TEST REPORT

Report No. :	S20071700201001
Product :	Computer Multimedia Speaker
Model No. :	R23BT, R20BT, R24BT
Applicant :	SHENZHEN FENDA TECHNOLOGY CO., LTD.
Address :	Fenda Hi-Tech Park, Zhoushi Road, Shiyan Town, Baoan District, Shenzhen City, Guangdong, China
Issued by :	Shenzhen NTEK Testing Technology Co., Ltd.
Lab Location :	1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R. China
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TEST REPORT

IEC 62368-1

Audio/video, information and communication technology equipment

Part 1: Safety requirements

Report Number ..... :	S20071700201001
Tested by (+ signature) ..... :	Helen Lin
Approved by (+ signature) ..... :	Henson Dong
Date of issue ..... :	2020-08-07
Testing laboratory ..... :	Shenzhen NTEK Testing Technology Co., Ltd.
Address ..... :	1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R. China
Testing location ..... :	Same as above
Applicant's name ..... :	SHENZHEN FENDA TECHNOLOGY CO., LTD.
Address ..... :	Fenda Hi-Tech Park, Zhoushi Road, Shiyan Town, Baoan District, Shenzhen City, Guangdong, China
Test specification:	
Standard ..... :	☐ IEC 62368-1:2014 (Second Edition) ☒ EN 62368-1:2014 + A11:2017
Test procedure ..... :	CE Scheme
Non-standard test method ..... :	N/A
Test Report Form No. ..... :	IEC62368_1B
Test Report Form(s) Originator ..... :	UL (US)
Master TRF ..... :	2014-03

General disclaimer:

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Test item description	Computer Multimedia Speaker
Trade Mark	F&D
Manufacturer	SHENZHEN FENDA TECHNOLOGY CO., LTD.
Address	Fenda Hi-Tech Park, Zhoushi Road, Shiyan Town, Baoan District, Shenzhen City, Guangdong, China
Model/Type reference	R23BT, R20BT, R24BT
Ratings	AC100-240V, 50/60Hz, 0.3A

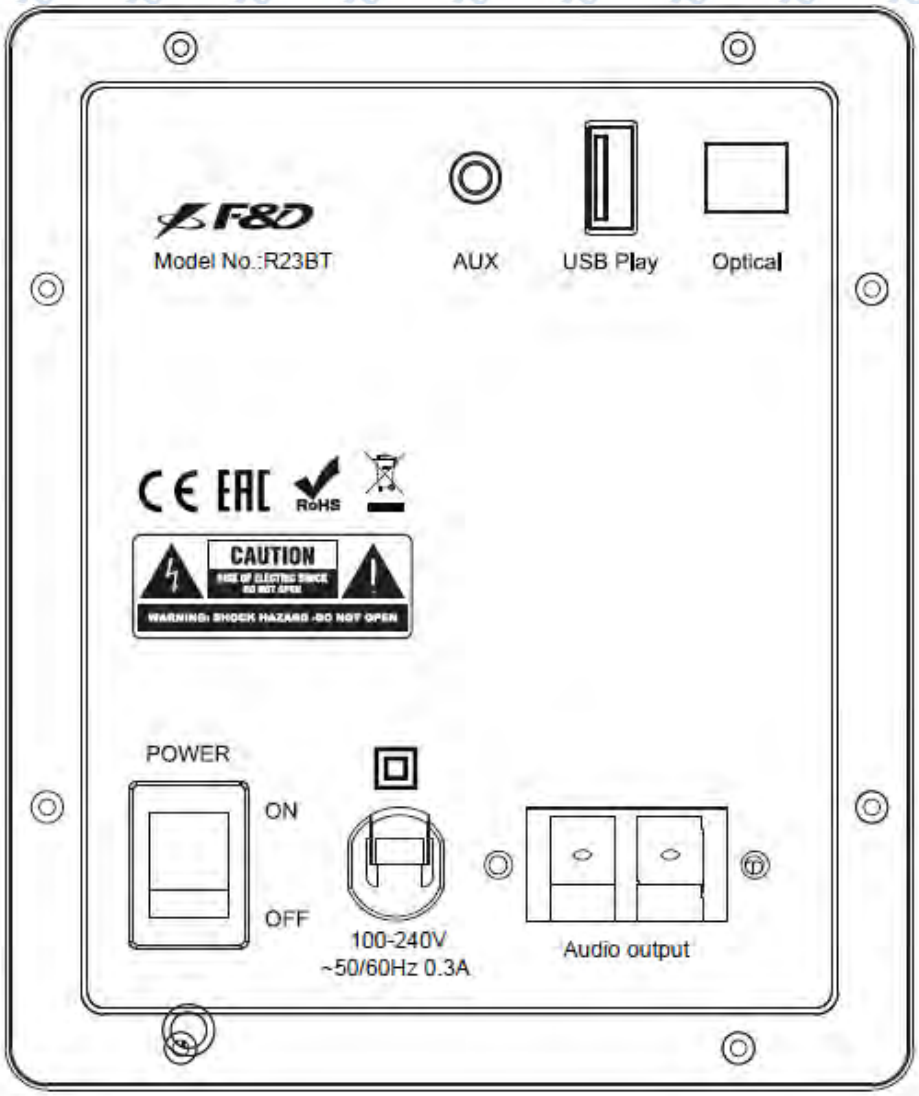
Summary of testing:

Tests performed (name of test and test clause):

5.2	Electrical energy source classifications
5.4.1.4, 6.3.2, 9.0, B.2.6	Maximum operating temperatures for materials, components and systems
5.4.1.8	Determination of working voltage
5.4.1.10.3	Ball pressure test
5.4.2.2, 5.4.2.4 & 5.4.3	Minimum Clearances/Creepage distance
5.4.4.2, 5.4.4.5 c) 5.4.4.9	Distance through insulation measurements
5.4.4.6.2	Separable thin sheet material
5.4.5.1	Surge test
5.4.8	Humidity conditioning
5.4.9	Electric strength test
6.2.2	Electrical power sources (PS) measurements for classification
9.2	Thermal energy source Classifications
B.2.5	Input tests
B.3	Simulated Abnormal operating condition tests
B.4	Simulated single fault conditions
F.3.9	Durability, legibility and permanence of markings
G.5.3.3	Transformer overload
M.3	Batteries
Q.1	Limited power source
T.2	Steady force test, 10 N
T.5	Steady force test. 250N
T.6	Impact test
T.8	Stress relief test

Copy of marking plate(s):

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



Remark:

1. The CE marking and WEEE symbol should be added on label for European models.
2. The CE marking and WEEE symbol (if any) should be at least 5.0mm and 7.0mm respectively in height.

TEST ITEM PARTICULARS:	
Classification of use by	☒ Ordinary person ☐ Instructed person ☐ Skilled person ☒ Children likely to be present
Supply Connection	☒ AC Mains ☐ DC Mains ☐ External Circuit - not Mains connected - ☐ ES1 ☐ ES2 ☐ ES3
Supply % Tolerance	☒ +10%/-10% ☐ +20%/-15% ☐ +____%/ -_____% ☐ None
Supply Connection – Type	☒ pluggable equipment type A - ☒ non-detachable supply cord ☐ appliance coupler ☐ direct plug-in ☐ mating connector ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☐ permanent connection ☐ mating connector ☐ other:
Considered current rating of protective device as part of building or equipment installation	UK: 13 A; Others: 16 A Installation location: ☒ building; ☐ equipment
Equipment mobility	☒ movable ☐ hand-held ☐ transportable ☐ stationary ☐ for building-in ☐ direct plug-in ☐ rack-mounting ☐ wall-mounted
Over voltage category (OVC)	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other: _____
Class of equipment	☐ Class I ☒ Class II ☐ Class III
Access location	☐ restricted access location ☒ N/A
Pollution degree (PD)	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified maximum operating ambient	35°C
IP protection class	☒ IPX0 ☐ IP___
Power Systems	☒ TN ☐ TT ☐ IT - ____ V_{L-L}
Altitude during operation (m)	☒ 2000 m or less ☐ 5000 m
Altitude of test laboratory (m)	☒ 2000 m or less ☐ _____ m
Mass of equipment (kg)	☒ Approx. 1.826kg

POSSIBLE TEST CASE VERDICTS:	
- test case does not apply to the test object..... :	N/A
- test object does meet the requirement ..... :	P (Pass)
- test object does not meet the requirement ..... :	F (Fail)
TESTING:	
Date of receipt of test item..... :	2020-07-20
Date (s) of performance of tests..... :	2020-07-22 to 2020-08-05
GENERAL REMARKS:	
"(See Enclosure #)" refers to additional information appended to the report. **"(See appended table)" refers to a table appended to the report.** **Throughout this report a ☐ comma / ☒ point is used as the decimal separator.**	
Name and address of factory (ies) ..... :	Same as applicant
GENERAL PRODUCT INFORMATION:	
The official TRF used for this evaluation has not been updated to include CTF information. As a temporary solution the NCB included missing CTF page and informed IECEE Secretariat about the required TRF update. 1. The apparatus covered by this report is movable BT speaker system with USB port and 1 Aux jack, it can be supplied by AC mains via non-detachable power cor, and is classified as class II apparatus, it is intended for indoor and dry location use only. 2. The manufacturer specified maximum ambient temperature is 35°C. The specified altitude is up to and including 2000 m above sea level. Overvoltage category II is assumed during evaluation. **The product mainly consists of:** - Speaker with power board, main board.	
Model Differences: Only the color and appearance are different.	
Additional application considerations – (Considerations used to test a component or sub-assembly) – N/A	

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.	
Electrically-caused injury (Clause 5): (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +5 V dc input ES1	
Source of electrical energy	**Corresponding classification (ES)**
Power board primary circuit except for secondary output	ES3
X capacitor connected between L and N	ES3
All outputs of power board	ES1
Main board circuit	ES1
All accessible connector and parts	ES1
Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts): PS2	
Source of power or PIS	**Corresponding classification (PS)**
All internal circuit	PS3
Internal power board output	PS2
USB output terminal	PS1
Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.) Example: Liquid in filled component Glycol	
Source of hazardous substances	**Corresponding chemical**
N/A	None
Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit MS2	
Source of kinetic/mechanical energy	**Corresponding classification (MS)**
Edges and corners of enclosure	MS1
Mass of the unit	MS1
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure TS1	
Source of thermal energy	**Corresponding classification (TS)**
External surfaces	TS1 for accessible part
Internal Parts/circuit of the unit in enclosure	TS3

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product RS1	
Type of radiation	**Corresponding classification (RS)**
LED Indicator	RS1

ENERGY SOURCE DIAGRAM
Indicate which energy sources are included in the energy source diagram. Insert diagram below
☐ **ES** ☐ **PS** ☐ **MS** ☐ **TS** ☐ **RS** **(refer to ENERGY SOURCE INDENTIFICATION AND CLASSIFICATION TABLE for DETAIL.)**

OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	**Possible Hazard**			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	ES3: Power board all circuit except for output circuit	N/A	N/A	Enclosure See 5.4.2, 5.4.3, 5.5.3 and 5.5.4
Ordinary	ES3: CX1	N/A	N/A	See 5.5.2.2
Ordinary	ES1: All main board circuit	N/A	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source	Safeguards		
		Basic	Supplementary	Reinforced
Enclosure	PS3 circuit	See 6.3	V-0	N/A
PCB	PS3 circuit	See 6.3	V-1 or better	N/A
Internal wiring	PS2 circuit	See 6.5	N/A	N/A
The other components/materials	PS2/PS3 circuit	See 6.3	See 6.4.5, 6.4.6	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	MS1: Edges and corners	N/A	N/A	N/A
Ordinary	MS1: Mass of the unit	N/A	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS3: Internal parts/circuits	N/A	N/A	Enclosure
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced

N/A	RS1: LED for indicating	N/A	N/A	N/A
Supplementary Information: (1) See attached energy source diagram for additional details. (2) “N” – Normal Condition; “A” – Abnormal Condition; “S” Single Fault				

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Clause	Requirement + Test	Result - Remark	Verdict
4	**GENERAL REQUIREMENTS**		P
4.1.1	Acceptance of materials, components and subassemblies	See appended table 4.1.2	P
4.1.2	Use of components	Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment. See also Annex G.	P
4.1.3	Equipment design and construction	Evaluation of safeguards regarding preventing access to ES3 parts, limiting the source supplying outputs to fulfill ES1, and protection in regard to risk of ignition, mechanical-caused injury and thermal burn considered.	P
4.1.15	Markings and instructions.....:	(See Annex F)	P
4.4.4	Safeguard robustness	See below.	P
4.4.4.2	Steady force tests.....:	(See Annex T.2 and T.5)	P
4.4.4.3	Drop tests .....:		N/A
4.4.4.4	Impact tests .....:	(See Annex T.6)	P
4.4.4.5	Internal accessible safeguard enclosure and barrier tests.....:	The external enclosure cannot be opened without damaging the product.	N/A
4.4.4.6	Glass Impact tests .....:	Glass that is laminated	N/A
4.4.4.7	Thermoplastic material tests .....:	After 7 hours and cooling down to room temperature, no shrinkage, distortion or loosening any enclosure part was noticeable parts. Test was performed for all sources of enclosure material, detail see Annex T.8.	P
4.4.4.8	Air comprising a safeguard.....:	(See Annex T)	P
4.4.4.9	Accessibility and safeguard effectiveness	After tests of 4.4.4.2, 4.4.4.4, 4.4.4.7, no safeguard damaged.	P
4.5	Explosion	No explosion occurs during normal/abnormal operation and single fault conditions	P
4.6	Fixing of conductors		P
4.6.1	Fix conductors not to defeat a safeguard	The wires are secured by double method so that a loosening of the terminal connection is unlikely.	P
4.6.2	10 N force test applied to .....:	See appended table 5.4.2.2, 5.4.2.4 and 5.4.3	P

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Clause	Requirement + Test	Result - Remark	Verdict
4.7	Equipment for direct insertion into mains socket - outlets	Not direct plug-in equipment.	N/A
4.7.2	Mains plug part complies with the relevant standard.....:	See above	N/A
4.7.3	Torque (Nm) .....:	See above	N/A
4.8	Products containing coin/button cell batteries	No coin/button cell batteries used.	N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery.....:		—
4.8.4	Battery Compartment Mechanical Tests .....:		N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object.....:	No likelihood of conductive object entering into enclosure.	P
5	**ELECTRICALLY-CAUSED INJURY**		P
5.2.1	Electrical energy source classifications ..... :	(See appended table 5.2)	P
5.2.2	ES1, ES2 and ES3 limits		P
5.2.2.2	Steady-state voltage and current ..... :	(See appended table 5.2)	P
5.2.2.3	Capacitance limits..... :	(See appended table 5.2)	P
5.2.2.4	Single pulse limits ..... :	No such single pulses generated in the EUT or applied to it.	N/A
5.2.2.5	Limits for repetitive pulses ..... :	No such repetitive pulses within the EUT	N/A
5.2.2.6	Ringing signals ..... :	No such ringing signals within the EUT	N/A
5.2.2.7	Audio signals ..... :	See Annex E	P
5.3	Protection against electrical energy sources	See below	P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	See only 4.3 and 5.3 to 5.5 which applies to protection between the accessible parts and hazardous parts of other circuits.	P
5.3.2.1	Accessibility to electrical energy sources and safeguards	Only ES1 circuit can be accessed for this product.	P
5.3.2.2	Contact requirements	No openings allowing entry of a probe. No access with test probe to any ES3 circuit or parts.	P
	a) Test with test probe from Annex V..... :	Clearances distance>10mm	P
	b) Electric strength test potential (V) ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	c) Air gap (mm) ..... :	The appropriate test probe from Annex V cannot contact a bare internal conductive part.	P
5.3.2.4	Terminals for connecting stripped wire	No stripped wire terminal used.	N/A
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material	The choice and application have taken into account as specified in this Clause 5 and Annex T and natural rubber, hygroscopic materials or asbestos are not used as insulation.	P
5.4.1.3	Humidity conditioning ..... :	Humidity conditioning test was conducted, refer to 5.4.8	P
5.4.1.4	Maximum operating temperature for insulating materials ..... :	(See appended table 5.4.1.4)	P
5.4.1.5	Pollution degree ..... :	2	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound	Pollution degree 2 is applied. No insulating compound applied (however see 5.5.4).	N/A
5.4.1.5.3	Thermal cycling	See above	N/A
5.4.1.6	Insulation in transformers with varying dimensions	No such transformer.	N/A
5.4.1.7	Insulation in circuits generating starting pulses	No such 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	Bobbin materials of transformer T1 and Inductance LF1 are phenolic that is accepted without further tests.	P
5.4.1.10.2	Vicat softening temperature ..... :		N/A
5.4.1.10.3	Ball pressure ..... :	(See appended table 5.4.1.10.3)	P
5.4.2	Clearances	The highest value of 5.4.2.2 and 5.4.2.3 be used.	P
5.4.2.2	Determining clearance using peak working voltage	Temporary overvoltage 2000Vpeak assumed.	P
5.4.2.3	Determining clearance using required withstand voltage ..... :	(See appended table 5.4.2.2, 5.4.2.4 and 5.4.3)	P
	a) a.c. mains transient voltage ..... :	2500 Vpk considered for Overvoltage Cat. II	—
	b) d.c. mains transient voltage ..... :	Not d.c. mains.	—
	c) external circuit transient voltage..... :	(See sub-clause 5.4.5)	—
	d) transient voltage determined by measurement :		—

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.2.4	Determining the adequacy of a clearance using an electric strength test	Using procedure 2 to determine the clearance according to 5.4.2.3.	N/A
5.4.2.5	Multiplication factors for clearances and test voltages ..... :		N/A
5.4.3	Creepage distances ..... :	(See appended table 5.4.2.2, 5.4.2.4 and 5.4.3)	P
5.4.3.1	General		P
5.4.3.3	Material Group ..... :	IIIb	—
5.4.4	Solid insulation	See below	P
5.4.4.2	Minimum distance through insulation ..... :	(See appended table 5.4.4.2)	P
5.4.4.3	Insulation compound forming solid insulation	No such insulation applied.	N/A
5.4.4.4	Solid insulation in semiconductor devices	See table 4.1.2 for detail for optical isolator details	P
5.4.4.5	Cemented joints		N/A
5.4.4.6	Thin sheet material	See below	P
5.4.4.6.1	General requirements	Two layers as reinforced insulation around transformer.	P
5.4.4.6.2	Separable thin sheet material	Where two layers are provided as basic insulation any one layer passed the electric strength test for reinforced insulation.	P
	Number of layers (pcs) ..... :	2 layers	P
5.4.4.6.3	Non-separable thin sheet material	No such insulation used within the EUT	N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material ..... :		N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		N/A
5.4.4.9	Solid insulation at frequencies >30 kHz ..... :	See appended table 5.4.9.	P
5.4.5	Antenna terminal insulation		P
5.4.5.1	General		P
5.4.5.2	Voltage surge test	See below	P
	Insulation resistance (MΩ) ..... :	>1000 MΩ	—
5.4.6	Insulation of internal wire as part of supplementary safeguard ..... :	No such insulation of internal wire as part of supplementary safeguard.	N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		P
	Relative humidity (%) ..... :	93%	—
	Temperature (°C) ..... :	40°C	—

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Clause	Requirement + Test	Result - Remark	Verdict
	Duration (h) ..... :	120h (tropical climate)	—
5.4.9	Electric strength test..... :	(See appended table 5.4.9)	P
5.4.9.1	Test procedure for a solid insulation type test	(See appended table 5.4.9)	P
5.4.9.2	Test procedure for routine tests		N/A
5.4.10	Protection against transient voltages between external circuit	No such external circuits	N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test..... :		N/A
5.4.10.2.3	Steady-state test ..... :		N/A
5.4.11	Insulation between external circuits and earthed circuitry ..... :	No such external circuit.	N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage U_{op} (V) ..... :		—
	Nominal voltage U_{peak} (V) ..... :		—
	Max increase due to variation U_{sp} ..... :		—
	Max increase due to ageing ΔU_{sa} ..... :		—
	$U_{op} = U_{peak} + \Delta U_{sp} + \Delta U_{sa}$ ..... :		—
5.5	Components as safeguards		
5.5.1	General	See below.	P
5.5.2	Capacitors and RC units	X-Capacitors and Y-Capacitors are IEC/EN 60384-14 approval components and complied with Annex G.11.	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
5.5.3	Transformers	(See Annex G.5.3)	P
5.5.4	Optocouplers	(See Annex G.12)	P
5.5.5	Relays	No such component provided	N/A
5.5.6	Resistors	No such component provided	N/A
5.5.7	SPD's	No such component provided	N/A
5.5.7.1	Use of an SPD connected to reliable earthing		N/A
5.5.7.2	Use of an SPD between mains and protective earth		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable .....:		N/A
5.6	Protective conductor		N/A
5.6.2	Requirement for protective conductors	Class II equipment	N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm^2) .....:		—
5.6.4	Requirement for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm^2).....:		—
	Protective current rating (A) ..... :		—
5.6.4.3	Current limiting and overcurrent protective devices		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Requirement		N/A
	Conductor size (mm^2), nominal thread diameter (mm). .....:		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective system		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method Resistance .....:		N/A
5.6.7	Reliable earthing		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 prospective touch voltage	(See appended Table 5.2)	P
5.7.3	Equipment set-up, supply connections and earth connections		N/A
	System of interconnected equipment (separate connections/single connection) .....:	Single equipment.	—
	Multiple connections to mains (one connection at a time/simultaneous connections).....:	Single connection.	—
5.7.4	Earthed conductive accessible parts.....:		N/A
5.7.5	Protective conductor current		N/A
	Supply Voltage (V) .....:		—
	Measured current (mA) .....:		—
	Instructional Safeguard .....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.7.6	Prospective touch voltage and touch current due to external circuits		N/A
5.7.6.1	Touch current from coaxial cables		N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits		N/A
5.7.7	Summation of touch currents from external circuits		N/A
	a) Equipment with earthed external circuits Measured current (mA) .....:		N/A
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA).....:		N/A
6	**ELECTRICALLY- CAUSED FIRE**		P
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		P
6.2.2	Power source circuit classifications	PS (power source) classification determined by measuring the maximum power in Figures 34 and 35 for load and power source circuits.	P
6.2.2.1	General	See the following details.	P
6.2.2.2	Power measurement for worst-case load fault ... :	(See appended table 6.2.2)	P
6.2.2.3	Power measurement for worst-case power source fault.....:	(See appended table 6.2.2)	P
6.2.2.4	PS1 .....:		N/A
6.2.2.5	PS2 .....:	(See appended table 6.2.2)	P
6.2.2.6	PS3 .....:	All circuits except for secondary output circuits is claimed as PS3	P
6.2.3	Classification of potential ignition sources	See the following details.	P
6.2.3.1	Arcing PIS .....:	(See appended table 6.2.3.1)	P
6.2.3.2	Resistive PIS .....:	(See appended table 6.2.3.1)	P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials .....:	No ignition and no such temperature attained within the equipment. (See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6)	P
6.3.1 (b)	Combustible materials outside fire enclosure		P
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method	Method by control of fire spread applied	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	General		N/A
6.4.3.2	Supplementary Safeguards		N/A
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions..... :		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		P
6.4.5	Control of fire spread in PS2 circuits	See below.	P
6.4.5.2	Supplementary safeguards .....:	Compliance detailed as follows: − Printed board: rated min. V-1 class material; − Wire insulation and tubing: complying with Clause 6. − All other components: - Min. V-2 - Mounted on V-1 PCB - Not ignite during single fault condition. − 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 circuit	Compliance detailed as follows: − Parts as in 6.4.5 above including wiring − Fire enclosure used.	P
6.4.7	Separation of combustible materials from a PIS		N/A
6.4.7.1	General.....:	See below.	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	See below.	P
6.4.8.1	Fire enclosure and fire barrier material properties	The V-0 material is used for the fire enclosure.	P
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure	The V-0 material is used for the fire enclosure.	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier	See below	P
6.4.8.3.1	Fire enclosure and fire barrier openings	No fire enclosure opening	P
6.4.8.3.2	Fire barrier dimensions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm) .....:	No openings	N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm) .....:	No openings	P
	Flammability tests for the bottom of a fire enclosure .....:		N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c) .....:		N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating.....:	Fire enclosure is made of V-0 material.	P
6.5	Internal and external wiring		P
6.5.1	Requirements		P
6.5.2	Cross-sectional area (mm^2) .....:	The material of VW-1 on internal wiring were considered compliance equal to equivalent to IEC/TS 60695-11-21 relevant standards.	—
6.5.3	Requirements for interconnection to building wiring .....:		N/A
6.6	Safeguards against fire due to connection to additional equipment	All power delivering output connectors complied with Annex Q.1	P
	External port limited to PS2 or complies with Clause Q.1	See above.	P
7	**INJURY CAUSED BY HAZARDOUS SUBSTANCES**		N/A
7.2	Reduction of exposure to hazardous substances	No hazardous chemicals within the equipment.	N/A
7.3	Ozone exposure	No ozone production within the equipment.	N/A
7.4	Use of personal safeguards (PPE)		N/A
	Personal safeguards and instructions ..... :		—
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010) .....:		—
7.6	Batteries .....:	Dry battery in remote control used.	P
8	**MECHANICALLY-CAUSED INJURY**		P
8.1	General	Mass ≤ 7 kg, No moving parts in the equipment – see below regarding edges and corners.	P
8.2	Mechanical energy source classifications		P
8.3	Safeguards against mechanical energy sources		P

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Clause	Requirement + Test	Result - Remark	Verdict
8.4	Safeguards against parts with sharp edges and corners	Edges and corners of the enclosure are rounded.	P
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts	No such parts	N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard ..... :		—
8.5.4	Special categories of equipment comprising moving parts		N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks ..... :		N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard ..... :		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N) ..... :		N/A
8.5.5	High Pressure Lamps		N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test..... :		N/A
8.6	Stability		N/A
8.6.1	Product classification		N/A
	Instructional Safeguard ..... :		—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force .....:		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A
	Unit configuration during 10 tilt .....:		—
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force).....:		N/A
	Position of feet or movable parts .....:		—
8.7	Equipment mounted to wall or ceiling		N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface) .....:		N/A
8.7.2	Direction and applied force .....:		N/A
8.8	Handles strength		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.8.1	Classification		N/A
8.8.2	Applied Force .....:		N/A
8.9	Wheels or casters attachment requirements		N/A
8.9.1	Classification		N/A
8.9.2	Applied force .....:		—
8.10	Carts, stands and similar carriers		N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard .....:		—
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force .....:		—
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N) .....:		—
8.10.6	Thermoplastic temperature stability (C).....:		N/A
8.11	Mounting means for rack mounted equipment	Not such equipment	N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable *N* ..... :		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas.....	No such parts.	N/A
	Button/Ball diameter (mm)..... :		—
9	**THERMAL BURN INJURY**		P
9.2	Thermal energy source classifications	No part considered to be accessible other than enclosure. The equipment evaluated by temperature test (see table 5.4.1.4).	P
9.3	Safeguard against thermal energy sources		N/A
9.4	Requirements for safeguards		N/A
9.4.1	Equipment safeguard		N/A
9.4.2	Instructional safeguard .....:		N/A
10	**RADIATION**		P
10.2	Radiation energy source classification	RS1	P
10.2.1	General classification	See the following details.	P
10.3	Protection against laser radiation	No laser radiation.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Laser radiation that exists equipment:		—
	Normal, abnormal, single-fault ..... :		N/A
	Instructional safeguard ..... :		—
	Tool..... :		—
10.4	Protection against visible, infrared, and UV radiation		N/A
10.4.1	General		N/A
10.4.1.a)	RS3 for Ordinary and instructed persons.....:		N/A
10.4.1.b)	RS3 accessible to a skilled person.....:		N/A
	Personal safeguard (PPE) instructional safeguard.....:		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1 . :		P
10.4.1.d)	Normal, abnormal, single-fault conditions ..... :		N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque.....:		N/A
10.4.1.f)	UV attenuation.....:		N/A
10.4.1.g)	Materials resistant to degradation UV .....:		N/A
10.4.1.h)	Enclosure containment of optical radiation.....:		N/A
10.4.1.i)	Exempt Group under normal operating conditions .....:		N/A
10.4.2	Instructional safeguard .....:		N/A
10.5	Protection against x-radiation		N/A
10.5.1	X- radiation energy source that exists equipment:		N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards.....:		N/A
	Instructional safeguard for skilled person..... :		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation .....:		—
	Abnormal and single-fault condition ..... :		N/A
	Maximum radiation (pA/kg)..... :		N/A
10.6	Protection against acoustic energy sources		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A)..... :		N/A
	Output voltage, unweighted r.m.s..... :		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards ..... :		N/A
	Equipment safeguard prevent ordinary person to		—

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Clause	Requirement + Test	Result - Remark	Verdict
	RS2 ..... :		
	Means to actively inform user of increase sound pressure ..... :		—
	Equipment safeguard prevent ordinary person to RS2 ..... :		—
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) L_{Aeq} acoustic pressure output ..... :		—
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum dB(A) ..... :		—
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A) ..... :		—
B	**NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS**		P
B.2	Normal Operating Conditions		P
B.2.1	General requirements ..... :	(See summary of testing for tested models, each loaded according to its output ratings. See also appended table B.2.5.)	P
	Audio Amplifiers and equipment with audio amplifiers ..... :	(See Annex E.1)	N/A
B.2.3	Supply voltage and tolerances	+10 % and −10 % considered.	P
B.2.5	Input test ..... :	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General requirements ..... :	(See appended table B.3 & B.4)	P
B.3.2	Covering of ventilation openings		N/A
B.3.3	D.C. mains polarity test		N/A
B.3.4	Setting of voltage selector ..... :		N/A
B.3.5	Maximum load at output terminals ..... :	(See appended table B.3 & B.4)	P
B.3.6	Reverse battery polarity		N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.		P
B.3.8	Safeguards functional during and after abnormal operating conditions	All safeguards remained effective.	P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited ..... :	No such device used.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
B.4.3	Motor tests	No such device used	N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature ..... :	No such device used	N/A
B.4.4	Short circuit of functional insulation	See below.	P
B.4.4.1	Short circuit of clearances for functional insulation	(See appended table B.4)	P
B.4.4.2	Short circuit of creepage distances for functional insulation	(See appended table B.4)	P
B.4.4.3	Short circuit of functional insulation on coated printed boards	No coated printed boards used.	N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors	(See appended table B.4 for faults on semiconductor components)	P
B.4.6	Short circuit or disconnect of passive components	(See appended table B.4)	P
B.4.7	Continuous operation of components	The EUT is continuous operating type and no such components intended for short time operation or intermittent operation	N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions		P
B.4.9	Battery charging under single fault conditions ... :		P
C	**UV RADIATION**		N/A
C.1	Protection of materials in equipment from UV radiation	No UV generated from the equipment.	N/A
C.1.2	Requirements	See above.	N/A
C.1.3	Test method	See above.	N/A
C.2	UV light conditioning test	See above.	N/A
C.2.1	Test apparatus	See above.	N/A
C.2.2	Mounting of test samples	See above.	N/A
C.2.3	Carbon-arc light-exposure apparatus	See above.	N/A
C.2.4	Xenon-arc light exposure apparatus	See above.	N/A
D	**TEST GENERATORS**		P
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator	(See sub-clause 5.4.5)	P
D.3	Electronic pulse generator		N/A
E	**TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS**		P
E.1	Audio amplifier normal operating conditions		P
	Audio signal voltage (V) ..... :	(See appended table B.2.5)	--
	Rated load impedance (Ω) ..... :	(See appended table 4.1.2)	--

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Clause	Requirement + Test	Result - Remark	Verdict
E.2	Audio amplifier abnormal operating conditions	(See appended table B.3)	P
F	**EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS**		P
F.1	General requirements	See below.	P
	Instructions – Language .....:	English or local language.	—
F.2	Letter symbols and graphical symbols		P
F.2.1	Letter symbols according to IEC60027-1	Letter symbols for quantities and units are complied with IEC 60027-1.	P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific	Graphical symbols are complied with IEC 60417, ISO 3864-2, ISO 7000 or ISO 7010.	P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	The required marking is located on the enclosure of the equipment and is easily visible.	P
F.3.2	Equipment identification markings	See copy of marking plate.	P
F.3.2.1	Manufacturer identification .....:	See copy of marking plate.	—
F.3.2.2	Model identification .....:	See copy of marking plate.	—
F.3.3	Equipment rating markings	See the following details.	P
F.3.3.1	Equipment with direct connection to mains	The equipment is direct connected to AC mains, see F.3.3.3 to F.3.3.6.	P
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of supply voltage .....:	AC	—
F.3.3.4	Rated voltage .....:	See copy of marking plate.	—
F.3.3.4	Rated frequency .....:	See copy of marking plate.	—
F.3.3.6	Rated current or rated power .....:	See copy of marking plate.	—
F.3.3.7	Equipment with multiple supply connections	Only one mains supply connection provided.	N/A
F.3.4	Voltage setting device	No voltage setting device.	N/A
F.3.5	Terminals and operating devices	See below.	P
F.3.5.1	Mains appliance outlet and socket-outlet markings..... :	No outlet used.	N/A
F.3.5.2	Switch position identification marking ..... :	No such switch used.	N/A
F.3.5.3	Replacement fuse identification and rating markings..... :		N/A
F.3.5.4	Replacement battery identification marking ..... :		N/A
F.3.5.5	Terminal marking location		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.6	Equipment markings related to equipment classification	See below.	P
F.3.6.1	Class I Equipment		N/A
F.3.6.1.1	Protective earthing conductor terminal		N/A
F.3.6.1.2	Neutral conductor terminal		N/A
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment (IEC60417-5172)		P
F.3.6.2.1	Class II equipment with or without functional earth		P
F.3.6.2.2	Class II equipment with functional earth terminal marking	See copy of marking plate.	P
F.3.7	Equipment IP rating marking .....:	IPX0.	—
F.3.8	External power supply output marking	See copy of marking plate, marked near USB port	P
F.3.9	Durability, legibility and permanence of marking	Marking is considered to be legible and easily discernible. See also the following details.	P
F.3.10	Test for permanence of markings	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 sec. And then again for 15 sec. With the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade. There was no curling and lifting of the label edge. After each test, the marking remained legible.	P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present - marking		N/A
	b) Instructions given for installation or initial use	See user manual	P
	c) Equipment intended to be fastened in place		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1	No such terminals provided.	N/A
	f) Protective earthing employed as safeguard		N/A
	g) Protective earthing conductor current exceeding ES2 limits		N/A
	h) Symbols used on equipment		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	i) Permanently connected equipment not provided with all-pole mains switch	Not permanently connected equipment.	N/A
	j) Replaceable components or modules providing safeguard function	No such markings.	N/A
F.5	Instructional safeguards	No instructional safeguard is considered as necessary.	N/A
	Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction	No instructional safeguard required in the equipment.	N/A
G	**COMPONENTS**		P
G.1	**Switches**		N/A
G.1.1	General requirements	No switch used.	N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	**Relays**		N/A
G.2.1	General requirements	No relay used.	N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	**Protection Devices**		P
G.3.1	Thermal cut-offs	No thermal cut-off used.	N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691	No thermal link used.	N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H) ..... :		—
	Single Fault Condition ..... :		—
	Test Voltage (V) and Insulation Resistance (Ω). :		—
G.3.3	PTC Thermistors	No PTC thermistor used.	N/A
G.3.4	Overcurrent protection devices	Current fuse complying with IEC 60127 as overcurrent protection device.	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

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Clause	Requirement + Test	Result - Remark	Verdict
G.3.5.2	Single faults conditions.....:		N/A
G.4	**Connectors**		P
G.4.1	Spacings	See below	P
G.4.2	Mains connector configuration .....:	Approved power plug used.	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.....	Triple insulation wire used as reinforced insulation	P
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°	Physical separation provided by insulation tape	P
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Time (s) .....:		—
	Temperature (°C) .....:		—
G.5.2.3	Wound Components supplied by mains		N/A
G.5.3	**Transformers**		P
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1) .....:	The transformer meets the requirements given in G.5.3.2 and G.5.3.3.	P
	Position.....:	T1	—
	Method of protection .....:	Over current protection by circuit design.	—
G.5.3.2	Insulation	Primary windings and secondary windings are separated by Reinforced insulation	P
	Protection from displacement of windings.....:	By bobbin and tape	—
G.5.3.3	Overload test..... :	(See appended table B.3)	P
G.5.3.3.1	Test conditions	Tested in the complete equipment.	P
G.5.3.3.2	Winding Temperatures testing in the unit	(See appended table B.3)	P
G.5.3.3.3	Winding Temperatures - Alternative test method	Alternative test method was not considered.	N/A
G.5.4	**Motors**		N/A
G.5.4.1	General requirements	No such device provided	N/A
	Position .....:		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days) .....:		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V) .....:		—
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h) .....:		N/A
	Electric strength test (V) .....:		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature .....:		N/A
	Electric strength test (V) .....:		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h) .....:		N/A
	Electric strength test (V) .....:		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage .....:		—
G.6	**Wire Insulation**		P
G.6.1	General	Triple insulated winding in transformer secondary windings used as reinforced safeguard in the isolating transformer that has separately complied with Annex J	P
G.6.2	Solvent-based enamel wiring insulation		P
G.7	**Mains supply cords**		P
G.7.1	General requirements		P
	Type.....:	H03VVH2-F	—
	Rated current (A).....:	0.3A	—
	Cross-sectional area (mm^2), (AWG) ..... :	0.75mm2	—
G.7.2	Compliance and test method		P
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		P
G.7.3.2	Cord strain relief		P
G.7.3.2.1	Requirements		P
	Strain relief test force (N) .....:	60N	—

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Clause	Requirement + Test	Result - Remark	Verdict
G.7.3.2.2	Strain relief mechanism failure		P
G.7.3.2.3	Cord sheath or jacket position, distance (mm).... :	1.12mm	—
G.7.3.2.4	Strain relief comprised of polymeric material		P
G.7.4	Cord Entry ..... :		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g) ..... :		—
	Diameter (m) ..... :		—
	Temperature (C) ..... :		—
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
G.8	**Varistors**		N/A
G.8.1	General requirements		N/A
G.8.2	Safeguard against shock	(see appended table 4.1.2)	N/A
G.8.3	Safeguard against fire		N/A
G.8.3.2	Varistor overload test ..... :		N/A
G.8.3.3	Temporary overvoltage ..... :		N/A
G.9	**Integrated Circuit (IC) Current Limiters**		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.	No IC current limiter provided within the equipment.	N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA ..... :		--
G.9.1 d)	IC limiter output current (max. 5A) ..... :		--
G.9.1 e)	Manufacturers' defined drift ..... :		--
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	**Resistors**		N/A
G.10.1	General requirements	No such bridging resistors	N/A
G.10.2	Resistor test		N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable	No resistors bridging insulation.	N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.11	**Capacitor and RC units**		P
G.11.1	General requirements	Capacitors used in accordance with their rating and complied with subclasses of IEC 60384-14. (see appended table 4.1.2)	P
G.11.2	Conditioning of capacitors and RC units	(see appended table 4.1.2)	P
G.11.3	Rules for selecting capacitors	The selection followed with tables G.9 and G.12.	P
G.12	**Optocouplers**		P
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results).....:	The optocoupler complied with standard IEC/EN 60747-5-5. (see appended table 4.1.2)	P
	Type test voltage Vini .....:	Considered	—
	Routine test voltage, Vini,b .....:	Considered	—
G.13	**Printed boards**		P
G.13.1	General requirements	See the following details.	P
G.13.2	Uncoated printed boards	The insulation between conductors on the outer surfaces of an uncoated printed board complied with the minimum clearance and creepage requirements	P
G.13.3	Coated printed boards	No coated printed board or multilayer board applied for within the equipment.	N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
	Compliance with cemented joint requirements (Specify construction).....:		—
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation.....:		N/A
	Number of insulation layers (pcs) .....:		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A
G.14	**Coating on components terminals**		N/A
G.14.1	Requirements .....:	No coating on component terminals considered to affect creepage or clearances.	N/A
G.15	**Liquid filled components**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.15.1	General requirements	No such device provided within the equipment.	N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
G.16	**IC including capacitor discharge function (ICX)**		N/A
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours		N/A
b)	Impulse test using circuit 2 with Uc = to transient voltage .....:		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage .....:		—
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
D2)	Capacitance .....:		—
D3)	Resistance .....:		—
H	**CRITERIA FOR TELEPHONE RINGING SIGNALS**		N/A
H.1	General	No telephone ringing signal generated within the equipment.	N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringing signal		N/A
H.3.1.1	Frequency (Hz) .....:		—
H.3.1.2	Voltage (V) .....:		—
H.3.1.3	Cadence; time (s) and voltage (V) .....:		—
H.3.1.4	Single fault current (mA):.....:		—
H.3.2	Tripping device and monitoring voltage .....:		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
H.3.2.3	Monitoring voltage (V) .....:		—
J	**INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION**		N/A
	General requirements		N/A
K	**SAFETY INTERLOCKS**		N/A
K.1	General requirements	No safety interlock provided.	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
	Compliance .....:		N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method .....:		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location) .....:		N/A
K.7.2	Overload test, Current (A).....:		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test .....:		N/A
L	**DISCONNECT DEVICES**		P
L.1	General requirements	Plug 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	Disconnect device disconnects all poles simultaneously.	P
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A
L.8	Multiple power sources		N/A
M	**EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS**		P
M.1	General requirements		P
M.2	Safety of batteries and their cells		P
M.2.1	Requirements		P

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Clause	Requirement + Test	Result - Remark	Verdict
M.2.2	Compliance and test method (identify method) .. :		--
M.3	Protection circuits		P
M.3.1	Requirements		P
M.3.2	Tests		P
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		P
	- Reverse charging of a rechargeable battery		P
	- Excessive discharging rate for any battery		N/A
M.3.3	Compliance .....:	Considered safe under short-circuiting conditions and therefore are not tested for discharge	P
M.4	Additional safeguards for equipment containing secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature .....:		--
M.4.2.2 b)	Single faults in charging circuitry .....:		--
M.4.3	Fire Enclosure		N/A
M.4.4	Endurance of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation		N/A
M.4.4.3	Drop and charge/discharge function tests		N/A
	Drop		N/A
	Charge		N/A
	Discharge		N/A
M.4.4.4	Charge-discharge cycle test		N/A
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current		N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method) ..... :		--

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Clause	Requirement + Test	Result - Remark	Verdict
M.6.2	Leakage current (mA) ..... :		--
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume *Vz* (m^3/s)..... :		--
M.8.2.3	Correction factors..... :		--
M.8.2.4	Calculation of distance *d* (mm) ..... :		--
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing) :		N/A
N	**ELECTROCHEMICAL POTENTIALS**		P
	Metal(s) used ..... :	Considered.	—
O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		P
	Figures O.1 to O.20 of this Annex applied..... :	Considered.	—
P	**SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS**		N/A
P.1	General requirements	No opening	N/A
P.2.2	Safeguards against entry of foreign object		N/A
	Location and Dimensions (mm) ..... :	No opening	—
P.2.3	Safeguard against the consequences of entry of foreign object	See above.	N/A
P.2.3.1	Safeguards against the entry of a foreign object	See above.	N/A
	Openings in transportable equipment		N/A
	Transportable equipment with metalized plastic parts ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard) ..... :		N/A
P.3	Safeguards against spillage of internal liquids	No such liquids.	N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts		N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C) ..... :		—
	Tr (°C) ..... :		—
	Ta (°C) ..... :		—
P.4.2 b)	Abrasion testing ..... :		N/A
P.4.2 c)	Mechanical strength testing ..... :		N/A
Q	**CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING**		P
Q.1	Limited power sources	See appended table Q.1	P
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		P
	- Regulating network limited output under normal operating and simulated single fault condition	A regulating network limits the output in compliance with table Q.1 both under normal operating conditions and after any single fault.	P
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method	See appended table Q.1	P
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A) ..... :		--
	Current limiting method ..... :		--
R	**LIMITED SHORT CIRCUIT TEST**		N/A
R.1	General requirements	No such consideration.	N/A
R.2	Determination of the overcurrent protective device and circuit		N/A
R.3	Test method Supply voltage (V) and short-circuit current (A)). ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

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

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Clause	Requirement + Test	Result - Remark	Verdict
T	**MECHANICAL STRENGTH TESTS**		P
T.1	General requirements		P
T.2	Steady force test, 10 N .....:	(See appended table T.2)	P
T.3	Steady force test, 30 N .....:		N/A
T.4	Steady force test, 100 N .....:		N/A
T.5	Steady force test, 250 N .....:	(See appended table T.5)	P
T.6	Enclosure impact test	(See appended table T.6)	P
	Fall test	A 500 g steel sphere ball fell freely from rest through a vertical distance of 1300 mm onto the sample.	P
	Swing test		N/A
T.7	Drop test .....:		N/A
T.8	Stress relief test .....:	(See appended table T8)	P
T.9	Impact Test (glass)	No glass used.	N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J).....:		—
	Height (m) .....:		—
T.10	Glass fragmentation test .....:		N/A
T.11	Test for telescoping or rod antennas	No such antennas provided within the equipment.	N/A
	Torque value (Nm) .....:		—

U	**MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFECTS OF IMPLOSION**		N/A
U.1	General requirements	No CRT provided.	N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen.....:		N/A

V	**DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)**		P
V.1	Accessible parts of equipment	No access with test probes to any hazardous parts	P
V.2	Accessible part criterion		P

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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)]**
Power cord	Shenzhen Xie kang Electric Co., Ltd.	H03VVH2-F	2x 0.5 mm^2 or 2 x 0.75mm^2	DIN VDE 0281-5, VDE 0281	VDE: 40029225
(Alternative)	Various	H03VVH2-F	2x 0.5 mm^2 or 2 x 0.75mm^2	DIN VDE 0281-5, VDE 0281	VDE
Power plug	Shenzhen Xie kang Electric Co., Ltd.	XK-01	2.5A, AC 250V	DIN VDE 0620, EN 50075	VDE: 40009009
(Alternative)	Various	Various	2.5A, AC 250V	DIN VDE 0620, EN 50075	VDE
Connector	Shenzhen Xie kang Electric Co., Ltd.	XK-05	AC 250 V, 2.5 A	DIN EN 60320-1	VDE 40018650
(Alternative)	Various	Various	2.5A, AC 250V	DIN VDE 0620, EN 50075	VDE
Power switch	ZHONGXUN ELECTRONS INDUSTRY COMPANY	KCD1-104	6A 250V / 10A 250V	EN 61058-1: 2002	TUV Certificate No.: R 50049218
(Alternative)	Yueqing Huansheng Electronics	KCD-117	6A 250V	EN 61058-1: 2002	VDE 40024304
Plastic material of enclosure	FORMOSA CHEMICALS & FIBRE CORP PLASTICS DIV	AG15A1	HB,60℃	UL 94	UL E162823
The following components located on Power board					
PCB	SHENZHEN YINGHAIXINGYE ELECTRONIC CO LTD	YH-1	V-0, 130℃, Min. thickness 1.6mm	UL94, UL 796	UL: E487319
(Alternative)	Interchangeable	Interchangeable	Min. V-0, 105℃, Min. thickness 1.6mm	UL94, UL 796	UL
Fuse (F1)	XC Electronics (Shen Zhen) Corp. Ltd.	5TE-Serie(s)	T3.15AL, 250Vac	UL 248-1 EN 60127-1, EN 60127-3	UL: E249609 VDE:40029550
AC connector (CON2)	ZheJiang JINDA Electronics Co.LTD	3.96T-02	7A, 250VAC, Max 85℃	UL	UL E237523
Bleeder resistors (R25, R26,R39,R40)	Interchangeable	Interchangeable	Max. 2MΩ, 1/4W	--	Test with appliance
E-capacitors (EC1)	Interchangeable	Interchangeable	Max. 68uF, Min. 400V, Min. 105°C	--	Test with appliance
Rectifier (BD1)	Interchangeable	Interchangeable	Min. 3A, Min. 800V	--	Test with appliance

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Clause	Requirement + Test	Result - Remark	Verdict

Transistor (Q1)	Interchangeable	Interchangeable	Min. 12A, Min. 650V	--	Test with appliance
X-capacitor (CX1) (Optional)	HSUAN TAI ELECTRONICS CO LTD	MCY	Min. AC 250V, Max. 0.22uF, 85°C, X2 type	UL 1414, IEC 60384-14	UL: E199069, VDE: 125205
(Alternative)	Winday Electronic Industrial Co., Ltd.	MPX	Min. AC 250V, Max. 0.22uF, 110°C, X2 type	IEC 60384-14	VDE: 40030283
Y1 Capacitor (CY1) (Optional)	Shantou High-New Technology Dev. Zone Songtian Enterprise Co., Ltd.	CD-Series	Min. AC 400V, Max. 2200pF, 125°C, Y1 type	UL 1414, IEC 60384-14	UL: E208107, VDE:40025754
(Alternative)	Shenzhen Haotian Electronic Co., Ltd.	HT	Min. AC 400V, Max. 2200pF, 125°C, Y1 type	UL 1414, IEC 60384-14	UL: E326483, VDE:40029300
Optocoupler (U1)	EVERLIGHT ELECTRONICS CO LTD	EL817	Dti=0.5mm, Int. dcr=6.0mm, Ext. dcr=7.7mm, 110°C	IEC 60747-5-2	VDE: 132249
Line filter (LF2)	SHENZHEN CENKER ENTERPRISE LTD.	UU10.5	Min. 15mH, 130ºC	IEC/EN 60065	Tested with appliance
(Alternative)	Interchangeable	Interchangeable	Min. 130ºC	UL 1446	UL
--Magnet wire	BOLUO COUNTY XIN LONG ELECTRICIAN DATA CO LTD	2UEW	130ºC	UL 1446	UL: E229423
Inductor (LF1，LF3)	B&M Magnetism Technology Limited	T10*6*4-5UH	130ºC	IEC/EN 60065	Tested with appliance
--Magnet wire	BOLUO COUNTY XIN LONG ELECTRICIAN DATA CO LTD	2UEW	130ºC	UL 1446	UL: E229423
(Alternative)	Interchangeable	Interchangeable	Min. 130ºC	UL 1446	UL
--Multi-layer Insulated Winding	Dah Jin Technology Co. Ltd.	TLW-B(xx)(y)@	130°C	EN 60950-1, IEC 60950-1, UL 60950-1	VDE: 40008834 UL: E236542
Transformer (T1)	SHENZHEN HUA XINGJINGCHENG ELECTRONIC TECHNOLOGY CO. LTD	FDPOW012 REV1.0	Class B	IEC/EN 60065	Tested with appliance
--Bobbin	CHANG CHUN PLASTICS CO LTD	T375J	Phenolic, V-0, 150ºC, Min. 0.75mm thickness	UL 94, UL 746C	UL: E59481

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Clause	Requirement + Test	Result - Remark	Verdict

--Magnet wire	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	UEW/U@	130°C	UL 1446	UL: E201757
(Alternative)	SHANTOU SHENGANG ELECTRICAL INDUSTRIAL CO LTD	2UEW/155	155°C	UL 1446	UL: E239508
(Alternative)	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	UEWN/U@	155°C	UL 1446	UL: E201757
(Alternative)	Interchangeable	Interchangeable	Min. 130ºC	UL 1446	UL
--Insulation tape	CHANG SHU LIANG YI TAPE INDUSTRY CO LTD	LY-02A (h)	130°C	UL 510	UL: E246820
(Alternative)	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	PZ-280	130°C	UL 510	UL: E165111
(Alternative)	SUZHOU MAILADUONA ELECTRIC MATERIAL CO LTD	JY312#	130°C	UL 510	UL: E188295
--Margin Tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	WF-2902	130°C	UL 510	UL: E165111
--Multi-layer Insulated Winding	Furukawa Electric Co. Ltd.	TEX-E	130°C	EN 60950-1, IEC 60950-1 UL 60950-1	VDE: 40033527 UL: E206440
--Tube	CHANGYUAN ELECTRONICS GROUP CO LTD	CB-TT-T	300Vac, 200°C	UL 224	UL: E180908
Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

4.8.4, 4.8.5	**TABLE: Lithium coin/button cell batteries mechanical tests**	**N/A**
(The following mechanical tests are conducted in the sequence noted.)		
4.8.4.2	**TABLE: Stress Relief test**	—

Part	Material	Oven Temperature (°C)	Comments

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Clause	Requirement + Test	Result - Remark	Verdict

4.8.4, 4.8.5	**TABLE: Lithium coin/button cell batteries mechanical tests**	**N/A**

(The following mechanical tests are conducted in the sequence noted.)

4.8.4.3	**TABLE: Battery replacement test**	—

Battery part no. .....:		—
Battery Installation/withdrawal	Battery Installation/Removal Cycle	Comments
	1	
	2	
	3	
	4	
	5	
	6	
	8	
	9	
	10	

4.8.4.4	**TABLE: Drop test**	—

Impact Area	Drop Distance	Drop No.	Observations
		1	
		2	
		3	

4.8.4.5	**TABLE: Impact**	—

Impacts per surface	**Surface tested**	**Impact energy (Nm)**	**Comments**

4.8.4.6	**TABLE: Crush test**	—

Test position	**Surface tested**	**Crushing Force (N)**	**Duration force applied (s)**

Supplementary information:

4.8.5	TABLE: Lithium coin/button cell batteries mechanical test result	**N/A**

Test position	**Surface tested**	**Force (N)**	**Duration force applied (s)**

Supplementary information:

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Clause	Requirement + Test	Result - Remark	Verdict

5.2	Table: Classification of electrical energy sources	P

5.2.2.2 – Steady State Voltage and Current conditions

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions [1)]	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
1	264Va.c. 60Hz	Primary circuits supplied by a.c. mains supply	Normal	264Vac	--	--	ES3
2	264Va.c. 60Hz	USB (+to -)	Normal	5.05VDC	--	--	ES1
			Abnormal (overload)	5.05VDC	--	--	ES1
			Single fault: SC/~~OC~~ R37	0V	--	--	ES1
			Single fault: SC/~~OC~~ U1 pin 1-2	0V	--	--	ES1
			Single fault: SC/~~OC~~ U1 pin 3-4	5.04VDC	--	--	ES1
			Single fault: ~~SC/~~OC U1 pin 1	0V	--	--	ES1
			Single fault: ~~SC/~~OC U1 pin 4	0V	--	--	ES1
3	264 Vac 60 Hz	USB port to earth	Normal	--	0.352mApk	60.0	ES1
			Abnormal (overload)	--	0.352mApk	60.0	ES1
			Single fault: SC/~~OC~~ R37	--	0.372mApk	60.0	ES1
			Single fault: SC/~~OC~~ U1 pin 1-2	--	0.352mApk	60.0	ES1
			Single fault: SC/~~OC~~ U1 pin 3-4	--	0.352mApk	60.0	ES1
			Single fault: ~~SC/~~OC U1 pin 1	--	0.352mApk	60.0	ES1
			Single fault: ~~SC/~~OC U1 pin 3	--	0.352mApk	60.0	ES1

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Clause	Requirement + Test	Result - Remark	Verdict

5.2.2.3 - Capacitance Limits

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class
				Capacitance, nF	Upk (V)	
1	264Va.c, 60Hz	AC inlet L&N pin	normal	330	388	ES3
			Abnormal	--	--	--
			Single fault	--	--	--

Overall capacity: CX1= 0.33uF (±20% tolerance);
Limit: ES1=60V; ES2=120V.

5.2.2.4 - Single Pulses

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

5.2.2.5 - Repetitive Pulses

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

Test Conditions:
Normal – Full load and no load.
Abnormal – Overload output
Supplementary information: SC=Short Circuit, OC=Open Circuit

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements			P
	Supply voltage (V) .....:	90V/50Hz	264V/50Hz	--
	Ambient T_{min} (°C) .....:	--	--	--
	Ambient T_{max} (°C) .....:	--	--	--
	Tma (°C) .....:	--	--	--

Maximum measured temperature T of part/at:	T (°C)		Allowed T_{max} (°C)
Internal Line wire	30.9	31.2	80
LF1 Winding	35.8	37.1	130

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Clause	Requirement + Test	Result - Remark	Verdict

CX1 body	35.2	35.8	100
LF2 Winding	40.8	39.4	130
PCB near BD1	45.7	42.4	130
EC1 body	42.8	44.2	105
PCB near Q1	42.3	47.2	130
CY1 body	41.4	42.3	125
C21 body	43.9	45.7	105
T1-coil	45.1	48.0	110
T1-core	43.6	46.6	110
EC4 body	40.6	42.2	105
EC3 body	42.0	44.1	105
L1 Winding	40.7	42.4	130
PCB near D1	45.0	47.8	130
Output wire for power board	37.0	37.9	80
U1 body	36.0	37.4	100
PCB near U1	60.8	61.1	130
C69 body	47.6	47.9	105
L3 Winding	65.9	66.3	130
C78 body	55.8	56.0	105
C113 body	62.9	63.4	105
PCB near IC4	84.9	85.3	130
CON2 terminal	32.5	33.3	Ref.
Switch surface	28.1	28.6	77
Power cord	27.7	28.0	77
Switch inside	32.1	32.6	70
Plastic enclosure inside	42.8	43.0	Ref.
Plastic enclosure outside	38.1	38.3	77
Speaker wire	41.0	41.6	80
Wooden enclosure inside	31.9	32.4	Ref.
Wooden enclosure outside	27.9	28.0	107
Button	33.7	34.5	77
Ambient	25.0	25.0	--

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information: * Temperature limit for TS1 of accessible enclosure according to Table 38.

Note 1: The apparatus was submitted and evaluated for maximum manufacturer's recommended ambient (Tma) of 35°C.

Note 2: The temperatures were measured under the worse case normal mode defined in clause B.2.1.

Note 3. Temperature limits are calculated as follows:

Winding components providing safety isolation:

Class B → Tmax = 100 – 10 – (35-25)=100°C

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

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

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

5.4.2.2, 5.4.2.4 and 5.4.3	TABLE: Minimum Clearances/Creepage distance						P
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz)	Required cl (mm)	cl (mm) [2]	Required [3] cr (mm)	cr (mm)
L to N before fuse F1 (BI)	420	250	0.06	1.5	3.3	2.5	3.3
Different polarity of fuse F1 (BI)	420	250	0.06	1.5	2.7	2.5	2.7
Live part to accessible plastic enclosure (RI)	456	249	25.5	3.0	>8	5.0	>8
Primary trace to secondary trace of PCB under(CY1) (RI)	420	250	0.06	3.0	5.2	5.0	7.0
Primary trace to secondary trace of PCB under (U1) (RI)	420	250	0.06	3.0	7.8	5.0	7.8
T1 primary winding /core to secondary winding (RI)	456	249	25.5	3.0	8.1	5.0	8.1
Supplementary information: Core of transformer T1 consider as primary parts. Primary winding is magnet wire and the secondary winding is TIW.							

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Clause	Requirement + Test	Result - Remark	Verdict

Unless otherwise specified, the worst conditions of Cl. & Cr. in above mentioned locations have been considered and listed.

BI= Basic insulation, SI= Supplementary insulation, RI=Reinforced insulation

5.4.2.3	TABLE: Minimum Clearances distances using required withstand voltage	P
	Overvoltage Category (OV):	II
	Pollution Degree:	2

Clearance distanced between:	Required withstand voltage	Required cl (mm)	Measured cl (mm)
See table 5.4.2.2, 5.4.2.4 and 5.4.3 above.	2500Vp	See table 5.4.2.2, 5.4.2.4 and 5.4.3 above.	See table 5.4.2.2, 5.4.2.4 and 5.4.3 above.

Supplementary information:

Core of transformer T1 consider as primary parts. Primary winding is magnet wire and the secondary winding is TIW.

Unless otherwise specified, the worst conditions of Cl. & Cr. in above mentioned locations have been considered and listed.

BI= Basic insulation, SI= Supplementary insulation, RI=Reinforced insulation

5.4.2.4	TABLE: Clearances based on electric strength test	N/A

Test voltage applied between:	Required cl (mm)	Test voltage (kV) peak/ r.m.s. / d.c.	Breakdown Yes / No
--	--	--	--
--	--	--	--

Supplementary information: Using procedure 2 to determine the clearance.

5.4.4.2, 5.4.4.5 c) 5.4.4.9	TABLE: Distance through insulation measurements	P

Distance through insulation di at/of:	Peak voltage (V)	Frequency (Hz)	Material	Required DTI (mm)	DTI (mm)
Enclosure	456	25.5K	1)	0.4	1)
Bobbin of T1	456	25.5K	1)	0.4	1)
Opto-coupler	364	60	1)	0.4	1)

Supplementary information:

1). See appended table 4.1.2 for details.

5.4.1.8	Table: Determination of working voltage

Location	RMS voltage (V)	Peak voltage (V)	Frequency (Hz)	Comments
T1 pin1-8	184	356	25.5K	

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Clause	Requirement + Test	Result - Remark	Verdict

T1 pin2-8	183	424	25.5K	
T1 pin4-8	**249**	**456**	25.5K	Max Vpeak and Vrms
T1 pin6-8	235	352	25.5K	
T1 pin1-11	183	376	25.5K	
T1 pin2-11	183	356	25.5K	
T1 pin4-11	243	432	25.5K	
T1 pin6-11	234	420	25.5K	
CY1 pri pin to sec pin	236	352	60	
U1 pin1-3	184	364	60	
U1 pin1-4	182	364	60	
U1 pin2-3	184	360	60	
U1 pin2-4	184	364	60	

Supplementary information:

1. The following terminals were connected to earth: pin secondary of CY1 and Primary Neutral.

2. Test voltage: 240 Vac 60 Hz.

5.4.9	**TABLE: Electric strength tests**	**P**

Test voltage applied between:	Voltage shape (AC, DC)	Test voltage (Vpeak)	Breakdown Yes / No
Functional:			
--	--	--	--
Basic/supplementary:			
Different polarity of power supply (fuse F1 disconnect)	DC	2500	No
Reinforced:			
Accessible terminals and hazardous live parts	DC	4000	No
Accessible plastic enclosure to hazardous live parts	DC	4000	No
Accessible metal enclosure to hazardous live parts	DC	4000	No
Transformer T1 primary to secondary	DC	4000	No
Transformer T1 core to secondary	DC	4000	No
1 layer insulation tape of transformer T1	DC	4000	No

Supplementary information:
Core of transformer was considered as primary parts. Test after humidity treatment, heating test, and for unit primary to secondary, primary to accessible enclosure electric strength after each fault condition test. Tests were performed on product with each source listed in table 4.1.2.
The DC voltage source was performed on all testing once in forward and once in reverse.

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Clause	Requirement + Test	Result - Remark	Verdict

5.5.2.2	TABLE: Stored discharge on capacitors				P
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification
264Vac, 60Hz	Phase to Neutral	N	On	28	ES1
264Vac, 60Hz	Phase to Neutral	S(R25 Open)	On	60	ES1

Supplementary information:

The end system may be pluggable equipment type A. Limit of ES1 applied for mains terminal as accessible part.

X-capacitors installed for testing are: CX1= 0.33uF

☒ bleeding resistor rating: R25=R26=R39=R40=2MΩ

Notes:

A. Test Location:

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

B. Operating condition abbreviations:

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

S –Single fault condition (Bleeder Resistor open circuit)

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

Supplementary Information:

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part	N/A
Supply voltage .....:	264Vac, 60Hz	—
Location	Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7	Touch current (mApeak)
	1	--
	2*	--
	3	--
	4	--
	5	--
	6	--
	8	--

Supplementary information:

Notes:

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Clause	Requirement + Test	Result - Remark	Verdict

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

6.2.2	Table: Electrical power sources (PS) measurements for classification				P
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s*)	PS Classification
USB terminal	Normal condition	Power (W) :	0.9	--	PS1
		V_A (V) :	3.44	--	
		I_A (A) :	0.25	--	
USB terminal	Single fault – R37 SC	Power (W) :	0	--	PS1
		V_A (V) :	0	--	
		I_A (A) :	0	--	
USB terminal	Single fault – U1 pin1-2 SC	Power (W) :	0	--	PS1
		V_A (V) :	0	--	
		I_A (A) :	0	--	
USB terminal	Single fault – U1 pin3-4 SC	Power (W) :	0	--	PS1
		V_A (V) :	0	--	
		I_A (A) :	0	--	
USB terminal	Single fault – U1 pin1 OC	Power (W) :	0	--	PS1
		V_A (V) :	0	--	
		I_A (A) :	0	--	
USB terminal	Single fault – U1 pin4 OC	Power (W) :	0	--	PS1
		V_A (V) :	0	--	
		I_A (A) :	0	--	

Supplementary information:
(*) Measurement taken only when limits at 3 seconds exceed PS1 limits.
Note: The worst case is considered at the power measurement for worst-case fault.

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

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

Considered arcing PIS in all primary and secondary circuit.

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

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

Supplementary Information:

Considered Resistive PIS in all primary and secondary circuit.

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

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

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

All conductors and devices are considered as PIS.

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

B.2.5	TABLE: Input test						P
U (Vac)/Freq (Hz)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No.	I fuse (A)	Condition/status
90/50Hz	0.270	--	11.4	--	F1	0.270	AUX mode: play 1KHz audio signal adjust volume to 1/8 max non clipper
90/60Hz	0.261	--	11.5	--	F1	0.261	

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Clause	Requirement + Test	Result - Remark	Verdict

100/50Hz	0.249	0.3	11.4	--	F1	0.249	output power
100/60Hz	0.236	0.3	11.5	--	F1	0.236	
240/50Hz	0.125	0.3	11.7	--	F1	0.125	
240/60Hz	0.121	0.3	11.9	--	F1	0.121	
264/50Hz	0.121	--	12.0	--	F1	0.121	
264/60Hz	0.112	--	12.0	--	F1	0.112	
Supplementary information: The measured input current at rated voltage shall be less than or equal to 110 % of rated current.							

B.3	TABLE: Abnormal operating condition tests	P
Ambient temperature (^{o}C) .....:	See below	—
Power source for EUT: Manufacturer, model/type, output rating .:	--	—

Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (^{o}C)	Observation
Speaker	SC	264V	10mins	F1	0.121→0.057	--	--	Unit without voice no damage, no hazard. Touch current (mA):USB terminal “+” and “-”to earth: 0.352mApk USB terminal“+” to “-“:5.05Vdc

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Clause	Requirement + Test						Result - Remark	Verdict
Speaker	Max non clipper output power	264V	2H14 mins	F1	0.121→ 0.472	Type-k	PCB near U1:110.0℃ L3 Winding:121.7℃ T1-coil: 80.7℃ T1-core: 79.2℃ Switch surface: 32.9℃ Power cord:31.9℃ Plastic enclosure outside: 54.8℃ Wooden enclosure outside: 33.4℃ Button: 36.5℃ Ambient:25.0℃	Unit normal operation no damage, no hazard. Touch current (mA):USB terminal “+” and “-”to earth: 0.352mApk USB terminal“+” to “-“:5.05Vdc
USB	Overload	264V	7H02 mins	F1	0.121→ 0.135→ 0.162→ 0.121	Type-k	PCB near IC4:109.3℃ L3 Winding:81.1℃ T1-coil: 56.8℃ T1-core: 55.6℃ Switch surface: 31.4℃ Power cord:29.7℃ Plastic enclosure outside: 45.3℃ Wooden enclosure outside: 29.3℃ Button: 35.2℃ Ambient:25.0℃	When USB load current exceed 0.32A USB shut down other function are work as normal. no damage no hazard. Touch current (mA):USB terminal “+” and “-”to earth: 0.352mApk USB terminal“+” to “-“:5.05Vdc

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Clause	Requirement + Test						Result - Remark	Verdict
Ventilation	Block	264V	1H36 mins	F1	0.121	Type-k	PCB near IC4:84.4℃ L3 Winding:66.3℃ T1-coil: 48.6℃ T1-core: 47.3℃ Switch surface: 29.2℃ Power cord:28.6℃ Plastic enclosure outside: 39.1℃ Wooden enclosure outside: 28.6℃ Button: 35.0℃ Ambient:25.0℃	Unit normal operation no damage, no hazard. Touch current (mA):USB terminal “+” and “-”to earth: 0.352mApk USB terminal“+” to “-“:5.05Vdc
Transformer	Overload	264V	4H39 mins	F1	0.121→ 0.365→ 0.592→ 0.027	Type-k	PCB near D1:114.3℃ L1 Winding:80.1℃ T1-coil: 117.6℃ T1-core: 115.8℃ Switch surface: 30.7℃ Power cord:30.5℃ Plastic enclosure outside: 40.9℃ Wooden enclosure outside: 31.6℃ Button: 35.4℃ Ambient:25.0℃	Unit normal operation when transformer current exceed 3.95A unit shut down no damage no hazard. Touch current (mA):USB terminal “+” and “-”to earth: 0.352mApk USB terminal“+” to “-“:5.05Vdc

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

1) Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column “Abnormal/Fault.” Specify if test condition by indicating “Abnormal” then the condition for a Clause B.3 test or “Single Fault” then the condition for Clause B.4.

2) The overloaded condition is applied according to annex G.5.3.3. Winding Limit for transformer: 175-10=165°C.

Results Key:
IP = Internal protection operated (Component indicated); CT = Constant temperatures were obtained;
TW = Transformer winding opened; CD = Components damaged (damaged components indicated);
NB = No indication of dielectric breakdown; YB = Dielectric breakdown (time and location indicated);
NC = Cheesecloth remained intact; YC = Cheesecloth charred or flamed;
NT = Tissue paper remained intact; YT = Tissue paper charred or flamed.
TV = Touch voltage measured; ASRE = All safeguards remained effectively.

B.4	TABLE: Fault condition tests	P
Ambient temperature (°C) .....:	25°C, if not specified	—
Power source for EUT: Manufacturer, model/type, output rating .:	--	—

Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
BD1 pin 1-2	Short circuit	264Vac	1s	F1	0.121→0	--	--	Fuse F1 opened, no hazards. NT, NC, NB. USB terminal “+” to “-“: 0V, USB terminal to GND: 0.372mA peak
EC1	Short circuit	264Vac	1s	F1	0.121→0	--	--	Fuse F1 opened, no hazards. NT, NC, NB. USB terminal “+” to “-“: 0V, USB terminal to GND: 0.372mA peak
Q1 G-S	Short circuit	264Vac	10mins	F1	0.121→0.027	--	--	Unit shut down, recoverable, no damaged, no hazards. NT, NC, NB. USB terminal “+” to “-“: 0 V, USB terminal to GND: 0.352mA peak
Q1 G-D	Short circuit	264Vac	1s	F1	0.121→0	--	--	Fuse F1 opened, no hazards. NT, NC, NB. USB terminal “+” to “-“: 0V, USB terminal to GND: 0.372mA peak
Q1 D-S	Short circuit	264Vac	1s	F1	0.121→0	--	--	Fuse F1 opened, no hazards. NT, NC, NB. USB terminal “+” to “-“: 0V, USB terminal to GND: 0.372mA peak

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Clause	Requirement + Test					Result - Remark		Verdict
R37	Short circuit	264Vac	1s	F1	0.121→0	--	--	Fuse F1 opened, no hazards. NT, NC, NB. USB terminal “+” to “-“: 0V, USB terminal to GND: 0.372mA peak
T1 pin1-2	Short circuit	264Vac	10mins	F1	0.121→0.027	--	--	Unit shut down, recoverable, no damaged, no hazards. NT, NC, NB. USB terminal “+” to “-“: 0 V, USB terminal to GND: 0.352mA peak
T1 pin4-6	Short circuit	264Vac	10mins	F1	0.121→0.027	--	--	Unit shut down, recoverable, no damaged, no hazards. NT, NC, NB. USB terminal “+” to “-“: 0 V, USB terminal to GND: 0.352mA peak
T1 pin8-11	Short circuit	264Vac	10mins	F1	0.121→0.027	--	--	Unit shut down, recoverable, no damaged, no hazards. NT, NC, NB. USB terminal “+” to “-“: 0 V, USB terminal to GND: 0.352mA peak
U1 pin1-2	Short circuit	264Vac	10mins	F1	0.121→0.027	--	--	Unit shut down, recoverable, no damaged, no hazards. NT, NC, NB. USB terminal “+” to “-“: 0 V, USB terminal to GND: 0.352mA peak
U1 pin3-4	Short circuit	264Vac	10mins	F1	0.121→0.027	--	--	Unit shut down, recoverable, no damaged, no hazards. NT, NC, NB. USB terminal “+” to “-“: 0 V, USB terminal to GND: 0.352mA peak
U1 pin1	Short circuit	264Vac	10mins	F1	0.121→0.027	--	--	Unit shut down, recoverable, no damaged, no hazards. NT, NC, NB. USB terminal “+” to “-“: 0 V, USB terminal to GND: 0.352mA peak
U1 pin4	Short circuit	264Vac	10mins	F1	0.121→0.027	--	--	Unit shut down, recoverable, no damaged, no hazards. NT, NC, NB. USB terminal “+” to “-“: 0 V, USB terminal to GND: 0.352mA peak
U2 pin2-6	Short circuit	264Vac	1s	F1	0.121→0	--	--	Unit shut down, immediately U2 damaged, no hazards. NT, NC, NB. USB terminal “+” to “-“: 0 V, USB terminal to GND: 0.372mA peak

IEC 62368-1								
Clause	Requirement + Test					Result - Remark		Verdict
D1	Short circuit	264Vac	10mins	F1	0.121→0.027	--	--	Unit shut down, recoverable, no damaged, no hazards. NT, NC, NB. USB terminal "+" to "-": 0 V, USB terminal to GND: 0.352mA peak
EC3	Short circuit	264Vac	10mins	F1	0.121→0.027	--	--	Unit shut down, recoverable, no damaged, no hazards. NT, NC, NB. USB terminal "+" to "-": 0 V, USB terminal to GND: 0.352mA peak

Supplementary information:
Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column "Abnormal/Fault." Specify if test condition by indicating "Abnormal" then the condition for a Clause B.3 test or "Single Fault" then the condition for Clause B.4.

1) s-c: Short-circuited; o-c: Open-circuited; o-l: Overloaded.
2) The test result shown all safeguards remained effective and didn't lead to a single fault condition during abnormal operating condition; In addition all safeguards complied with applicable requirements in this standard after restoration of normal operating conditions.
3) The test result showed no Class 1 or 2 energy source become Class 3 level during and after single fault condition.

4) The same as result test conducted on all fuse sources, all fuse sources see table 4.1.2 for details.

Results Key:
IP = Internal protection operated (Component indicated); CT = Constant temperatures were obtained;
TW = Transformer winding opened; CD = Components damaged (damaged components indicated);
NB = No indication of dielectric breakdown; YB = Dielectric breakdown (time and location indicated);
NC = Cheesecloth remained intact; YC = Cheesecloth charred or flamed;
NT = Tissue paper remained intact; YT = Tissue paper charred or flamed.
TV = Touch voltage measured; ASRE = All safeguards remained effectively.

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

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

	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition	--	--	--	--	--	--	--	--	--
Max. current during fault condition	--	--	--	--	--	--	--	--	--

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

Annex M.4	**Table: Additional safeguards for equipment containing secondary lithium batteries**	**N/A**

Battery/Cell No.	Test conditions	Measurements			Observation
		U	I (A)	Temp (C)	
	Normal				
	Abnormal				
	Single fault –SC/OC				
	Normal				
	Abnormal				
	Single fault – SC/OC				
Supplementary Information:					

Battery identification	Charging at Tlowest (°C)	Observation	Charging at Thighest (°C)	Observation
Supplementary Information:				

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

Annex Q.1	**TABLE: Circuits intended for interconnection with building wiring (LPS)**					**P**
Note: Measured UOC (V) with all load circuits disconnected:						
Output Circuit	Components	U_{oc} (V)	I_{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
USB terminal	Normal operation	5.01	0.42	8	0.9	100
USB terminal	Single fault- U1 pin1-2 SC	0	0	8	0	100
USB terminal	Single fault- U1 pin3-4 SC	0	0	8	0	100
USB terminal	Single fault- U1 pin1 OC	0	0	8	0	100
USB terminal	Single fault- U1 pin4 OC	0	0	8	0	100
USB terminal	Single fault- R37 SC	0	0	8	0	100
Supplementary Information: SC=Short circuit, OC=Open circuit						

T.2, T.3, T.4, T.5	**TABLE: Steady force test**				**P**
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation
Top enclosure	Wooden	--	250	5	Enclosure remained intact, no crack/opening developed. Internal ES3 TS3 were not accessible after test. No insulation breakdown
Side enclosure	Plastic	--	250	5	Enclosure remained intact, no crack/opening developed. Internal ES3 TS3 were not accessible after test. No insulation breakdown

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

Bottom enclosure	Wooden	--	250	5	Enclosure remained intact, no crack/opening developed. Internal ES3 TS3 were not accessible after test. No insulation breakdown
Internal components	--	--	10	5	No insulation breakdown No reduction clearances and creepage distance
Supplementary information:					

T.6, T.9	TABLE: Impact tests			P
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation
Top enclosure	Wooden	See table 4.1.2	1300	Enclosure remained intact, no crack/ opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.
Side enclosure	Plastic	See table 4.1.2	1300	Enclosure remained intact, no crack/ opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.
Bottom enclosure	Wooden	See table 4.1.2	1300	Enclosure remained intact, no crack/ opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.
Supplementary information:				

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

T.8	TABLE: Stress relief test				P
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation

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

Plastic Enclosure	Plastics*	See table 4.1.2	70	7	Enclosure remained intact, no cracking/opening developed in the enclosure joint. Internal ES3, TS3 were not accessible after test. No insulation breakdown.
Supplementary information:					

IEC 62368_1B ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT

IEC 62368-1

EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

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

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

Attachment Form No. ..... : EU_GD_IEC62368_1B_II

Attachment Originator..... : Nemko AS

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

	CENELEC COMMON MODIFICATIONS (EN)	P
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed "Z".	P
CONTENTS	**Add** the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords	P
	Delete all the "country" notes in the reference document (IEC 62368-1:2014) according to the following list:	P

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

	For special national conditions, see Annex ZB.		P
1	**Add** the following note: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.		P

IEC 62368_1B ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.Z1	**Add** the following new subclause after 4.9: To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. **mains**, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for **pluggable equipment type B** or **permanently connected equipment**, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for **pluggable equipment type A** the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.		P
5.4.2.3.2.4	**Add** the following to the end of this subclause: The requirement for interconnection with **external circuit** is in addition given in EN 50491-3:2009.		N/A
10.2.1	Add the following to [c] and [d] in table 39: For additional requirements, see 10.5.1.		N/A

IEC 62368_1B ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.5.1	**Add** the following after the first paragraph: *For RS 1 compliance is checked by measurement under the following conditions:* *In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or presets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.* NOTE Z1 Soldered joints and paint lockings are examples of adequate locking. *The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus.* *Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.* *For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.* NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.		N/A
10.6.1	**Add** the following paragraph to the end of the subclause: EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.		N/A
10.Z1	**Add** the following new subclause after 10.6.5. **10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz** The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz). For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body-mounted devices, attention is drawn to EN 50360 and EN 50566		N/A
G.7.1	**Add** the following note: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.		

IEC 62368_1B ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Bibliography	**Add** the following standards: **Add** the following notes for the standards indicated: IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4. IEC 60664-5 NOTE Harmonized as EN 60664-5. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1 NOTE Harmonized as EN 61508-1. IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6. IEC 61643-1 NOTE Harmonized as EN 61643-1. IEC 61643-21 NOTE Harmonized as EN 61643-21. IEC 61643-311 NOTE Harmonized as EN 61643-311. IEC 61643-321 NOTE Harmonized as EN 61643-321. IEC 61643-331 NOTE Harmonized as EN 61643-331.		P
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
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

IEC 62368_1B ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.2.2.2	**Denmark** After the 2nd paragraph add the following: A warning (marking **safeguard**) for high **touch current** is required if the **touch current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A
5.4.11.1 and Annex G	**Finland and Sweden** To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5kV. It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11; • the additional testing shall be performed on all the test specimens as described in EN 60384-14; the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.		N/A
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

IEC 62368_1B ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.6	**Finland, Norway** and **Sweden** To the end of the subclause the following is added: Resistors used as **basic safeguard** or bridging **basic insulation** in **class I pluggable equipment type A** shall comply with G.10.1 and the test of G.10.2.		N/A
5.6.1	**Denmark** **Add** to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. *Justification:* In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N/A
5.6.4.2.1	**Ireland and United Kingdom** After the indent for **pluggable equipment type A**, the following is added: – the **protective current rating** is taken to be 13 A, this being the largest rating of fuse used in the **mains** plug.		N/A
5.6.5.1	To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm^2 to 1,5 mm^2 in cross-sectional area.		N/A
5.7.5	**Denmark** To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the **protective conductor current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A

IEC 62368_1B ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.1	**Norway and Sweden** To the end of the subclause the following is added: The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system. It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: “Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)” NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.” Translation to Swedish: ”Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”.		N/A

IEC 62368_1B ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.2	**Denmark** To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .		N/A
B.3.1 and B.4	**Ireland and United Kingdom** The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of **direct plug-in equipment**, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the **direct plug-in equipment**, until the requirements of Annexes B.3.1 and B.4 are met		N/A
G.4.2	**Denmark** To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a *Justification:* Heavy Current Regulations, Section 6c		N/A

IEC 62368_1B ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	**United Kingdom** To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A
G.7.1	**United Kingdom** To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
G.7.1	**Ireland** To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard		N/A
G.7.2	**Ireland and United Kingdom** To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm^2 is allowed for equipment which is rated over 10 A and up to and including 13 A.		N/A

IEC 62368_1B 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

Attachment – Photo Documentation

Fig.1

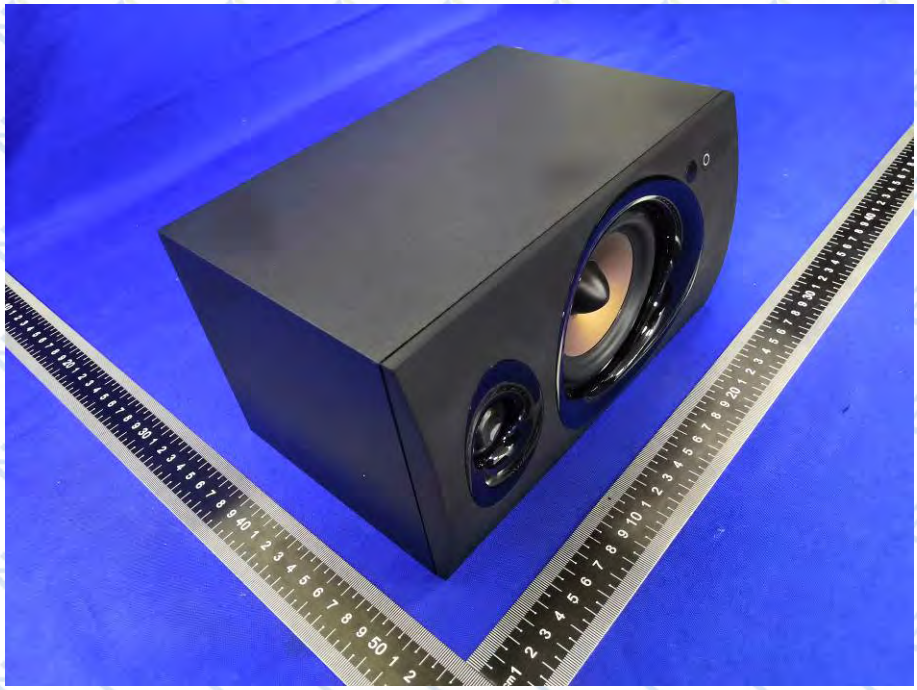

Fig.2

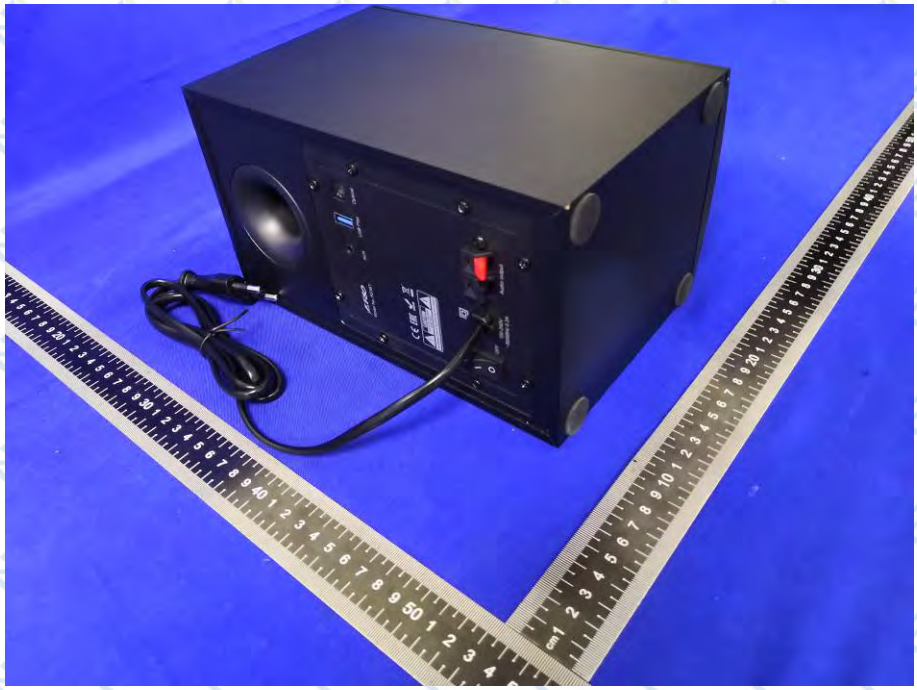

Fig.3


Model No.:R23BT
AUX
USB Play
Optical
CAUTION
POWER
ON
OFF
Audio output

Fig.4

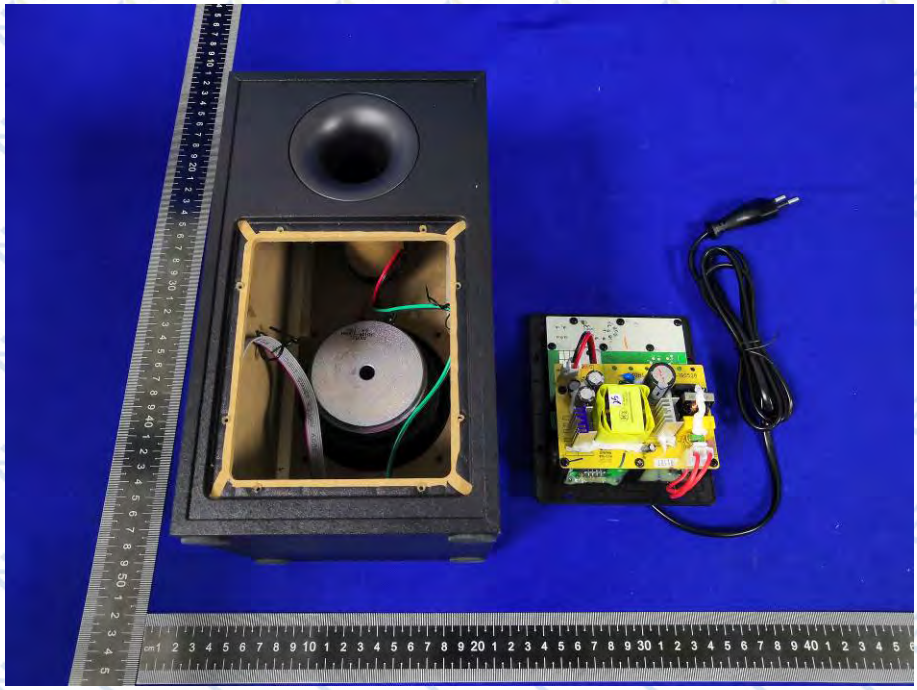

Fig.5

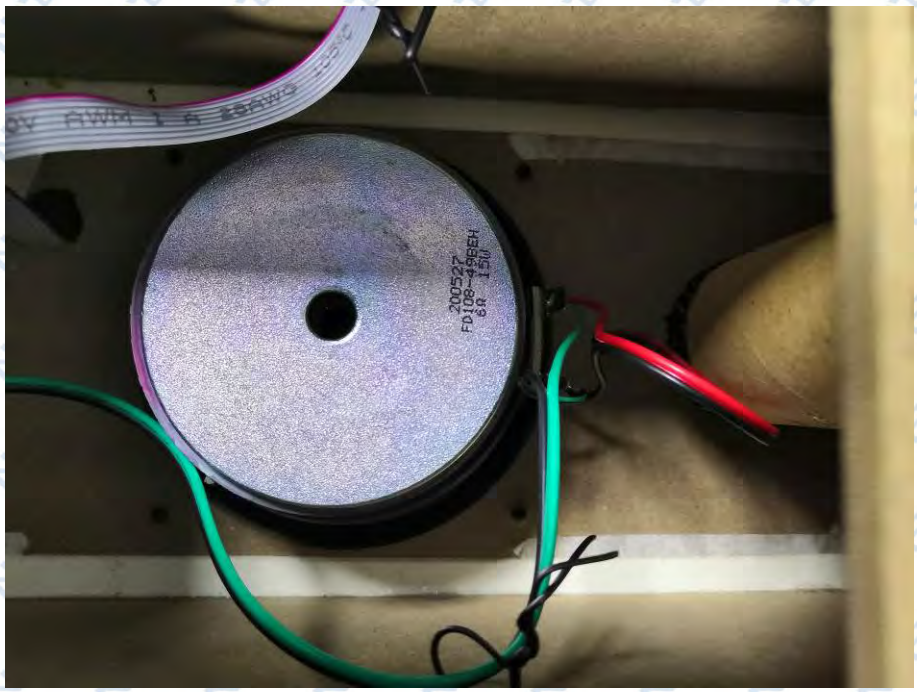

Fig.6

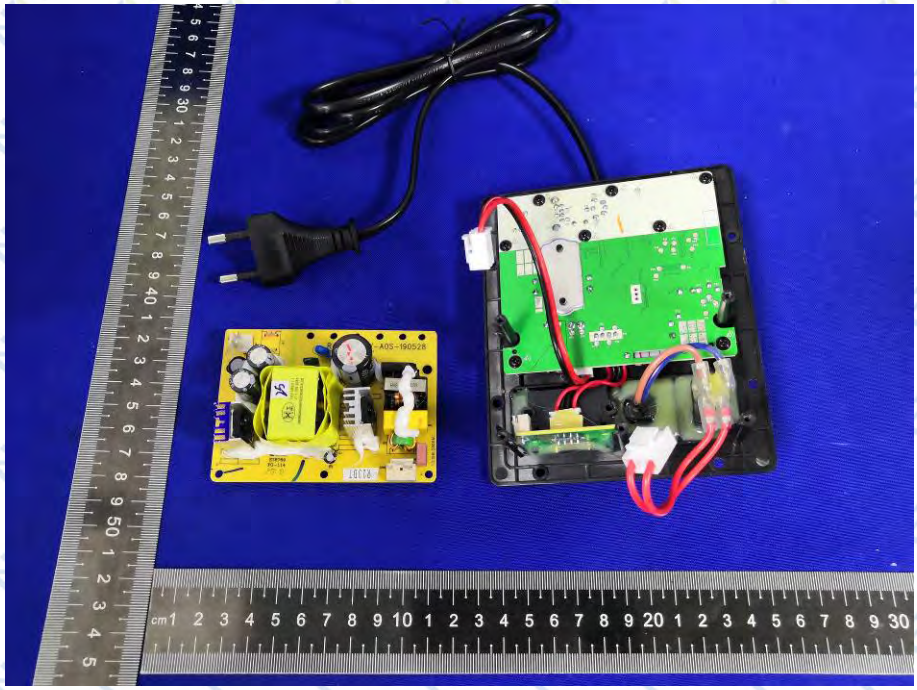

Fig.7

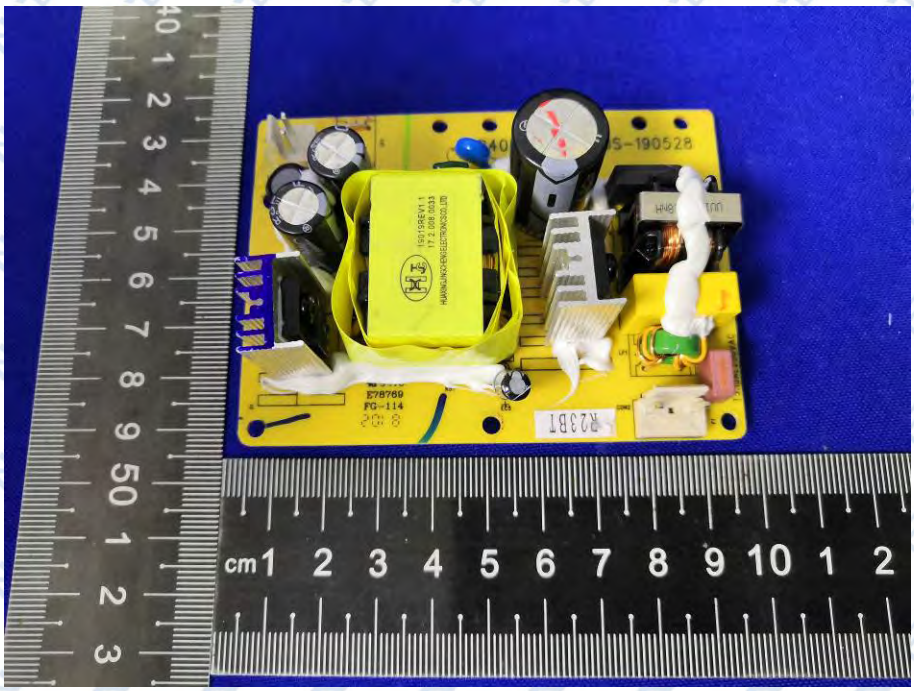

Fig.8

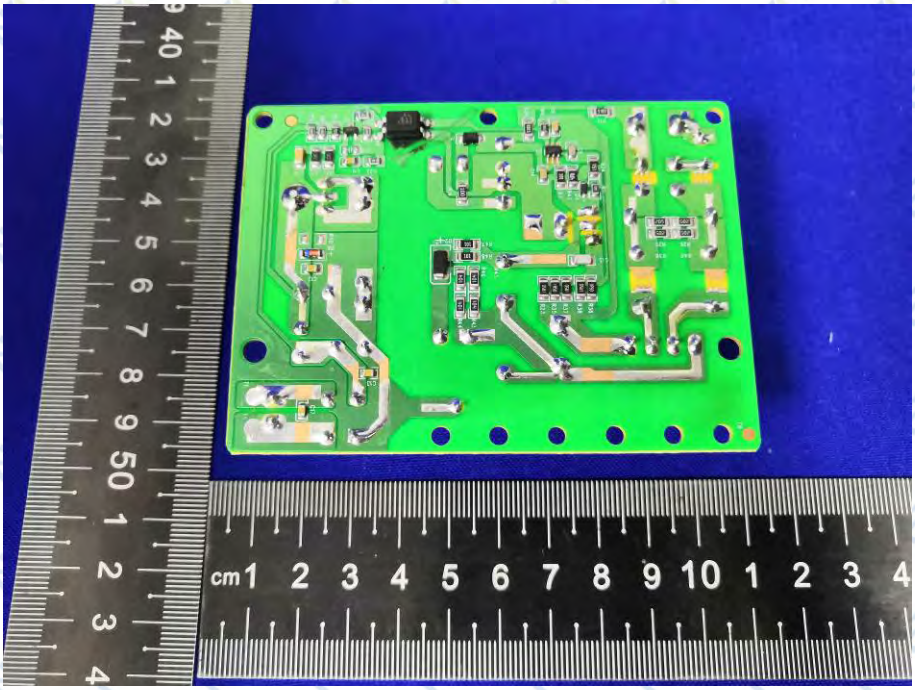

Fig.9

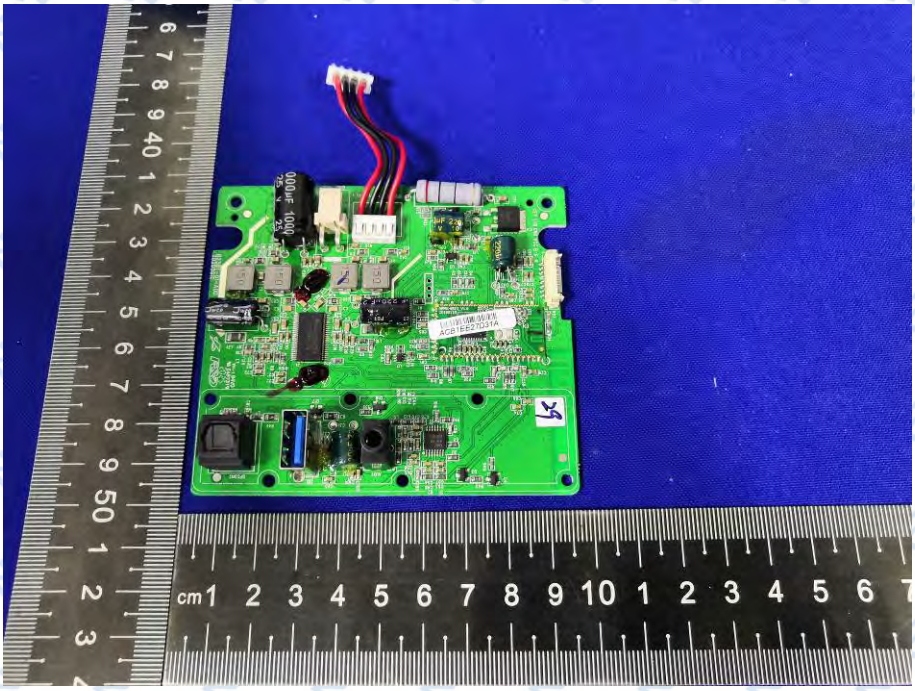

Fig.10

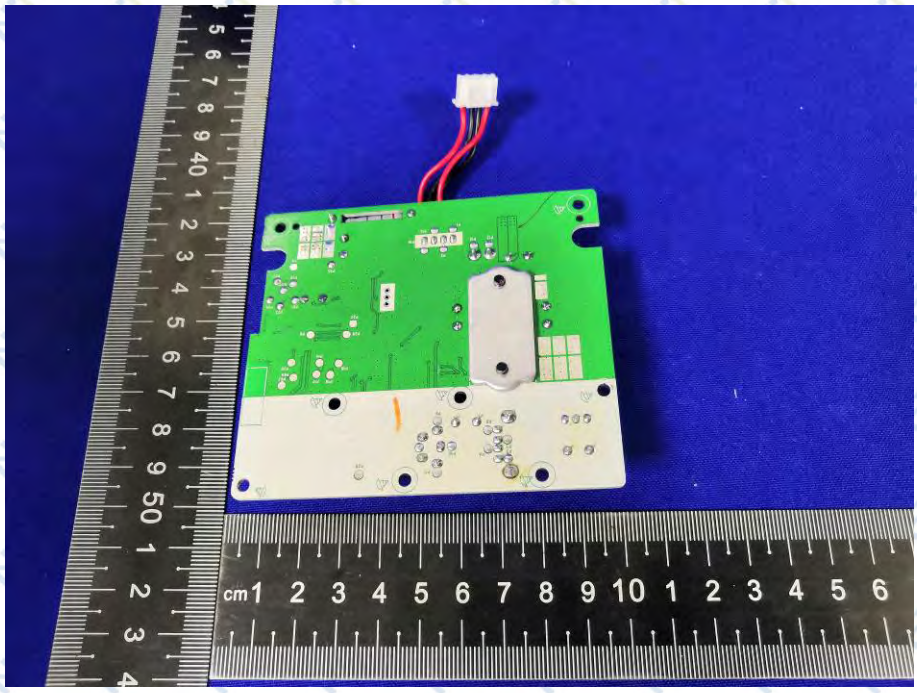

Fig.11

Fig.12

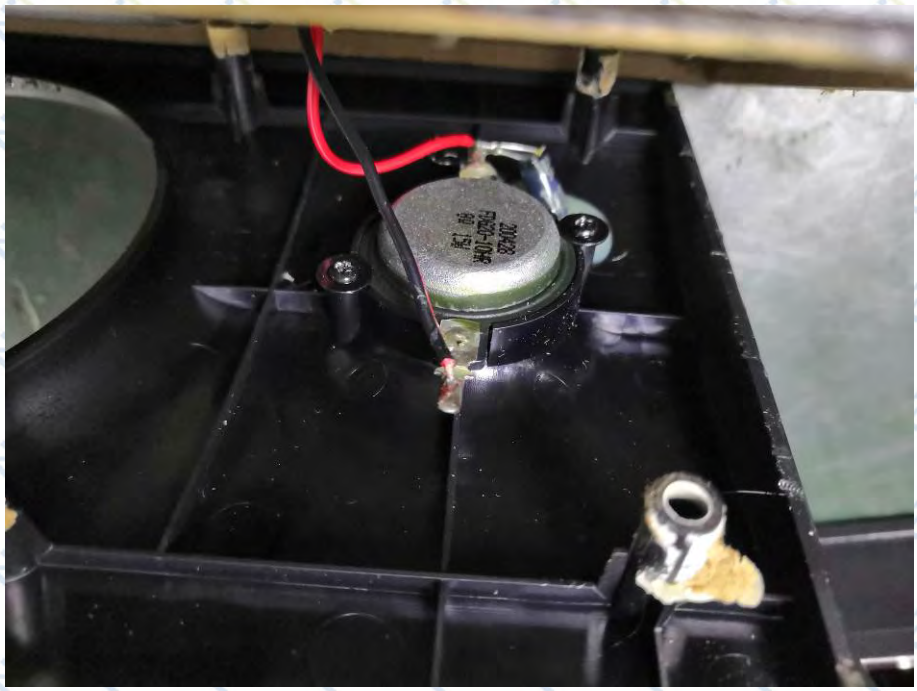

Fig.13

※※※※※**END OF REPORT**※※※※※