

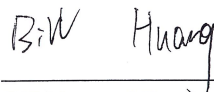
TEST REPORT

Applicant : SHENZHEN FENDA TECHNOLOGY CO., LTD.
Address : Fenda Hi-Tech Park, Zhoushi Road, Shiyan Town, Baoan District, Shenzhen City, Guangdong, China
Manufacturer : SHENZHEN FENDA TECHNOLOGY CO., LTD.
Address : Fenda Hi-Tech Park, Zhoushi Road, Shiyan Town, Baoan District, Shenzhen City, Guangdong, China
Product Name : 2.0 Multimedia Speaker
Trade Mark : F&D
Model No. : R60BT, R50BT, R60BT II, R60BT V2, R70, T-60X II, T-60 plus
Ratings : Input : 100-240V~ 50/60Hz, 0.7A
Standard : Audio/video, information and communication technology equipment
Part 1: Safety requirements
EN 62368-1:2014+A11:2017


Date of Receiver : May 20, 2020
Date of Test : May 21, 2020 to June 15, 2020
Date of Issue : June 29, 2020
Test Report Form No : NTCS-IEC62368-1-A1-E
Test Result : Pass *

This Test Report is Issued Under the Authority of:

Compiled by


Bill Huang/ Engineer

Approved by Authorized Signer

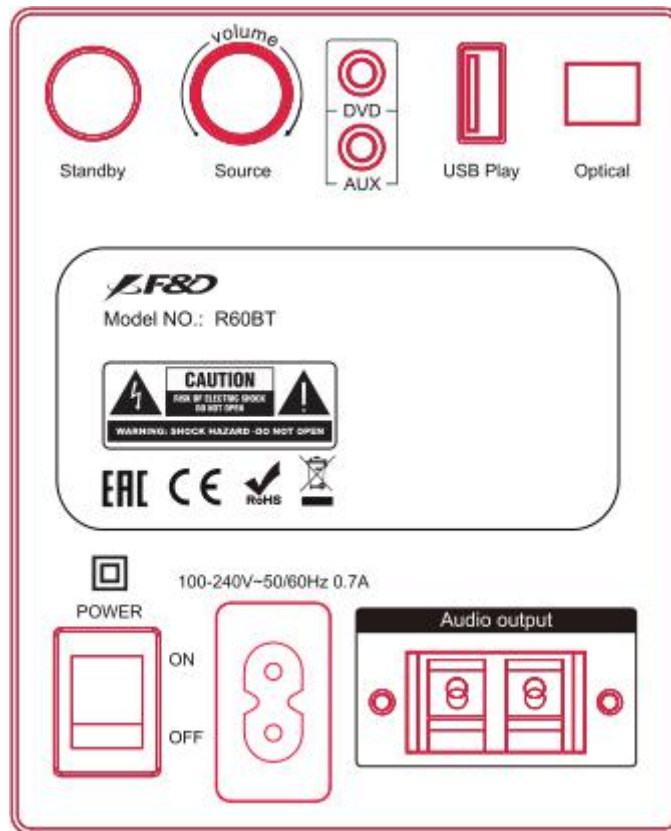


Ryan Luo / Authorized Signatory

*Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of Dongguan Nore Testing Center Co., Ltd. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Copy of marking plate:



Remarks:

1. The above markings are the minimum requirements required by the safety standard. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.
2. The CE marking and WEEE symbol should be at least 5.0mm and 7.0mm respectively in height.
3. Marking label of all models are identical to each other except for model number and trade mark.
4. The importer information (Name and Address) and manufacturer information (Name and Address) should be marked in product when this product import to European marketing.

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

Page 39 – 47: European Group differences and National differences

Page 63 – 70: Photograph

Summary of testing:

From the result of our tests on the submitted samples, we conclude they comply with the requirements of the standards.

TEST ITEM PARTICULARS:	
Classification of use by.....:	<input checked="" type="checkbox"/> Ordinary person <input type="checkbox"/> Instructed person <input type="checkbox"/> Skilled person <input type="checkbox"/> Children likely to be present
Supply Connection.....:	<input checked="" type="checkbox"/> AC Mains <input type="checkbox"/> DC Mains <input type="checkbox"/> External Circuit - not Mains connected - <input type="checkbox"/> ES1 <input type="checkbox"/> ES2 <input checked="" type="checkbox"/> ES3
Supply % Tolerance	<input checked="" type="checkbox"/> +10%/-10% <input type="checkbox"/> +20%/-15% <input type="checkbox"/> + ____% / - ____% <input type="checkbox"/> None
Supply Connection – Type	<input checked="" type="checkbox"/> pluggable equipment type A - <input type="checkbox"/> non-detachable supply cord <input checked="" type="checkbox"/> appliance coupler <input type="checkbox"/> direct plug-in <input type="checkbox"/> mating connector <input type="checkbox"/> pluggable equipment type B - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> permanent connection <input type="checkbox"/> mating connector <input type="checkbox"/> other:
Considered current rating of protective device as part of building or equipment installation.....:	US, CA: 20 A; UK: 13 A; Others: 16 A Installation location: <input checked="" type="checkbox"/> building; <input type="checkbox"/> equipment
Equipment mobility.....:	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input checked="" type="checkbox"/> transportable <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input type="checkbox"/> direct plug-in <input type="checkbox"/> rack-mounting <input type="checkbox"/> wall-mounted
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other:
Class of equipment	<input type="checkbox"/> Class I <input checked="" type="checkbox"/> Class II <input type="checkbox"/> Class III
Access location	<input type="checkbox"/> restricted access location <input checked="" type="checkbox"/> N/A
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
Manufacturer's specified maximum operating ambient.....:	35°C
IP protection class	<input checked="" type="checkbox"/> IPX0 <input type="checkbox"/> IP20
Power Systems	<input type="checkbox"/> TN <input type="checkbox"/> TT <input type="checkbox"/> IT - ____ V _{L-L}
Altitude during operation (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> <5000 m
Altitude of test laboratory (m)	<input type="checkbox"/> 2000 m or less <input checked="" type="checkbox"/> <50 m
Mass of equipment (kg)	approx. 10.06Kg
POSSIBLE TEST CASE VERDICTS:	
- test case does not apply to the test object.....:	N (N/A)
- test object does meet the requirement.....:	P (Pass)
- test object does not meet the requirement.....:	F (Fail)

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.

Determination of the test result includes consideration of measurement uncertainty from the test equipment and methods.

GENERAL PRODUCT INFORMATION:

Product Description

1. The EUT covered by this report is a 2.0 Multimedia Speaker used as audio apparatus; it is supplied by mains supply through detachable supply cord.

2. In this report, the product is to be used under:

- Maximum operating temperature: +35°C.
- Altitude less than 2000m.
- Indoor used only.

3. All models covered by this report are identical, except model number, trade mark and appearance of enclosure (for color and silk-screen only) for marketing purpose. If no otherwise specified, all the tests were conducted on model R60BT to represent other models.

4. The USB only as a signal input port.

The product mainly consists of:

- Speaker with power board and amplifier board.
- Fire shield.
- Plastic enclosure and Wooden enclosure.

Additional application considerations –

- normal conditions **N.C.**

- functional insulation **FI**

- double insulation **DI**

- between parts of opposite polarity **BOP**

- short circuit **SC**

- overload **O/L**

Indicate used abbreviations (if any)

- equipment under test **EUT**

- single fault conditions **S.F.C**

- basic insulation **BI**

- supplementary insulation **SI**

- reinforced insulation **RI**

- open circuit **OC**

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
<p>(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.)</p>	
<p>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</p>	
Source of electrical energy	Corresponding classification (ES)
Primary circuit	ES3
Power board secondary output (CON1)	ES1
All accessible connectors and parts accessible to ordinary person	ES1
<p>Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts): PS2</p>	
Source of power or PIS	Corresponding classification (PS)
All primary circuit	PS3
Power board secondary output (connector CON1)	PS3
Audio/video signal connectors and USB terminal	PS1
<p>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</p>	
Source of hazardous substances	Corresponding chemical
N	N
<p>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</p>	
Source of kinetic/mechanical energy	Corresponding classification (MS)
Shape edges and corner of product	MS1
Equipment mass- Approx. 10.06kg	MS2
<p>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</p>	
Source of thermal energy	Corresponding classification (TS)
External accessible enclosures/parts	TS1
<p>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</p>	
Type of radiation	Corresponding classification (RS)
LED for indicating	RS1

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: Primary circuit	Equipment safeguards	Equipment safeguards	Transformer, optocoupler, Y-capacitor, Enclosure
Ordinary	ES3: AC plug (stored charge on capacitor)	N/A	N/A	X-capacitor, discharge resistors
Ordinary	ES1: External connectors	N/A	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
All primary circuit	PS3: >100 Watt circuit	Equipment safeguards (no ignition)	Separation by distance & Fire barrier	N/A
Combustible materials within equipment	PS2: <100 Watt circuit Secondary connector (CON1)	Equipment safeguards (no ignition)	N/A	N/A
Audio/video signal connectors and USB terminal	PS1: <15 Watt circuit	N/A	N/A	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: Sharp edges and corners	N/A	N/A	N/A
Ordinary	MS2: Equipment mass	N/A	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS1: Plastic enclosure	N/A	N/A	N/A

	and wooden enclosure			
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	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.	P
4.1.3	Equipment design and construction	Equipment is adequately designed and constructed.	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, T.3, T.4, 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 a tool.	N/A
4.4.4.6	Glass Impact tests.....:	No such glass used.	N/A
4.4.4.7	Thermoplastic material tests.....:	(See Annex T.8)	P
4.4.4.8	Air comprising a safeguard.....:		N/A
4.4.4.9	Accessibility and safeguard effectiveness	After tests of 4.4.4.2, 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	Internal wires are routed and secured so that adequate insulations are maintained. For the internal wires connected by pluggable connectors and fixed by cable tied. Secondary wires are fixed on the metal enclosure with cable and separated by fireproof cover kept the clearance and creepage distance which complied with clauses 5.4.2 and 5.4.3.	P
4.6.2	10N force test applied to	See appended table 5.4.2.2, 5.4.2.4 and 5.4.3	P
4.7	Equipment for direct insertion into mains socket - outlets		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.7.2	Mains plug part complies with the relevant standard..... :	Not such equipment	N/A
4.7.3	Torque (Nm)..... :	Not such equipment	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 openings such that entry into enclosure with contact of such parts is likely.	P

5	ELECTRICALLY-CAUSED INJURY		P
5.2.1	Electrical energy source classifications..... :	See below	P
5.2.2	ES1, ES2 and ES3 limits	(See appended table 5.2)	P
5.2.2.2	Steady-state voltage and current..... :	(See appended table 5.2)	P
5.2.2.3	Capacitance limits..... :	No such capacitor	N/A
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	Ringling signals	No such ringing signals within the EUT	N/A
5.2.2.7	Audio signals	See Annex E.1	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		P
5.3.2.2	Contact requirements	No opening of enclosure, no access with test probe to any ES3 circuit or parts.	P
	a) Test with test probe from Annex V..... :		P
	b) Electric strength test potential (V)..... :		N/A
	c) Air gap (mm)		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material		P
5.4.1.3	Humidity conditioning..... :	See sub-clause 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..... :	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		N/A
5.4.1.6	Insulation in transformers with varying dimensions	No such transformer within the EUT	N/A
5.4.1.7	Insulation in circuits generating starting pulses	No such starting pulses within the EUT	N/A
5.4.1.8	Determination of working voltage	(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	See only 5.4.1.10.3 below.	P
5.4.1.10.2	Vicat softening temperature..... :		N/A
5.4.1.10.3	Ball pressure :	AC connector of power board complied	P
5.4.2	Clearances	(See appended table 5.4.2.2, 5.4.2.4 and 5.4.3)	P
5.4.2.2	Determining clearance using peak working voltage		P
5.4.2.3	Determining clearance using required withstand voltage :		P
	a) a.c. mains transient voltage..... :	2500V for Overvoltage Cat. II	—
	b) d.c. mains transient voltage :	No such transient.	—
	c) external circuit transient voltage..... :	No such transient.	—
	d) transient voltage determined by measurement....	No such transient.	—
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..... :	1.0 (<2000m altitude)	P
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 :	IIIa & IIIb	—

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.4	Solid insulation	See clause G.13.5 for PCB and see below for other parts	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	See below	P
5.4.4.4	Solid insulation in semiconductor devices	Approved optocoupler used. Requirements of G.12 met, see table 4.1.2 for listed component used	P
5.4.4.5	Cemented joints	See below	P
5.4.4.6	Thin sheet material	Two layers of insulation tape in and around outside and between winding and core of transformer T31 are used for reinforced insulation and are not expected to be subject to handling or abrasion during ordinary or instructed person servicing.	P
5.4.4.6.1	General requirements	Where two layers are provided as reinforced insulation any one layer passed the electric strength test for reinforced insulation	P
5.4.4.6.2	Separable thin sheet material	2	P
	Number of layers (pcs)		N/A
5.4.4.6.3	Non-separable thin sheet material		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material.....		N/A
5.4.4.6.5	Mandrel test	See G.5.1 and G.6.	P
5.4.4.7	Solid insulation in wound components	(See Annex G.5 and G.6)	N/A
5.4.4.9	Solid insulation at frequencies >30 kHz.....	No such antenna terminal used.	N/A
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
	Insulation resistance (MΩ).....	No such device	—
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	No tests necessary –see only 5.4.4.4.	N/A
5.4.8	Humidity conditioning	See below.	P
	Relative humidity (%).....	93	—
	Temperature (°C)	40	—

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Clause	Requirement + Test	Result - Remark	Verdict
	Duration (h)	120	—
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	Method 1 used (See appended table 5.4.9)	P
5.4.9.2	Test procedure for routine tests	Should be considered and conducted during production at factory.	N/A
5.4.10	Protection against transient voltages between external circuit	No connection to external circuits with transient voltage.	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 connections for external circuit applied within the EUT	N/A
5.4.11.1	Exceptions to separation between external circuits and earth	No such connections to external circuit as above.	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		P
5.5.1	General		P
5.5.2	Capacitors and RC units	Approved X2 type and Y1 type capacitors provided. See G.11.1 for compliance and their application.	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	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.5.6	Resistors	Discharge resistors (R25, R26, R39, R40) used. However test of 5.5.2.2 complied even with fault condition R25 open circuit therefore not relied upon as safeguard.	P
5.5.7	SPD's	No such component	N/A
5.5.7.1	Use of an SPD connected to reliable earthing	No such component	N/A
5.5.7.2	Use of an SPD between mains and protective earth	No such component	N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable..... :	No such device	N/A
5.6	Protective conductor		N/A
5.6.2	Requirement for protective conductors	No such device	N/A
5.6.2.1	General requirements	No such device	N/A
5.6.2.2	Colour of insulation	No such device	N/A
5.6.3	Requirement for protective earthing conductors	No such device	N/A
	Protective earthing conductor size (mm ²) :	No such device	N/A
5.6.4	Requirement for protective bonding conductors	No such device	N/A
5.6.4.1	Protective bonding conductors	No such device	N/A
	Protective bonding conductor size (mm ²)..... :	No such part	—
	Protective current rating (A) :	No such part	—
5.6.4.3	Current limiting and overcurrent protective devices	No such device	N/A
5.6.5	Terminals for protective conductors	No such device	N/A
5.6.5.1	Requirement	No such device	N/A
	Conductor size (mm ²), nominal thread diameter (mm)..... :	No such device	N/A
5.6.5.2	Corrosion	No such device	N/A
5.6.6	Resistance of the protective system	No such device	N/A
5.6.6.1	Requirements	No such device	N/A
5.6.6.2	Test Method Resistance (Ω)..... :	No such device	N/A
5.6.7	Reliable earthing	Not permanently connected equipment	N/A
5.7	Prospective touch voltage, touch current and protective conductor current		P
5.7.2	Measuring devices and networks	Figure 4 of IEC 60990 was used in determining of the limit of ES1.	P
5.7.2.1	Measurement of touch current..... :	(See appended table 5.2)	P
5.7.2.2	Measurement of prospective touch voltage		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.7.3	Equipment set-up, supply connections and earth connections	Clause 4, 5.3 and 5.4 of IEC 60990:1999 applied.	P
	System of interconnected equipment (separate connections/single connection)..... :	Single connection.	—
	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
5.7.6	Prospective touch voltage and touch current due to external circuits	The equipment is not connected to such external circuit.	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	(See appended table 6.2.2)	P
6.2.2.5	PS2	(See appended table 6.2.2)	P
6.2.2.6	PS3	(See appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources	All conductors and devices in both primary and secondary are considered as PIS except external secondary connectors.	P

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Clause	Requirement + Test	Result - Remark	Verdict
6.2.3.1	Arcing PIS	See note to 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, Fire enclosure and fire cover and fire barrier provided.	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		P
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		P
6.4.3.1	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 Table 6.2.2.	P
6.4.5.2	Supplementary safeguards	<u>Safeguards checked as part of 6.4.6.</u>	P

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.6	Control of fire spread in PS3 circuit	<p>Compliance detailed as follows:</p> <ul style="list-style-type: none"> - <u>Printed board</u>: rated V-0 - <u>Internal wires</u>: complying with UL 758 standard, which test method and testing condition equal to IEC/EN 60695-11-21. - <u>Connector</u>: with size of less than 1750mm³. - <u>All other components</u>: at least V-2 except for parts mounted on min. V-1 material or small parts of combustible material (with mass less than 4g) or components complying with relevant IEC standard. - <u>Isolating transformer</u>: complying with G.5.3 <p>Plastic enclosure and min. 6mm thickness wooden enclosure which considered V-1) used; Fire barrier (metal barrier around of main board) used.</p>	P
6.4.7	Separation of combustible materials from a PIS	See below	P
6.4.7.1	General.....:	Only small parts of combustible material (with mass less than 4g) on the PCB is not considered as PIS does not require separation from PIS. Separation requirements from PIS to the wooden enclosure see also clause 6.4.8.4	P
6.4.7.2	Separation by distance		P
6.4.7.3	Separation by a fire barrier		P
6.4.8	Fire enclosures and fire barriers	See below.	P
6.4.8.1	Fire enclosure and fire barrier material properties	Fire enclosure (fireproof cover on power board rated V-0, Plastic enclosure and min. 6mm thickness wooden enclosure which considered V-1) and fire barrier used.	P
6.4.8.2.1	Requirements for a fire barrier	Fire barrier (metal barrier around of main board) used.	P
6.4.8.2.2	Requirements for a fire enclosure	Fire enclosure (fireproof cover on power board rated V-0, Plastic enclosure and min. 6mm thickness wooden enclosure which considered V-1) used.	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier	See below	P

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.3.1	Fire enclosure and fire barrier openings	No such openings	N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm)		N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm)		N/A
	Flammability tests for the bottom of a fire enclosure		N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c).....	No enclosure can be opened by an ordinary person	N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating.....	The min. distance: between component (resistive PIS) on power board and wooden enclosure: 20mm, But the wooden enclosure with min. thickness 6.0mm near power board at rear side.	P
6.5	Internal and external wiring		P
6.5.1	Requirements	The internal wires are complied with UL standard, of which the test method and testing condition are equal to IEC/EN 60695-11-21.	P
6.5.2	Cross-sectional area (mm ²)	See 6.5.1.	—
6.5.3	Requirements for interconnection to building wiring.....	No such wire used	N/A
6.6	Safeguards against fire due to connection to additional equipment		P
	External port limited to PS2 or complies with Clause Q.1		P
7	INJURY CAUSED BY HAZARDOUS SUBSTANCES		P
7.2	Reduction of exposure to hazardous substances	No hazardous chemicals within the equipment.	P
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.....	See Annex M	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8	MECHANICALLY-CAUSED INJURY		P
8.1	General	10.06kg	P
8.2	Mechanical energy source classifications	MS1: Sharp edges and corners MS2: Equipment mass	P
8.3	Safeguards against mechanical energy sources		P
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 moving 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	Not such equipment	N/A
8.5.4.2	Equipment having electromechanical device for destruction of media	Not such equipment	N/A
8.5.4.2.1	Safeguards and Safety Interlocks..... :	Not such equipment	N/A
8.5.4.2.2	Instructional safeguards against moving parts	No such moving part	N/A
	Instructional Safeguard..... :	No such moving part	—
8.5.4.2.3	Disconnection from the supply	No such device	N/A
8.5.4.2.4	Probe type and force (N)..... :	No such device	N/A
8.5.5	High Pressure Lamps	No such device	N/A
8.5.5.1	Energy Source Classification	No such device	N/A
8.5.5.2	High Pressure Lamp Explosion Test..... :	No such device	N/A
8.6	Stability	See the following details.	P
8.6.1	Product classification	MS1: Sharp edges and corners MS2: Equipment mass	P
	Instructional Safeguard..... :	No safeguard requirement	—
8.6.2	Static stability		P
8.6.2.2	Static stability test		P
	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

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Clause	Requirement + Test	Result - Remark	Verdict
8.6.5	Horizontal force test (Applied Force)..... :		N/A
	Position of feet or movable parts..... :		—
8.7	Equipment mounted to wall or ceiling	No such mounting means	N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface)	No such mounting means	N/A
8.7.2	Direction and applied force..... :	No such requirement	N/A
8.8	Handles strength	No such part.	N/A
8.8.1	Classification		N/A
8.8.2	Applied Force		N/A
8.9	Wheels or casters attachment requirements	No such part	N/A
8.9.1	Classification		N/A
8.9.2	Applied force..... :		—
8.10	Carts, stands and similar carriers	No such part	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		
	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	No such mounting means	N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable <i>N</i>		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas.....	No such part	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 appended Table 5.4.1.4, 6.3.2, 9.0, B.2.6)	P

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Clause	Requirement + Test	Result - Remark	Verdict
9.3	Safeguard against thermal energy sources	Temperature of enclosure classed as TS1.	P
9.4	Requirements for safeguards		P
9.4.1	Equipment safeguard	Enclosure provided to limit the transfer of thermal energy of internal parts under normal operating conditions and abnormal operating conditions.	P
9.4.2	Instructional safeguard	Instructional safeguard is not required.	N/A

10	RADIATION		P
10.2	Radiation energy source classification	RS1: IEC 62471 approved LED used (see appended table 4.1.2)	P
10.2.1	General classification		P
10.3	Protection against laser radiation	No laser radiation.	N/A
	Laser radiation that exists equipment:		—
	Normal, abnormal, single-fault.....:		N/A
	Instructional safeguard.....:		—
	Tool.....:		—
10.4	Protection against visible, infrared, and UV radiation	No protection needed for RS1 indicating LED.	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.....:		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions		N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque.....:		N/A
10.4.1.f)	UV attenuation.....:		N/A
10.4.1.g)	Materials resistant to degradation UV.....:		N/A
10.4.1.h)	Enclosure containment of optical radiation.....:		N/A
10.4.1.i)	Exempt Group under normal operating conditions.....:		N/A
10.4.2	Instructional safeguard.....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10.5	Protection against x-radiation	No such x-radiation generated from the equipment	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	No 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 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	See the following details.	P
B.2.1	General requirements..... :	(See appended table B.2.5)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Audio Amplifiers and equipment with audio amplifiers..... :	See Annex E	P
B.2.3	Supply voltage and tolerances	Rated voltage \pm 10 %	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)	P
B.3.2	Covering of ventilation openings	(See appended table B.3)	P
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)	P
B.3.6	Reverse battery polarity		N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.	(See appended table B.3)	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	N/A
B.4.3	Motor tests	No such device	N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature		N/A
B.4.4	Short circuit of functional insulation	See below for details.	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 within the EUT	N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors	(See appended table B.4)	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	No change to circuits classified in 5.3	P
B.4.9	Battery charging under single fault conditions..... :	See Annex M	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
C	UV RADIATION		N/A
C.1	Protection of materials in equipment from UV radiation	No such UV generated from the equipment.	N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A
D	TEST GENERATORS		N/A
D.1	Impulse test generators	Not such equipment	N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
E	TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS		P
E.1	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)	—
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		P
	Instructions – Language	English version provided	—
F.2	Letter symbols and graphical symbols	See below for the details.	P
F.2.1	Letter symbols according to IEC60027-1	Complied	P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific	Graphic symbols comply with relevant standards	P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	Equipment marking is located on the enclosure surface and is easily visible.	P
F.3.2	Equipment identification markings	See below for details.	P
F.3.2.1	Manufacturer identification	Trademark: F&D	—
F.3.2.2	Model identification	Model: R60BT, R50BT, R60BT II, R60BT V2, R70, T-60X II, T-60 plus	—
F.3.3	Equipment rating markings	See below for details.	P

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.3.1	Equipment with direct connection to mains	The equipment is connected to AC mains supply.	P
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of supply voltage.....:	IEC 60417-5032 for a.c. symbol used.	—
F.3.3.4	Rated voltage.....:	100-240V~	—
F.3.3.4	Rated frequency.....:	50/60Hz	—
F.3.3.6	Rated current or rated power.....:	0.7A	—
F.3.3.7	Equipment with multiple supply connections	Single supply connection.	N/A
F.3.4	Voltage setting device	No voltage setting device	N/A
F.3.5	Terminals and operating devices		P
F.3.5.1	Mains appliance outlet and socket-outlet markings.....:	No mains appliance outlet or socket-outlet provided.	N/A
F.3.5.2	Switch position identification marking.....:	(See the marking plate)	P
F.3.5.3	Replacement fuse identification and rating markings.....:	The fuse is located within the equipment and not replaceable by an ordinary person or an instructed person. The fuse is marked with F1 T3.15AL 250VAC	P
F.3.5.4	Replacement battery identification marking.....:	No such battery.	N/A
F.3.5.5	Terminal marking location	No such part	N/A
F.3.6	Equipment markings related to equipment classification	See below for details	P
F.3.6.1	Class I Equipment	Class II equipment	N/A
F.3.6.1.1	Protective earthing conductor terminal	Class II equipment	N/A
F.3.6.1.2	Neutral conductor terminal	Not permanently connected equipment.	N/A
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment (IEC60417-5172)	Class II equipment	P
F.3.6.2.1	Class II equipment with or without functional earth	without functional earth	P
F.3.6.2.2	Class II equipment with functional earth terminal marking		N/A
F.3.7	Equipment IP rating marking	This equipment is classified as IPX0.	—
F.3.8	External power supply output marking		N/A
F.3.9	Durability, legibility and permanence of marking	Marking is considered to be legible and easily discernible. See also the following details.	P

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.10	Test for permanence of markings	The label was subjected to the permanence of marking test, 15 sec. for water and 15 sec. for petroleum spirit. 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	Provided in the 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 ES 2 limits	Not such equipment	N/A
	h) Symbols used on equipment	See label for details	P
	i) Permanently connected equipment not provided with all-pole mains switch	Not such equipment	N/A
	j) Replaceable components or modules providing safeguard function	No such part	N/A
F.5	Instructional safeguards	See below	N/A
	Where "instructional safeguard" is referenced in the test report it specifies the required elements, location of marking and/or instruction	Not the requirement	N/A
G	COMPONENTS		P
G.1	Switches		P
G.1.1	General requirements		P
G.1.2	Ratings, endurance, spacing, maximum load	(See appended Table 4.1.2)	P
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		N/A
G.3.1	Thermal cut-offs	No thermal cut-offs used.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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		N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H)..... :	No such device	—
	Single Fault Condition..... :	No such device	—
	Test Voltage (V) and Insulation Resistance (Ω)...:	No such device	—
G.3.3	PTC Thermistors	No PTC thermistors 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.3.5		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions..... :		N/A
G.4	Connectors		P
G.4.1	Spacings	Approved connectors used.	P
G.4.2	Mains connector configuration	(See appended Table 4.1.2)	P
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely	The connector was designed not insertion into a mains socket-outlet	P
G.5	Wound Components		P
G.5.1	Wire insulation in wound components.....	(See appended table 4.1.2)	P
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°	Physical separation provided.	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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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.....:	T31	—
	Method of protection	See G.5.3.3.	—
G.5.3.2	Insulation	See below.	P
	Protection from displacement of windings.....:	Primary windings (TIW) and secondary windings are separated by Reinforced insulation (The core is considered as secondary part as it is not isolated from secondary)	—
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 tables B.3&B.4)	P
G.5.3.3.3	Winding Temperatures - Alternative test method		N/A
G.5.4	Motors		N/A
G.5.4.1	General requirements	No motors used.	N/A
	Position		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days)		—
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

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Clause	Requirement + Test	Result - Remark	Verdict
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	Input wires from AC power cord to power board: Double insulated with min. 0.4mm thickness per layer. Triple-insulated wiring in T31 windings insulated as reinforced safeguard in the isolating transformer that has separately complied with Annex J. See table 4.1.2. All secondary wires in ES1 circuit were separated from primary circuit by fireproof cover of power board which can not contact primary components, no dimensional or constructional requirement.	P
G.6.2	Solvent-based enamel wiring insulation	Solvent-based enamel winding is not considered basic insulation.	N/A
G.7	Mains supply cords		P
G.7.1	General requirements	Approved mains supply cords used (See appended table 4.1.2)	P
	Type.....	H03VVH2-F	—
	Rated current (A).....	<6	—
	Cross-sectional area (mm ²), (AWG).....	2x0.75mm ²	—
G.7.2	Compliance and test method	(See appended table 4.1.2)	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		N/A
	Strain relief test force (N).....		—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm).....		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry.....		P
G.7.5	Non-detachable cord bend protection		P
G.7.5.1	Requirements		P
G.7.5.2	Mass (g)		—
	Diameter (m).....		—

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Clause	Requirement + Test	Result - Remark	Verdict
	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	No varistor used	N/A
G.8.2	Safeguard against shock		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	The bleeder resistors (R25, R26, R39, R40) used after X-capacitor, not relied upon as safeguard, no test necessary. See 5.5.6.	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		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
G.11	Capacitor and RC units		P
G.11.1	General requirements	(See appended table 4.1.2) X2 Capacitor as Basic safeguard and Y1-capacitor used as Reinforced safeguard both complied with IEC/EN 60384-14.	P

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Clause	Requirement + Test	Result - Remark	Verdict
G.11.2	Conditioning of capacitors and RC units		P
G.11.3	Rules for selecting capacitors		P
G.12	Optocouplers		P
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results)..... :	The optocoupler complied with standard IEC/EN 60747-5-5.	P
	Type test voltage Vini	(see appended table 4.1.2)	—
	Routine test voltage, Vini,b	(see appended table 4.1.2)	—
G.13	Printed boards		P
G.13.1	General requirements	See the following details.	P
G.13.2	Uncoated printed boards	The insulation between conductors on the outer surfaces of an uncoated printed board or over the outer surface of coated printed boards complied with the minimum clearance and creepage requirements of 5.4.2 and 5.4.3.	P
G.13.3	Coated printed boards	No coated printed board or multilayer board applied for within the equipment.	N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
	Compliance with cemented joint requirements (Specify construction)..... :		—
G.13.5	Insulation between conductors on different surfaces	Reinforced insulation between T31 core (which considered as secondary) and primary traces on different surfaces of power board.	P
	Distance through insulation..... :	>0.4mm (each source of power board PCB)	P
	Number of insulation layers (pcs)	1	—
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	No such component used	N/A
b)	Impulse test using circuit 2 with $U_c =$ to transient voltage		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage		—
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		P
	General requirements	Triple insulated winding wiring used as reinforced safeguard in the isolating transformer that has been evaluated to Annex J as follows: Requirements of Annex U of IEC 60950-1/A2 are identical to Annex J of this standard (for wires providing Reinforced insulation). See Table 4.1.2.	P
K	SAFETY INTERLOCKS		N/A
K.1	General requirements	No safety interlock provided within the equipment.	N/A
K.2	Components of safety interlock safeguard mechanism		N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
	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	The mains plug are considered as disconnect device.	P
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized	When mains plug is disconnected no hazardous voltage in the equipment.	P
L.4	Single phase equipment	The mains plug disconnects both poles simultaneously.	P
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
L.7	Plugs as disconnect devices		P
L.8	Multiple power sources		N/A
M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		N/A
M.1	General requirements	See below	N/A
M.2	Safety of batteries and their cells	No battery and cell used	N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method).... :		N/A
M.3	Protection circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Tests	No battery and cell used	N/A
	- Overcharging of a rechargeable battery	No battery and cell used	N/A
	- Unintentional charging of a non-rechargeable battery	No battery and cell used	N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
M.3.3	Compliance		N/A
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.4.4.6	Compliance criteria		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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.6.2	Leakage current (mA)		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries	Not such battery	N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume V_z (m ³ /s).....		—
M.8.2.3	Correction factors.....		—
M.8.2.4	Calculation of distance d (mm)		—
M.9	Preventing electrolyte spillage		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.....		—
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		P
P.1	General requirements	No openings of enclosure	P
P.2.2	Safeguards against entry of foreign object		P
	Location and Dimensions (mm)		—
P.2.3	Safeguard against the consequences of entry of foreign object		N/A
P.2.3.1	Safeguards against the entry of a foreign object		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Openings in transportable equipment		N/A
	Transportable equipment with metalized plastic parts..... :		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard) :		N/A
P.3	Safeguards against spillage of internal liquids	See below	N/A
P.3.1	General requirements	No inter liquids spillage, batteries see annex M.	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	No such part	N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C)..... :		—
	Tr (°C)..... :		—
	Ta (°C)..... :		—
P.4.2 b)	Abrasion testing :	Not for metalized coating	N/A
P.4.2 c)	Mechanical strength testing..... :	(See Annex T)	N/A
Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		N/A
Q.1	Limited power sources	All connectors used for external interconnections are for data transmission or for audio inputs	N/A
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		N/A
	- Regulating network limited output under normal operating and simulated single fault condition		N/A
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
R.3	Test method Supply voltage (V) and short-circuit current (A). :		N/A
S	TESTS FOR RESISTANCE TO HEAT AND FIRE		P
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W	Not exceed 4 000 W.	N/A
	Samples, material.....:		—
	Wall thickness (mm).....:		—
	Conditioning (°C).....:		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity	Wooden enclosure with min. thickness 6mm near power board (on which power board mounted) applied to this test	P
	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	Wooden enclosure with a thickness of at least 6 mm	P
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

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Clause	Requirement + Test	Result - Remark	Verdict
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A
T	MECHANICAL STRENGTH TESTS		P
T.1	General requirements	See below.	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	(see appended table T.4)	P
T.5	Steady force test, 250 N	(see appended table T.5)	P
T.6	Enclosure impact test	(see appended table T.6)	P
	Fall test		P
	Swing test		P
T.7	Drop test	(See appended table T.7)	N/A
T.8	Stress relief test.....	(see appended table T.8)	P
T.9	Impact Test (glass)		N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J).....	Not suitable	—
	Height (m).....	Not suitable	—
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 EFFECTS OF IMPLOSION		N/A
U.1	General requirements	No CRT provided within the equipment.	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 (e.g. fig. V.1) to any hazardous parts	P
V.2	Accessible part criterion	See above	P

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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
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CENELEC COMMON MODIFICATIONS (EN)		--																																				
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed "Z".	--																																				
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	--																																				
	Delete all the "country" notes in the reference document (IEC 62368-1:2014) according to the following list:	--																																				
	<table border="1"> <tr> <td>0.2.1</td> <td>Note</td> <td>1</td> <td>Note 3</td> <td>4.1.15</td> <td>Note</td> </tr> <tr> <td>4.7.3</td> <td>Note 1 and 2</td> <td>5.2.2.2</td> <td>Note</td> <td>5.4.2.3.2.2 Table 13</td> <td>Note c</td> </tr> <tr> <td>5.4.2.3.2.4</td> <td>Note 1 and 3</td> <td>5.4.2.5</td> <td>Note 2</td> <td>5.4.5.1</td> <td>Note</td> </tr> <tr> <td>5.5.2.1</td> <td>Note</td> <td>5.5.6</td> <td>Note</td> <td>5.6.4.2.1</td> <td>Note 2 and 3</td> </tr> <tr> <td>5.7.5</td> <td>Note</td> <td>5.7.6.1</td> <td>Note 1 and 2</td> <td>10.2.1 Table 39</td> <td>Note 2, 3 and 4</td> </tr> <tr> <td>10.5.3</td> <td>Note 2</td> <td>10.6.2.1</td> <td>Note 3</td> <td>F.3.3.6</td> <td>Note 3</td> </tr> </table>	0.2.1	Note	1	Note 3	4.1.15	Note	4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c	5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note	5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3	5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4	10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3	--
0.2.1	Note	1	Note 3	4.1.15	Note																																	
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10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3																																	
	For special national conditions, see Annex ZB.	--																																				
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																																				
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;	P																																				

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Clause	Requirement + Test	Result - Remark	Verdict
	<p>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;</p> <p>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.</p> <p>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.		--
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 1h, at the end of which the measurement is made. NOTE Z1 Soldered joints and paint lockings are examples of adequate locking. The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm ² , at any point 10 cm from the outer surface of the apparatus. Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made. For RS1, the dose-rate shall not exceed 1 μSv/h taking account of the background level. NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.		N/A
10.6.2.1	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

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Clause	Requirement + Test	Result - Remark	Verdict
10.Z1	<p>Add the following new subclause after 10.6.5.</p> <p>10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz</p> <p>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).</p> <p>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</p>		N/A
G.7.1	<p>Add the following note:</p> <p>NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.</p>		N/A
Bibliography	<p>Add the following standards:</p> <p>Add the following notes for the standards indicated:</p> <p>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>		--

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		--
4.1.15	<p>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: "Laitte on liitettävä suojakoskettimilla varustettuun pistorasiaan" In Norway: "Apparatet må tilkoples jordet stikkontakt" In Sweden: "Apparaten skall anslutas till jordat uttag"</p>		N/A
4.7.3	<p>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</p>		N/A
5.2.2.2	<p>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.</p>		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.11.1 and Annex G	<p>Finland and Sweden SEK Svensk Elstandard Downloaded by [se-fre_wennersten] [2014-11-20] For SEK internal use only Copyright SEK Svensk Elstandard 2014 20._x0001_..... 1 5 – EN 62368-1:2014</p> <p>Clause Special national condition 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</p> <ul style="list-style-type: none"> • 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. <p>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</p> <ul style="list-style-type: none"> • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5 kV. <p>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:</p> <ul style="list-style-type: none"> • 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	<p>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).</p>		N/A

IEC 62368-1			
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: 20. _x0001_ t he protective current rating is taken to be 13A, this being the largest rating of fuse used in the mains plug.		N/A
5.6.5.1	Ireland and United Kingdom: To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 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 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.1	<p>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 20. _x0001 a nd 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.”</p>		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.2	<p>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 3,5mA .</p>		N/A
B.3.1 and B.4	<p>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</p>		N/A
G.4.2	<p>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 DS60884-2-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</p>		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	<p>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.</p>		N/A
G.7.1	<p>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.</p>		N/A
G.7.1	<p>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</p>		N/A
G.7.2	<p>Ireland and United Kingdom: To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm² is allowed for equipment which is rated over 10 A and up to and including 13 A.</p>		N/A
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		N/A
10.5.2	<p>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 40kV, 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</p>		N/A

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 plug (EU type)	Shenzhen Xiekang Electric Co., Ltd.	XK-05	2.5A, 250V~	EN 50075	VDE: 40018650	
(Alternate)	Interchangeable	Interchangeable	2.5A, 250V~	EN 50075	VDE	
Power cord	Shenzhen Xiekang Electric Co., Ltd.	H03VVH2-F	2 x 0.75mm ²	EN 50525-2-11	VDE: 40029225	
(Alternate)	Interchangeable	H03VVH2-F	2 x 0.75mm ²	EN 50525-2-11	VDE	
Input wire	Interchangeable	Interchangeable	VW-1, 300VAC, 22AWG, Max 105°C	UL	UL	
AC connector (CON2)	ZheJiang JINDA Electronics Co.LTD	3.96T-02	7A, 250VAC, Max 85°C	UL	UL E237523	
AC inlet	Zhejiang LECI Electronics Co., Ltd	DB-8	250VAC; 2.5A 250VAC; 5A T105	EN60320-1 UL 60320-1	VDE 40032028 UL E302229	
(Alternate)	Zhejiang LECI Electronics Co., Ltd	DB-6	250VAC; 2.5A 250VAC; 5A T105	EN60320-1 UL 60320-1	VDE 40032465 UL E302229	
Wooden enclosure	Interchangeable	Interchangeable	Min. thickness: 6.0mm	EN 62368-1	Tested with appliance	
Plastic enclosure	NINGBO LG YONGXING CHEMICAL CO LTD	FR-500	V-0, 60°C, Min. 2.0mm thickness	UL 94, UL 746C	UL: E203955	
Power Switch	Zhejiang Zhongxun Electronics Co., Ltd.	KCD1-104	6A, 250Vac, 85°C	EN 61058-1	TUV R 50049218	
(Alternate)	Yueqing Huansheng Electronics	KCD-117	6A, 250Vac, 85°C	EN 61058-1	VDE: 40024304	
PCB	CHEERFUL INDUSTRIAL (HK) LTD	CC-3	V-0, 130°C, Min. thickness 1.6mm	UL94, UL 796	UL:E141796	
(Alternate)	Interchangeable	Interchangeable	Min. V-0, 105°C, Min. thickness 1.6mm	UL94, UL 796	UL	
Fuse (F1)	XC Electronics (Shen Zhen) Corp. Ltd.	5TE-Serie(s)	T3.15AL, 250Vac	EN 60127-1, EN 60127-3	VDE:40029550	
AC connector (CON2)	ZheJiang JINDA Electronics Co.LTD	3.96T-02	7A, 250VAC, Max 85°C	UL	UL E237523	
Bleeder resistors (R5, R6, R39, R40)	Interchangeable	Interchangeable	Max. 2MΩ, 1/4W	--	--	
E-capacitors (EC1)	Interchangeable	Interchangeable	Max. 68uF, Min. 400V, Min. 105°C	--	--	
Rectifier (BD1)	Interchangeable	Interchangeable	Min. 3A, Min. 800V	--	--	
Transistor (Q1)	Interchangeable	Interchangeable	Min. 12A, Min. 650V	--	--	

X-capacitor (CX1) (Optional)	HSUAN TAI ELECTRONICS CO LTD	MCY	Min. AC250V, Max. 0.47uF, 85°C, X2 type	IEC 60384-14	VDE:125205
(Alternate)	Winday Electronic Industrial Co., Ltd.	MPX	Min. AC250V, Max. 0.47uF, 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	IEC 60384-14	VDE:40025754
(Alternate)	Shenzhen Haotian Electronic Co., Ltd.	HT	Min. AC 400V, Max.2200pF, 125°C, Y1 type	IEC 60384-14	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, 130°C	EN 62368-1	Tested with appliance
(Alternate)	Interchangeable	Interchangeable	Min. 130°C	UL 1446	UL
--Magnet wire	BOLUO COUNTY XIN LONG ELECTRICIAN DATA CO LTD	2UEW	130°C	UL 1446	UL: E229423
Inductor (LF1, LF3)	B&M Magnetism Technology Limited	T10*6*4-35UH	130°C	EN 62368-1	Tested with appliance
--Magnet wire	BOLUO COUNTY XIN LONG ELECTRICIAN DATA CO LTD	2UEW	130°C	UL 1446	UL: E229423
(Alternate)	Interchangeable	Interchangeable	Min. 130°C	UL 1446	UL
--Multi-layer Insulated Winding	Dah Jin Technology Co. Ltd.	TLW-B(xx)(y)@	130°C	EN 60950-1, IEC 60950-1,	VDE: 40008834
Transformer (T31)	SHENZHEN HUA XINGJINGCHEN G ELECTRONIC TECHNOLOGY CO..LTD	FDPOW012 REV1.0	Class B	IEC/EN 60065	Tested with appliance
--Bobbin	CHANG CHUN PLASTICS CO LTD OR EQU	T375J	Phenolic, V-0, 150°C, Min. 0.75mm thickness	UL 94, UL 746C	UL: E59481
--Magnet wire	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	UEW/U@	130°C	UL 1446	UL:E201757

(Alternate)	SHANTOU SHENGANG ELECTRICAL INDUSTRIAL CO LTD	2UEW/155	155°C	UL 1446	UL: E239508
(Alternate)	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	UEWN/U@	155°C	UL 1446	UL: E201757
(Alternate)	Interchangeable	Interchangeable	Min. 130°C	UL 1446	UL
--Insulation tape	CHANG SHU LIANG YI TAPE INDUSTRY CO LTD	LY-02A(h)	130°C	UL 510	UL: E246820
(Alternate)	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	PZ-280	130°C	UL 510	UL: E165111
(Alternate)	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	VDE: 40033527
--Tube	CHANGYUAN ELECTRONICS GROUP CO LTD	CB-TT-T	300Vac, 200°C	UL 224	UL: E180908
Heat shrinkable tube	DONGGUAN QUANTAI INDUSTRIAL CO LTD	T-2	125°C, VW-1, 600V	UL 224	UL: E227336
(Alternate)	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD	RSFR, RSFR-H, RSFR(CB)	125°C, VW-1, Min. 300V	UL 224	UL: E203950
Internal primary lead wire	DONGGUAN XIEHE WIRE CO LTD	1672	105°C, VW-1, 22AWG, 300Vac, double insulation	UL 758	UL: E251491
(Alternate)	Interchangeable	1672	105°C, VW-1, Min. 22AWG, 300Vac, double insulation	UL 758	UL
Internal secondary wires	DONGGUAN XIEHE WIRE CO LTD	1007	80°C, VW-1, 24AWG, 300Vac	UL 758	UL: E251491

(Alternate)	Interchangeable	Interchangeable	Min.80°C, VW-1, Min. 28AWG, Max. 300Vac	UL 758	UL
Subwoofer	Interchangeable	Interchangeable	2pcs provided , rated 4Ω,50W	--	Tested with appliance
Tweeter	Interchangeable	Interchangeable	2pcs provided , rated 8Ω,25W	--	Tested with appliance

Supplementary information:

¹⁾ Provided evidence ensures the agreed level of compliance.

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5.2 **Table: Classification of electrical energy sources** **P**

5.2.2.2 – Steady State Voltage and Current conditions

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				U (Vrms or Vpk or Vdc)	I (Apk or Arms)	Hz	
1.	264Va.c, 60Hz	Primary circuits supplied by a.c. mains supply	Normal	264Vrms	--	60	ES3
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	
2.	264Va.c, 60Hz	T31 secondary winding Pin 8 - Pin11	Normal	43.5Vrms	--	20K	ES2
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	
3.	264Va.c, 60Hz	USB Output "+" to "-"	Normal	5.02Vdc	--	DC	ES1
			Single fault – (R23 SC)	0	--	DC	
			Single fault – (D1 SC)	0	--	DC	
4.	264Va.c, 60Hz	L/N to accessible terminals	Normal	--	0.205Arms	60	ES1
			Single fault – (R23 SC)	--	0.240Arms	60	
			Single fault – (D1 SC)	--	0.240Arms	60	
5.	264Va.c, 60Hz	L/N to wooden terminals	Normal	--	0.005Arms	60	ES1
			Single fault – (R23 SC)	--	0.005Arms	60	
			Single fault – (D1 SC)	--	0.005Arms	60	
6.	264Va.c, 60Hz	L/N Metal terminals	Normal	--	0.205Arms	60	ES1
			Single fault – (R23 SC)	--	0.240Arms	60	
			Single fault – (D1 SC)	--	0.240Arms	60	

Notes:

5.2.2.3 - Capacitance Limits

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class
				Capacitance, nF	Upk (V)	
--	--	--	Normal	242	380	--
			Abnormal	--	--	
			Single fault – SC/OC	--	--	

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

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

Test Conditions:
 Normal – 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 (Included Touch Temperatures)			P
Supply voltage (V)	90V/60Hz	264V/50Hz	—	
Ambient T _{min} (°C)	--	--	—	
Ambient T _{max} (°C)	--	--	—	
T _{ma} (°C)	35	35	—	
Maximum measured temperature T of part/at:	T (°C)		Allowed T _{max} (°C)	
Input wire	41.7	40.4	105	
AC connector (CON2)	40.7	39.3	85	
LF1 winding	46.1	45.2	130	
X-cap(CX1)	46.4	44.8	100	
LF2 winding	52.2	47.4	130	
PCB near BD1	58.0	50.9	130	
PCB near Q1	55.9	53.4	130	
E-cap(EC1)	48.6	54.1	105	
Y-cap (CY1)	49.4	48.5	125	
Optocoupler (U1)	55.0	53.4	110	
T31 winding	62.6	62.5	110	

T31 core	61.5	61.1	110				
PCB near D1	57.7	58.4	130				
E-cap(EC3)	57.9	57.6	105				
L1 winding	54.5	54.0	130				
LF3 winding	53.1	52.2	130				
Output wire	48.2	47.0	80				
PCB near U2	55.2	55.7	130				
PCB near U3	53.8	55.2	130				
E-cap(C210)	51.9	50.6	105				
PCB near USB	56.6	55.5	130				
Plastic enclosure inside near main board	49.6	48.6	Ref				
Wooden enclosure inside near main board	46.8	45.1	Ref				
Ambient	35.0	35.0	--				
Below points are tested based on ambient around 25°C							
Plastic enclosure outside near main board	34.4	33.3	77				
Wooden enclosure outside near main board	27.9	26.9	107				
Power switch surface	28.2	27.3	77				
Knob surface	28.8	27.5	77				
Ambient	25.0	25.0	--				
Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
Supplementary information:							
Note 1: T _{ma} should be considered as directed by applicable requirement							
Note 2: T _{ma} is not included in assessment of Touch Temperatures (Clause 9)							

5.4.1.8	Table: working voltage measurement			P
Location	RMS voltage (V)	Peak voltage (V)	Comments	
T31 pin 1-7/8	180	368	--	
T31 pin 2-7/8	180	392	--	
T31 pin 4-7/8	252	503	Max V_{peak} & V_{rms}	
T31 pin 6-7/8	246	376	--	
T31 pin 1-11/12	180	368	--	
T31 pin 3-11/12	180	368	--	
T31 pin 4-11/12	245	448	--	
T31 pin 5-11/12	245	424	--	
Opto-coupler (U1) 1-3	192	376	--	

Opto-coupler (U1) 1-4	191	375	--
Opto-coupler (U1) 2-3	191	376	--
Opto-coupler (U1) 2-4	192	377	--
Y1-capacitor (CY1) Pri-Sec	244	364	--
supplementary information:			
Test voltage: 240V Test frequency: 60Hz			

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			P
Allowed impression diameter (mm)				≤ 2 mm
Object/Part No./Material	Manufacturer/trademark	Test temperature (°C)	Impression diameter (mm)	
AC connector CON2/3.96T-02	ZheJiang JINDA Electronics Co.LTD	125	1.16	
Supplementary information:				

5.4.2& 5.4.3	TABLE: Minimum Clearances/Creepage distance						N/A
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz) ¹	Required cl (mm)	cl (mm)	Required ² cr (mm)	cr (mm)
--	--	--	--	--	--	--	--
Supplementary information: Note 1: Only for frequency above 30 kHz Note 2: Provide Material group IIIb							

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)	Required cr (mm)	cr (mm)
Different polarity on power board (before fuse F1) (B)	420	250	<30	1.5	3.2	2.5	3.2
Different pole of fuse F1 (B)	420	250	<30	1.5	6.0	2.5	6.0
Primary trace to secondary trace	420	250	<30	3.0	6.0	5.0	6.0
Between primary and secondary pins of Y1-capacitor (CY1) on	420	250	<30	3.0	6.9	5.0	6.9

PCB (R)							
Primary to secondary trace under Opto-coupler(U1)(R)	420	250	<30	3.0	7.5	5.0	7.5
Primary to secondary trace under transformer T31 (R)	503	252	<30	3.0	6.9	5.2	6.9
Primary winding to secondary winding of transformer T31	503	252	<30	3.0	7.2	5.2	7.2
Primary pin to Core of transformer T31	503	252	<30	3.0	6.9	5.2	6.9
Supplementary information: B=Basic insulation, R=Reinforced insulation. Triple insulated wire used for primary windings. Core of transformer (T31) is considered as secondary.							

5.4.9	TABLE: Electric strength tests			N/A
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
Basic/supplementary insulation:				
Different polarity of mains input (with fuse opened)		DC	2500	No
Reinforced insulation:				
L/N to plastic enclosure wrapped with foil		DC	4000	No
L/N to wooden enclosure wrapped with foil		DC	4000	No
L/N to output terminal		DC	4000	No
T31 Primary winding to secondary winding		DC	4000	No
T31 Primary winding to core		DC	4000	No
One layer of insulation tape used to wrap transformer (T31)		DC	4000	No
Supplementary information:				

5.5.2.2	TABLE: Stored discharge on capacitors				P
Supply Voltage (V)/ Hz	Test Location	Operating Condition	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification
264Vdc, 60Hz	L,N	Normal	ON	18 Vdc	ES1
264Vdc, 60Hz	L,N	R25 OC	ON	26 Vdc	ES1
Supplementary information: [1]X-capacitors installed for testing are: CX1= 0.22μF [2]Bleeding resistor rating: resistors R25=R26=R39=R40=2MΩ Notes: a) Test Location: Phase to Neutral; Phase to Phase; Phase to Earth; and/or Neutral to Earth					

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

Supplementary information:

5.7.2.1, 5.7.4	TABLE: Earthed accessible conductive part	N/A
Supply voltage	--	—
Location	Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7	Touch current (mA)
--	--	--
--	--	--

Supplementary information:

[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 4.34) IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.
 [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.

a) Not considered IT power system.
 b) Not three phase equipment.
 c) Not IT power system or three phase delta system.
 d) Not three-phase for use on centre-earthed delta supply system.
 e) Not such parts.

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 output for 5Vdc	Normal operation	Power (W) :	0.93	0.93	PS1
		V _A (V) :	3.10	3.10	
		I _A (A) :	0.30	0.30	
CON1 output for 24Vdc	Normal operation	Power (W) :	183.9	183.9	PS3
		V _A (V) :	22.29	22.29	
		I _A (A) :	8.30	8.30	
Power board output	U1 Pin1 to Pin2 shorted	Power (W) :	0	0	PS1
		V _A (V) :	0	0	
		I _A (A) :	0	0	
Power board output	U1 Pin3 to Pin4 shorted	Power (W) :	0	0	PS1
		V _A (V) :	0	0	

		I _A (A) :	0	0	
Power board output	U1 Pin1 open	Power (W) :	0	0	PS1
		V _A (V) :	0	0	
		I _A (A) :	0	0	
Power board output	U1 Pin3 open	Power (W) :	0	0	PS1
		V _A (V) :	0	0	
		I _A (A) :	0	0	
Power board output	D1 shorted	Power (W) :	0	0	PS1
		V _A (V) :	0	0	
		I _A (A) :	0	0	
Speaker output	Normal operation	Power (W) :	14.4	--	PS1
		V _A (V) :	3.64	--	
		I _A (A) :	3.95	--	

Supplementary Information:

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

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

Supplementary information:

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

6.2.3.2	Table: Determination of Potential Ignition Sources (Resistive PIS)				P
Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30s (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	--	--	--	--	--
--	--	--	--	--	--

Supplementary information:

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

If a separate voltmeter and ammeter are used, the product of (V_A x I_A) 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.

B.2.5 TABLE: Input test							P
U (V/Hz)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
90V/50Hz	0.384	--	18.0	--	F1	0.384	Test in AUX mode, Pink noise sine signal adjusted to output power 1/8 max. non-clipped output power
100V/50Hz	0.347	--	17.9	--	F1	0.347	
240V/50Hz	0.164	0.7	18.2	--	F1	0.164	
264V/50Hz	0.150	0.7	18.3	--	F1	0.150	
90V/60Hz	0.386	0.7	18.1	--	F1	0.386	
100V/60Hz	0.347	0.7	18.0	--	F1	0.347	
240V/60Hz	0.162	--	18.1	--	F1	0.162	
264V/60Hz	0.149	--	18.3	--	F1	0.149	
Supplementary information: Equipment may be have rated current or rated power or both. Both should be measured							

B.3 TABLE: Abnormal operating condition tests								P
Ambient temperature (°C).....:						25.0°C		—
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. (°C)	Observation
Speaker output	Max. Non-clipped output	264	4hrs40min	--	--	Type J	Refer to appended table	The unit was working normally.After testing, no damaged, no hazards.
Speaker output	Shorted	264	3hrs10min	--	--	Type J	Refer to appended table	The unit was working normally.After testing, no damaged, no hazards.

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.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
BD1	SC	264	1s	F1	0	--	--	F1 open, BD1 damage, no hazard

EC1	SC	264	1s	F1	0	--	--	F1 open, no damage, no hazard
Q1 pin G-D	SC	264	1s	F1	0	--	--	F1 open, no damage, no hazard
Q1 pin S-D	SC	264	1s	F1	0	--	--	F1 open, no damage, no hazard
Q1 pin G-S	SC	264	30min	F1	0.021	--	--	Unit shut down immediately. Recoverable. No damage, no hazard.
U2 Pin 5-2	SC	264	30min	F1	0.021	--	--	Unit shut down immediately. Recoverable. No damage, no hazard.
R23	SC	264	1s	F1	0	--	--	F1 open, no damage, no hazard
T31 pin1-2	SC	264	30min	F1	0.021	--	--	Unit shut down immediately. Recoverable. No damage, no hazard.
T31 pin4-6	SC	264	30min	F1	0.021	--	--	Unit shut down immediately. Recoverable. No damage, no hazard.
T31 pin7/8-11/12	SC	264	30min	F1	0.021	--	--	Unit shut down immediately. Recoverable. No damage, no hazard.
U1 pin1-2	SC	264	30min	F1	0.021	--	--	Unit shut down immediately. Recoverable. No damage, no hazard.
U1 pin3-4	SC	264	30min	F1	0.021	--	--	Unit shut down immediately. Recoverable. No damage, no hazard.
U1 pin1	OC	264	30min	F1	0.021	--	--	Unit shut down immediately. Recoverable. No damage, no hazard.
U1 pin3	OC	264	30min	F1	0.021	--	--	Unit shut down immediately. Recoverable. No damage, no hazard.
D1	SC	264	30min	F1	0.021	--	--	Unit shut down immediately. Recoverable. No damage, no hazard.

D8	SC	264	30min	F1	0.021	--	--	Unit shut down immediately. Recoverable. No damage, no hazard.
EC4	SC	264	30min	F1	0.021	--	--	Unit shut down immediately. Recoverable. No damage, no hazard.

Supplementary information:

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

- 1) s-c: Short-circuited; o-c: Open-circuited.
- 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.

9.0, B.3 & B.4		TABLE: Touch temperature measurements						P
	Test Condition.....:	1	2	--	--	--		
	Supply voltage (V)	--	--	--	--	--	---	
	Ambient T _{min} (°C)	--	--	--	--	--	---	
	Ambient T _{max} (°C)	25.0	25.0	--	--	--	---	
Maximum measured temperature T of part/at:		T (°C)					Allowed T _{max} (°C)	
Plastic enclosure outside near main board		35.8	33.3	--	--	--	87	
Wooden enclosure outside near main board		27.5	26.9	--	--	--	117	
Power switch surface		27.9	27.3	--	--	--	87	
Knob surface		28.3	27.5	--	--	--	87	
Ambient		25.0	25.0	--	--	--	87	
Temperature T of winding:		t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Insulation class	
--		--	--	--	--	--	--	
--		--	--	--	--	--	--	

Supplementary information:

Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)					N/A
Note: Measured UOC (V) with all load circuits disconnected:						
Output Circuit	Components	U _{oc} (V)	I _{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
--	--	--	--	≤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	
Enclosure side (T.5)	Plastic	1)	250	5	Enclosure remained intact, no crack/opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	
Enclosure Top (T.5)	Wooden	1)	250	5	Enclosure remained intact, no crack/opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	
Internal components near the gap between primary and secondary (T.2)	--	--	10	5	No reduction the clearances and creepage distances	

Supplementary information:
1). See appended table 4.1.2.

T.6, T.9				TABLE: Impact tests	N/A
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
Enclosure top (T.6)	Plastic	1)	1300	All safeguards remain effective	
Enclosure side (T.6)	Wooden	1)	1300	All safeguards remain effective	

Supplementary information: 1). See appended table 4.1.2.

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
Plastic enclosure	Plastic	1.5	70	7	No damage, All safeguards remain effective
Supplementary information: --					

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Photos documentation

Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8



Photo 9



Photo 10



Photo 11

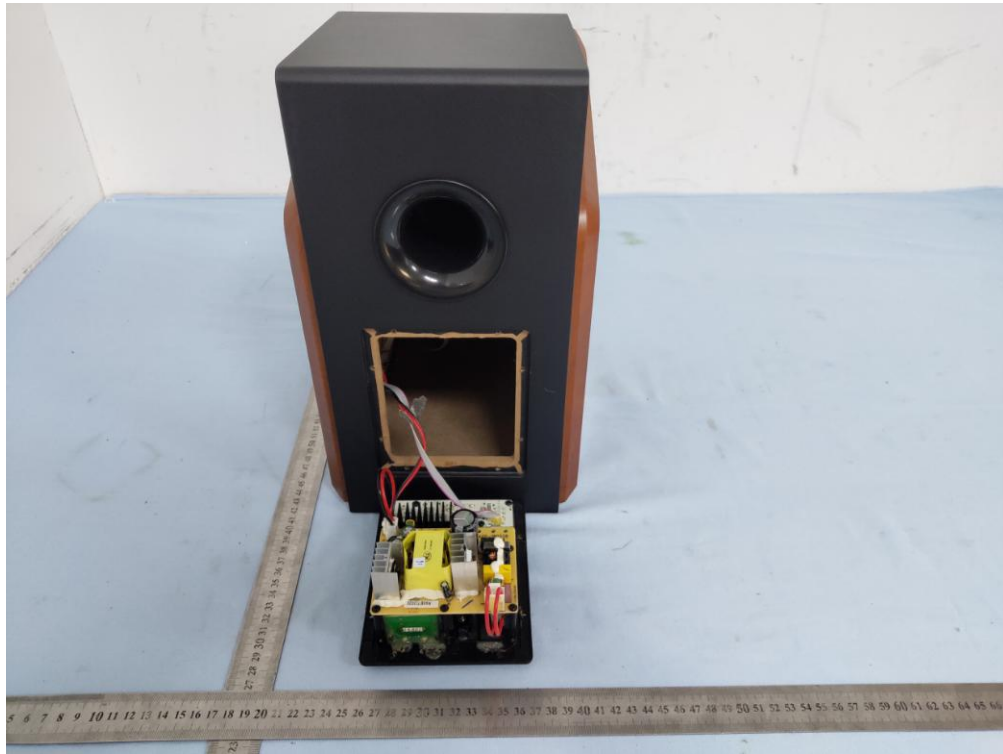


Photo 12

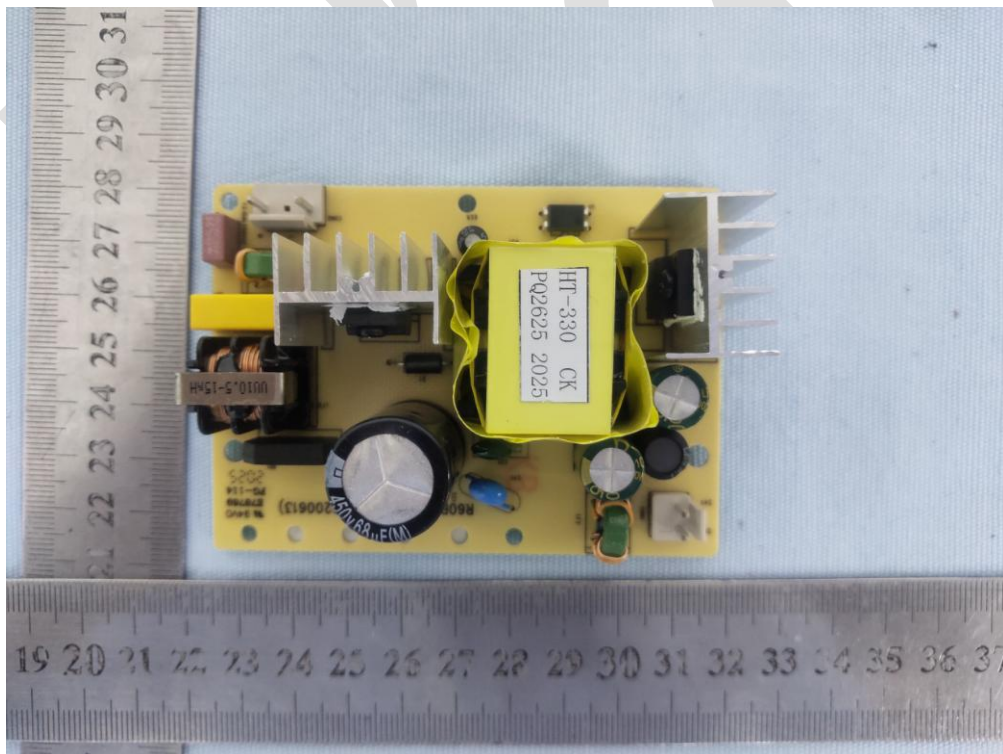


Photo 13

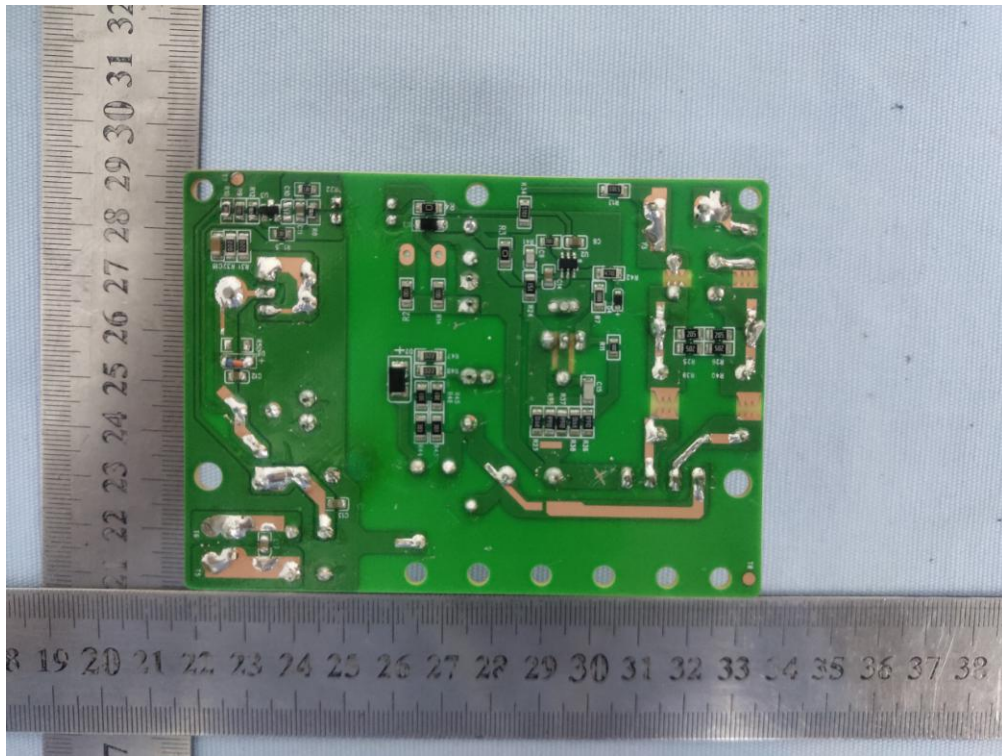


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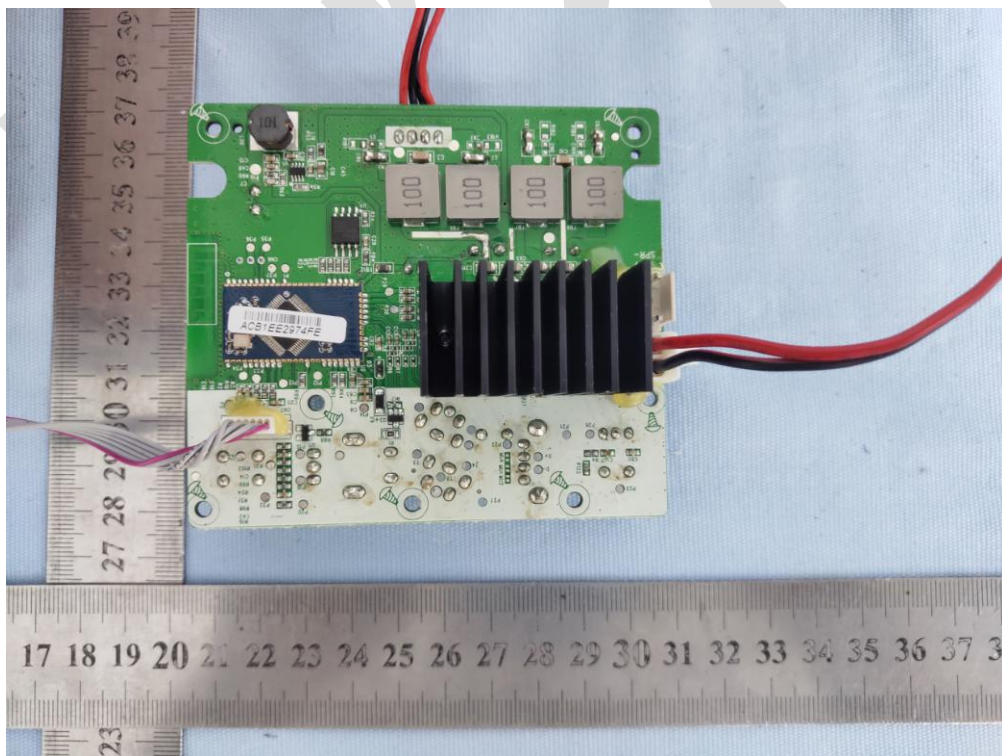
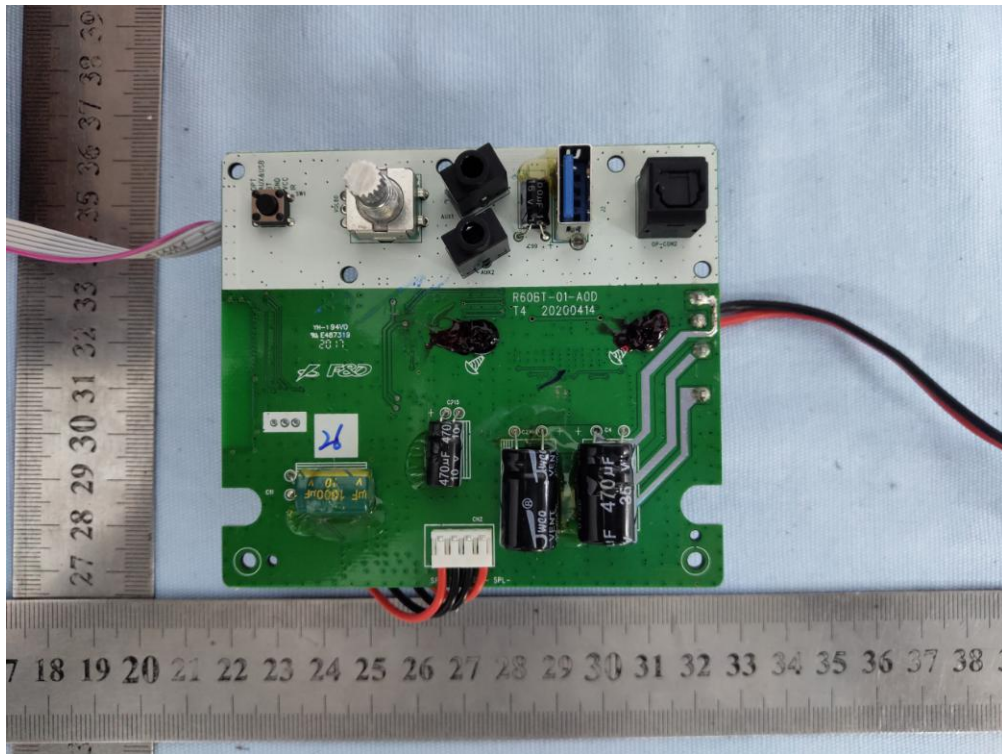


Photo 15



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