC 250.146(D) and CEC 10-400 and 10-612.		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (G.4.3)	Interconnection of units by conductors supplied by a limited power source, or a Class 2 circuit defined in the NEC/CEC may have field wiring connections other than specified in DVH.3, such as wire-wrap and crimp-on types, if the limited power source and Class 2 circuits are separated from all other circuits by barriers, routing or fixing.		N/A
Annex DVA (G.5.3)	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.		N/A
Annex DVA (G.5.4)	Motor control devices are required for cord-connected equipment with a mains-connected motor if the equipment is rated more than 12 A, or if the equipment has a nominal voltage rating greater than 120 V, or if the motor is rated more than 1/3 hp (locked rotor current over 43 A).		N/A
Annex DVA (G.7)	Flexible cords used outdoors are required to have the suffix “W” marked on the flexible cord.		N/A
Annex DVA (M)	For ITE room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the ITE room remote power-off circuit.		N/A
Annex DVA (Q)	If applicable per NEC 725.121(C), some limited power sources supplied from AV/ICT equipment are required to have a label indicating the maximum voltage and rated current output for per conductor for each connection point. Where multiple connection points have the same rating, a single label is permitted to be used.		N/A
	Wiring terminals intended to supply Class 2 outputs in accordance with the NEC or CEC Part 1are required to be marked with the voltage rating and “Class 2” or equivalent. The marking is located adjacent to the terminals and visible during wiring.		N/A
	Applicable parts of Chapter 8 of the NEC, and Rules 54 and 60 of the CEC, may be applicable to ITE installed outdoors with connections to communication systems.		N/A
Annex DVB (1)	Additional requirements apply for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities.		N/A
Annex DVC (1)	Additional requirements apply for equipment intended for mounting under kitchen cabinets.		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVE (4.1.1)	Some equipment, components, sub-assemblies and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. These equipment and components include: appliance couplers, attachment plugs, battery backup systems, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultracapacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), ground-fault current interrupters, interconnecting cables, modular data centres, power supply cords, some power distribution equipment, printed wiring, protectors for communications circuits, receptacles, surge protective devices, vehicle battery adapters, wire connectors, and wire and cables.		P
Annex DVH	Equipment for permanent connection to the mains supply is subjected to additional requirements.		N/A
Annex DVH (DVH.1)	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains are required to be in accordance with the NEC/CEC.		N/A
Annex DVH (DVH.2.1)	For safe and reliable connection to a mains, permanently connected equipment is to be provided.		N/A
Annex DVH (DVH.2.2)	Additional considerations for D.C. mains.		N/A
Annex DVH (DVH.3.2.1)	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified.		N/A
Annex DVH (DVH.3.2.3)	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm^2).		N/A
Annex DVH (DVH.3.2.4)	All associated mains supply terminals are located in proximity to each other and to the main protective earthing terminal, if any.		N/A
Annex DVH (DVH.3.2.5)	Terminals are located, guarded or insulated so that, should a strand of a conductor escape when the conductor is fitted, there is no likelihood of accidental contact between such a strand and accessible conductive parts or unearthed conductive parts separated from accessible conductive parts by supplementary insulation only.		N/A
Annex DVH (DVH.3.3)	When field connection to an external circuit is via wires (example, free conductors), the wires are not smaller than 18 AWG (0.82 mm^2) and the free length of the wire inside an outlet box or wiring compartment is 150 mm or more.		N/A
Annex DVH (DVH.3.4)	Size of protective earthing conductors and terminals	(See sub-clause 5.6.5)	N/A
Annex DVH (DVH.4)	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.		N/A
Annex DVH (DVH.4.1)	Wire bending space		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVH (DVH.4.2)	Volume of wiring compartment		N/A
Annex DVH (DVH.4.3)	Separation of circuits		N/A
Annex DVH (DVH.5)	Equipment markings and instructional safeguards		N/A
Annex DVH (DVH.5.1)	Identification of protective earthing terminal		N/A
Annex DVH (DVH.5.2)	Identification of terminal for earthed conductor (neutral)		N/A
Annex DVH (DVH.5.3)	Identification of terminals for aluminium conductors		N/A
Annex DVH (DVH.5.4)	Wire temperature ratings		N/A
Annex DVH (DVH 5.5)	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation instruction requirements.		N/A
Annex DVI (6.7)	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses.		N/A
Annex DVJ (10.6.1)	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT

IEC 62368-1

(AUSTRALIA / NEW ZEALAND) NATIONAL DIFFERENCES

(**Audio/video, information and communication technology equipment**)

Differences according to.....: AS/NZS 62368.1:2022

TRF template used:.....: IECEE OD-2020-F3, Ed. 1.1

Attachment Form No. .....: AU_NZ_ND_IEC62368_1E

Attachment Originator.....: JAS-ANZ

Master Attachment .....: 2022-07-01

	National Differences		P
Appendix ZZ	Variations to IEC 62368-1:2018 (ED. 3.0) for Australia and New Zealand		P
ZZ1 Scope	This Appendix lists the normative variations to IEC 62368-1:2018 (ED. 3.0)		P
ZZ2 Variations	The following modifications are required for Australian/New Zealand conditions:		P
2	After the first paragraph, *add* the following: The Australian or Australian/New Zealand Standards listed below are modified adoptions of, or not equivalent to, the IEC normative references and are required for the application of this Standard. All references in the source text to those IEC normative references shall be replaced by references to the corresponding Australian or Australian/New Zealand Standards. Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably -AS/NZS 3112, *Approval and test specification—Plugs and socket-outlets* -AS/NZS 3123, *Approval and test specification—Plugs, socket-outlets and couplers for general industrial application* -AS/NZS 3191, *Electric flexible cords* *-AS/NZS 60884.1.Plugs and socket-outlets for household and similar purposes, Part 1: General requirements* *-IEC 60086-2 Primary batteries — Part 2: Physical and electrical specifications* -AS/NZS 60065, *Audio, video and similar electronic apparatus—Safety requirements* *(IEC 60065:2015 (ED.8.0) MOD)* -AS/NZS 60320.1, *Appliance couplers for household and similar general purposes,* *Part 1: General requirements (IEC 60320-1, Ed.2.1 (2007) MOD)*		P

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	-AS/NZS 60320.2.2, *Appliance couplers for household and similar general purposes* *Part 2.2: Interconnection couplers for household and similar equipment (IEC 60320-2-2, Ed.2.0 (1998) MOD)* -AS/NZS 60695.2.11*, Fire hazard testing, Part 2.11: Glowing/hot wire based test methods—Glow-wire flammability test method for end-products* -AS/NZS 60695.11.5, *Fire hazard testing, Part 11.5: Test flames—Needle-flame test method—Apparatus, confirmatory test arrangement and guidance* -AS/NZS 60695.11.10, *Fire hazard testing, Part 11.10: Test flames—50 W horizontal and vertical flame test methods* -AS/NZS 60884.1, *Plugs and socket-outlets for household and similar purposes, Part 1: General requirements* -AS/NZS 60950.1, *Information technology equipment—Safety*, Part 1: *General requirements (IEC 60950-1, Ed.2.2 (2013), MOD)* IEC 61032:1997, *Protection of persons and equipment by enclosures—Probes for verification* -AS/NZS 61558.1, *Safety of Power Transformers, Power Supplies, Reactors and Similar Products, Part 1: General requirements and tests (IEC 61558-1 Ed 3, MOD)* -AS/NZS 61558.2.16, *Safety of transformers, reactors, power supply units and similar products for voltages up to 1 100 V, Part 2.16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units.*		
4.7.2	**Requirements** *Delete* the text of the second paragraph and *replace* with the following: Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet conforming to AS/NZS 3112, shall conform to the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets. Conformity is checked by inspection and, if necessary, by the tests in AS/NZS 3112. NOTE: Equipment with plug portions for use in countries other than Australia and New Zealand will need to conform to other countries' requirements Note Additional AS/NZS 3112 Appendix J,TRF is appended to end of this TRF.		N/A
4.7.3	**Compliance Criteria** *Delete* this clause		N/A

IEC62368_1E - ATTACHMENT

<table>
<tr><th>Clause</th><th>Requirement + Test</th><th>Result - Remark</th><th>Verdict</th></tr>
<tr><td>4.8.1</td><td>General
After second list, add the following:
NOTE: Refer to the Consumer Goods (Products Containing Button/Coin Batteries) Safety Standard 2020 and Consumer Goods (Products Containing Button/Coin Batteries) Information Standard 2020 for more information on button cell batteries in Australia..</td><td></td><td>N/A</td></tr>
<tr><td>5.4.10.2.1</td><td>General
Delete the first paragraph and replace with the following:
In Australia, the separation is checked by the test given in both Clause 5.4.10.2.2 and Clause 5.4.10.2.3.
In New Zealand, the separation is checked by the test given in either 5.4.10.2.2 or 5.4.10.2.3..</td><td></td><td>N/A</td></tr>
<tr><td>Table 28</td><td colspan="2">Delete Table 28 and replace with the following:</td><td>N/A</td></tr>
<tr><td colspan="4">
<table>
<tr><th rowspan="2">Parts</th><th colspan="2">Impulse test</th><th colspan="2">Steady state test</th></tr>
<tr><th>New Zealand</th><th>Australia</th><th>New Zealand</th><th>Australia</th></tr>
<tr><td>Parts indicated in Clause 5.4.10.1 a) [a]</td><td>2.5 kV</td><td>7.0 kV for hand-held telephones and headsets, 2.5 kV for other equipment.</td><td>1.5 kV</td><td>3 kV</td></tr>
<tr><td>Parts indicated in Clause 5.4.10.1 b) and c) [b]</td><td colspan="2">1.5 kV [c]</td><td>1.0 kV</td><td>1.5 kV</td></tr>
</table>
[a] Surge suppressors shall not be removed.
[b] Surge suppressors may be removed, provided that such devices pass the impulse test of Clause 5.4.10.2.2 when tested as components outside the equipment.
[c] During this test, it is allowed for a surge suppressor to operate and for a sparkover to occur in a GDT.
</td></tr>
<tr><td>5.4.10.2.2</td><td>Delete “NOTE” and replace with “NOTE 1”.
After NOTE 1, add the following:
NOTE 2: For Australia, the 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines.
NOTE 3: For Australia, the value of 2.5 kV for Clause 5.4.10.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.</td><td></td><td>N/A</td></tr>
<tr><td>5.4.10.2.3</td><td>Delete “NOTE” and replace with “NOTE 1”.
After NOTE 1, add the following:
NOTE 2: For Australia, where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used.
NOTE 3: The 3 kV and 1.5 kV values for Australia have been determined considering the low frequency induced voltages from the power supply distribution system.</td><td></td><td>N/A</td></tr>
<tr><td>6</td><td>Electrically-caused fire</td><td></td><td>P</td></tr>
<tr><td>6.6</td><td colspan="2">After Clause 6.6, add the new Clauses 6.201 as follows:
6.201 External power supplies, docking stations and other similar devices (see special national conditions)</td><td>N/A</td></tr>
</table>

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
8.6	**Stability of equipment**		N/A
Table 36	Footnote [a], after first sentence, *add* the following: Equipment having displays with moving images shall include “television sets and display devices”.		N/A
8.6.1	After Clause 8.6.1 *add* the following new clauses: **8.6.201 Restraining Device fixing point** (see special national conditions) **8.6.202 Restraining device** (see special national conditions)		N/A
Annex F **Paragraph F.3.3.4**	**Rated Voltage** *Delete*“NOTE” and *replace* with NOTE1” After NOTE 1, *add* the following Equipment that is intended for connection to the supply mains in Australia and New Zealand shall be marked with: (a) A rated voltage of: • 230 V for single phase equipment • 400 V for poly phase equipment Or (b) A rated voltage range that includes: • 230 V for single phase equipment • 400 V for poly phase equipment NOTE 2: equipment that is not rated as above is not suitable for direct connection to the supply mains in Australia or new Zealand.		P
Annex F.3.3.5	After the list, *add* the following Equipment that is intended for connection to supply mains in Australia or New Zealand shall be marked with a rated frequency of 50 Hz or a rated frequency range or nominal value which includes 50Hz		P
Annex F.3.8	After “The DC output of an external power supply”,insert ”or docking stations and other similar external devices”		N/A
Annex G **Paragraph G.4.2**	**Mains connectors** 1 After “IEC 60320”, insert “or AS/NZS 60320 series”. 2After “IEC 60906-1”, insert”or AS/NZS 3123” 3 *After*first paragraph*add* the following: 10 A or 15 A 250 V flat pin plugs for the connection of equipment tomains-powered socket-outlets for household or similar general use shallcomply with AS/NZS 3112 or AS/NZS 60884.1.		N/A
Paragraph G.5.3.1	**Transformers, General** 1Third dashed point *replace* ‘IEC 61558-1 and the relevant parts ofIEC 61558-2’ with ‘AS/NZS 61558-1 and the relevant parts of AS/NZS61558.2’ 2 Fourth dashed point *replace* ‘IEC 61558-2-16’ with ‘AS/NZS61558.2.16’.		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex G.7.1	**Mains supply cords, General** Fourth dashed paragraph, *replace* 'IEC 60320-1' with 'AS/NZS 60320.1'		N/A
Table G.7	**Sizes of conductors** 1First column, second row, *delete* "6" and *replace* with "7.5" 2 Second column, second row, *delete* '0,75' and *replace* with '0.75[b] 3 *Delete* NOTE 1. 4 *Replace* 'NOTE 2' with 'NOTE:'. 5*Delete* 'Footnote b' and *replace* with the following: [b] This nominal cross-sectional area is only allowed for Class II appliances if the length ofthe power supply cord, measured between the point where the cord, or cord guard,enters the appliance, and the entry to the plug does not exceed 2 m (0.5 mm^2 three-coresupply flexible cords are not permitted; see AS/NZS 3191). 6 Footnote c *replace* 'IEC 60320-1' with 'AS/NZS 60320.1' 7 Footnote d *replace* 'IEC 60320-1' with 'AS/NZS 60320.1'		N/A
Annex M **M 2.1**	*Add* "IEC 60086-2" to the list		N/A
Annex M **Paragraph M.3.2**	**Test method** Delete"NOTE" and replace with "NOTE 1" After NOTE 1 *add* the following: NOTE 2: In cases where the voltage source is provided by power from anunassociated power source, consideration should be given to the effects of possiblesingle fault conditions in the unassociated equipment. If the power source is unknownthen it should be assumed that the maximum limit of ES1 may be applied to thesource input under assumed single fault conditions in the source when assessing thecharging circuit in the equipment under test.		N/A
	Special national conditions (if any)		N/A
6.201	**External power supplies, docking stations and other similar devices** For external power supplies, docking stations and other similar devices, during and after abnormal operating conditions and during single fault conditions the output voltage— (a) at all ES1 outlets or connectors shall not increase by more than 10 % of the output rated voltage under normal operating conditions, measured after 3 s of introducing a single fault condition and after 3 s of introducing abnormal operating conditions; and (b) of a USB outlet or connector shall not increase by more than 3 V or 10 % of the output rated voltage under normal operating conditions, whichever is higher, measured		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	after3 seconds of introducing a single fault condition and after 3 s of introducing abnormal operating conditions For equipment with multiple rated voltages at the output, the requirements apply with the equipment configured for each output rated voltage in turn NOTE: This is intended to reduce the possibility of battery fire or explosion in attached equipment or accessories when charging secondary lithium batteries. The 3 s measurement delay is based on IEC document 108/742/INF, *TC 108, Standards Interpretation Panel Question 15 — Output voltage*, in relation to similar requirements in IEC 62368-3:2017. Conformity shall be checked by measurement, taking into account the abnormal operating conditions of Annex B.3 and the simulated single fault conditions of Annex B.4.		
8.6.201	**Restraining device fixing point** Freestanding-capable MS2 and MS3 television sets and display devices shall be provided with a fixing point to facilitate the anchoring of the equipment from toppling The fixing point shall conform to Clause 8.7 where the fixing point uses a wall, ceiling or other structure mount. Alternatively, the fixing point shall be capable of withstanding a pull equal to the mass of the equipment in all directions without damage Instructions for installation or instructions for use shall be provided to specify correct use of the fixing point		N/A
8.6.202	**Restraining device** MS2 and MS3 television sets and display devices shall be provided with a restraining device and associated hardware to attach to the television set or display device. The restraining device shall be capable of withstanding a pull equal to the mass of the equipment in all directions. Instructions for installation or instructions for use shall be provided to specify correct use of the fixing point .		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT

IEC 62368-1:2018

SAUDI ARABIA NATIONAL DIFFERENCES
(Audio/video, information and communication technology equipment Part 1: Safety requirements)

Differences according to ..... :	National standard SASO-IEC 62368-1:2020
TRF template used:.....:	IECEE OD-2020-F3, Ed. 1.1
Attachment Form No. ..... :	SA_ND_IEC62368_1E
Attachment Originator..... :	SASO
Master Attachment..... :	2022-12-22

	National Differences		P
	Plugs used for pluggable equipment comply with standard SASO-2203.		N/A
--	**Frequency (Hz)**		P
	60 Hz	Include 60Hz	P
--	**Rated voltage (V)**		P
	Single phase 230 V Three phase 400 V	Include 230V	P

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT

IEC 62368-1:2018
CHINA NATIONAL DIFFERENCES
(**Audio/video, information and communication technology equipment -Part 1: Safety requirements**)

Differences according to ..... : GB 4943.1-2022

TRF template used:.....: IECEE OD-2020-F3, Ed. 1.1

Attachment Form No. ..... : CN_ND_IEC62368_1E

Attachment Originator..... : CQC

Master Attachment..... : Dated 2022-12-01

	National Differences		P
4.1.2	**Use of components** Add a paragraph: A component used shall comply with related requirements corresponding altitude of the equipment.		P
4.11	Add clause 4.11, as follows: Protection in PRIMARY CIRCUITS against overcurrent short-circuits and earth faults shall be provided as an integral part of the equipment except the device shall meet the all requirement of Fault conditions. If pluggable equipment type B or permanently connected equipment depends on protective devices outside the equipment for protection, this shall be stated in the installation instructions of the equipment, with requirements for short-circuit protection, over-current protection ,or both if necessary.		P
5.3.2.2	**Contact requirements** Amend the 2nd paragraph of table 8 to be: For equipment intended to be used at altitude of 2000m to 5000m, the values in this table are multiplied by the multiplication factor corresponding altitude of 5000m.	Altitude during operation: 2000m	N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.2.5	**Multiplication factors for altitudes higher than 2 000 m above sea level** Amend the 1st paragraph to be: For equipment to be operated at more than 2000 m above sea level and up to 5000m above sea level, the minimum CLEARANCE in tables 10,11 and 14,and resistance test voltages required in table 15, shall meet the requirements of 5000 m above sea level, This is multiplied by the multiplication factor corresponding altitude of 5000m in table 16. For equipment to be used at equal or less than 2000 m above sea level, the minimum CLEARANCE in tables 10, 11 and 14, and resistance test voltages required in table 15, shall meet the requirements of 2000 m above sea level. This is multiplied by the multiplication factor corresponding altitude of 2000m in table 16. Delete note 2 of Clause 5.4.2.5.	Altitude during operation: 2000m	N/A
5.4.5.1	**General** Delete the 2nd paragraph of Clause 5.4.5.1: This test does not apply to equipment where one antenna terminal on the equipment is connected to earth in accordance with 5.6.7. Add the following: The Insulation resistance between CATV antenna coaxial sockets and protective earth of apparatus shall comply with BASIC INSULATION. If it's possible that CLASS II apparatus with CATV antenna coaxial sockets connect with protective earth of another CLASS I apparatus by other terminals, the insulation resistance between them shall comply with BASIC INSULATION as well. If antenna cable separated from the protective earth before connection to the apparatus, there is no requirements of Insulation resistance between them but F.4 requirements shall be meet. *Del*ete "NOTE" of Clause 5.4.5.1		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.8	**Humidity conditioning** Amend clause 5.4.8 as follows : The humidity conditioning is conducted for 120 h in a cabinet or room containing air with ambient temperature (40±2) °C and a relative humidity of (93±3)%. During this conditioning, the component or subassembly is not energized. For equipment not to be operated at tropical climatic conditions, humidity conditioning is conducted for 48 h in a cabinet or room containing air with a relative humidity of (93±3) %. The temperature of the air, at all places where samples can be located, is maintained within 2 °C of any convenient value between 20 °C and 30 °C such that condensation does not occur. Add note: For equipment to be operated at 2000 m - 5000m above sea level, assessment and requirement of humidity conditioning for Insulation material properties are considered. Pre-processing conditions and requirements below 2000m can be used until additional data is available.		P
6.4.9 Y.4.3	Delete references to ASTM and NEMA.		N/A
6.5.1	**General requirements** Delete the text of the Note “Wire complying with UL 2556 VW-1 is considered to comply with these requirements”.		P
F.1	Amend the second paragraph of annex F.1 to be: Unless symbols are used or otherwise specified, safety related equipment markings, instructions, and instructional safeguards shall be in normative Chinese.	Shall be considered during national approval	N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
F.2.2	After the first paragraph of annex F.2.2, add the following: For apparatus intended to be used at altitude not exceeding 2000m, a warning label containing the following or a similar appropriate wording or a symbol shown below shall fixed to the equipment at readily visible place. "Only used at altitude not exceeding 2000m."  For apparatus intended to be used in not-tropical climate regions, a warning label containing the following or a similar appropriate wording or a symbol shown below shall fixed to the equipment at readily visible place. "Only used in not-tropical climate regions."  If only symbol used, the explanation of the symbol shall be contained in the instruction manual. The statements above shall be given in a language acceptable to the regions where the apparatus is intended to be used.		N/A
F.3.3.4	After the last paragraph, Added: …for single rated voltage, “220 V” or three-phase “380V” shall be marked only. For a rating voltage range, 220 V or three-phase 380V shall be covered. For multiple rated voltages, one of them shall be 220 V or three-phase 380V and which default setting from manufacture shall be 220 V or three-phase 380V as well.		P
F.3.3.5	After the last paragraph, Added: Rated frequency shall be 50Hz or frequency range shall cover 50Hz.		P
F.4	**Instructions** Added: – For apparatus incorporating antenna coaxial sockets which is non-separated with CATV network, a warning wording or a similar shall be given in the instruction manual: “A CATV cable intended to be connected to apparatus shall be separated with the protective earth of the apparatus, otherwise fire hazard might be caused.”		N/A
F.5	**Instructional safeguards** In table F.2 ， change 230V to 220V， change 400Y/230V 3Ø to 380 Y/220 V 3Ø		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	Amend clause G.4.2 as follows : Plugs connected to the MAINS in apparatus shall comply with GB/T 1002,GB/T 1003,GB/T 2099.1 or GB/T11918（All parts） series. Appliance coupler shall comply with GB/T 17465（All parts） series or GB/T 11918（All parts） series.	Shall be considered during national approval	N/A
	Special national conditions (if any)		P
0.12	Add clause 0.12 Description of relevant information.		P
1	GB 4943.1-2022 applies to equipment used at altitudes not exceeding 5000m above sea level, For apparatus intended to be used at altitude not exceeding 2000m, The requirements can be appropriately reduced, but warning instructions shall be provided. Revise the sixth paragraph of 1 as: In addition to specified by the manufacturer, this document assumes a maximum altitude of 5000m		P
B.2.6.1	Amend T_{ma} as follows: T_{ma} is the maximum ambient temperature permitted by the manufacturer's specification, or 35 °C, whichever is greater. Add note 1: For equipment not to be operated at tropical climatic conditions, T_{ma} is the maximum ambient temperature permitted by the manufacturer's specification, or 25 °C, whichever is greater. Add note 2: For equipment to be operated at 2000m-5000m above sea leave, its temperature test conditions and temperature limits are under consideration. temperature test conditions and temperature limits below 2000m can be used until additional data is available.		P
Annex Z **(normative)**	Added annex Z: Instructions of the new safety warning labels.		N/A
Annex AA (informative)	Added annex AA: Illustration relative to safety explanation in normative Chinese, Tibetan, Mongolian, Zhuang Language and Uighur.		N/A

ATTACHMENT to TRF IEC62368_1E			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT

IEC 62368-1:2018

JAPAN NATIONAL DIFFERENCES

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

Differences according to.....: J62368-1(2023)

TRF template used: ..... : IECEE OD-2020-F3:2022, Ed. 1.2

Attachment Form No. .....: JP_ND_IEC62368_1E

Attachment Originator .....: UL Solutions (JP)

Master Attachment .....: Dated 2023-05-12

	National Differences		--
4.1.2	Where the component, or a characteristic of a component, is a safeguard or a part of a safeguard, components shall comply with the requirements of this document or, where specified in a requirements clause, with the safety aspects of the relevant JIS component standards or IEC component standards, or components shall have properties equivalent to or better than these.		P
5.6.1	Mains socket-outlet and interconnection coupler shall comply with Clause G.4.2A if they are incorporated as part of the equipment.		N/A
5.6.2.1	Connection for protective conductor of class 0I equipment provided with instructional safeguard in accordance with Clause F.3.6.1A is considered to make earlier and break later than supply connection. Mains plug having a lead wire for protective earthing connection of class 0I equipment shall comply with all of the following: – Not to be used for equipment having a rated voltage of 150 V or more – Clip is not used for the earthing connection of the lead wire. – The lead wire for earthing is at least 10 cm long If class 0I equipment provides an independent main protective earthing terminal and is intended to be installed by ordinary person, earthing wire shall be provided in the package of the equipment.		N/A

ATTACHMENT to TRF IEC62368_1E			
Clause	Requirement + Test	Result - Remark	Verdict
5.6.2.2	Internal earthing conductor of the cord set that is covered by the sheath of mains cord and is formed together with mains plug and appliance connector need not be green-and-yellow.		N/A
5.6.3	In case of class 0I equipment using power supply cord having two conductors (no earthing conductor), the conductor of protective earthing lead wire shall comply with either of the following: – use of annealed copper wire with 1.6 mm diameter or corrosion-inhibiting metal wire having size and strength that are equivalent to or more than the above copper wire – single core cord or single core cab tire cable with 1.25 mm^2 or more cross-sectional area		N/A
5.7.3	For class 0I equipment that is provided with mains socket-outlet in the configuration as specified in JIS C 8282 series, JIS C 8300 or JIS C 8303, or that is provided with mains appliance outlet as specified in JIS C 8283 series for the purpose of interconnection, the measurement is conducted on the system of the interconnected equipment having a single connection to the mains.		N/A
5.7.5	In case of class 0I equipment, touch current shall not exceed 1.41 mA peak or for sinusoidal wave, 1.0 mA r.m.s. when measured using the network specified in Figure 4 of IEC 60990:2016.		N/A
6.4.3.2	A fuse complying with JIC C 6575 series or a fuse having equivalent characteristics shall open within 1 s. A fuse having time/current characteristics other than those specified in IEC 60127 shall be tested with the characteristics taken into account. In case of Class A fuse of JIS C 6575, replace “2.1 times” by “1.35 times” and in case of Class B fuse of JIS C 6575, replace “2.1 times” by “1.6 times”.		N/A
8.5.4.3.1	Only three-phase stationary equipment rated more than AC 200 V can be considered as being for use in locations where children are not likely to be present, when complying with Clause F.4.		N/A
8.5.4.3.2	For equipment installed where children may be present, an instructional safeguard shall be provided by easily understandable wording in accordance with Clause F.5, except that element 3 is optional.		N/A
8.5.4.3.4	The media destruction device is tested according to Clause V.1.2 with applicable jointed test probes to the opening. And then the wedge probe per Figure V.4 shall not contact any moving part.		N/A

ATTACHMENT to TRF IEC62368_1E			
Clause	Requirement + Test	Result - Remark	Verdict
8.5.4.3.5	The wedge probe of Figure V.4 and applicable jointed test probes specified in Clause V.1.2 shall not contact any moving part. Instructional safeguard shall not be used instead of equipment safeguard for preventing access to hazardous moving parts.		N/A
F.3.5.1	When the mains socket-outlet is configured in accordance with JIS C 8282 series, JIS C 8300 or JIS C 8303, the assigned current or power shall be marked. If the voltage of the socket-outlet is the same as the mains voltage, the voltage need not be marked. Instructional safeguard of Class 0I equipment shall be provided with an instructional safeguard in accordance with Clause F.5 when a mains socket-outlet as specified in JIS C 8282 series, JIS C 8300 or JIS C 8303 to which class I equipment can be connected is provided in accordance with Clause G.4.2A except for the cases where the socket-outlet is accessible only to skilled persons.		N/A
F.3.5.3	If the fuse is necessary for the safeguard function, the symbols indicating pre-arcing time-current characteristic shall be included.		N/A
F.3.6.1A	Marking for class 0I equipment The requirements of Clauses F.3.6.1.1 and F.3.6.1.2 shall be applied to class 0I equipment. For class 0I equipment, a marking of instructions shall be provided regarding the earthing connection. In addition to the above, for class 0I equipment, an instruction to connect earthing before and disconnect earthing after the connection of supply conductors shall be marked on the visible place of the main body or shall be in the text of an accompanying document.		N/A
F.3.6.2	Symbols, IEC 60417-5172 (2003-02) or IEC 60417-6092 (2011-10), shall not be used for class I equipment or class 0I equipment.		N/A
F.3.8A	Attention marking for aging deterioration of CRT television Year of manufacture, standard usage period by design according to JIS C 9921-5 and cautionary statement for possible risks of aging deterioration when used beyond the specified period shall be marked on CRT television except for industrial use CRT television.		N/A

ATTACHMENT to TRF IEC62368_1E			
Clause	Requirement + Test	Result - Remark	Verdict
F.4	For audio equipment with terminals classified as ES3 in accordance with Table E.1, and for other equipment with terminals marked in accordance with F.3.6.1 and F.3.6.1A, the instructions shall require that the external wiring connected to these terminals shall be installed by a skilled person, or shall be connected by means of ready-made leads or cords that are constructed in a way that would prevent contact with any ES3 circuit. For class 0I equipment provided with independent main protective earthing terminal, where the cord for the protective earthing connection is not provided in the package of the equipment, if the protective earthing connection is made by instructed person or skilled person, the suitable installation instruction for the protective earthing connection shall be provided.		N/A
G.3.2.1	The thermal link when tested as a separate component, shall comply with the requirements of JIS C 6691 or have properties equivalent to or better than that.		N/A
G.3.4	Except for devices covered by Clause G.3.5, overcurrent protective devices used as a safeguard shall comply with the applicable JIS or IEC standard in accordance with 4.1.2 or shall have equivalent or better properties. Such a protective device shall have adequate breaking (rupturing) capacity to interrupt the maximum fault current (including short-circuit current) that can flow.		N/A
G.4.1	This requirement does not apply to connectors covered in Clauses G.4.2 and G.4.2A.		N/A

ATTACHMENT to TRF IEC62368_1E			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	Mains connectors, mains plugs and socket-outlets shall comply with JIS C 8283 series, JIS C 8285, IEC 60309 series, JIS C 8282 series, JIS C 8300, JIS C 8303, or have equivalent or better properties. A power supply cord set provided with appliance connector that can fit appliance inlet complying with JIS C 8283-1 shall comply with JIS C 8286. Construction shall prevent mechanical stress not to transmit to the soldering part of appliance inlet terminal. When an equipment is rated not more than 125 V and all of the following are met, Type C14 and C18 appliance inlet complying with JIS C 8283-3 can be considered as rated 15 A. – The temperature of appliance inlet does not exceed the value specified in JIS C 8283-1 under the most unfavourable normal operating condition as specified in Clause B.2.1. – "Use only designated cord set attached in this equipment" or equivalent text is described in the operating instruction. If the cord set is not provided in the package of the equipment, suitable information regarding to the cord set is described in the operating instruction.		N/A
G.4.2A	Mains socket-outlet and interconnection coupler provided with the class II, class I and class 0I equipment respectively		N/A
G.7.1	A mains supply cord need not include the protective earthing conductor for class 0I equipment provided with independent protective earthing conductor.		N/A
G.7.2 Table G.7	Cross-sectional area of equipment rated up to and including 3 A shall be 0.75 mm^2.		N/A
G.7.6.1 Table G.9	The cross-sectional area of mains cords according to JIS C 3010 may comply with relevant Japanese wiring regulation. For cables other than those complying with JIS C 3662 series or JIS C 3663 series, the terminals shall be suitable for the size of the intended cables.		N/A

Product photos

Figure 1: External View_1

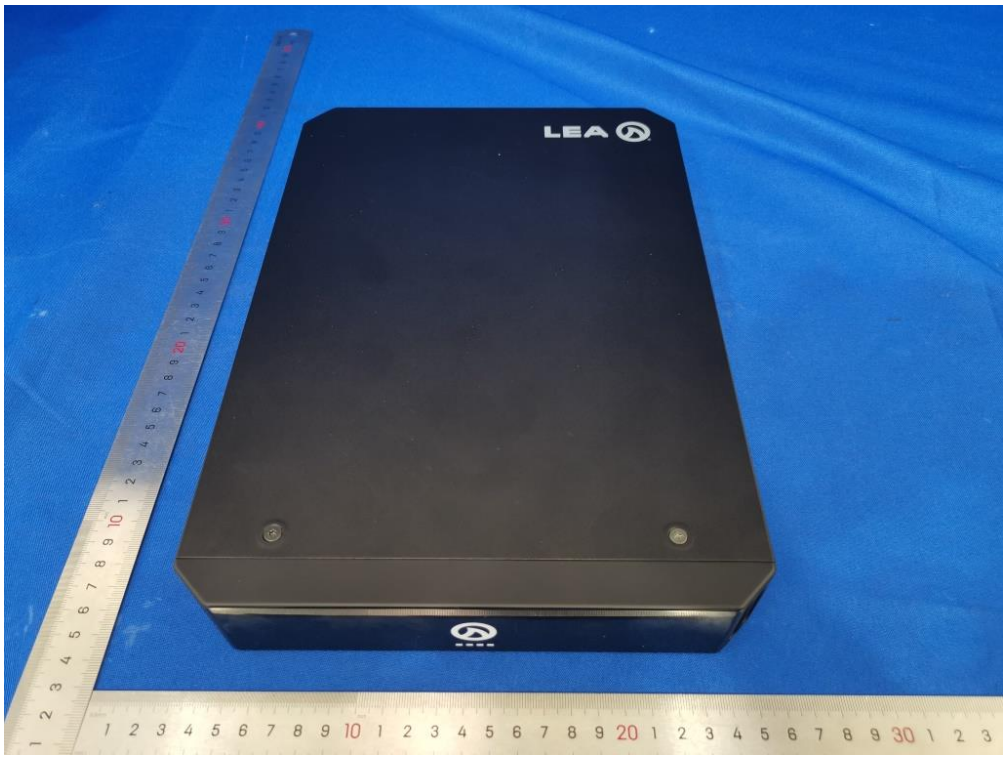


Figure 2: External View_2

Product photos

Figure 3: External View_3

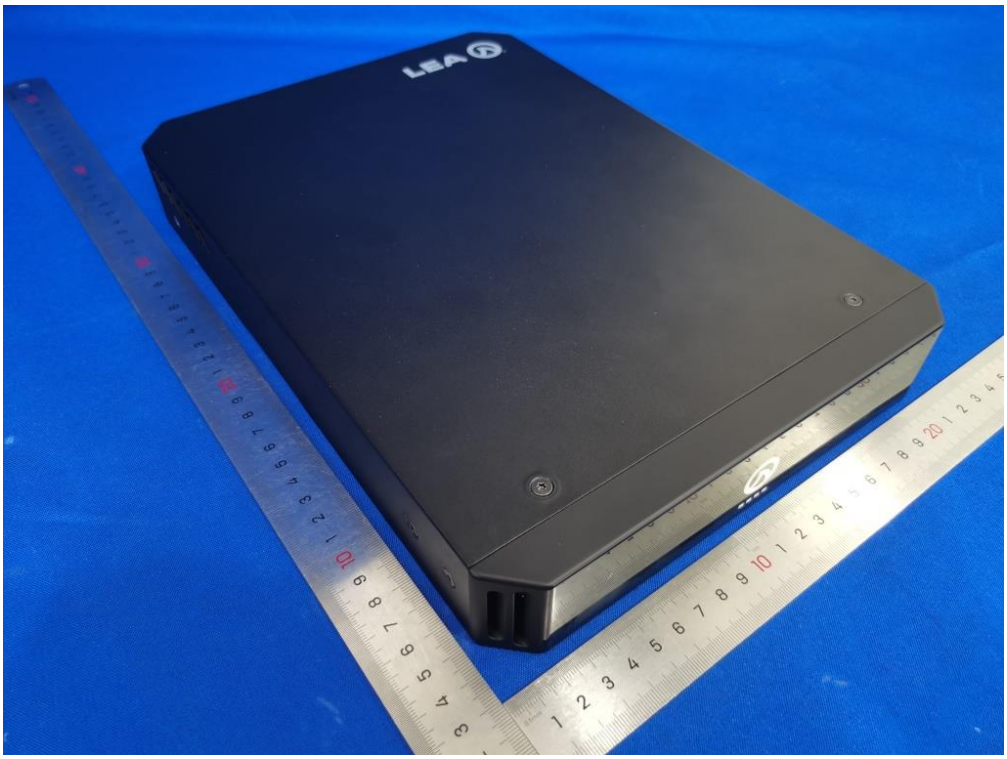


Figure 4: External View_4

Product photos

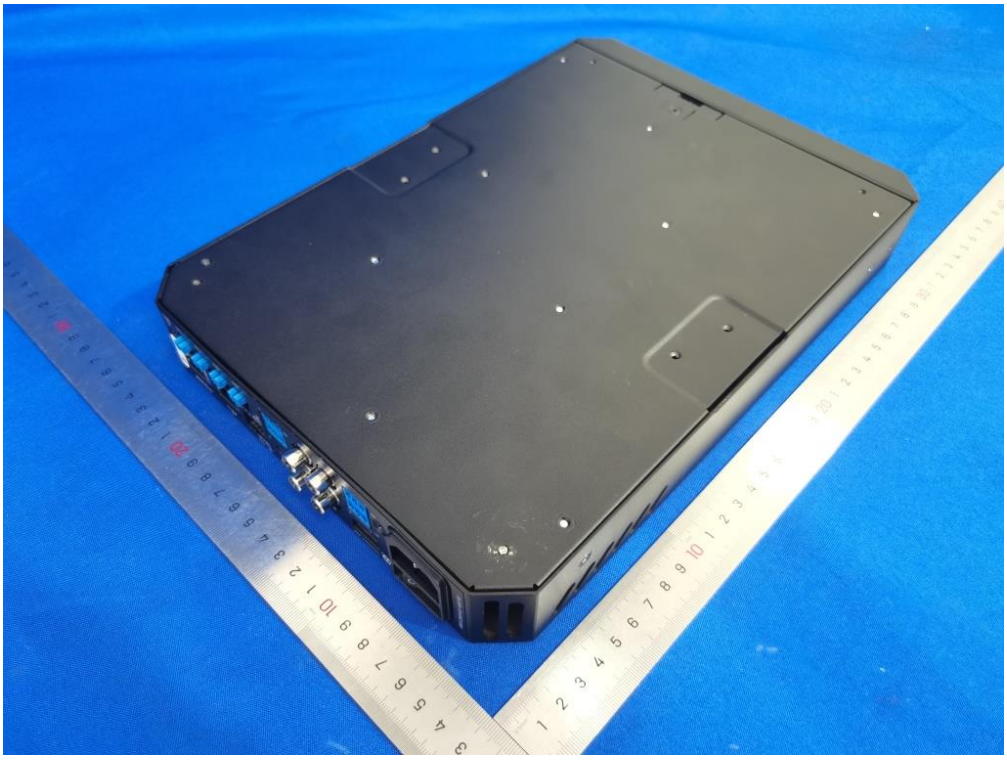


Figure 5: External View_5

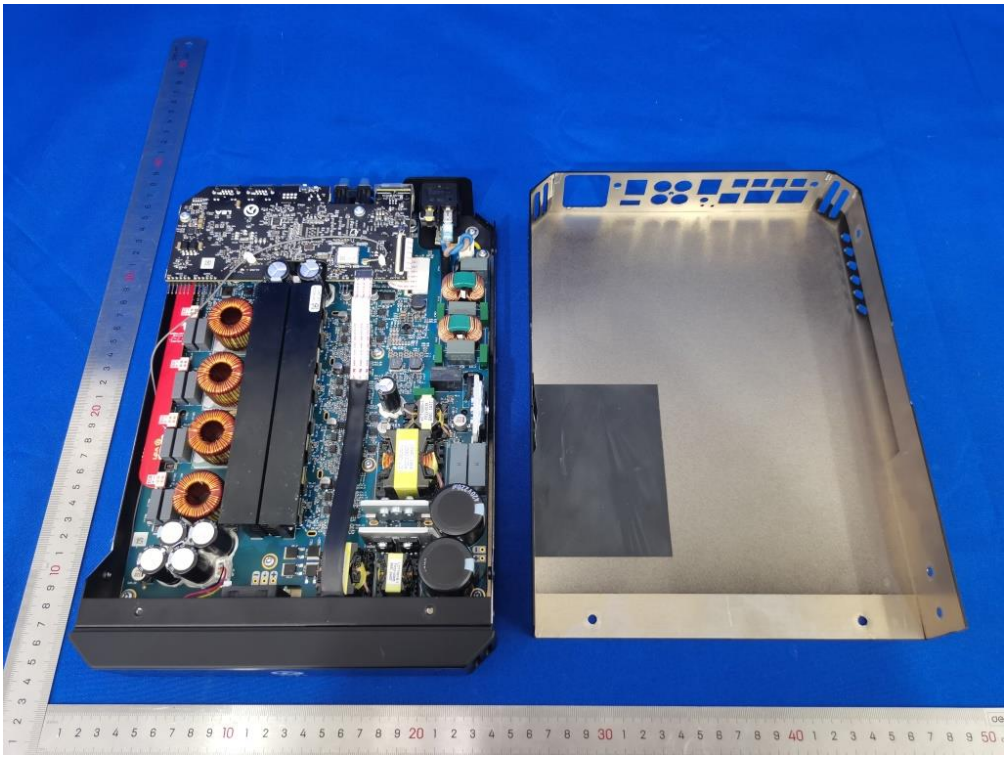


Figure 6: Internal View_1

Product photos

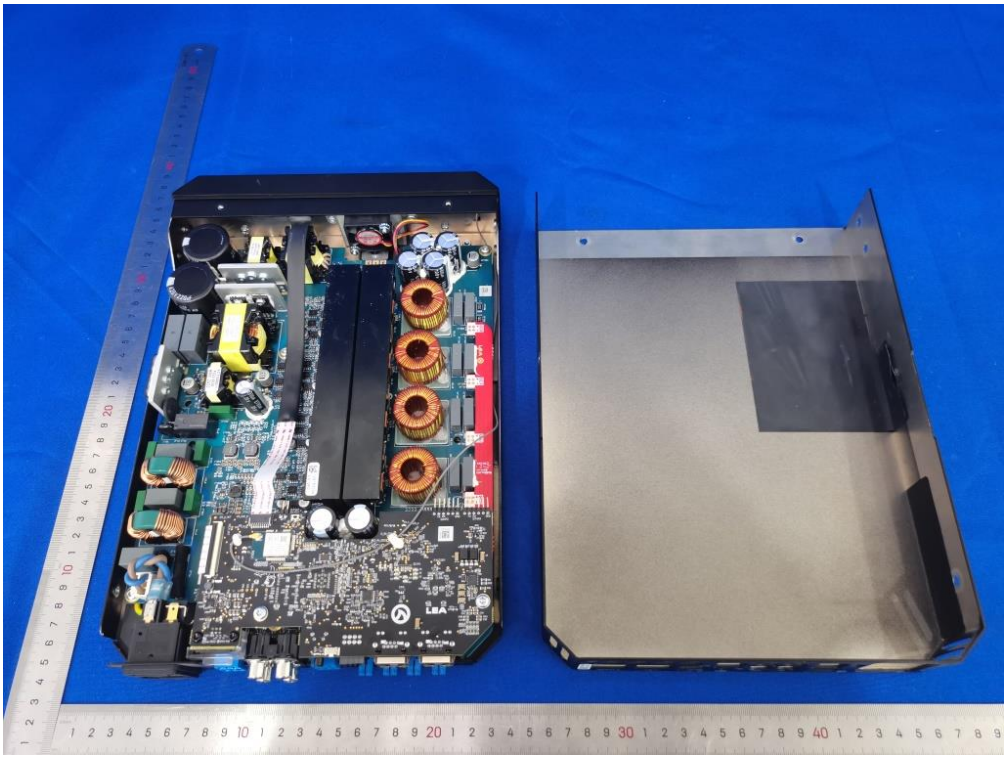


Figure 7: Internal View_2

Figure 8: Internal View_3

Product photos

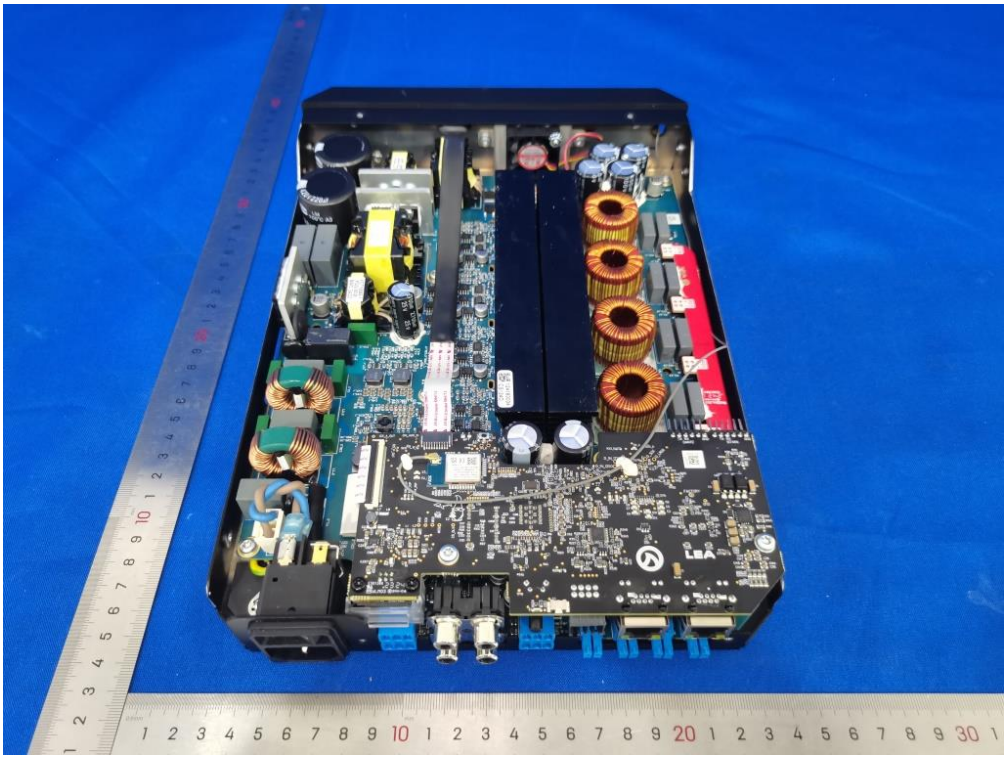


Figure 9: Internal View_4

Figure 10: Internal view_5

Product photos

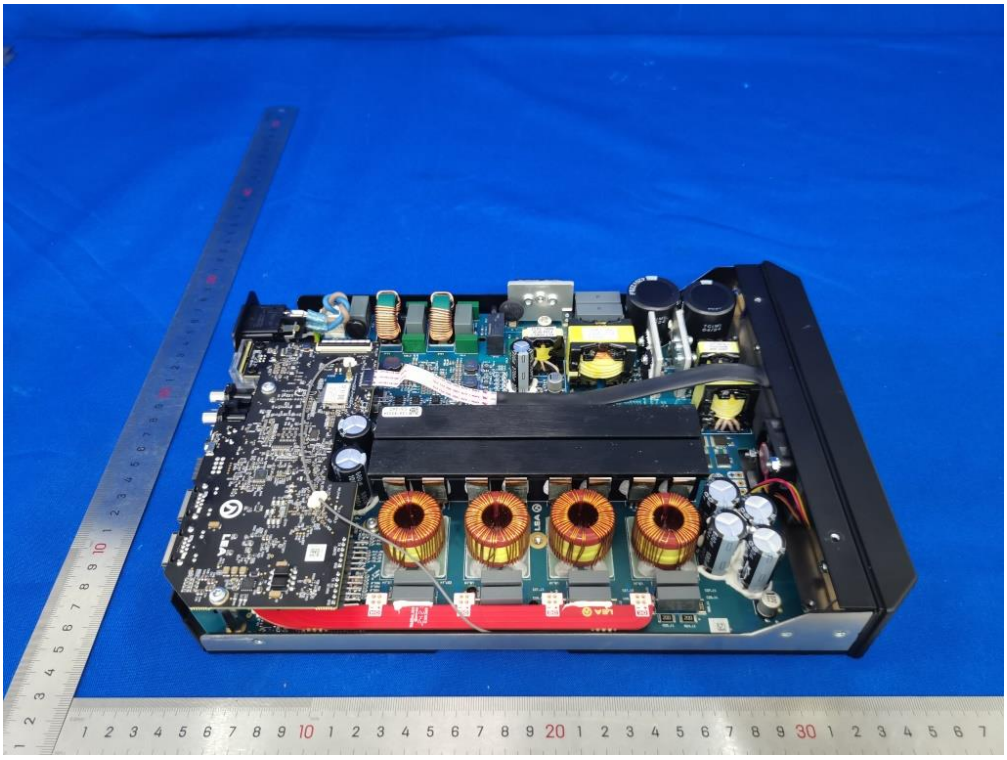


Figure 11: Internal view_6

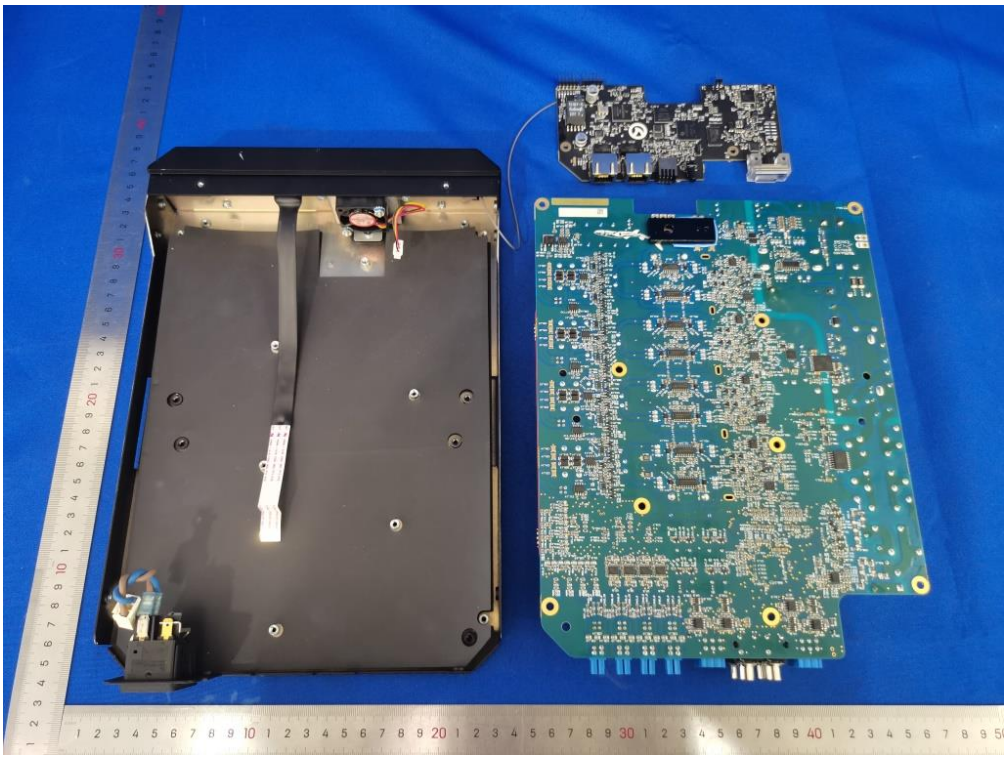


Figure 12: Internal view_7

Product photos

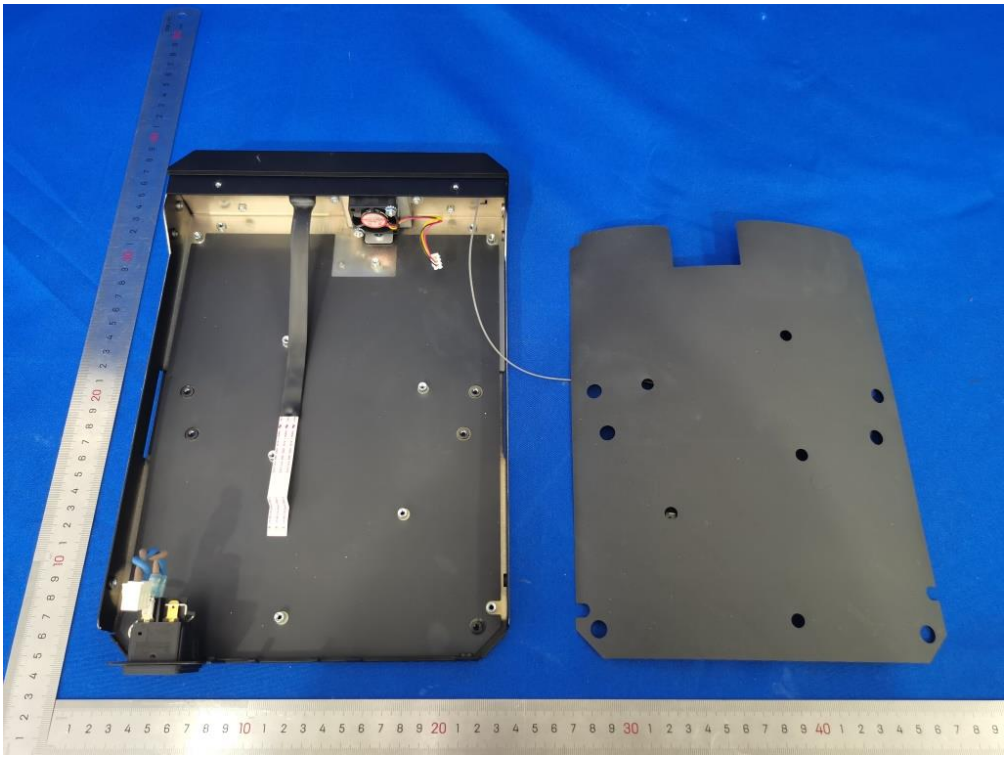


Figure 13: Internal view_8

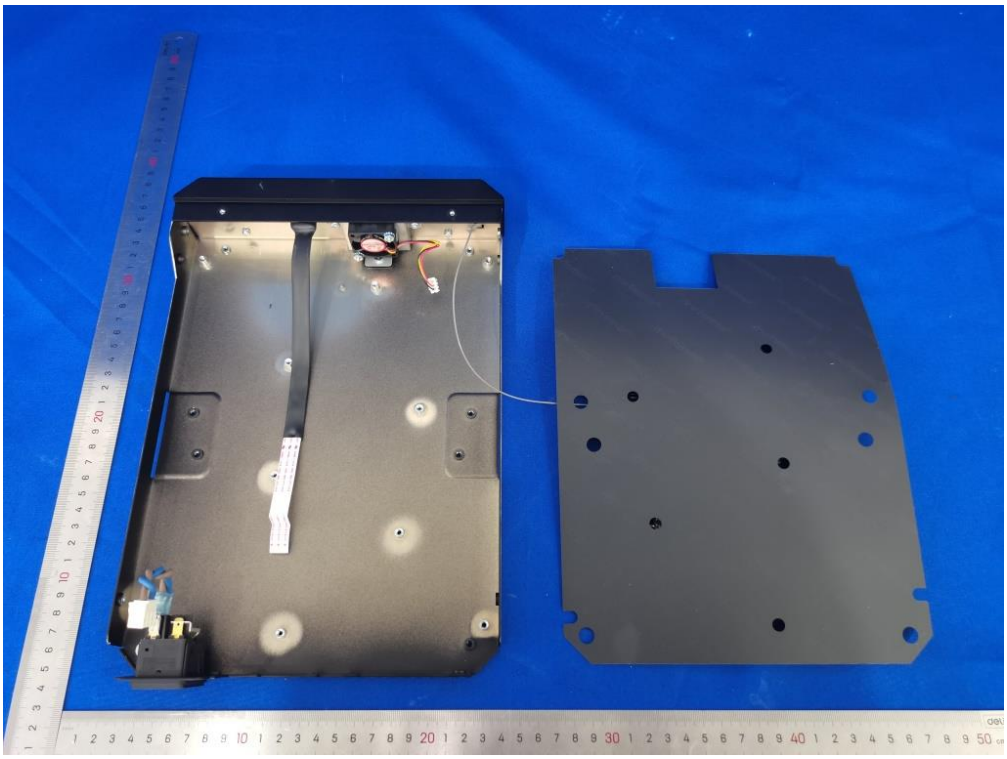


Figure 14: Internal view_9

Product photos

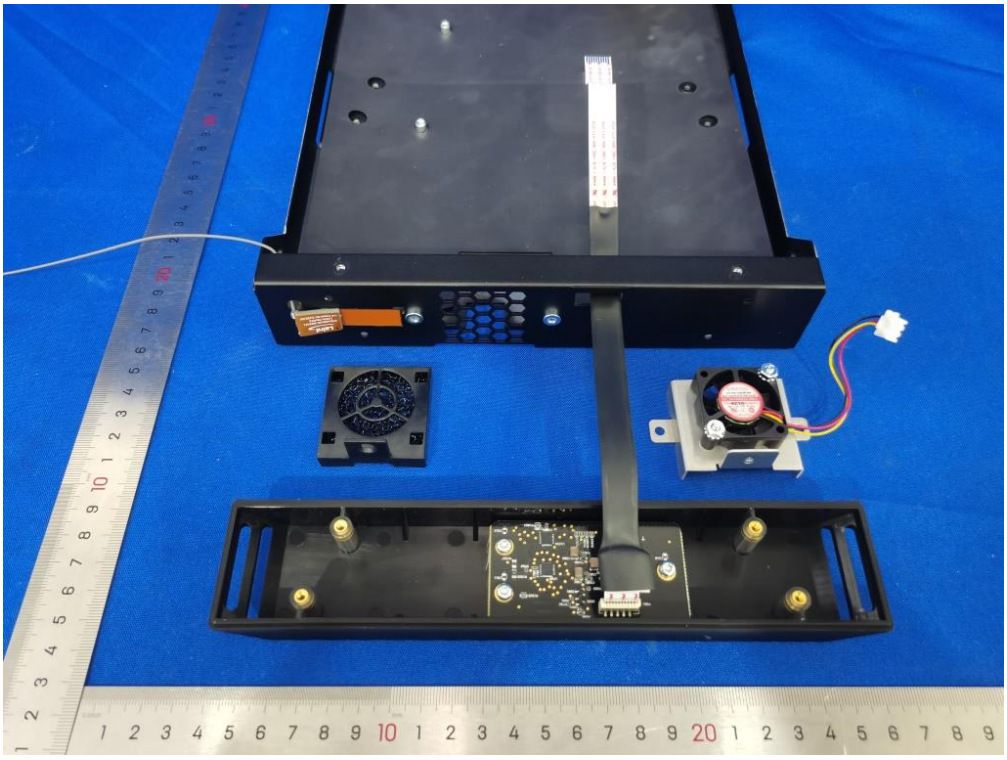


Figure 15: Internal view_10

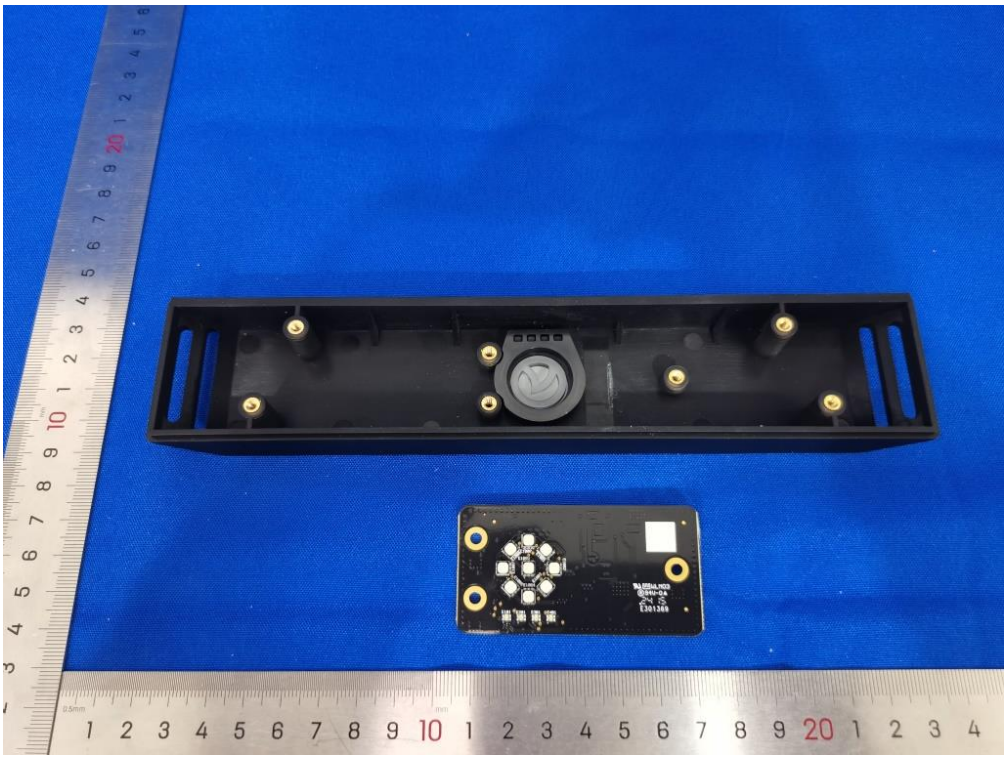


Figure 16: Internal view_11

Product photos

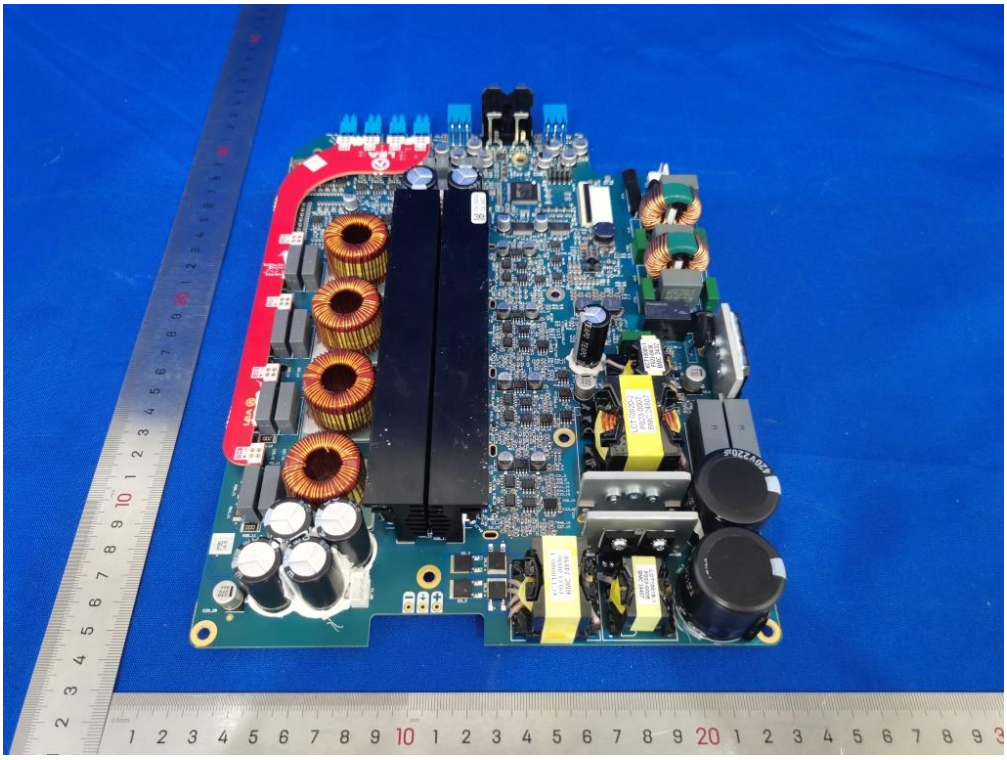


Figure 17: Internal view_12

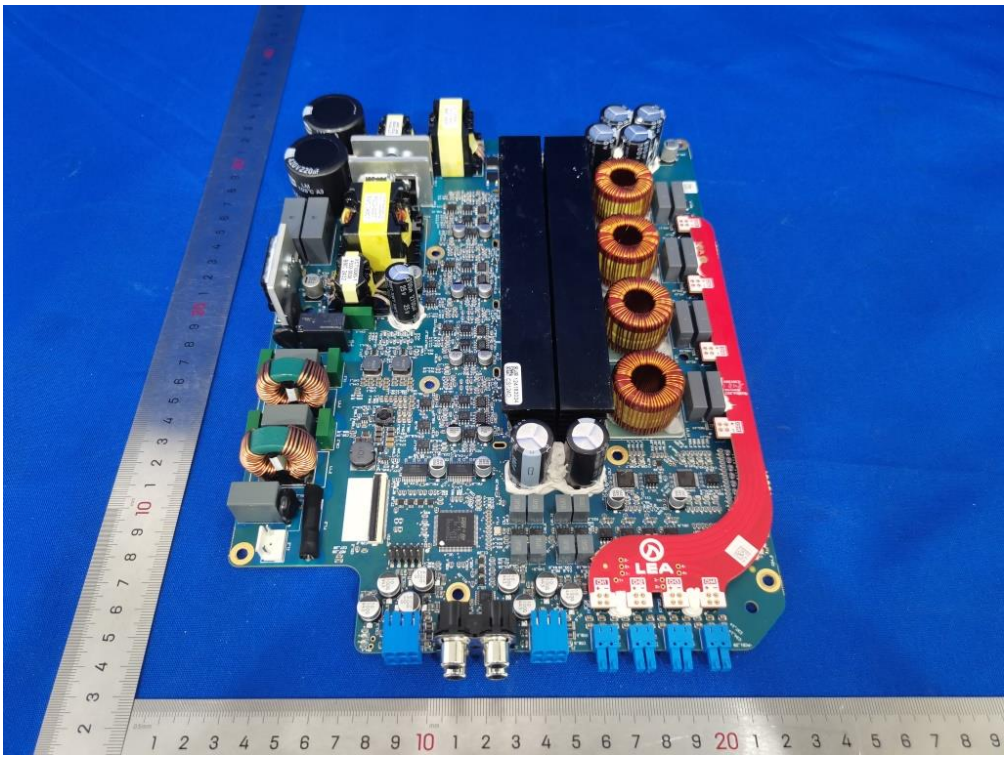


Figure 18: Internal view_13

Product photos

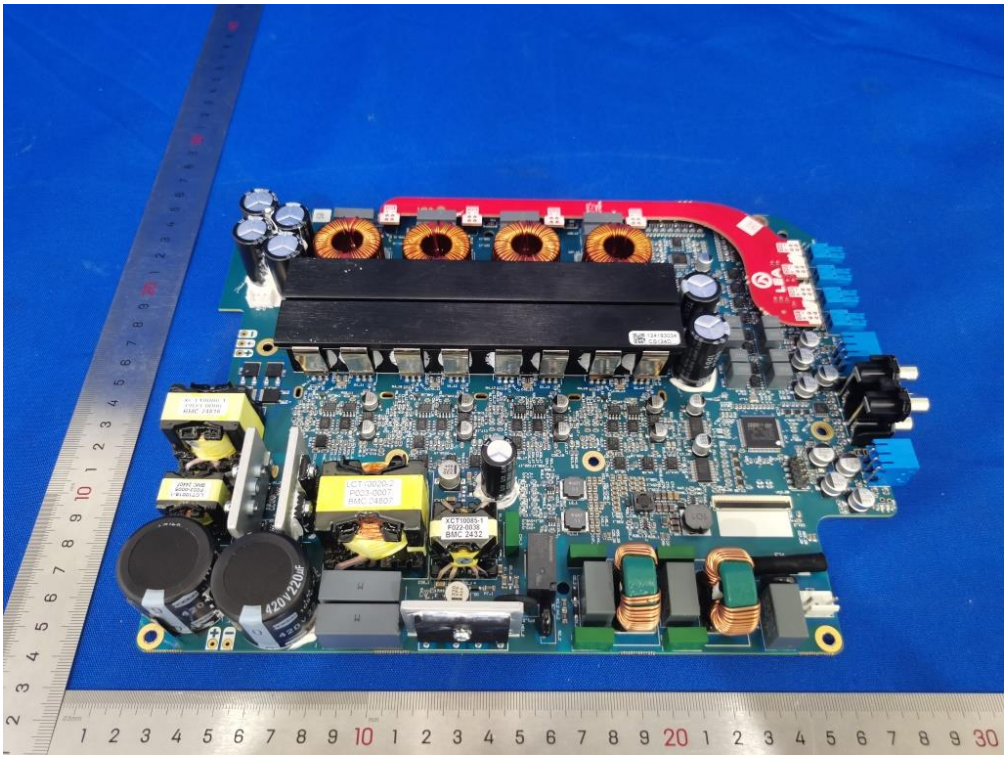


Figure 19: Internal view_14

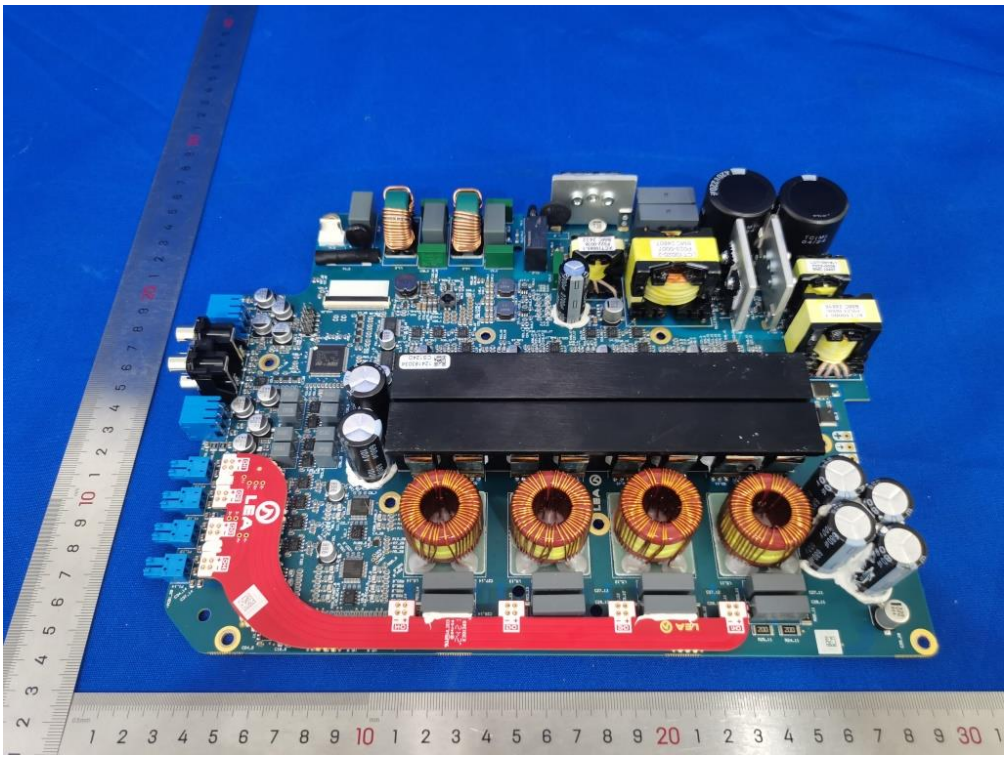


Figure 20: Internal view_15

Product photos

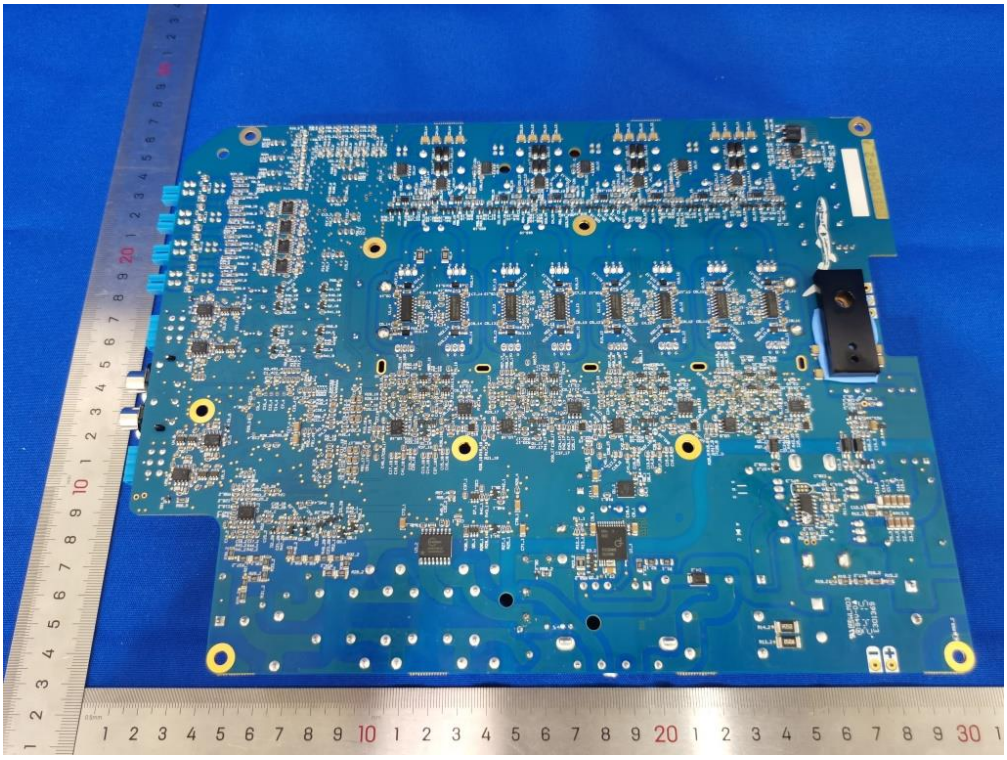


Figure 21: Internal view_16

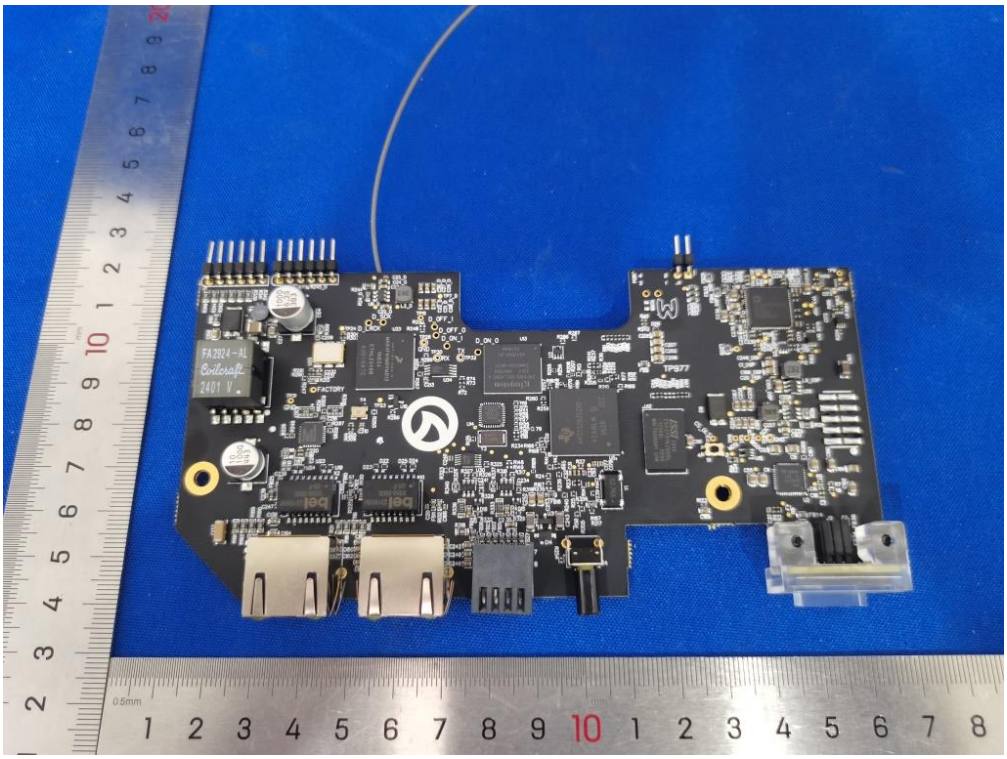


Figure 22: Internal view_17

Product photos

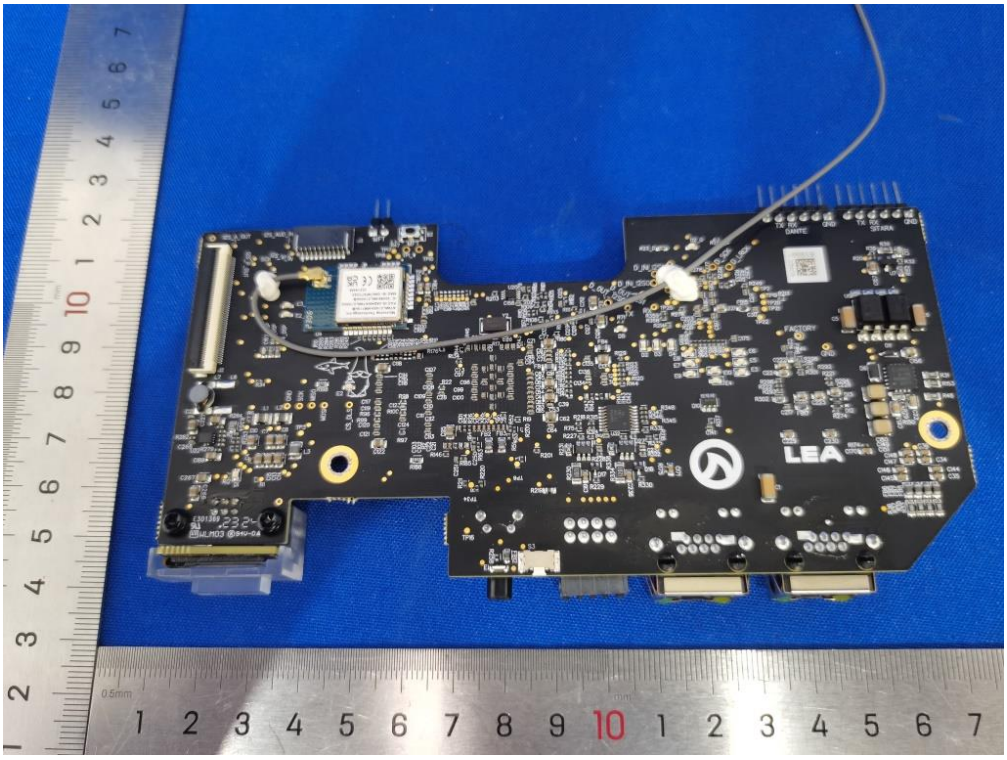


Figure 23: Internal view_18

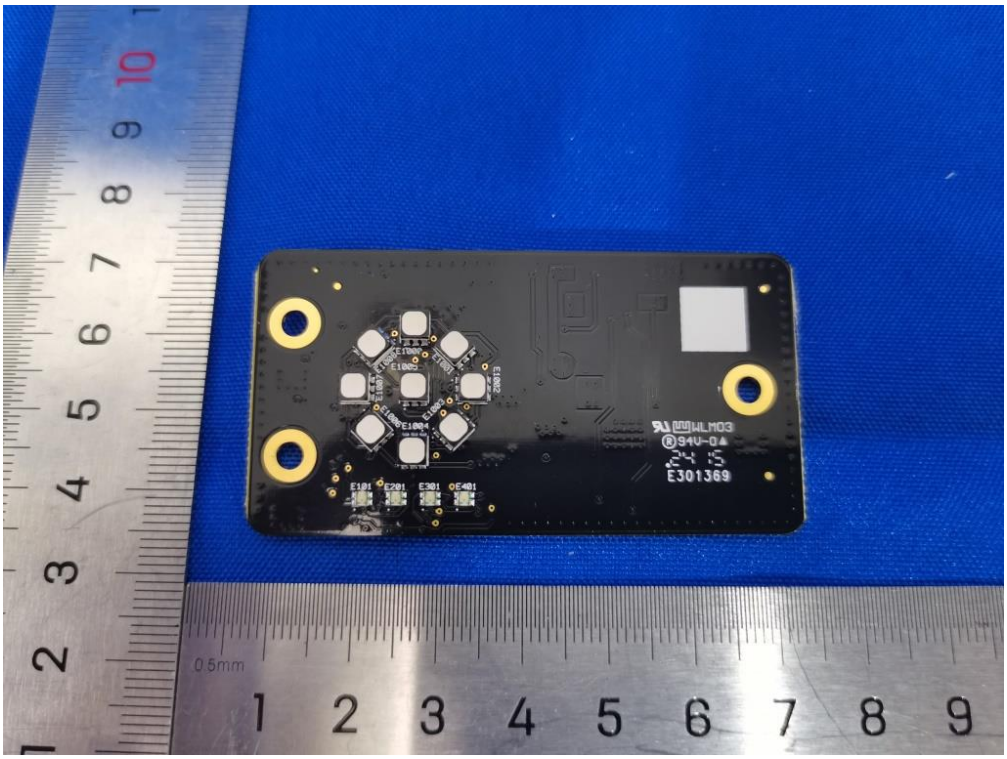


Figure 24: Internal view_19

Product photos

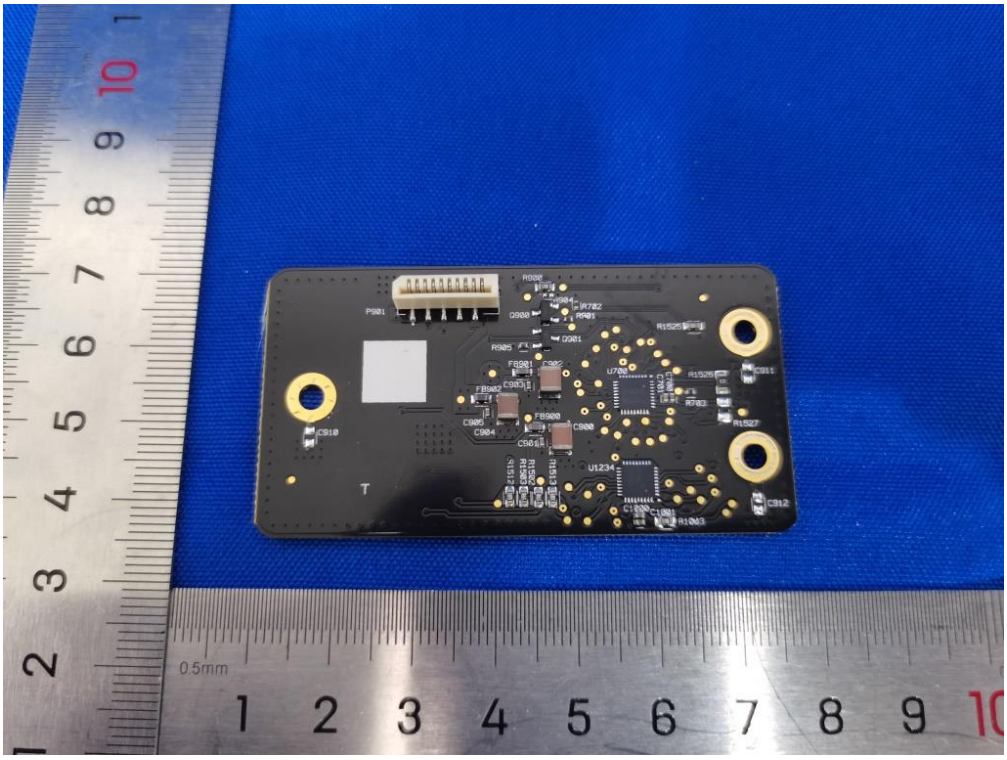


Figure 25: Internal view_20

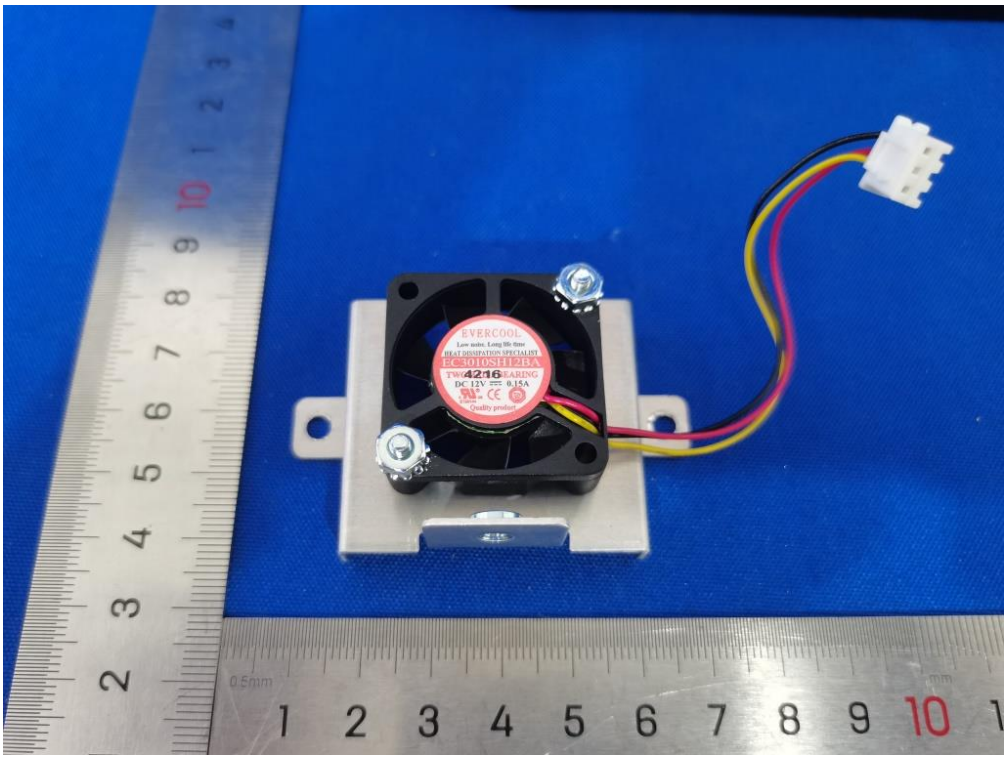


Figure 26: DC Fan view_1

Product photos

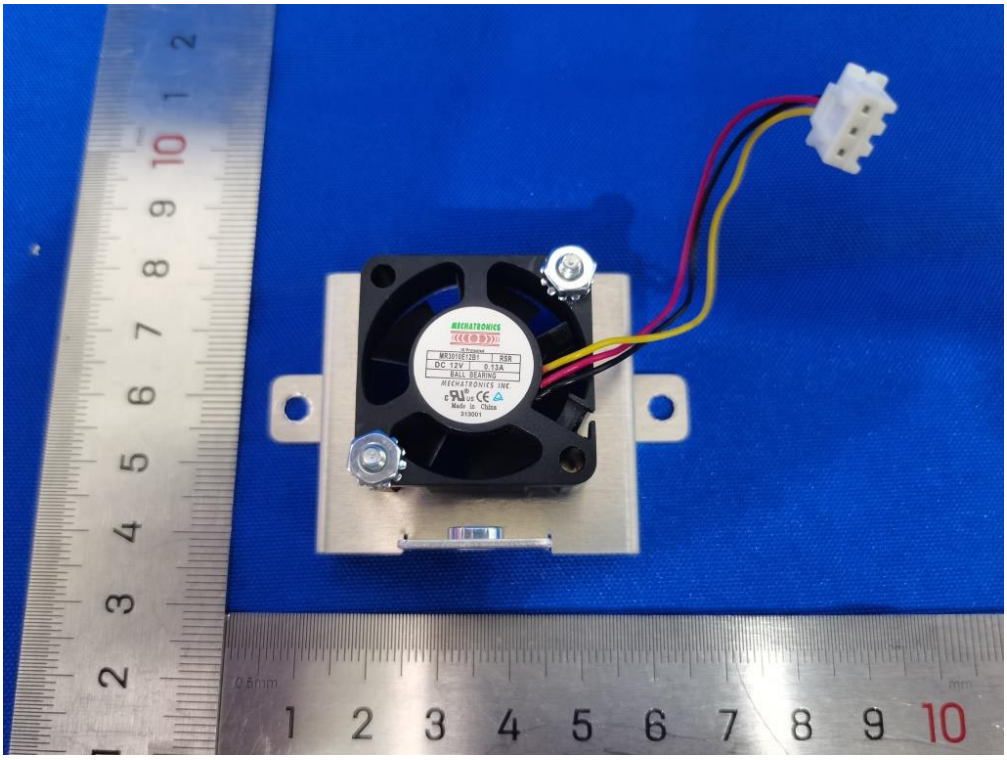


Figure 27: DC Fan view_2

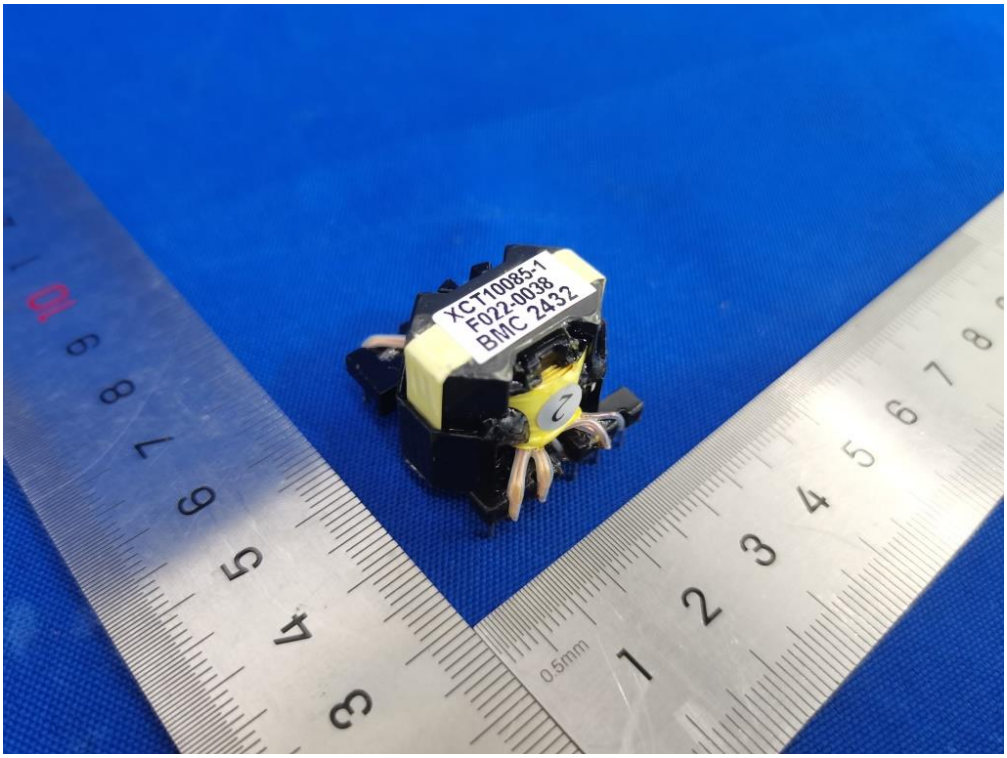


Figure 28: External view_1 of transformer (X1_1)

Product photos

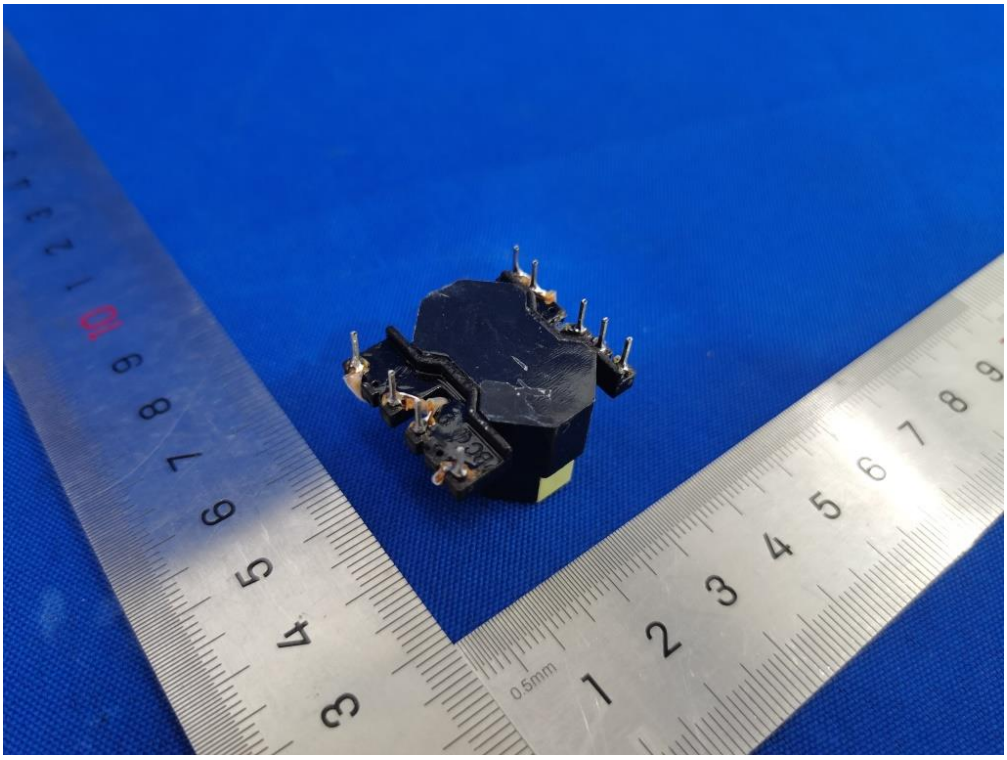


Figure 29: External view_2 of transformer (X1_1)

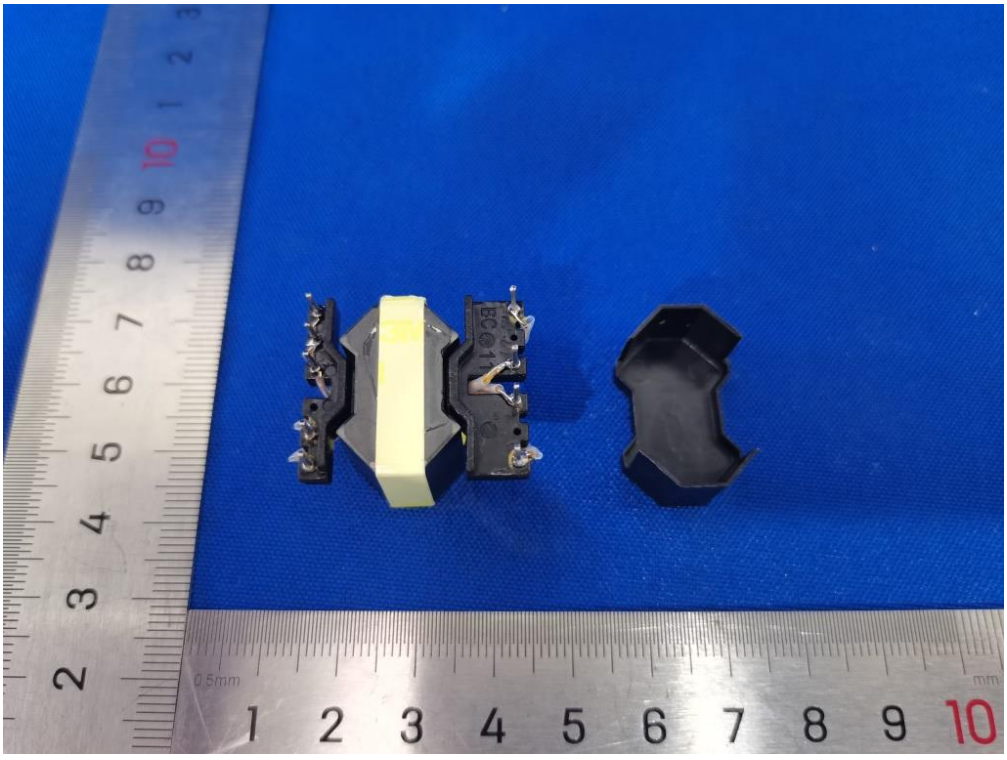


Figure 30: Internal view_1 of transformer (X1_1)

Product photos

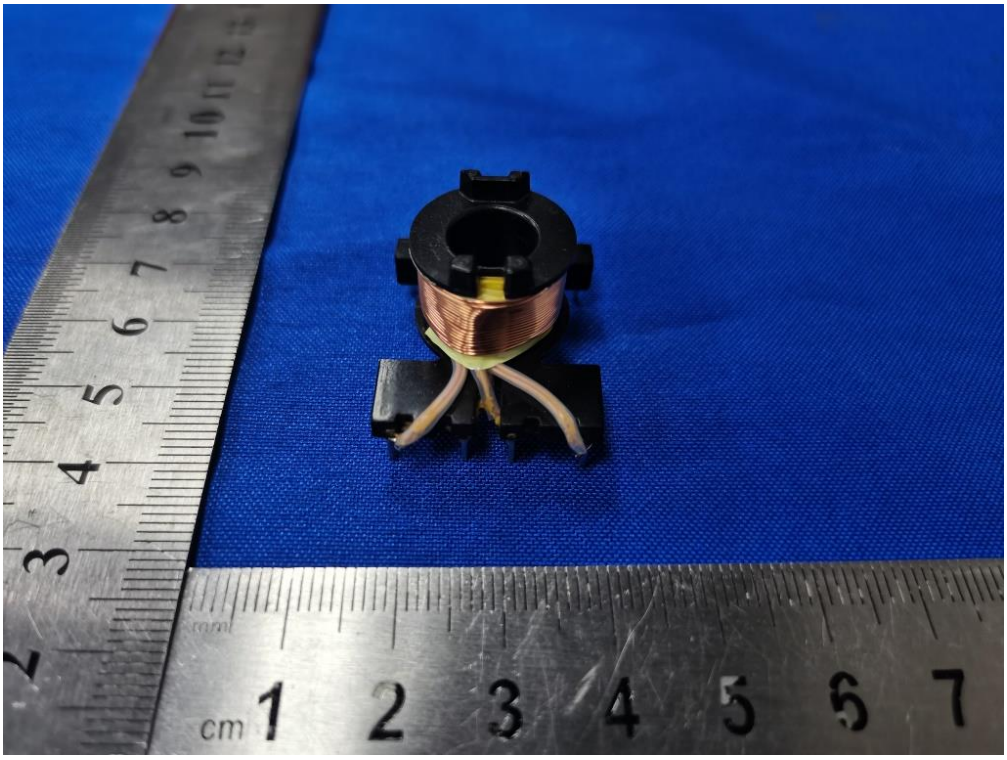


Figure 31: Internal view_2 of transformer (X1_1)

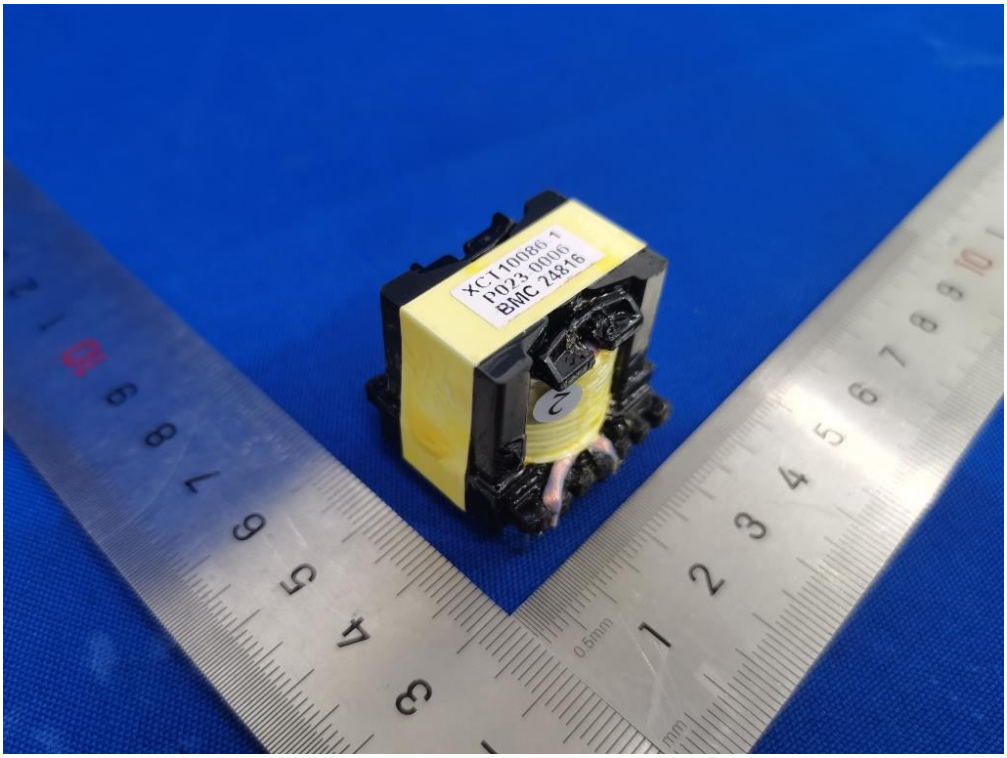


Figure 32: External view_1 of transformer (X1_3)

Product photos

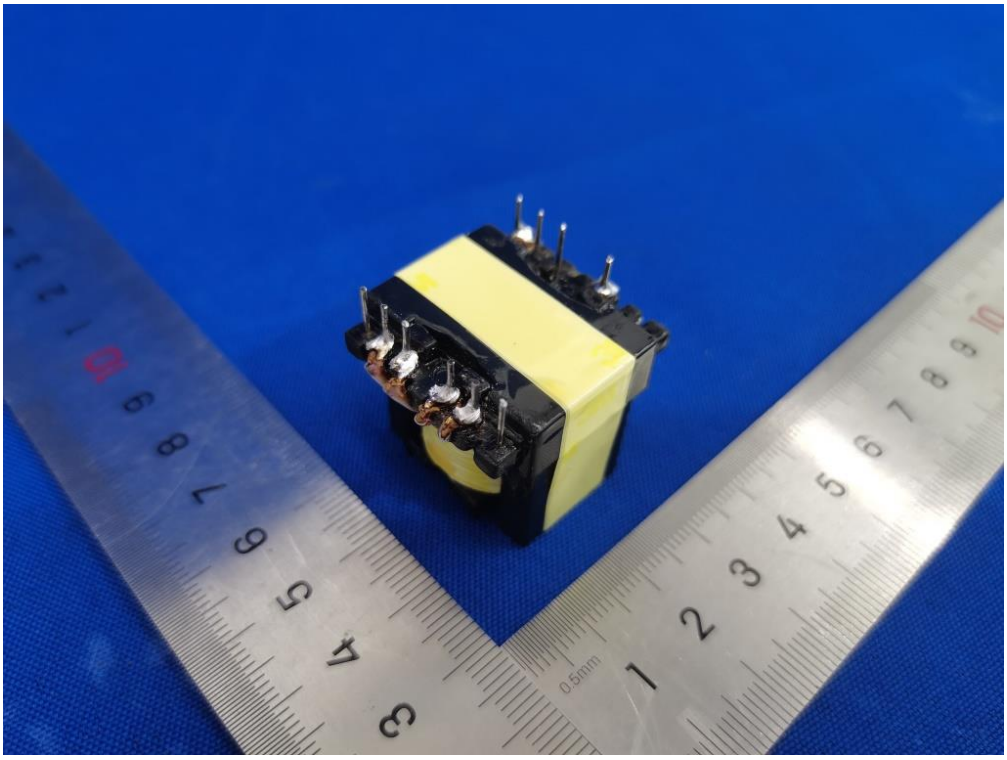


Figure 33: External view_2 of transformer (X1_3)

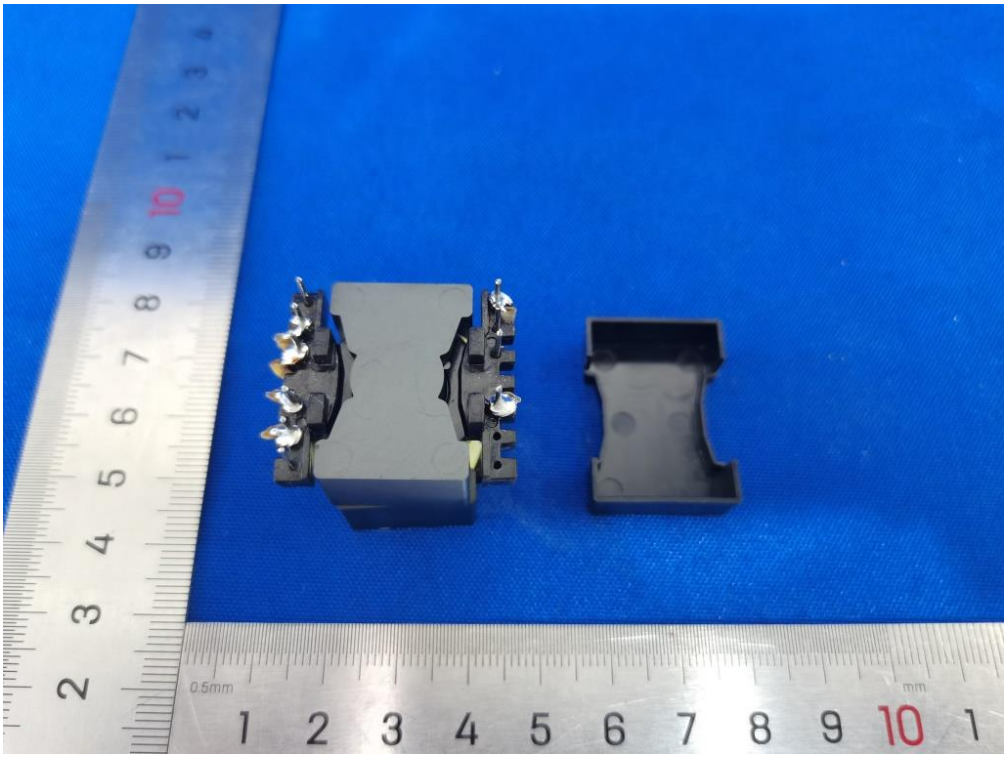


Figure 34: Internal view_1 of transformer (X1_3)

Product photos

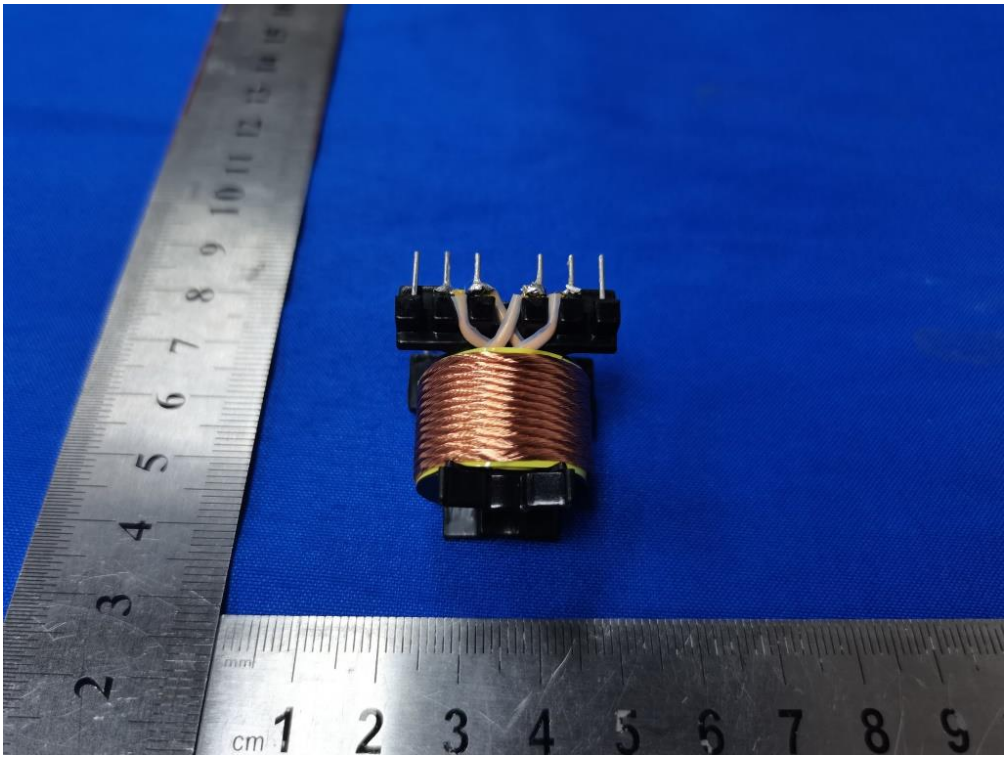


Figure 35: Internal view_2 of transformer (X1_3)