

CERTIFICATE OF CONFORMITY

Low Voltage Directive 2014/35/EU

Registration No.: NTC2105030SV01

Applicant : FBT Elettronica S.p.A.
Address : Via Paolo Soprani 1, Zona Ind.le Squartabue 62019 Recanati (MC),
ITALY

Manufacturer : FBT Elettronica S.p.A.
Address : Via Paolo Soprani 1, Zona Ind.le Squartabue 62019 Recanati (MC),
ITALY

Factory : FBT Elettronica S.p.A.
Address : Via Paolo Soprani 1, Zona Ind.le Squartabue 62019 Recanati (MC),
ITALY

Product Name : PROCESSED ACTIVE SUBWOOFER

Brand Name : FBT

Identification : **Model No.** : X SUB118SA, X SUB115SA
Rating : Input: 100-120Vac or 220-240V~, 50/60Hz, 600W

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



Ryan Luo

May 24, 2023

The certificate of conformity is based on an evaluation of a sample of the above-mentioned product. Technical report and documentation are at the applicant's disposal. This is to certify that the tested sample is in conformity with all provisions of Annex I of Council Directive 2014/35/EU, referred to the Low Voltage Directive. The certificate does not imply assessment of the production and does not permit the use of Lab's logo.

TEST REPORT

Applicant : FBT Elettronica S.p.A.
Address : Via Paolo Soprani 1, Zona Ind.le Squartabue 62019 Recanati (MC), ITALY

Manufacturer : FBT Elettronica S.p.A.
Address : Via Paolo Soprani 1, Zona Ind.le Squartabue 62019 Recanati (MC), ITALY

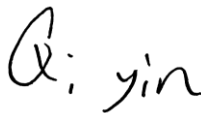
Product Name : PROCESSED ACTIVE SUBWOOFER
Trade Mark : FBT
Model No. : X SUB118SA, X SUB115SA
Ratings : Input: 100-120Vac or 220-240V~, 50/60Hz, 600W

Standard : Audio/video, information and communication technology equipment
Part 1: Safety requirements
EN 62368-1:2014+A11:2017

Date of Receiver : May 13, 2023
Date of Test : July 13, 2021 to July 27, 2021
Date of Issue : May 24, 2023
Test Report Form No : NTCS-IEC62368-1-A1-E
Test Result : Pass *

This Test Report is Issued Under the Authority of:

Compiled by



Qi yin/ Engineer

Approved by & Authorized Signe

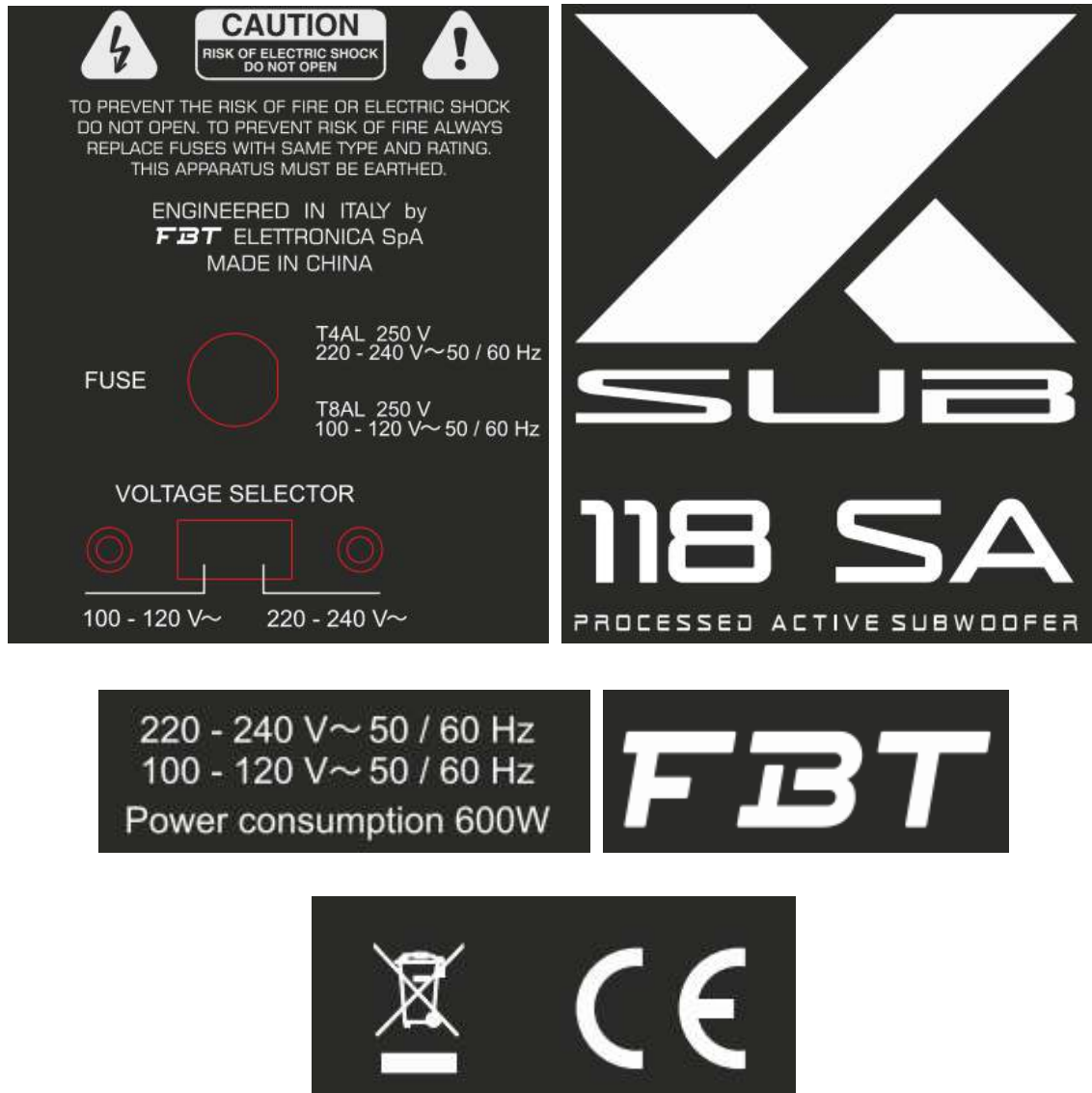


Ryan Luo / Authorized Signatory

*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:

- The above markings are the minimum requirements required by the safety standard. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.
- The CE marking and WEEE symbol (if any) should be at least 5.0mm and 7.0mm respectively in height.

Summary of testing:

The submitted samples were found to comply with the above standard.

TEST ITEM PARTICULARS:	
Classification of use by.....:	<input checked="" type="checkbox"/> Ordinary person <input type="checkbox"/> Instructed person <input type="checkbox"/> Skilled person <input checked="" 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 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.....:	16A; Installation location: <input checked="" type="checkbox"/> building; <input type="checkbox"/> equipment
Equipment mobility.....:	<input checked="" type="checkbox"/> movable <input type="checkbox"/> hand-held <input 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 checked="" type="checkbox"/> Class I <input 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 checked="" 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 checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> <50 m
Mass of equipment (kg)	See below for detail.
POSSIBLE TEST CASE VERDICTS:	
- test case does not apply to the test object	N/A
- test object does meet the requirement	P (Pass)
- test object does not meet the requirement.....:	F (Fail)

TESTING:													
Date of receipt of test item	: July 08, 2021												
Date (s) of performance of tests	: July 12, 2021 to July 23, 2021												
GENERAL REMARKS:													
<p>"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.</p> <p>Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator. Determination of the test result includes consideration of measurement uncertainty from the test equipment and methods.</p>													
GENERAL PRODUCT INFORMATION:													
Product Description													
<p>1. The products covered by this report is PROCESSED ACTIVE SUBWOOFER. It can be supplied by AC mains only via detachable power cordset, which are classified as Class I apparatus and for pollution degree 2 locations and indoor use only.</p> <p>2. All models covered by this report are identical, except model no. and appearance dimension of enclosure for marketing purpose, see below for detail.</p>													
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Model no.</th> <th style="width: 25%;">Outline Dimension (mm)</th> <th style="width: 25%;">Speaker</th> <th style="width: 25%;">Mass of equipment</th> </tr> </thead> <tbody> <tr> <td>X SUB118SA</td> <td>510*655*630</td> <td>18 inch, 500W</td> <td>39.6kg</td> </tr> <tr> <td>X SUB115SA</td> <td>455*586*570</td> <td>15 inch, 500W</td> <td>30.0kg</td> </tr> </tbody> </table>	Model no.	Outline Dimension (mm)	Speaker	Mass of equipment	X SUB118SA	510*655*630	18 inch, 500W	39.6kg	X SUB115SA	455*586*570	15 inch, 500W	30.0kg	
Model no.	Outline Dimension (mm)	Speaker	Mass of equipment										
X SUB118SA	510*655*630	18 inch, 500W	39.6kg										
X SUB115SA	455*586*570	15 inch, 500W	30.0kg										
<p>Additional application considerations –</p> <ul style="list-style-type: none"> - normal conditions N.C. - functional insulation FI - double insulation DI - between parts of opposite polarity BOP - short circuit SC - overload O/L <p>Indicate used abbreviations (if any) N/A</p>													
<ul style="list-style-type: none"> - 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)
All primary component, power board	ES3
Power board +15Vdc output, -15Vdc output (supplied for signal board)	ES1
Secondary terminals 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 circuits except for +15Vdc output, -15Vdc output	PS3
Power board +15Vdc output, -15Vdc output (supplied for signal board)	PS2
Secondary terminals	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/A	N/A
<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)
Equipment mass	MS3
Rounded edges and corners for equipment mass	MS1
<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 enclosure surfaces	TS1
Internal Parts/circuit of the unit in enclosure	TS3

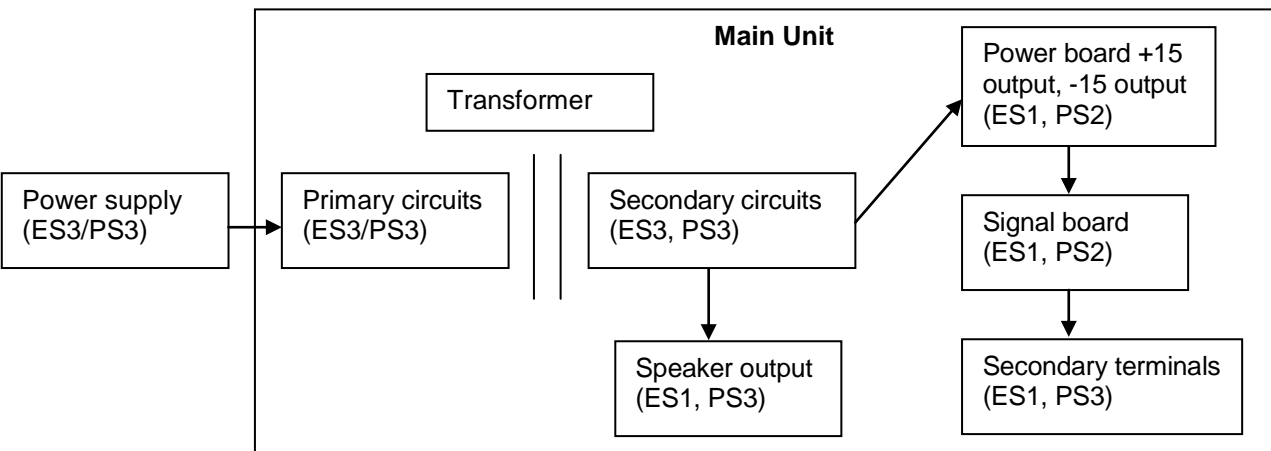
ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
Radiation (Clause 10)	
(Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product RS1	
Type of radiation	Corresponding classification (RS)
LED Indicator	RS1

ENERGY SOURCE DIAGRAM

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

ES
 PS
 MS
 TS
 RS

Main Unit



```

    graph LR
      PS[Power supply ES3/PS3] --> PC[Primary circuits ES3/PS3]
      PC --- T[Transformer]
      T --- SC[Secondary circuits ES3, PS3]
      SC --> SO[Speaker output ES1, PS3]
      SC --> PB[Power board +15 output, -15 output ES1, PS2]
      PB --> SB[Signal board ES1, PS2]
      SB --> ST[Secondary terminals ES1, PS3]
      
```

ES3 : All primary component, power board
 ES1 : Power board +15 output, -15 output (supplied for signal board), Secondary terminals and parts accessible to ordinary person
 PS3 : All circuits except for +15Vdc output, -15Vdc output
 PS2 : Power board +15Vdc output, -15Vdc output (supplied for signal board)
 PS1 : Secondary terminals
 MS3 : mass of the unit
 MS1 : Edges and corners of enclosure
 TS1 : Accessible part
 RS1 : LED Indicator

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 person	ES3: All primary component, power board	Equipment safeguard	Equipment safeguard	Enclosure, See 5.4.2, 5.4.3, 5.5.3 and 5.5.4
Ordinary person	ES1: Power board +15 output, -15 output (supplied for signal board), Secondary terminals and parts accessible to ordinary person	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
Enclosure	PS3 circuit	See 6.3	Min. 6.0mm thickness wooden material enclosure and metal material enclosure used, Distance from PIS to wooden material enclosure greater than 13.0mm	N/A
PCB	PS3/PS2 circuit	See 6.3	V-0	N/A
Internal and external wire	PS3/PS2 circuit	See 6.5	N/A	N/A
The other components/materials	PS3/PS2 circuit	See 6.3	See 6.4.5, 6.4.6	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary person	MS1: Edges and corners	N/A	N/A	N/A
Ordinary person	MS3: Mass of the unit	N/A	N/A	See clause

				8.6
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary person	TS1: External enclosure surfaces	N/A	N/A	N/A
Ordinary person	TS3: Internal parts/circuits	N/A	N/A	Enclosure
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary person	RS1:LED Indicator	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				

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS		P
4.1.1	Acceptance of materials, components and subassemblies	(See appended table 4.1.2)	P
4.1.2	Use of components	Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment. See also Annex G	P
4.1.3	Equipment design and construction	Evaluation of safeguards regarding access to ES3 and to limiting the outputs to fulfill ES1, and protection in regard to risk of ignition, mechanical-caused injury and thermal burn considered.	P
4.1.15	Markings and instructions..... :	(See Annex F)	P
4.4.4	Safeguard robustness	See below.	P
4.4.4.2	Steady force tests..... :	(See Annex T.2, T.5)	P
4.4.4.3	Drop tests..... :		N/A
4.4.4.4	Impact tests..... :	(See Annex T.6)	P
4.4.4.5	Internal accessible safeguard enclosure and barrier tests..... :	The external enclosure cannot be opened without damaging the product	N/A
4.4.4.6	Glass Impact tests..... :	No such glass used.	N/A
4.4.4.7	Thermoplastic material tests..... :		N/A
4.4.4.8	Air comprising a safeguard..... :	(See Annex T)	P
4.4.4.9	Accessibility and safeguard effectiveness	After tests of 4.4.4.2, 4.4.4.4, no safeguard damaged.	P
4.5	Explosion	No explosion occurs during normal/abnormal operation and single fault conditions	P
4.6	Fixing of conductors	See below.	P
4.6.1	Fix conductors not to defeat a safeguard	Compliance checked.	P
4.6.2	10 N force test applied to..... :	10 N applied to all components other than the parts serving as an enclosure (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	The EUT is not for direct insertion into mains socket-outlets	N/A
4.7.2	Mains plug part complies with the relevant standard..... :		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.7.3	Torque (Nm)		N/A
4.8	Products containing coin/button cell batteries	No battery 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.....	(See Annex P)	P

5	ELECTRICALLY-CAUSED INJURY		P
5.2.1	Electrical energy source classifications	(See appended table 5.2)	P
5.2.2	ES1, ES2 and ES3 limits	See below.	P
5.2.2.2	Steady-state voltage and current	(See appended table 5.2)	P
5.2.2.3	Capacitance limits.....	(See appended table 5.2.2.3)	P
5.2.2.4	Single pulse limits	No such single pulses generated in the EUT or applied to it.	N/A
5.2.2.5	Limits for repetitive pulses	No such repetitive pulses within the EUT	N/A
5.2.2.6	Ringling signals	No such ringling signals within the EUT	N/A
5.2.2.7	Audio signals	(See Annex E)	P
5.3	Protection against electrical energy sources	See only 4.3 and 5.3 to 5.6 which applies to protection between the accessible parts and hazardous parts of other circuits.	P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		P
5.3.2.1	Accessibility to electrical energy sources and safeguards	Only ES1 circuit and the enclosure (safeguard) are accessed to person.	P
5.3.2.2	Contact requirements	No opening of enclosure, no access with test probe (Figure V.1) to any ES3 circuit or parts.	P
	a) Test with test probe from Annex V.....	No bare parts at ES2 or ES3 or ES3 basic safeguard could be accessed by operator.	P
	b) Electric strength test potential (V)		N/A
	c) Air gap (mm)		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.3.2.4	Terminals for connecting stripped wire	No stripped wire used.	N/A
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material	The choice and application have been taken into account as specified in this Clause 5 and Annex T. Natural rubber, hygroscopic materials or asbestos are not used as insulation.	P
5.4.1.3	Humidity conditioning	No hygroscopic material used.	N/A
5.4.1.4	Maximum operating temperature for insulating materials	(See appended table 5.4.1.4)	P
5.4.1.5	Pollution degree	PD2	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound	Pollution degree 2 is applied.	N/A
5.4.1.5.3	Thermal cycling		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage		P
5.4.1.9	Insulating surfaces		P
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	Separately approved appliance inlet and switch used, Bobbin materials of transformers and primary choke are Phenolic that is accepted without further tests.	N/A
5.4.1.10.2	Vicat softening temperature		N/A
5.4.1.10.3	Ball pressure		N/A
5.4.2	Clearances		P
5.4.2.2	Determining clearance using peak working voltage	(See appended table 5.4.2.2, 5.4.2.4 and 5.4.3)	P
5.4.2.3	Determining clearance using required withstand voltage	(See appended table 5.4.2.3)	P
	a) a.c. mains transient voltage	2500V	—
	b) d.c. mains transient voltage		—
	c) external circuit transient voltage.....		—
	d) transient voltage determined by measurement		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test	Not applicable.	N/A
5.4.2.5	Multiplication factors for clearances and test voltages	Altitude up to 2000m only.	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.3	Creepage distances..... :	(See appended table 5.4.2.2, 5.4.2.4 and 5.4.3)	P
5.4.3.1	General		P
5.4.3.3	Material Group :	IIIb	—
5.4.4	Solid insulation	See below	P
5.4.4.2	Minimum distance through insulation :	(See appended table 5.4.4.2)	P
5.4.4.3	Insulation compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Cemented joints	No such components used	N/A
5.4.4.6	Thin sheet material	See below	P
5.4.4.6.1	General requirements	At least 2 layers of insulation tape are used for reinforced insulation and are not expected to be subject to handling or abrasion during ordinary or instructed person servicing.	P
5.4.4.6.2	Separable thin sheet material	Used two layers are provided as reinforced insulation any one layer passed the electric strength test for reinforced insulation.	P
	Number of layers (pcs) :	See above	P
5.4.4.6.3	Non-separable thin sheet material	No such thin sheet material within the EUT	N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material..... :		N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components	See G.5.3 and G.6.1	P
5.4.4.9	Solid insulation at frequencies >30 kHz :		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) :		—
5.4.6	Insulation of internal wire as part of supplementary safeguard :	No such internal wires used.	N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning	Requested by manufacturer, test was performed on product with each source of transformer listed in table 4.1.2.	P
	Relative humidity (%) :	95% RH	—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Temperature (°C)	40°C	—
	Duration (h)	120h	—
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	Compliance was checked immediately following temperature test in 5.4.1.4 on the complete unit and on a sample of the transformer raised to the relevant temperature as measured during that test. (See appended table 5.4.9)	P
5.4.9.2	Test procedure for routine tests		N/A
5.4.10	Protection against transient voltages between external circuit	No such circuit	N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test		N/A
5.4.10.2.3	Steady-state test		N/A
5.4.11	Insulation between external circuits and earthed circuitry		N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage U_{op} (V)		—
	Nominal voltage U_{peak} (V)		—
	Max increase due to variation U_{sp}		—
	Max increase due to ageing U_{sa}		—
	$U_{op} = U_{peak} + U_{sp} + U_{sa}$		—
5.5	Components as safeguards		
5.5.1	General		P
5.5.2	Capacitors and RC units	Approved X capacitor and Y capacitor provided.	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	No such components used	N/A
5.5.5	Relays	No such components used	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.6	Resistors	No such components used	N/A
5.5.7	SPD's	No such components used	N/A
5.5.7.1	Use of an SPD connected to reliable earthing		N/A
5.5.7.2	Use of an SPD between mains and protective earth		N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable..... :	No such components used	N/A
5.6	Protective conductor		P
5.6.2	Requirement for protective conductors		P
5.6.2.1	General requirements		P
5.6.2.2	Colour of insulation	Yellow/Green wire from metal enclosure to AC inlet.	P
5.6.3	Requirement for protective earthing conductors	0.75 mm ²	P
	Protective earthing conductor size (mm ²) :		—
5.6.4	Requirement for protective bonding conductors		P
5.6.4.1	Protective bonding conductors	The Yellow/Green wire from metal enclosure to AC inlet as protective bonding conductor.	P
	Protective bonding conductor size (mm ²)..... :	Min. 18AWG for yellow/jreen wire wire;	—
	Protective current rating (A) :	Rated current of equipment : 8A Protective current rating : 16A	—
5.6.4.3	Current limiting and overcurrent protective devices		P
5.6.5	Terminals for protective conductors	See below	P
5.6.5.1	Requirement	AC inlet earthing pin used for protective earthing conductor terminal. Screw with star washer used for connecting protective bonding conductor and metal enclosure	P
	Conductor size (mm ²), nominal thread diameter (mm). :	Ø3.5mm min.	P
5.6.5.2	Corrosion		P
5.6.6	Resistance of the protective system		P
5.6.6.1	Requirements		P
5.6.6.2	Test Method Resistance (Ω) :	(See appended table 5.6.6.2)	P
5.6.7	Reliable earthing		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		P
5.7.2	Measuring devices and networks		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.2.1	Measurement of touch current	(See appended table 5.7.2.2, 5.7.4)	P
5.7.2.2	Measurement of prospective touch voltage		P
5.7.3	Equipment set-up, supply connections and earth connections		P
	System of interconnected equipment (separate connections/single connection)		—
	Multiple connections to mains (one connection at a time/simultaneous connections)	Single connection	—
5.7.4	Earthed conductive accessible parts		P
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	No such external circuits.	N/A
5.7.6.1	Touch current from coaxial cables		N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits		N/A
5.7.7	Summation of touch currents from external circuits	No such 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	See the following details.	P

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Clause	Requirement + Test	Result - Remark	Verdict
6.2.3.1	Arcing PIS	(See appended table 6.2.3.1)	P
6.2.3.2	Resistive PIS	(See appended table 6.2.3.2)	P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1 (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 fire spread. See the appropriate requirements are detailed in 6.4.4, 6.4.5, 6.4.6, 6.4.7, 6.4.8	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits	See above.	N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits	See above.	N/A
6.4.3.1	General		N/A
6.4.3.2	Supplementary Safeguards		N/A
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions..... :		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits	PS1 is not considered to contain enough energy to result in materials reaching ignition temperatures.	P
6.4.5	Control of fire spread in PS2 circuits		P
6.4.5.2	Supplementary safeguards	Compliance detailed as follows: <ul style="list-style-type: none"> - <u>Printed board</u>: rated min. V-0 - <u>Internal wire</u>: complying with 6.5. - <u>All other components</u>: at least V-2 except for components mounted on min. V-1 material or small parts of combustible material. <u>Isolating transformer</u> : complying with G.5.3.	P
6.4.6	Control of fire spread in PS3 circuit	Compliance detailed as follows: <ul style="list-style-type: none"> - Parts as in 6.4.5 above - Inlet : complying to IEC standard - Fire enclosure : metal and wooden materials. 	P

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.7	Separation of combustible materials from a PIS	Fire enclosure provided for all internal parts.	N/A
6.4.7.1	General..... :		N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers	Metal and wooden materials enclosure used	P
6.4.8.1	Fire enclosure and fire barrier material properties		P
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure	Metal and wooden materials enclosure used	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		P
6.4.8.3.1	Fire enclosure and fire barrier openings		P
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm) :	Top side of power board : Numerous circular openings, with diameter dimension max. 3.5mm. The openings do not exceed 5 mm in any dimension Speaker metal cover : Numerous hexagon openings, with length dimension max. 6.0mm. The opening not within the volume as show in Figure 41. (distance from openings to speaker output greater than 15mm)	P
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm) :	Bottom side of power board : Numerous circular openings, with diameter dimension max. 3.5mm. The opening not within the volume as show in Figure 42. (distance from PS3 on power board greater than 15mm) Speaker metal cover : Numerous hexagon openings, with length dimension max. 6.0mm. The opening not within the volume as show in Figure 42. (distance from openings to speaker output greater than 15mm)	P
	Flammability tests for the bottom of a fire enclosure :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c)		N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating	Min. 6.0mm thickness wooden material enclosure and metal material enclosure used, Distance from PIS to wooden material enclosure greater than 13.0mm	P
6.5	Internal and external wiring		P
6.5.1	Requirements	VW-1 internal wires and separately approved external mains power cordset used;	P
6.5.2	Cross-sectional area (mm ²)	(See appended table 4.1.2)	—
6.5.3	Requirements for interconnection to building wiring	No such wiring	N/A
6.6	Safeguards against fire due to connection to additional equipment	No such port	N/A
	External port limited to PS2 or complies with Clause Q.1	No such port	N/A

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

8	MECHANICALLY-CAUSED INJURY		P
8.1	General	Enclosure is smooth/rounded and no mechanical energy sources	P
8.2	Mechanical energy source classifications	MS3 applied for mass of equipment, MS1 applied for edges and corners	P
8.3	Safeguards against mechanical energy sources	No additional safeguard is needed to against mechanical energy sources	N/A
8.4	Safeguards against parts with sharp edges and corners	Edges and corners of the enclosure are rounded.	P

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Clause	Requirement + Test	Result - Remark	Verdict
8.4.1	Safeguards		N/A
8.5	Safeguards against 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		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks		N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard..... :		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N)		N/A
8.5.5	High Pressure Lamps		N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test..... :		N/A
8.6	Stability		P
8.6.1	Product classification	Classified as MS3.	P
	Instructional Safeguard..... :		—
8.6.2	Static stability	Equipment shall be tipped at any angle from the vertical up to and including 10°	P
8.6.2.2	Static stability test	During the test, the EUT did not tip over or slide.	P
	Applied Force		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		P
	Unit configuration during 10° tilt	The equipment not tip over during the tests	—
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force)..... :		N/A
	Position of feet or movable parts..... :		—
8.7	Equipment mounted to wall or ceiling		N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.7.2	Direction and applied force..... :		N/A
8.8	Handles strength		N/A
8.8.1	Classification	Classified as MS3.	P
8.8.2	Applied Force :	778N Applied After the test, the handle was not break, crack, or detach from the equipment	P
8.9	Wheels or casters attachment requirements		N/A
8.9.1	Classification		N/A
8.9.2	Applied force :		—
8.10	Carts, stands and similar carriers	Not such equipment	N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard..... :		—
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force :		—
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N)..... :		—
8.10.6	Thermoplastic temperature stability (°C)..... :		N/A
8.11	Mounting means for rack mounted equipment	Not such equipment	N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable <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 antennas	N/A
	Button/Ball diameter (mm)..... :		—

9	THERMAL BURN INJURY		P
9.2	Thermal energy source classifications	All accessible surfaces are classified as TS1, see appended table 5.4.1.4, 6.3.2, 9.0, B.2.6.	P
9.3	Safeguard against thermal energy sources	No safeguard required for TS1.	P
9.4	Requirements for safeguards		P

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Clause	Requirement + Test	Result - Remark	Verdict
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		P
10.2.1	General classification	RS1: The LED only used for indicating, which is considered as low power & inherently exempt group according to IEC 62471	P
10.3	Protection against 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		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
10.5	Protection against x-radiation		N/A
10.5.1	X- radiation energy source that exists equipment :		N/A
	Normal, abnormal, single fault conditions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Equipment safeguards		N/A
	Instructional safeguard for skilled person.....		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation		—
	Abnormal and single-fault condition		N/A
	Maximum radiation (pA/kg)		N/A
10.6	Protection against acoustic energy sources		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A).....		N/A
	Output voltage, unweighted r.m.s.....		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards		N/A
	Equipment safeguard prevent ordinary person to RS2.....		—
	Means to actively inform user of increase sound pressure.....		—
	Equipment safeguard prevent ordinary person to RS2		—
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) L_{Aeq} acoustic pressure output.....		—
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum dB(A).....		—
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A).....		—

B	NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS		P
B.2	Normal Operating Conditions		P
B.2.1	General requirements.....	(See Test Item Particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers	(See Annex E)	P
B.2.3	Supply voltage and tolerances	-10% and +10%	P
B.2.5	Input test.....	(See appended table B.2.5)	P

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Clause	Requirement + Test	Result - Remark	Verdict
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 :	No such voltage selector	N/A
B.3.5	Maximum load at output terminals :		N/A
B.3.6	Reverse battery polarity	No battery within the EUT	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	After restoration of normal operating conditions, all safeguards comply with applicable requirements.	P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited :	No such device used.	N/A
B.4.3	Motor tests	No such device used.	N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature :		N/A
B.4.4	Short circuit of functional insulation	See the following details.	P
B.4.4.1	Short circuit of clearances for functional insulation	(See appended tables B.4)	P
B.4.4.2	Short circuit of creepage distances for functional insulation	(See appended tables 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 tables B.4 for faults on electronic components)	P
B.4.6	Short circuit or disconnect of passive components	(See appended tables 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 ... :	No battery involved in the EUT	N/A
C	UV RADIATION		N/A
C.1	Protection of materials in equipment from UV radiation		N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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		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)	The signal voltage for this kind of speaker are considered to be within ES1 limit according to Table E.1.	—
	Rated load impedance (Ω)	Refer to table 4.1.2	—
E.2	Audio amplifier abnormal operating conditions	(See appended tables B.3, B.4)	P
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General requirements	See the following details.	P
	Instructions – Language	English version provided. (Version in other language will be provided when submitted for national approval)	—
F.2	Letter symbols and graphical symbols	See the following details.	P
F.2.1	Letter symbols according to IEC60027-1	Letter symbols for quantities and units are complied with IEC 60027-1.	P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific	Graphical symbols are complied with IEC 60417, ISO 3864-2, ISO 7000 or ISO 7010.	P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	Equipment marking is located on the enclosure surface and is easily visible.	P
F.3.2	Equipment identification markings	See the following details.	P
F.3.2.1	Manufacturer identification	See copy of marking plate.	—
F.3.2.2	Model identification	See copy of marking plate.	—
F.3.3	Equipment rating markings	See the following details.	P
F.3.3.1	Equipment with direct connection to mains	The equipment is connected to AC mains supply.	P

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.3.2	Equipment without direct connection to mains	See above.	N/A
F.3.3.3	Nature of supply voltage.....:	See copy of marking plate.	—
F.3.3.4	Rated voltage	See copy of marking plate.	—
F.3.3.4	Rated frequency	See copy of marking plate.	—
F.3.3.6	Rated current or rated power	See copy of marking plate.	—
F.3.3.7	Equipment with multiple supply connections	Only one supply connection.	N/A
F.3.4	Voltage setting device	The indication of the voltage was marked near voltage setting device	P
F.3.5	Terminals and operating devices		P
F.3.5.1	Mains appliance outlet and socket-outlet markings		N/A
F.3.5.2	Switch position identification marking	The switch not as disconnect device	N/A
F.3.5.3	Replacement fuse identification and rating markings..... :	The fuse is located within the fuse holder. The identification of fuse was marked adjacent to the fuse holder	P
F.3.5.4	Replacement battery identification marking		N/A
F.3.5.5	Terminal marking location		P
F.3.6	Equipment markings related to equipment classification	See below.	P
F.3.6.1	Class I Equipment		P
F.3.6.1.1	Protective earthing conductor terminal	Protective earthing symbol marked on the appliance inlet.	P
F.3.6.1.2	Neutral conductor terminal		N/A
F.3.6.1.3	Protective bonding conductor terminals		P
F.3.6.2	Class II equipment (IEC60417-5172)	Class I equipment	N/A
F.3.6.2.1	Class II equipment with or without functional earth	Class I equipment	N/A
F.3.6.2.2	Class II equipment with functional earth terminal marking	Class I equipment	N/A
F.3.7	Equipment IP rating marking	IPX0 equipment	—
F.3.8	External power supply output marking	No EPS used	N/A
F.3.9	Durability, legibility and permanence of marking		P

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.10	Test for permanence of markings	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 sec. And then again for 15 sec. With the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade. There was no curling and lifting of the label edge. After each test, the marking remained legible.	P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present - marking		N/A
	b) Instructions given for installation or initial use		P
	c) Equipment intended to be fastened in place		NA
	d) Equipment intended for use only in restricted access area		NA
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1		N/A
	f) Protective earthing employed as safeguard		P
	g) Protective earthing conductor current exceeding ES 2 limits		N/A
	h) Symbols used on equipment		P
	i) Permanently connected equipment not provided with all-pole mains switch		N/A
	j) Replaceable components or modules providing safeguard function		P
F.5	Instructional safeguards		P
	Where "instructional safeguard" is referenced in the test report it specifies the required elements, location of marking and/or instruction		P
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		P
G.2.1	General requirements		N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.2.4	Mains relay, modified as stated in G.2		P
G.3	Protection Devices		P
G.3.1	Thermal cut-offs		N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691		N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H)		—
	Single Fault Condition		—
	Test Voltage (V) and Insulation Resistance (Ω) . :		—
G.3.3	PTC Thermistors		N/A
G.3.4	Overcurrent protection devices	Certified fuse used according to IEC 60127.	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	No such connector with insulated surfaces accessible within the EUT	P
G.4.2	Mains connector configuration	AC inlet complied with standard.	P
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely	Output connector with a shape that insert into a mains connector is unlikely to occur.	P
G.5	Wound Components		P
G.5.1	Wire insulation in wound components.....		N/A
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		N/A
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Time (s)		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Temperature (°C)		—
G.5.2.3	Wound Components supplied by mains		N/A
G.5.3	Transformers		P
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1).....	The transformers meet the requirements given in G.5.3.2 and G.5.3.3.	P
	Position.....	T901	—
	Method of protection	G.5.3.2 and G.5.3.3 apply	—
G.5.3.2	Insulation	Primary windings and secondary windings are separated by Reinforced insulation. (See appended table G.5.3)	P
	Protection from displacement of windings.....	The end-turn of each winding is fixed by insulating tape	—
G.5.3.3	Overload test	(See appended table B.3)	P
G.5.3.3.1	Test conditions	Tested in the complete equipment.	P
G.5.3.3.2	Winding Temperatures testing in the unit		P
G.5.3.3.3	Winding Temperatures - Alternative test method	Alternative test method was not considered.	N/A
G.5.4	Motors		N/A
G.5.4.1	General requirements		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

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h)		N/A
	Electric strength test (V)		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage		—
G.6	Wire Insulation		P
G.6.1	General		P
G.6.2	Solvent-based enamel wiring insulation	Insulation does not rely on solvent-based enamel.	N/A
G.7	Mains supply cords		P
G.7.1	General requirements		P
	Type.....	(See appended table 4.1.2)	—
	Rated current (A).....	(See appended table 4.1.2)	—
	Cross-sectional area (mm ²), (AWG).....	(See appended table 4.1.2)	—
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	Detachable power supply cord used	N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N)		—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm)....		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g)		—
	Diameter (m)		—
	Temperature (°C)		—
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
G.8	Varistors		N/A
G.8.1	General requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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.		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		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	Capacitors used in accordance with their rating and complied with subclasses of IEC 60384-14. (see appended table 4.1.2)	P
G.11.2	Conditioning of capacitors and RC units		P
G.11.3	Rules for selecting capacitors		P
G.12	Optocouplers		N/A
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results)		N/A
	Type test voltage V_{ini}		—
	Routine test voltage, $V_{ini,b}$		—
G.13	Printed boards		P
G.13.1	General requirements	See the following details.	P

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Clause	Requirement + Test	Result - Remark	Verdict
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 applied for within the equipment.	N/A
G.13.4	Insulation between conductors on the same inner surface	See above.	N/A
	Compliance with cemented joint requirements (Specify construction)		—
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs)		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A
G.14	Coating on components terminals		N/A
G.14.1	Requirements	No such components used	N/A
G.15	Liquid filled components		N/A
G.15.1	General requirements		N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
G.16	IC including capacitor discharge function (ICX)		N/A
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours		N/A
b)	Impulse test using circuit 2 with $U_c =$ to transient voltage		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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		N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringling signal		N/A
H.3.1.1	Frequency (Hz)		—
H.3.1.2	Voltage (V)		—
H.3.1.3	Cadence; time (s) and voltage (V)		—
H.3.1.4	Single fault current (mA):.....		—
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V)		—
J	INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION		N/A
	General requirements		N/A
K	SAFETY INTERLOCKS		N/A
K.1	General requirements		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

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Clause	Requirement + Test	Result - Remark	Verdict
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	Appliance inlet (coupler) used as disconnect device.	P
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		P
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A
L.8	Multiple power sources	Only one a.c. mains connection.	N/A
M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		N/A
M.1	General requirements		N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	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		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		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

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Clause	Requirement + Test	Result - Remark	Verdict
M.4.4	Endurance of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation		N/A
M.4.4.3	Drop and charge/discharge function tests		N/A
	Drop		N/A
	Charge		N/A
	Discharge		N/A
M.4.4.4	Charge-discharge cycle test		N/A
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current		N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method)		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		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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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.....	(See appended Table 5.4.2)	—
P	SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS		P
P.1	General requirements	See the following details.	P
P.2.2	Safeguards against entry of foreign object		P
	Location and Dimensions (mm)	Rear metal enclosure : Numerous circular openings, with diameter dimension max. 3.5mm. The openings do not exceed 5 mm in any dimension Speaker metal cover : Numerous hexagon openings, with length dimension max. 6.0mm max. See clause P.2.3	—
P.2.3	Safeguard against the consequences of entry of foreign object		P
P.2.3.1	Safeguards against the entry of a foreign object	Speaker metal cover : Within the projected volume as depicted in Figure P.3 there are no bare conductive parts of ES3 or PS3 circuits	P
	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		N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts		N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C)		—
	Tr (°C)		—
	Ta (°C)		—

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Clause	Requirement + Test	Result - Remark	Verdict
P.4.2 b)	Abrasion testing		N/A
P.4.2 c)	Mechanical strength testing		N/A
Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		N/A
Q.1	Limited power sources		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		N/A
R.2	Determination of the overcurrent protective device and circuit		N/A
R.3	Test method Supply voltage (V) and short-circuit current (A).		N/A
S	TESTS FOR RESISTANCE TO HEAT AND FIRE		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		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (°C)		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (°C)		—

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Clause	Requirement + Test	Result - Remark	Verdict
	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 material enclosure with a thickness of at least 6 mm is considered to fulfil the V-1 requirement	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
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A
T	MECHANICAL STRENGTH TESTS		P
T.1	General requirements		P
T.2	Steady force test, 10 N	(See appended table T.2, T.3, T.4, T.5)	P
T.3	Steady force test, 30 N		N/A
T.4	Steady force test, 100 N		N/A
T.5	Steady force test, 250 N	(See appended table T.2, T.3, T.4, T.5)	P
T.6	Enclosure impact test	(See appended table T.6, T.9)	P
	Fall test	A 500 g steel sphere ball fell freely from rest through a vertical distance of 1300 mm onto the sample.	P
	Swing test		P
T.7	Drop test	Not such apparatus	N/A
T.8	Stress relief test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
T.9	Impact Test (glass)	No such glass is provided within the equipment.	N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J).....:		—
	Height (m)		—
T.10	Glass fragmentation test		N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm)		—
U	MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N/A
U.1	General requirements		N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen	(See Annex T)	N/A
V	DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)		P
V.1	Accessible parts of equipment	No access with test probes to any hazardous parts	P
V.2	Accessible part criterion	See above.	P

IEC 62368-1			
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_1D_II
Attachment Originator	Nemko AS
Master Attachment	Date 2021-02-04

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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	<p>Add the following annexes:</p> <p>Annex ZA (normative) Normative references to international publications with their corresponding European publications</p> <p>Annex ZB (normative) Special national conditions</p> <p>Annex ZC (informative) A-deviations</p> <p>Annex ZD (informative) IEC and CENELEC code designations for flexible cords</p>	P																																				
	<p>Delete all the "country" notes in the reference document (IEC 62368-1:2014) according to the following list:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>0.2.1</td> <td>Note</td> <td>1</td> <td>Note 3</td> <td>4.1.15</td> <td>Note</td> </tr> <tr> <td>4.7.3</td> <td>Note 1 and 2</td> <td>5.2.2.2</td> <td>Note</td> <td>5.4.2.3.2.2 Table 13</td> <td>Note c</td> </tr> <tr> <td>5.4.2.3.2.4</td> <td>Note 1 and 3</td> <td>5.4.2.5</td> <td>Note 2</td> <td>5.4.5.1</td> <td>Note</td> </tr> <tr> <td>5.5.2.1</td> <td>Note</td> <td>5.5.6</td> <td>Note</td> <td>5.6.4.2.1</td> <td>Note 2 and 3</td> </tr> <tr> <td>5.7.5</td> <td>Note</td> <td>5.7.6.1</td> <td>Note 1 and 2</td> <td>10.2.1 Table 39</td> <td>Note 2, 3 and 4</td> </tr> <tr> <td>10.5.3</td> <td>Note 2</td> <td>10.6.2.1</td> <td>Note 3</td> <td>F.3.3.6</td> <td>Note 3</td> </tr> </table>	0.2.1	Note	1	Note 3	4.1.15	Note	4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c	5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note	5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3	5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4	10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3	P
0.2.1	Note	1	Note 3	4.1.15	Note																																	
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	For special national conditions, see Annex ZB.	P																																				
1	<p>Add the following note:</p> <p>NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.</p>	N/A																																				

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.Z1	<p>Add the following new subclause after 4.9:</p> <p>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):</p> <p>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> <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>	<p>Considered. Complied with item a) for internal fuses used and for parts as described in b) reliance on the protection in the building installation.</p>	P
5.4.2.3.2.4	<p>Add the following to the end of this subclause:</p> <p>The requirement for interconnection with external circuit is in addition given in EN 50491-3:2009.</p>	No external circuit.	N/A
10.2.1	<p>Add the following to ^{c)} and ^{d)} in table 39:</p> <p>For additional requirements, see 10.5.1.</p>	No radiation.	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
10.5.1	<p>Add the following after the first paragraph: <i>For RS 1 compliance is checked by measurement under the following conditions:</i></p> <p><i>In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or presets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.</i></p> <p>NOTE Z1 Soldered joints and paint lockings are examples of adequate locking.</p> <p><i>The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus.</i></p> <p><i>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.</i></p> <p><i>For RS1, the dose-rate shall not exceed 1 μSv/h taking account of the background level.</i></p> <p>NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.</p>	Added.	N/A
10.6.1	<p>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.</p>	Added.	N/A
10.Z1	<p>Add the following new subclause after 10.6.5. 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: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.</p>	Added.	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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.</p> <p>IEC 60269-2 NOTE Harmonized as HD 60269-2.</p> <p>IEC 60309-1 NOTE Harmonized as EN 60309-1.</p> <p>IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series.</p> <p>IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4.</p> <p>IEC 60664-5 NOTE Harmonized as EN 60664-5.</p> <p>IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified).</p> <p>IEC 61508-1 NOTE Harmonized as EN 61508-1.</p> <p>IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1.</p> <p>IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4.</p> <p>IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6.</p> <p>IEC 61643-1 NOTE Harmonized as EN 61643-1.</p> <p>IEC 61643-21 NOTE Harmonized as EN 61643-21.</p> <p>IEC 61643-311 NOTE Harmonized as EN 61643-311.</p> <p>IEC 61643-321 NOTE Harmonized as EN 61643-321.</p> <p>IEC 61643-331 NOTE Harmonized as EN 61643-331.</p>		N/A
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		P
4.1.15	<p>Denmark, Finland, Norway and Sweden</p> <p>To the end of the subclause the following is added:</p> <p>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.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In Denmark: "Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord."</p> <p>In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p>		N/A
4.7.3	<p>United Kingdom</p> <p>To the end of the subclause the following is added:</p> <p>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>	Not a direct plug-in equipment.	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.2.2.2	<p>Denmark</p> <p>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>	No high touch current measured.	N/A
5.4.11.1 and Annex G	<p>Finland and Sweden</p> <p>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 1,5kV. <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</p> <p>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; <p>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.</p>	No TNV circuits.	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.2.1	<p>Norway</p> <p>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>		P
5.5.6	<p>Finland, Norway and Sweden</p> <p>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.</p>		N/A
5.6.1	<p>Denmark</p> <p>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. <i>Justification:</i> In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.</p>		P
5.6.4.2.1	<p>Ireland and United Kingdom</p> <p>After the indent for pluggable equipment type A, the following is added: – the protective current rating is taken to be 13 A, this being the largest rating of fuse used in the mains plug.</p>	Add	N/A
5.6.5.1	<p>To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm² to 1,5 mm² in cross-sectional area.</p>		N/A
5.7.5	<p>Denmark</p> <p>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.</p>	No high protective conductor current.	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.1	<p>Norway and Sweden</p> <p>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.</p> <p>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.</p> <p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: “Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)”</p> <p>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.</p> <p>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.”</p> <p>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>	Not such system.	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.2	<p>Denmark</p> <p>To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .</p>	No external circuits.	N/A
B.3.1 and B.4	<p>Ireland and United Kingdom</p> <p>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</p> <p>To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a <i>Justification:</i> Heavy Current Regulations, Section 6c</p>		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	<p>United Kingdom</p> <p>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</p> <p>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.</p> <p>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</p> <p>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</p> <p>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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		N/A
10.5.2	<p>Germany</p> <p>The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking.</p> <p><i>Justification:</i> German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM.</p> <p>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

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

4.1.2	TABLE: List of critical components					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹	
Power plug (EU type)	Ningbo Jiangfeng Plastic & Chemistry Co. Ltd.	B-03	250 Vac, 16A	DIN VDE 0620-1 (VDE 0620-1)	VDE 40030460	
(Alternative)	Yip Chun Products Factory	YCV-011	250 Vac, 16A	DIN VDE 0620-1 (VDE 0620-1)	VED 107775	
(Alternative)	Volex (Asia) Pte. Ltd.	M2511	250 Vac, 16A	DIN VDE 0620-1 (VDE 0620-1)	VDE 40009655	
(Alternative)	I-Sheng Electric Wire & Cable Co., Ltd.	SP-022	250 Vac, 16A	DIN VDE 0620-1 (VDE 0620-1)	VDE 40013526	
(Alternative)	Taiwan Line Tek Electronic Co., Ltd.	LP-33	250 Vac, 16A	DIN VDE 0620-1 (VDE 0620-1)	VDE 40010487	
(Alternative)	CORD-SETS (H.K.) LIMITED	AEP-306	250 Vac, 16A	DIN VDE 0620-1 (VDE 0620-1)	VDE 40011273	
(Alternative)	Well Shin Technology Co., Ltd.	WS-010A	250 Vac, 16A	DIN VDE 0620-1 (VDE 0620-1)	VDE 40012534	
(Alternative)	Changzhou Hong Chang Electronics Co. Ltd.	DTIII-2P-05	250 Vac, 16A	DIN VDE 0620-1 (VDE 0620-1)	VDE 40015536	
(Alternative)	Kenic Electric Mfg. Co. Ltd.	KE-23	250 Vac, 16A	DIN VDE 0620-1 (VDE 0620-1)	VDE 40002191	
(Alternative)	King Cord Co., Ltd.	KC-015	250 Vac, 16A	DIN VDE 0620-1 (VDE 0620-1)	VDE 40015272	
Power cord	Ningbo Jiangfeng Plastic & Chemistry Co. Ltd.	H05VV-F	3 x 0.75mm ²	EN 50525-2-11	VDE 40027127	
(Alternative)	Yip Chun Products Factory	H05VV-F	3 x 0.75mm ²	EN 50525-2-11	VDE 107556	
(Alternative)	I-Sheng Electric Wire & Cable Co., Ltd.	H05VV-F	3 x 0.75mm ²	EN 50525-2-11	VDE 40006070	
(Alternative)	Taiwan Line Tek Electronic Co., Ltd.	H05VV-F	3 x 0.75mm ²	EN 50525-2-11	VDE 096233	
(Alternative)	Well Shin Technology Co., Ltd.	H05VV-F	3 x 0.75mm ²	EN 50525-2-11	VDE 40007541	
(Alternative)	Changzhou Hong Chang Electronics Co. Ltd.	H05VV-F	3 x 0.75mm ²	EN 50525-2-11	VDE 124978	
(Alternative)	Kenic Electric Mfg. Co. Ltd.	H05VV-F	3 x 0.75mm ²	EN 50525-2-11	VDE 103853	

IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
(Alternative)	King Cord Co., Ltd.	H05VV-F	3 x 0.75mm ²	EN 50525-2-11	VDE 40042910
(Alternative)	Shenzhen Baohing Electric Wire & Cable Manufacture Co., Ltd.	H05VV-F	3 x 0.75mm ²	EN 50525-2-11	VDE 103727
Power connector	Ningbo Jiangfeng Plastic & Chemistry Co. Ltd.	B-04	250 Vac, 10A	EN 60320-1	VDE 40029431
(Alternative)	Yip Chun Products Factory	YCV-015	250 Vac, 10A	EN 60320-1	ENEC 35-109734
(Alternative)	Volex (Asia) Pte. Ltd.	V1625	250 Vac, 10A	EN 60320-1	VDE 40030955
(Alternative)	I-Sheng Electric Wire & Cable Co., Ltd.	IS-14	250 Vac, 10A	EN 60320-1	VDE 40037879
(Alternative)	Taiwan Line Tek Electronic Co., Ltd.	LS-60	250 Vac, 10A	EN 60320-1	VDE 40016874
(Alternative)	CORD-SETS (H.K.) LIMITED	AES-354	250 Vac, 10A	EN 60320-1	VDE 40028443
(Alternative)	Well Shin Technology Co., Ltd.	WS-002	250 Vac, 10A	EN 60320-1	VDE 40012176
(Alternative)	Changzhou Hong Chang Electronics Co. Ltd.	DTII-3P-04	250 Vac, 10A	EN 60320-1	VDE 40005918
(Alternative)	Kenic Electric Mfg. Co. Ltd.	KE-24	250 Vac, 10A	EN 60320-1	VDE 40003450
(Alternative)	King Cord Co., Ltd.	KC-003	250 Vac, 10A	EN 60320-1	VDE 40014553
Wood enclosure	Interchangeable	Interchangeable	Min. thickness: 6.0mm	IEC/EN 62368-1	Tested with appliance
Metal enclosure	Interchangeable	Interchangeable	Min. thickness: 1.0mm, fixed by screws	IEC/EN 62368-1	Tested with appliance
EMI filter AC inlet	YUNPEN ELECTRONIC CO., LTD.	YB06A1	250 Vac, 6A	EN 60939-2	VDE 40007880
(Alternative)	High & Low Corporation	..SS1	250 Vac, 6A	EN 60939-2	VDE 40008353
(Alternative)	Dongguan City QiMai Industrial Co., Ltd.	QMB06W2-L2LS	250 Vac, 6A	EN 60939-1 EN 60939-3	TUV SUD B 120391 0001 Rev. 00
Fuse holder	Huizhou Hinew Electric Appliance Co., Ltd.	H3	250 Vac, 10A	EN 60127-1 EN 60127-6	VDE 40036452

IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
Voltage selector	Zhe Jiang Bei Er Jia Electronic Co., Ltd.	PS10	250 Vac, 10A	EN 61058-1 EN 61058-2-5	VDE 40023251
Plastic pad over voltage selector	CHENGDU KANGLONGXIN PLASTICS CO LTD	KLX PC-811A	80°C, V-2, min. thickness: 2.0mm	UL 94	UL E315185
Switch	LECI Electronics Co., Ltd	RS606	250 Vac, 16(4) A	EN 61058-1 EN 61058-1-1	VDE 40021500
Main fuse (inside fuse holder) (For input voltage : 100-120Vac)	XC Electronics (Shen Zhen) Corp. Ltd.	5T	T8AL, 250V~	IEN 60127-1 EN 60127-2	VDE 40009610
Main fuse (inside fuse holder) (For input voltage : 220-240Vac)	XC Electronics (Shen Zhen) Corp. Ltd.	5T	T4AL, 250V~	IEN 60127-1 EN 60127-2	VDE 40009610
Input primary lead wire	Interchangeable	1672	Double insulation type used, min. 18AWG, 300V, 105°C, VW-1.	UL 758	UL
Ground wire	Interchangeable	1015	Green and yellow wire, Single insulation type used, min. 18AWG, 600V, 105°C, VW-1	UL 758	UL
Speaker wire	Interchangeable	1015	Min.18AWG, 105°C, 600V, VW-1	UL 758	UL
Internal speaker	Interchangeable	Interchangeable	One pcs provided, rated 8ohm, 500W	IEC/EN 62368-1	Tested with appliance
PCB	Shenzhen Zhuosihan Electronic Co Ltd	ZSH-001	130°C, V-0	UL 94 UL 796	UL E345212
(Alternative)	Wenzhou Ruihao Electronics Co Ltd	RH-D	130°C, V-0	UL 94 UL 796	UL E339059
(Alternative)	Fujian Yongsheng Electronic Co Ltd	FJYS-09	130°C, V-0	UL 94 UL 796	UL E468794
(Alternative)	Interchangeable	Interchangeable	Min. 130°C, V-0 or better	UL 94 UL 796	UL
AC connector (SW902)	ACUITY BRANDS LIGHTING INC	HX3960X-YYY	250Vac, 10A, 85°C	UL 1977	UL E228500

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Thermistor (RT601)	THINKING ELECTRONIC INDUSTRIAL CO LTD	SCK-0512	5ohm, 12A	UL 1434	UL E138827
X-capacitor (C905, C906)	Aid Electronic Corporation	MEX	Max. 0.47 μ F, min. 275Vac, 85°C, X2 type	IEC 60384-14 EN 60384-14	VDE 40028973
(Alternative)	Shantou High-New Technology Dev. Zone Songtian Enterprise Co., Ltd.	MPX	Max. 0.47 μ F, min. 275Vac, 110°C, X2 type	IEC 60384-14 EN 60384-14	VDE 40034679
Bleeder resistor (R901, R961, R904, R906)	Interchangeable	Interchangeable	560kohm, 1W for each	IEC/EN 62368-1	Tested with appliance
Y-capacitor (C902, C903, C914)	Nanjing Yuyue Electronics Co., Ltd.	CT7	Max. 1000pF, 400Vac, 125°C, Y1 type.	IEC 60384-14 EN 60384-14	VDE 40008013
(Alternative)	Shantou High-New Technology Dev. Zone Songtian Enterprise Co., Ltd.	CD	Max. 1000pF, 250Vac, 125°C, Y1 type.	IEC 60384-14 EN 60384-14	VDE 40025754
Rectifier bridge (D901)	Interchangeable	Interchangeable	Min. 1000V, Min. 15A	IEC/EN 62368-1	Tested with appliance
Electrolytic Capacitor (C911, C912)	Interchangeable	Interchangeable	1000 μ F, min. 200V, 105°C	IEC/EN 62368-1	Tested with appliance
MOSFET (Q902, Q903)	Interchangeable	Interchangeable	Min. 500V, Min. 20A	IEC/EN 62368-1	Tested with appliance
Silicon sleeve between Q902/ Q903 and Heatsink	ZHUHAI LIXING COMPOUND MATERIAL CO LTD	LX-3570	V-0, 150°C, min. thick. : 0.4mm	UL 746	UL E302710
Line filter (L901)	AJ Electronic Technology Limited Company	336320012240A	130°C	IEC/EN 62368-1	Tested with appliance
--Magnet wire	Interchangeable	Interchangeable	Min.130°C	UL 1446	UL
Transformer (T901)	NANJING ZHONGCE ET ELECTRONIC CO., LTD	33700051	Class B	IEC/EN 62368-1	Test with appliance

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
--Bobbin	CHANG CHUN PLASTICS CO LTD	T375J(G5)(G6)	Phenolic, V-0, 150°C, Min.thickness: 0.75mm	UL 94	UL E59481
--(Alternative)	SUMITOMO BAKELITE CO LTD	PM-9820	Phenolic, V-0, 150°C, Min.thickness: 0.75mm	UL 94	UL E41429
--Magnet wire	Interchangeable	Interchangeable	Min.130°C.	UL 1446	UL
--Insulation tape	JINGJIANG JINGYI ADHESIVE PRODUCT CO LTD	JY25-A (b)	130°C	UL 510	UL E246950
--Margin tape	JINGJIANG JINGYI ADHESIVE PRODUCT CO LTD	WF310 (a)	130°C	UL 510	UL E246950
--Tubing	GREAT HOLDING INDUSTRIAL CO LTD	TFT	300Vac, 200°C, VW-1	UL 224	UL E156256
--Varnishes	SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO LTD	T-4260(a)	130°C	UL 1446	UL E228349
Speaker	Interchangeable	Interchangeable	8ohm, 500W	IEC/EN 62368-1	Test with appliance
Heat shrinkable tube	CHANGYUAN ELECTRONICS GROUP CO LTD	CB-HFT	600V, 125°C , VW-1	UL 224	UL E180908
Supplementary information: ¹⁾ Provided evidence ensures the agreed level of compliance. See OD-CB2039					

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests		N/A
(The following mechanical tests are conducted in the sequence noted.)			
4.8.4.2	TABLE: Stress Relief test		---
Part	Material	Oven Temperature (°C)	Comments
--	--	--	--
4.8.4.3	TABLE: Battery replacement test		---
Battery part no. :			---
Battery Installation/withdrawal		Battery Installation/Removal Cycle	Comments
		1	--
		2	--
		3	--
		4	--
		5	--
		6	--
		8	--
		9	--
		10	--
4.8.4.4	TABLE: Drop test		---
Impact Area	Drop Distance	Drop No.	Observations
--	--	--	--
4.8.4.5	TABLE: Impact		---
Impacts per surface	Surface tested	Impact energy (Nm)	Comments
--	--	--	--
4.8.4.6	TABLE: Crush test		---
Test position	Surface tested	Crushing Force (N)	Duration force applied (s)
--	--	--	--
Supplementary information:			

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

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Clause	Requirement + Test	Result - Remark	Verdict

5.2	Table: Classification of electrical energy sources	P
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5.2.2.2 – Steady State Voltage and Current conditions

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions ¹⁾	Parameters			ES Class
				U (Vrms or Vpk)	I (A _{pk} or A _{rms})	Hz	
1	264Va.c. 60Hz	Primary circuits supplied by a.c. mains supply	Normal:	264Vrms	--	0.06k	ES3
			Abnormal:	--	--	--	
			Single fault:	--	--	--	
2	264Va.c. 60Hz	Power board (+15V output)	Normal:	15.40Vdc	--	DC	ES1
			Abnormal:	15.40Vdc	--	DC	
			Single fault: D907 SC	0	--	--	
			Single fault: D908 SC	0	--	--	
			Single fault: U902 Pin IN - OUT SC	15.56Vdc	--	DC	
3	264Va.c. 60Hz	Power board (-15V output)	Normal:	15.40Vdc	--	DC	ES1
			Abnormal:	15.40Vdc	--	DC	
			Single fault: D909 SC	0	--	--	
			Single fault: D910 SC	0	--	--	
			Single fault: U904 Pin IN - OUT SC	15.56Vdc	--	DC	
4	264Va.c. 60Hz	Signal terminal "HP FILT.OUT" to earth	Normal	--	0.283mA _{pk}	60	ES1
			Abnormal	--	0.283mA _{pk}	60	
			All single fault	--	Max.304mA _{pk}	60	
5	264Va.c. 60Hz	Wooden enclosure with metal foil to earth	Normal	--	0.074mA _{pk}	60	ES1
			Abnormal	--	0.074mA _{pk}	60	
			All single fault	--	Max. 0.074mA _{pk}	60	
6	264Va.c. 60Hz	Speaker output	Normal	18.9Vrms	--	100	ES1
			Max. available output	53.7Vrms	--	100	
			Single fault : +VCC to speaker +	0	--	--	

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Clause	Requirement + Test	Result - Remark	Verdict

5.2.2.3 - Capacitance Limits

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class
				Capacitance, nF	Upk (V)	
1	264Va.c. 60Hz	Between L & N	Normal	See table 4.1.2	60	ES1
			Abnormal	--	--	--
			Single fault –	See table 4.1.2	120	ES1

5.2.2.4 - Single Pulses

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

Test Conditions:

Normal – Test with rated output current.

Abnormal – Test with max. output current.

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

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements					P
	Supply voltage (V)	90Vac / 60Hz	132Vac / 60Hz	198Vac / 60Hz	264Vac / 50Hz	—
	Ambient T _{min} (°C)	--	--	--	--	—
	Ambient T _{max} (°C)	--	--	--	--	—
	T _{ma} (°C)	--	--	--	--	—
Maximum measured temperature T of part/at:		T (°C)				Allowed T _{max} (°C)
AC inlet		48.4	52.9	49.9	52.6	70
EMI surface		50.7	56.0	51.9	54.7	Ref.

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Clause	Requirement + Test	Result - Remark			Verdict	
	Switch surface	50.2	55.6	51.9	54.8	85
	Fuse	54.9	60.2	55.2	58.3	Ref.
	Fuse holder	55.4	60.2	54.5	58.0	60*
	Primary internal wire	53.9	58.0	52.9	55.8	105
	AC connector SW902 surface	67.6	71.6	64.5	67.9	85
	X-cap C906 surface	72.5	76.8	67.6	72.0	85
	X-cap C905 surface	79.7	79.8	77.5	78.3	85
	L901 winding	77.9	84.0	71.1	77.4	130
	Y-cap C902 surface	66.7	73.5	64.3	70.5	125
	RT601 surface	113.4	108.6	93.9	90.5	Ref.
	PCB surface near D901	78.4	81.6	73.8	76.8	130
	E-cap C911 surface	68.8	76.6	67.4	74.1	105
	E-cap C912 surface	61.6	69.7	61.8	68.5	105
	E-cap C913 surface	52.3	58.4	52.8	55.6	105
	PCB surface near Q902	59.1	69.0	61.8	68.5	130
	PCB surface near Q903	61.2	74.8	64.2	74.9	130
	Heatsink HS1 surface	57.3	66.4	59.8	65.6	Ref.
	PCB surface near U901	58.5	69.6	61.4	68.5	130
	Y-cap C914 surface	66.8	77.1	67.3	75.5	125
	Transformer T901 core	73.1	90.6	76.8	91.0	110
	Transformer T901 winding	74.0	94.9	79.4	96.4	110
	PCB surface near U904	61.5	77.7	63.4	77.9	130
	PCB surface near U903	61.4	71.1	63.4	70.3	130
	PCB surface near D908	65.8	77.7	67.6	76.9	130
	Heatsink HS2 surface	58.5	67.2	60.3	66.4	Ref.
	L903 winding	66.2	79.4	69.3	78.9	130
	E-cap C930 surface	66.8	78.9	69.4	78.1	105
	E-cap C931 surface	66.5	79.5	69.6	78.7	105
	L101 surface	82.5	113.5	90.4	114.0	130
	L201 surface	77.0	103.2	83.9	103.0	130
	PCB surface near L101	71.3	89.4	76.1	89.2	130
	PCB surface near L201	66.3	81.3	69.9	81.2	130
	PCB surface near Q104	78.0	98.3	84.1	98.6	130
	PCB surface near Q107	77.0	97.0	82.5	96.9	130
	PCB surface near U101	88.5	103.2	95.6	102.2	130

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Clause	Requirement + Test	Result - Remark			Verdict		
PCB surface near U201	78.4	94.9	83.4	94.9	130		
PCB surface near U23(on signal board)	65.6	73.0	67.5	71.9	130		
PCB surface near U2(on signal board)	58.9	65.5	60.5	64.3	130		
IN2 surface(on signal board)	56.3	62.5	57.6	61.1	130		
Lead wire to speaker	51.5	56.4	50.7	53.1	105		
Metal enclosure inside near HS3	57.0	65.9	62.8	67.8	Ref.		
Wooden enclosure inside near transformer	52.9	60.1	53.8	58.7	Ref.		
Ambient	35.0	35.0	35.0	35.0	--		
Below points are tested based on ambient around 25°C							
Metal enclosure outside near AC inlet	42.0	45.3	43.4	46.3	60		
Metal enclosure outside near HS1	44.0	47.5	45.4	48.2	60		
Metal enclosure outside near HS2	43.3	48.7	43.5	49.2	60		
Metal enclosure outside near HS3	45.5	48.0	45.0	49.2	60		
Metal enclosure outside near opening	42.3	47.0	43.2	46.2	60		
Wooden enclosure outside near power board	40.6	43.0	42.9	44.6	107		
Knob	35.9	37.7	37.6	38.6	60		
Button	40.0	43.6	42.0	44.3	60		
Ambient	28.4	27.7	28.5	28.0	--		
Supplementary information: Note 1: The apparatus was submitted and evaluated for maximum manufacturer's recommended ambient (T _{ma}) of 35°C. Note 2: The temperatures were measured under the worse case normal mode defined in table B.2.5. Note 3: Temperature limits are calculated as follows: Winding components providing safety isolation: Class B → T _{max} = 120 – 10 = 110°C Note 4: The values for T (°C) are re-calculated from ambient to reflect the ambient temperature value of 25°C. * Limit of accessible part used.							
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)							

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Clause	Requirement + Test	Result - Remark	Verdict

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

5.4.2.2, 5.4.2.4 and 5.4.3	TABLE: Minimum Clearances/Creepage distance						P
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz)	Required cl (mm)*	cl (mm) ²	Required ³ cr (mm)	cr (mm)
L/N on mains switch (B)	340	240	0.06	1.27	8.1	2.4	8.1
Live parts on mains switch to earthed metal panel (B)	340	240	0.06	1.27	13.1	2.4	13.1
Live parts on power board to earthed metal panel under C908 (B) [#]	340	240	0.06	1.27	9.1	2.4	9.1
Different polarities of mains on PCB (B)	340	240	0.06	1.27	4.4	2.4	4.4
Line / Neutral to earth on PCB trace (B)	340	240	0.06	1.27	2.8	2.4	2.8
Primary to earth trace under Y-capacitor (C902) (B)	340	240	0.06	1.27	2.9	2.4	2.9
Primary to earth trace under Y-capacitor (C903) (B)	340	240	0.06	1.27	2.8	2.4	2.8
Primary pin of C902 to earthed heat sink (HEAT1) (B)	340	240	0.06	1.27	5.5	2.4	5.5
Primary winding of L901 to earthed heat sink (HEAT1) (B)	340	240	0.06	1.27	10.7	2.4	10.7
Primary component C911 to earthed heat sink (HEAT2) (B)	340	240	0.06	1.27	3.2	2.4	3.2
Primary component C946 to earthed heat sink (HEAT2) (B)	340	240	0.06	1.27	3.4	2.4	3.4
Primary component Q902/Q903 to earthed heat sink (HEAT2) (B)	340	240	0.06	1.27	3.5 ²⁾	2.4	3.5 ²⁾
Primary component C945 to earthed heat sink (HEAT2) (B)	340	240	0.06	1.27	2.4	2.4	2.4
Primary component C960 to earthed heat sink (HEAT2) (B)	340	240	0.06	1.27	4.9	2.4	4.9
Primary component C963 to earthed heat sink (HEAT2) (B)	340	240	0.06	1.27	4.9	2.4	4.9

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Clause	Requirement + Test			Result - Remark			Verdict
Primary component C959 to earthed heat sink (HEAT2) (B)	340	240	0.06	1.27	4.1	2.4	4.1
Primary to secondary trace under Y-capacitor (C914) (R)	340	240	0.06	2.54	6.5	4.8	9.5 ¹⁾
Transformer (T901)							
Primary traces to secondary traces under transformer (T901) (R)	448	240	26.3	2.54	30.0	4.8	30.0
Secondary component L903 to core of T901 (B)*	448	240	26.3	1.27	8.7	2.4	8.7
Secondary component C928/C930 to core of T901 (B)*	448	240	26.3	1.27	9.1	2.4	9.1
Core of transformer T901 to earthed heat sink (HEAT1) (B)*	448	240	26.3	1.27	8.0	2.4	8.0
Supplementary information:							
1. 1.7mm slot gap between pins of C914;							
2. Q902 and Q903 are wrapped around by a silicon tube, measured from trace under Q1 to earthed metal chassis.							
3. * Core of transformer T901 is considered as intermediate conductive part							
4. The transformers construction refers to appended table G.5.3.							
5. Unless otherwise specified, the worst conditions of Cl. & Cr. In above mentioned locations have been considered and listed. Unless otherwise specified, the worst case conditions of Cl. & Cr. in above mentioned locations have been considered and listed.							
6. B=Basic insulation, S=Supplementary, R=Reinforced insulation.							
Note 1: Only for frequency above 30 kHz							
Note 2: See table 5.4.2.4 if this is based on electric strength test							
Note 3: Provide Material Group IIIa/IIIb.							

5.4.2.3	TABLE: Minimum Clearances distances using required withstand voltage			P
	Overvoltage Category (OV):			II
	Pollution Degree:			2
Clearance distanced between:	Required withstand voltage	Required cl (mm)	Measured cl (mm)	
See table 5.4.2.2, 5.4.2.4 and 5.4.3 above.	2500Vpeak	1.5 for BI/SI 3.0 for RI	See table 5.4.2.2, 5.4.2.4 and 5.4.3 above.	

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

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Clause	Requirement + Test	Result - Remark	Verdict
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Supplementary information:

5.4.4.2, 5.4.4.5 c) 5.4.4.9	TABLE: Distance through insulation measurements					P
Distance through insulation di at/of:	Peak voltage (V)	Frequency (Hz)	Material	Required DTI (mm)	DTI (mm)	
Bobbin of T901	448	18k	1)	0.4	1)	
Wooden enclosure	340	<30k	1)	0.4	1)	

Supplementary information: See also sub-clause 5.4.4.9.
1). See appended table 4.1.2.

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:	Voltage shape (AC, DC)	Test voltage (Vpeak)	Breakdown Yes / No	
Different polarity of mains (primary fuse opened)	DC	2500	No	
Live parts of mains parts and metal enclosure	DC	2500	No	
Live parts of mains parts and wooden enclosure(with metal foil)	DC	4000	No	
Live parts of mains parts and accessible terminals	DC	4000	No	
Transformer T901: primary to secondary	DC	4000	No	
Transformer T901: core to secondary	DC	2500	No	
Transformer T901: core to primary	DC	2500	No	
One layer insulation tape used in switching isolating transformer	DC	4000	No	
Silicon sheet for covering Q902/Q903	DC	2500	No	
Plastic pad under heatsink of Q902/Q903	DC	2500	No	

Supplementary information:
1. Core of T901 is considered as intermediate conductive part.
2. Test after humidity treatment, heating test, and for unit primary to secondary, primary to plastic enclosure electric strength after each fault condition test. Tests were performed on product with each source listed in table 4.1.2.
3. The DC voltage source was performed on all testing once in forward and once in reverse.

5.5.2.2	TABLE: Stored discharge on capacitors					P
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification	
264V, 60Hz	Phase to Neutral	N	On	24	ES1	

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Clause	Requirement + Test			Result - Remark	Verdict
264V, 60Hz	Phase to Neutral	N	OFF	8	ES1
264V, 60Hz	Phase to Neutral	S (R901 open circuit)	On	68	ES2
264V, 60Hz	Phase to Neutral	S (R901 open circuit)	OFF	8	ES1

Supplementary information:

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

X-capacitors installed for testing are: See table 4.1.2

bleeding resistor rating: See table 4.1.2

ICX:

Notes:

A. Test Location:

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

B. Operating condition abbreviations:

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

5.6.6.2	TABLE: Resistance of protective conductors and terminations				P
Accessible part	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)	
Earthing pin of inlet to farthest point of earthed metal enclosure	32	2	0.8	0.025	

Supplementary Information:

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part		P
Supply voltage	264Vac		—
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)
Earthed metal enclosure	1 (e open, normal and reverse polarity p)		0.663mApk
--	2* (neutral open (switch n), earth intact and normal polarity, again in reverse polarity (switch p)		--
--	3 (for IT system, each phase conductor faulted to earth, one at a time (switch g)		--

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Clause	Requirement + Test	Result - Remark	Verdict
--		4 (for three-phase, each phase conductor open, one at a time switches I)	--
--		5 (IT power system or three phase delta system)	--
--		6 (three-phase for use on centre-earthed delta supply system)	--
--		8 (incidental electrically connected to other parts)	--

Notes:

[1] Supply voltage is the anticipated maximum Touch Voltage

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

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

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

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

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	
Power supply	Normal operation	Power (W) :	>100	>100	PS3	
		V _A (V) :	240	240		
		I _A (A) :	--	--		
Power board +15V output	Normal operation	Power (W) :	18.63	18.63	PS2	
		V _A (V) :	13.80	13.80		
		I _A (A) :	1.35	1.35		
	Single fault: D907 SC	Single fault: D907 SC	Power (W) :	0	--	PS1
			V _A (V) :	0	--	
			I _A (A) :	0	--	
	Single fault: D908 SC	Single fault: D908 SC	Power (W) :	0	--	PS1
			V _A (V) :	0	--	
			I _A (A) :	0	--	
Single fault: U902 Pin IN - OUT SC	Single fault: U902 Pin IN - OUT SC	Power (W) :	1.90	--	PS1	
		V _A (V) :	14.95	--		
		I _A (A) :	0.13	--		

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Clause	Requirement + Test	Result - Remark		Verdict	
Power board -15V output	Normal operation	Power (W) :	18.96	18.96	PS2
		V _A (V) :	13.74	13.74	
		I _A (A) :	1.38	1.38	
	Single fault: D909 SC	Power (W) :	0	--	PS1
		V _A (V) :	0	--	
		I _A (A) :	0	--	
	Single fault: D910 SC	Power (W) :	0	--	PS1
		V _A (V) :	0	--	
		I _A (A) :	0	--	
	Single fault: U904 Pin IN - OUT SC	Power (W) :	2.08	--	PS1
		V _A (V) :	14.88	--	
		I _A (A) :	0.14	--	
Speaker output	Normal condition	Power (W) :	44.6	44.6	PS2
		V _A (V) :	18.9	18.9	
		I _A (A) :	2.36	2.36	
	Max. available output power	Power (W) :	360.3	360.3	PS3
		V _A (V) :	53.7	53.7	
		I _A (A) :	6.71	6.71	
Signal terminal "HP FILT.OUT"	Normal condition	Power (W) :	0	--	PS1
		V _A (V) :	2.64	--	
		I _A (A) :	0	--	
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
All circuit / component inside the EUT except for Signal terminal	--	--	--	Yes (Declaration)
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. All conductors and devices are considered as PIS.				

6.2.3.2	Table: Determination of Potential Ignition Sources (Resistive PIS)			P
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Clause	Requirement + Test	Result - Remark	Verdict

Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No
All circuit / component inside the EUT except for Signal terminal	--	--	--	--	Yes (Declaration)

Supplementary Information:

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

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

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

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

B.2.5	TABLE: Input test						P
U (Vac)/Freq (Hz)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No.	I fuse (A)	Condition/status
90/50	1.049	--	58.9	--	FUSE	1.049	IN mode , 100Hz sine wave signal input, 1/8 Maximum available output power to speakers, Speaker output : 18.9V,
100/50	1.005	--	61.9	600	FUSE	1.005	
120/50	0.937	--	66.8	600	FUSE	0.937	
132/50	0.918	--	70.8	--	FUSE	0.918	

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Clause	Requirement + Test				Result - Remark		Verdict
90/60	1.045	--	58.7	--	FUSE	1.045	44.6W
100/60	1.008	--	61.9	600	FUSE	1.008	
120/60	0.933	--	66.7	600	FUSE	0.933	
132/60	1.043	--	58.6	--	FUSE	1.043	
198/50	0.623	--	61.6	--	FUSE	0.623	IN mode , 100Hz sine wave signal input, 1/8 Maximum available output power to speakers, Speaker output : 18.9V, 44.6W
220/50	0.595	--	64.6	600	FUSE	0.595	
240/50	0.585	--	67.2	600	FUSE	0.585	
264/50	0.571	--	71.9	--	FUSE	0.571	
198/60	0.620	--	61.5	--	FUSE	0.620	
220/60	0.597	--	64.7	600	FUSE	0.597	
240/60	0.583	--	67.2	600	FUSE	0.583	
264/60	0.570	--	71.9	--	FUSE	0.570	
90/50	1.045	--	58.7	--	FUSE	1.045	LINK mode , 100Hz sine wave signal input, 1/8 Maximum available output power to speakers, Speaker output : 18.9V, 44.6W
100/50	0.997	--	61.6	600	FUSE	0.997	
120/50	0.940	--	66.9	600	FUSE	0.940	
132/50	0.917	--	70.6	--	FUSE	0.917	
90/60	1.043	--	58.5	--	FUSE	1.043	
100/60	1.010	--	61.9	600	FUSE	1.010	
120/60	0.936	--	66.8	600	FUSE	0.936	
132/60	1.040	--	58.5	--	FUSE	1.040	
198/50	0.625	--	61.7	--	FUSE	0.625	LINK mode , 100Hz sine wave signal input, 1/8 Maximum available output power to speakers, Speaker output : 18.9V, 44.6W
220/50	0.590	--	64.4	600	FUSE	0.590	
240/50	0.586	--	67.4	600	FUSE	0.586	
264/50	0.571	--	71.9	--	FUSE	0.571	
198/60	0.622	--	61.3	--	FUSE	0.622	
220/60	0.595	--	64.5	600	FUSE	0.595	
240/60	0.587	--	67.3	600	FUSE	0.587	
264/60	0.565	--	71.8	--	FUSE	0.565	
Supplementary information: The measured input power at rated voltage shall be less than or equal to 110 % of rated current.							

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

IEC 62368-1								
Clause	Requirement + Test					Result - Remark		Verdict
Ambient temperature (°C)						25 °C, if not specified		—
Power source for EUT: Manufacturer, model/type, output rating ..						--		—
Component No.	Abnormal condition / Fault condition	Supply voltage, (Vac)	Test time (s)	Fuse No.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Test voltage :132Vac								
Speaker	Max. available	132	2hrs 57mins	FUSE	3.020	Type J	Winding for transformer T901 : 117.1 PCB near U101 : 118.1 Ambient : 35.0 Metal enclosure, outside : 66.5 Ambient : 27.7	Unit normal working. The max. temperature was obtained. After testing, no hazards.
Ventilation opening	Blocked	132	2hrs 10mins	FUSE	0.918	Type J	Winding for transformer T901 : 98.2 PCB near U101 : 106.5 Ambient : 35.0 Metal enclosure, outside : 63.2 Ambient : 28.4	Unit normal working. The max. temperature was obtained. After testing, no hazards.
Speaker	SC	132	2hrs 2mins	FUSE	0.417	Type J	Winding for transformer T901 : 90.5 PCB near U101 : 98.0 Ambient : 35.0 Metal enclosure, outside : 58.0 Ambient : 27.6	Unit shutdown immediately. No damage, no hazard.
Test voltage :264Vac								
Speaker	Max. available	264	2hrs 57mins	FUSE	1.804	Type J	Winding for transformer T901 : 120.7 PCB near U101 : 120.3 Ambient : 35.0 Metal enclosure, outside : 66.4 Ambient : 28.3	Unit normal working. The max. temperature was obtained. After testing, no hazards.

IEC 62368-1								
Clause	Requirement + Test					Result - Remark		Verdict
Ventilation opening	Blocked	264	2hrs 12mins	FUSE	0.571	Type J	Winding for transformer T901 : 94.9 PCB near U101 : 107.1 Ambient : 35.0 Metal enclosure, outside : 64.6 Ambient : 28.4	Unit normal working. The max. temperature was obtained. After testing, no damaged, no hazards.
Speaker	SC	264	2hrs 15mins	FUSE	0.256	Type J	Winding for transformer T901 : 92.9 PCB near U101 : 100.5 Ambient : 35.0 Metal enclosure, outside : 56.9 Ambient : 28.2	Unit shutdown immediately. No damage, no hazard.
T901 output (load between C957)	OL	264	3hrs 11mins	FUSE	0.571→ 0.605→ 0.180	Type J	Winding for transformer T901 : 97.5 PCB near U101 : 106.7 Ambient : 35.0 Metal enclosure, outside : 63.1 Ambient : 28.2	When output load 0.3A, unit shut down. The max. temperature was obtained. After testing, no damaged, no hazards.
T901 output (load between C920)	OL	264	4hrs 13mins	FUSE	0.571→ 1.320→ 1.485→ 0.180	Type J	Winding for transformer T901 : 105.9 PCB near U101 : 113.1 Ambient : 35.0 Metal enclosure, outside : 63.1 Ambient : 28.1	When output load 2.2A, unit shut down. The max. temperature was obtained. After testing, no damaged, no hazards.

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

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) OL: Overloaded, SC=Short circuit.
- 2) The test result shown all safeguards remained effective and didn't lead to a single fault condition during abnormal operating condition; besides, all safeguards complied with applicable requirements in this standard after restoration of normal operating conditions.
- 3) The test result shown no Class 1 or 2 energy source become Class 3 level during and after single fault condition.
- 4) The overloaded condition is according to annex G.5.3.3.
Winding Limit for Transformer winding: 175°C -10°C = 165°C (class B)
Others limit see below
Metal enclosure, outside :70.0°C

B.4		TABLE: Abnormal operating and 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 / Fault condition	Supply voltage, (Vac)	Test time (s)	Fuse No.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Test voltage :132Vac								
C911	SC	132	1s	FUSE	0	--	--	Fuse (8A) opened immediately, no hazard.
C912	SC	132	1s	FUSE	0	--	--	Fuse (8A) opened immediately, no hazard.
D901 Pin 1-2	SC	132	1s	FUSE	0	--	--	Fuse (8A) opened immediately, no hazard.
U1 Pin 1-4	SC	132	1s	FUSE	0	--	--	Fuse (8A) opened immediately, no hazard.
U1 Pin 1-5	SC	132	1s	FUSE	0	--	--	Fuse (8A) opened immediately, no hazard.
Q902 Pin G-S	SC	132	10min	FUSE	0.185	--	--	Unit shutdown immediately. No damage, no hazard.

IEC 62368-1								
Clause	Requirement + Test					Result - Remark		Verdict
Q902 Pin G-D	SC	132	1s	FUSE	0	--	--	Fuse (8A) opened immediately, no hazard.
Q902 Pin S-D	SC	132	1s	FUSE	0	--	--	Fuse (8A) opened immediately, no hazard.
Q903 Pin G-S	SC	132	10min	FUSE	0.185	--	--	Unit shutdown immediately. No damage, no hazard.
Q903 Pin G-D	SC	132	1s	FUSE	0	--	--	Fuse (8A) opened immediately, no hazard.
Q903 Pin S-D	SC	132	1s	FUSE	0	--	--	Fuse (8A) opened immediately, no hazard.
R927	SC	132	1s	FUSE	0	--	--	Fuse (8A) opened immediately, no hazard.
T901 Pin 1-2	SC	132	10min	FUSE	0.185	--	--	Unit shutdown immediately. No damage, no hazard.
T901 Pin 2-4	SC	132	10min	FUSE	0.185	--	--	Unit shutdown immediately. No damage, no hazard.
T901 Pin 7-9	SC	132	10min	FUSE	0.185	--	--	Unit shutdown immediately. No damage, no hazard.
T901 Pin 10-12	SC	132	10min	FUSE	0.185	--	--	Unit shutdown immediately. No damage, no hazard.
T901 Pin 12-14	SC	132	10min	FUSE	0.185	--	--	Unit shutdown immediately. No damage, no hazard.
T901 Pin 16-17	SC	132	10min	FUSE	0.185	--	--	Unit shutdown immediately. No damage, no hazard.

IEC 62368-1								
Clause	Requirement + Test					Result - Remark		Verdict
T901 Pin 17-18	SC	132	10min	FUSE	0.185	--	--	Unit shutdown immediately. No damage, no hazard.
D902	SC	132	10min	FUSE	0.185	--	--	Unit shutdown immediately. No damage, no hazard.
D903	SC	132	10min	FUSE	0.185	--	--	Unit shutdown immediately. No damage, no hazard.
D907	SC	132	10min	FUSE	0.185	--	--	Unit shutdown immediately. No damage, no hazard.
D908	SC	132	10min	FUSE	0.185	--	--	Unit shutdown immediately. No damage, no hazard.
D909	SC	132	10min	FUSE	0.185	--	--	Unit shutdown immediately. No damage, no hazard.
D910	SC	132	10min	FUSE	0.185	--	--	Unit shutdown immediately. No damage, no hazard.
C930	SC	132	10min	FUSE	0.185	--	--	Unit shutdown immediately. No damage, no hazard.
C931	SC	132	10min	FUSE	0.185	--	--	Unit shutdown immediately. No damage, no hazard.
U902 Pin IN - OUT	SC	132	10min	FUSE	0.918	--	--	Unit work normally. No damage, no hazard.
U904 Pin IN - OUT	SC	132	10min	FUSE	0.918	--	--	Unit work normally. No damage, no hazard.
C957	SC	132	10min	FUSE	0.256	--	--	Unit shutdown immediately. No damage, no hazard.

IEC 62368-1								
Clause	Requirement + Test					Result - Remark		Verdict
C958	SC	132	10min	FUSE	0.256	--	--	Unit shutdown immediately. No damage, no hazard.
C947	SC	132	10min	FUSE	0.256	--	--	Unit shutdown immediately. No damage, no hazard.
C948	SC	132	10min	FUSE	0.256	--	--	Unit shutdown immediately. No damage, no hazard.
+VCC - GND	SC	132	10min	FUSE	0.185	--	--	Unit shutdown immediately. No damage, no hazard.
-VCC - GND	SC	132	10min	FUSE	0.185	--	--	Unit shutdown immediately. No damage, no hazard.
+15V - GND	SC	132	10min	FUSE	0.256	--	--	Unit shutdown immediately. No damage, no hazard.
-15V - GND	SC	132	10min	FUSE	0.256	--	--	Unit shutdown immediately. No damage, no hazard.
Voltage selector	Set to (230V)	132	10min	FUSE	0.155	--	--	Unit shutdown immediately. No damage, no hazard.
Test voltage :264Vac								
C911	SC	264	1s	FUSE	0	--	--	Fuse (4A) opened immediately, no hazard.
C912	SC	264	1s	FUSE	0	--	--	Fuse (4A) opened immediately, no hazard.
D901 Pin 1-2	SC	264	1s	FUSE	0	--	--	Fuse (4A) opened immediately, no hazard.

IEC 62368-1								
Clause	Requirement + Test					Result - Remark		Verdict
U1 Pin 1-4	SC	264	1s	FUSE	0	--	--	Fuse (4A) opened immediately, no hazard.
U1 Pin 1-5	SC	264	1s	FUSE	0	--	--	Fuse (4A) opened immediately, no hazard.
Q902 Pin G-S	SC	264	10min	FUSE	0.088	--	--	Unit shutdown immediately. No damage, no hazard.
Q902 Pin G-D	SC	264	1s	FUSE	0	--	--	Fuse (4A) opened immediately, no hazard.
Q902 Pin S-D	SC	264	1s	FUSE	0	--	--	Fuse (4A) opened immediately, no hazard.
Q903 Pin G-S	SC	264	10min	FUSE	0.088	--	--	Unit shutdown immediately. No damage, no hazard.
Q903 Pin G-D	SC	264	1s	FUSE	0	--	--	Fuse (4A) opened immediately, no hazard.
Q903 Pin S-D	SC	264	1s	FUSE	0	--	--	Fuse (4A) opened immediately, no hazard.
R927	SC	264	1s	FUSE	0	--	--	Fuse (4A) opened immediately, no hazard.
T901 Pin 1-2	SC	264	10min	FUSE	0.088	--	--	Unit shutdown immediately. No damage, no hazard.
T901 Pin 2-4	SC	264	10min	FUSE	0.088	--	--	Unit shutdown immediately. No damage, no hazard.
T901 Pin 7-9	SC	264	10min	FUSE	0.088	--	--	Unit shutdown immediately. No damage, no hazard.

IEC 62368-1								
Clause	Requirement + Test					Result - Remark		Verdict
T901 Pin 10-12	SC	264	10min	FUSE	0.088	--	--	Unit shutdown immediately. No damage, no hazard.
T901 Pin 12-14	SC	264	10min	FUSE	0.088	--	--	Unit shutdown immediately. No damage, no hazard.
T901 Pin 16-17	SC	264	10min	FUSE	0.088	--	--	Unit shutdown immediately. No damage, no hazard.
T901 Pin 17-18	SC	264	10min	FUSE	0.088	--	--	Unit shutdown immediately. No damage, no hazard.
D902	SC	264	10min	FUSE	0.088	--	--	Unit shutdown immediately. No damage, no hazard.
D903	SC	264	10min	FUSE	0.088	--	--	Unit shutdown immediately. No damage, no hazard.
D907	SC	264	10min	FUSE	0.088	--	--	Unit shutdown immediately. No damage, no hazard.
D908	SC	264	10min	FUSE	0.088	--	--	Unit shutdown immediately. No damage, no hazard.
D909	SC	264	10min	FUSE	0.088	--	--	Unit shutdown immediately. No damage, no hazard.
D910	SC	264	10min	FUSE	0.088	--	--	Unit shutdown immediately. No damage, no hazard.
C930	SC	264	10min	FUSE	0.088	--	--	Unit shutdown immediately. No damage, no hazard.
C931	SC	264	10min	FUSE	0.088	--	--	Unit shutdown immediately. No damage, no hazard.

IEC 62368-1								
Clause	Requirement + Test					Result - Remark		Verdict
U902 Pin IN - OUT	SC	264	10min	FUSE	0.571	--	--	Unit work normally. No damage, no hazard.
U904 Pin IN - OUT	SC	264	10min	FUSE	0.571	--	--	Unit work normally. No damage, no hazard.
C957	SC	264	10min	FUSE	0.180	--	--	Unit shutdown immediately. No damage, no hazard.
C958	SC	264	10min	FUSE	0.180	--	--	Unit shutdown immediately. No damage, no hazard.
C947	SC	264	10min	FUSE	0.180	--	--	Unit shutdown immediately. No damage, no hazard.
C948	SC	264	10min	FUSE	0.180	--	--	Unit shutdown immediately. No damage, no hazard.
+VCC - GND	SC	264	10min	FUSE	0.088	--	--	Unit shutdown immediately. No damage, no hazard.
-VCC - GND	SC	264	10min	FUSE	0.088	--	--	Unit shutdown immediately. No damage, no hazard.
+15V - GND	SC	264	10min	FUSE	0.180	--	--	Unit shutdown immediately. No damage, no hazard.
-15V - GND	SC	264	10min	FUSE	0.180	--	--	Unit shutdown immediately. No damage, no hazard.
Voltage selector	Set to (110V)	264	1s	FUSE	0	--	--	Fuse (4A) opened immediately, no hazard.

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

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) SC: Short-circuited; OC: Open-circuited.
- 2) The test result shown all safeguards remained effective and didn't lead to a single fault condition during abnormal operating condition; besides, all safeguards complied with applicable requirements in this standard after restoration of normal operating conditions.
- 3) The test result shown no Class 1 or 2 energy source become Class 3 level during and after single fault condition.
- 4) For fuse opened condition, carried out for all sources of fuse.

Annex M	TABLE: Batteries								N/A
The tests of Annex M are applicable only when appropriate battery data is not available									--
Is it possible to install the battery in a reverse polarity position?									--
	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition	--	--	--	--	--	--	--	--	--
Max. current during fault condition	--	--	--	--	--	--	--	--	--
Test results:									Verdict
- Chemical leaks									--
- Explosion of the battery									--
- Emission of flame or expulsion of molten metal									--
- Electric strength tests of equipment after completion of tests									--
Supplementary information:									

Annex M.4	Table: Additional safeguards for equipment containing secondary lithium batteries					N/A
Battery/Cell No.	Test conditions	Measurements			Observation	
		U	I (A)	Temp (C)		
--	Normal	--	--	--	--	
--	Abnormal	--	--	--	--	
--	Single fault –SC/OC	--	--	--	--	

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

Supplementary information:

Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)	N/A
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Note: Measured UOC (V) with all load circuits disconnected:

Output Circuit	Components	U _{oc} (Vdc)	I _{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
--	--	--	--	--	--	--
--	--	--	--	--	--	--

Supplementary information:

T.2, T.3, T.4, T.5	TABLE: Steady force test	P
---------------------------	---------------------------------	----------

Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation
Internal component	--	--	10	5	The clearance and creepage distances do not be reduced below the required values.
External enclosure	Wood material	See table 4.1.2	250	5	All safeguards remained effective.
External enclosure	Metal material	See table 4.1.2	250	5	All safeguards remained effective.

Supplementary information:

T.6, T.9	TABLE: Impact tests	P
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Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation
External enclosure	Wood material	See table 4.1.2	1300	All safeguards remained effective.
External enclosure	Metal material	See table 4.1.2	1300	All safeguards remained effective.

Supplementary information:

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

Supplementary information:

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

T.8	TABLE: Stress relief test					N/A
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
--	--	--	--	--	--	
--	--	--	--	--	--	
Supplementary information:						

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

Appendix 1:

5.4.1.8	Table: working voltage measurement				P
Location	Peak voltage (V)	RMS voltage (V)	Frequency(kHz)	Comments	
T901 Pin1 to Pin10	296	138	26.3	--	
T901 Pin1 to Pin12	240	115	26.3	--	
T901 Pin1 to Pin14	264	123	26.3	--	
T901 Pin1 to Pin16	248	120	26.3	--	
T901 Pin1 to Pin17	224	116	26.3	--	
T901 Pin1 to Pin18	200	116	26.3	--	
T901 Pin4 to Pin10	288	139	26.3	--	
T901 Pin4 to Pin12	344	180	26.3	--	
T901 Pin4 to Pin14	424	237	26.3	Max. Vrms of T901	
T901 Pin4 to Pin16	336	167	26.3	--	
T901 Pin4 to Pin17	360	182	26.3	--	
T901 Pin4 to Pin18	376	197	26.3	--	
T901 Pin7 to Pin10	448	208	26.3	Max. Vpk of T901	
T901 Pin7 to Pin12	384	193	26.3	--	
T901 Pin7 to Pin14	408	197	26.3	--	
T901 Pin7 to Pin16	408	199	26.3	--	
T901 Pin7 to Pin17	384	197	26.3	--	
T901 Pin7 to Pin18	368	196	26.3	--	
T901 Pin9 to Pin10	424	200	26.3	--	
T901 Pin9 to Pin12	376	192	26.3	--	
T901 Pin9 to Pin14	440	209	26.3	--	
T901 Pin9 to Pin16	384	196	26.3	--	
T901 Pin9 to Pin17	376	196	26.3	--	
T901 Pin9 to Pin18	392	197	26.3	--	
C914 pri. Pin-sec. pin	384	193	0.06	--	
C903 pri. Pin-sec. pin	368	237	0.06	--	
supplementary information:					
Test voltage/ frequency: 240V/ 60Hz					

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

Appendix 2:

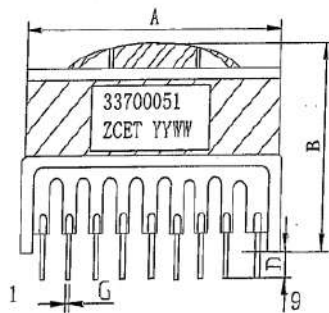
G.5.3	TABLE: transformers (T901)							P
Loc.	Tested insulation	Working voltage peak / V (2.10.2)	Working voltage rms / V (2.10.2)	Required electric strength (5.2)	Required clearance / mm (2.10.3)	Required creepage distance / mm (2.10.4)	Required distance thr. insul. (2.10.5)	
Primary winding to secondary winding	Reinforced insulation	448	240	4000Vdc	3.0	4.8	0.4mm or 2 layers	
Primary winding to core	Basic insulation	448	240	2500Vdc	1.5	2.4	--	
Primary pin to core	Basic insulation	448	240	2500Vdc	1.5	2.4	--	
Secondary winding to core	Supplementary insulation	448	240	2500Vdc	1.5	2.4	0.4mm or 2 layers	
Secondary pin to core	Supplementary insulation	448	240	2500Vdc	1.5	2.4	0.4mm or 2 layers	
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers	
Primary winding to secondary winding	Reinforced insulation			4000Vdc	6.0	6.0	2 layers	
Primary winding to core	Basic insulation			2500Vdc	3.0	3.0	--	
Primary pin to core	Basic insulation			2500Vdc	3.5	3.5	--	
Secondary winding to core	Supplementary insulation			2500Vdc	4.0	4.0	2 layers	
Secondary pin to core	Supplementary insulation			2500Vdc	3.5	3.5	0.4mm	
supplementary information:								

IEC 62368-1

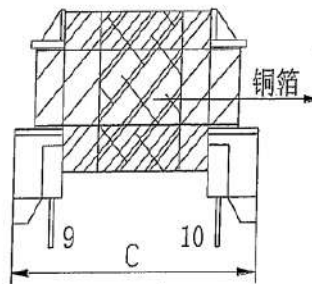
Clause	Requirement + Test	Result - Remark	Verdict
--------	--------------------	-----------------	---------

Concentric windings on single bobbin. Primary and secondary winding leads exit directly through integral flanges in bobbin and secured soldered to the pins moulded into the bobbin. Primary winding wire and secondary winding wire with tube used to ensure the distance between pins of primary/secondary winding and core; it is also used to ensure the distance between pins of secondary/primary to primary/secondary windings. Two layers of insulation tape are provided around outer winding and outer winding is primary. Three layers of insulation tape are provided both between the primary windings and secondary windings.

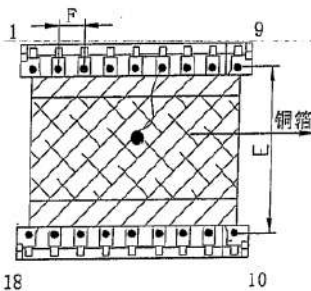
一. OUTLINE DIMENSION/外观尺寸(UNIT/单位:mm)



正视图



侧视图



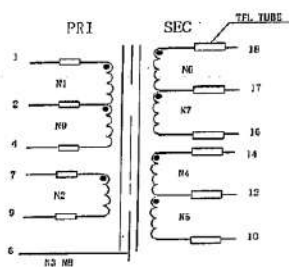
18

10

A	51.5MAX
B	42.0MAX
C	53.0MAX
D	4.5±1.0
E	35.8±0.5
F	5.0±0.5
G	∅1.0±0.1
H	
I	
J	
K	
M	

机密

二. SCHEMATIC/电气原理图



三. WINDING CONSTRUCTION/绕线结构图

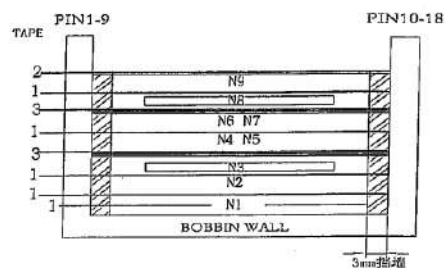


Photo documentation

Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8



Photo 9



Photo 10

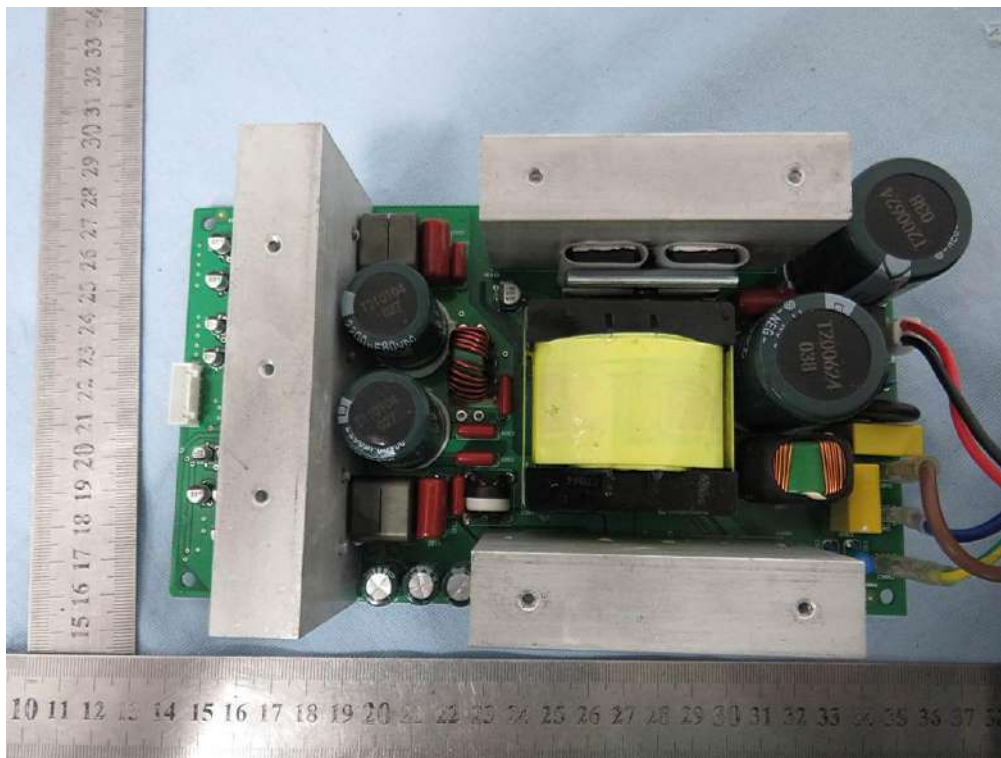


Photo 11

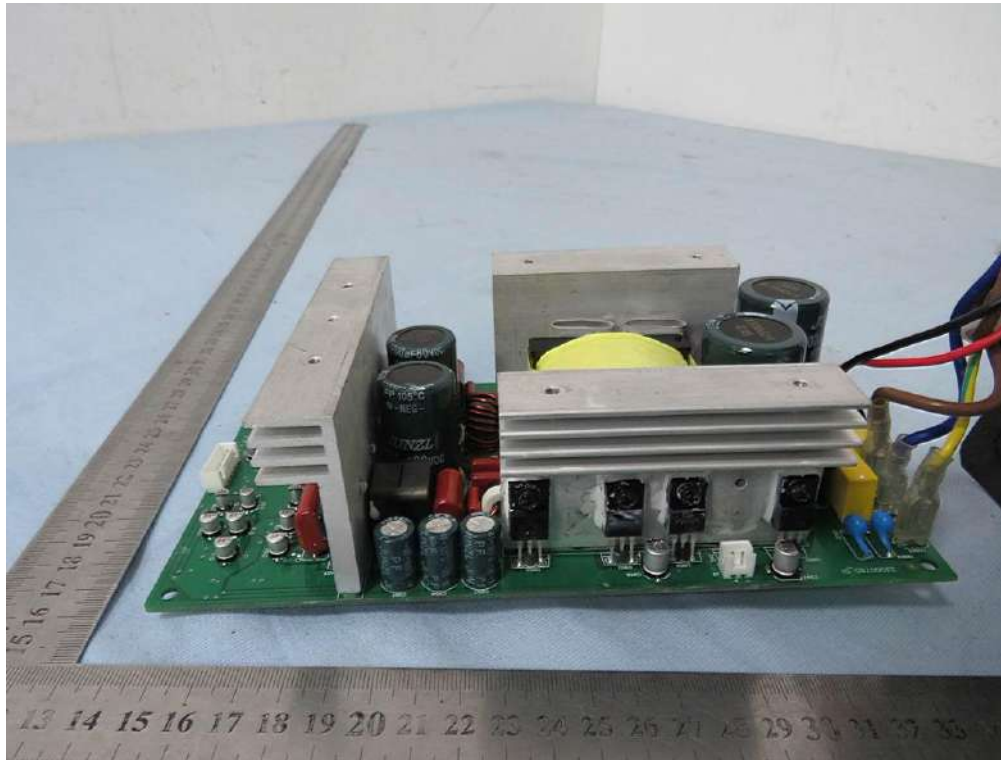


Photo 12

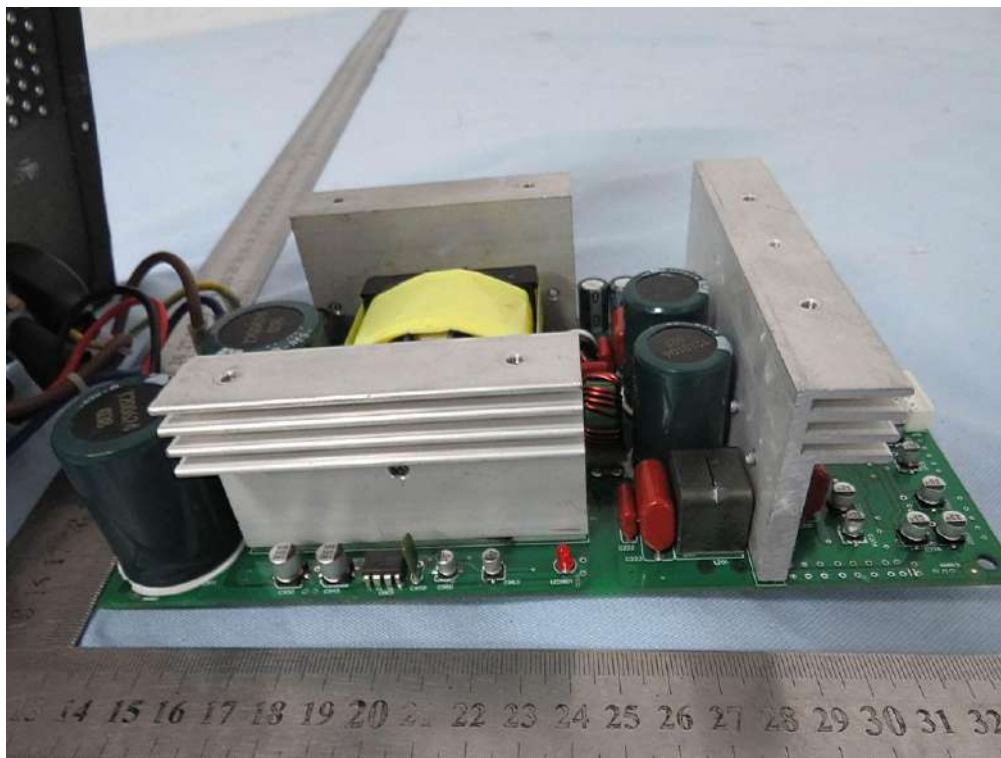


Photo 13

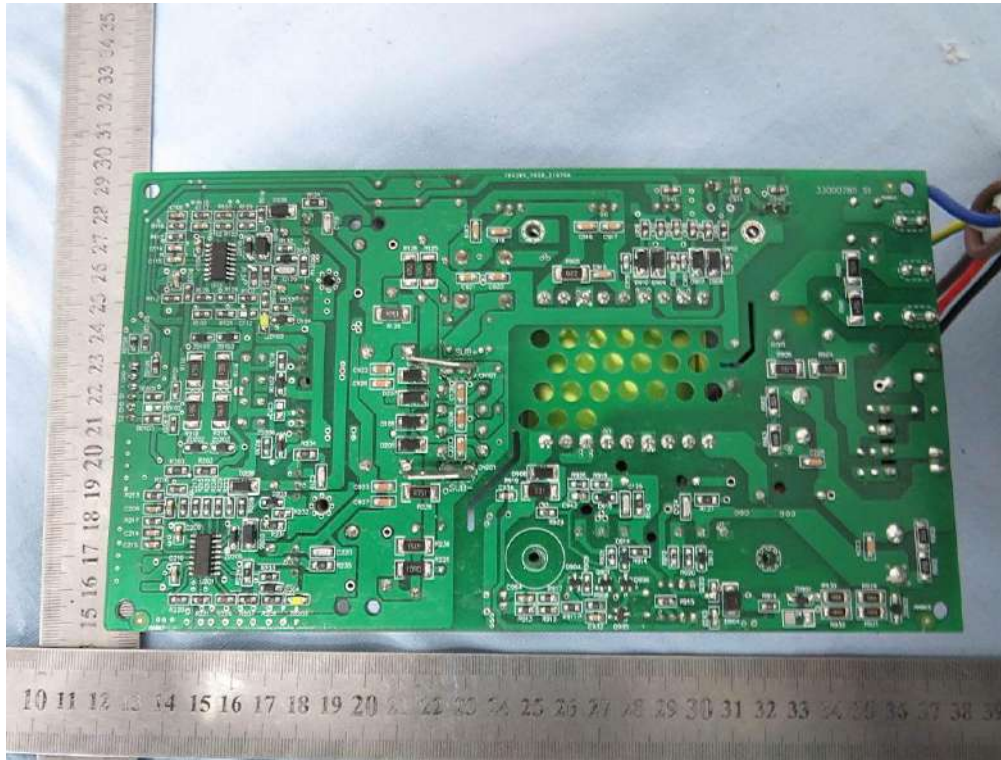


Photo 14

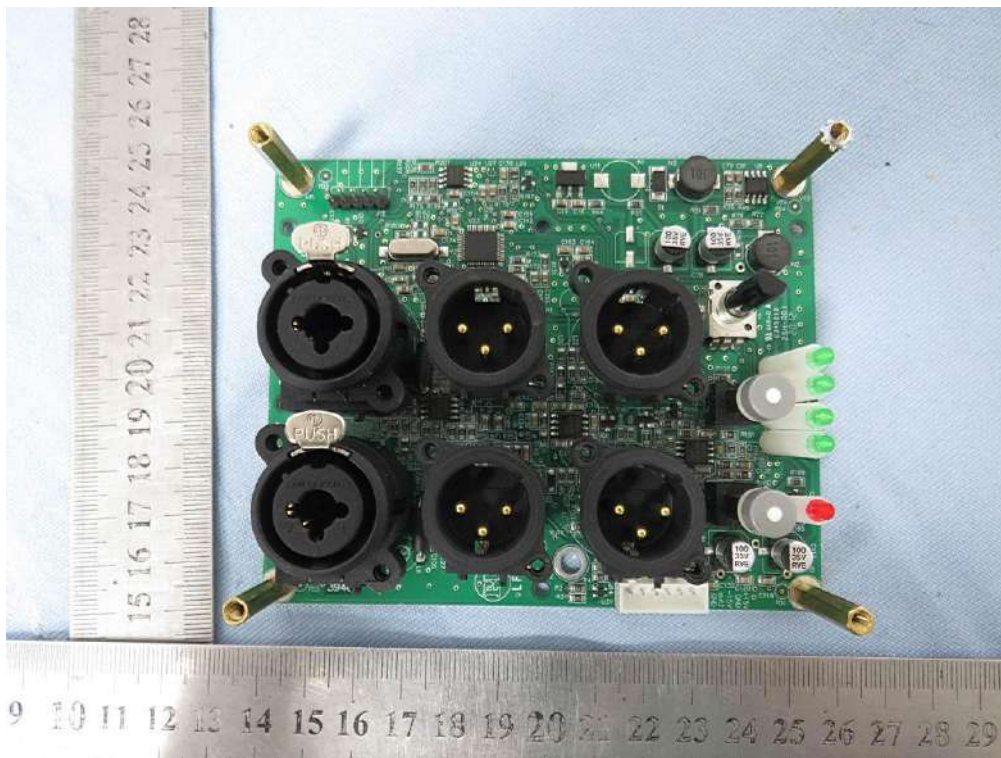


Photo 15

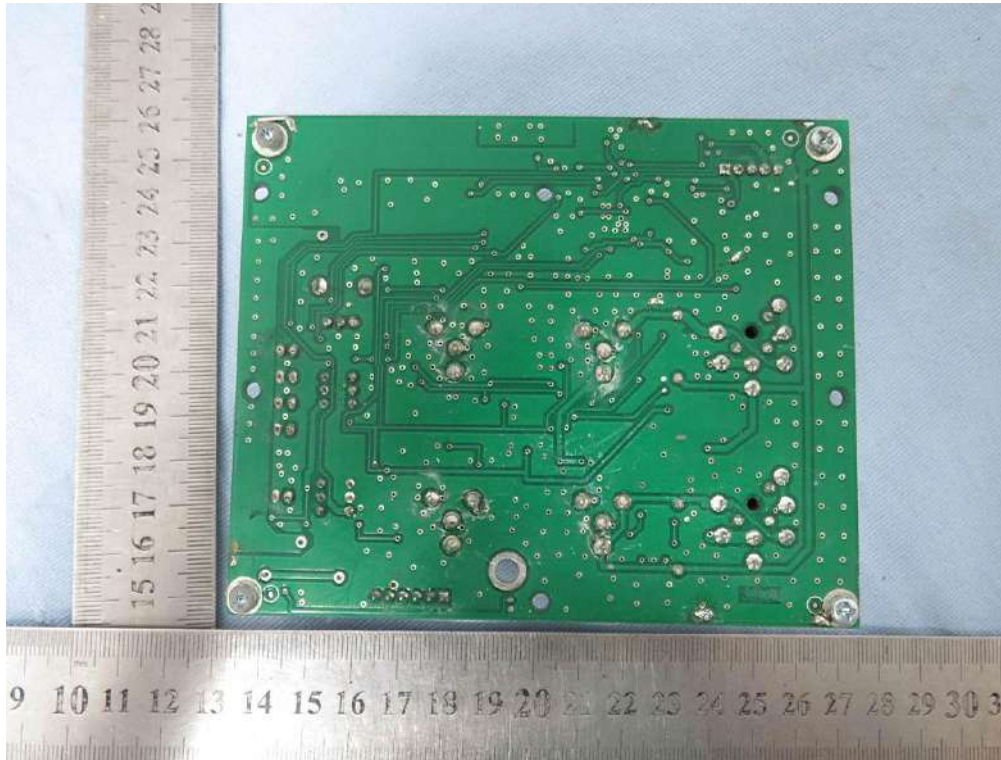
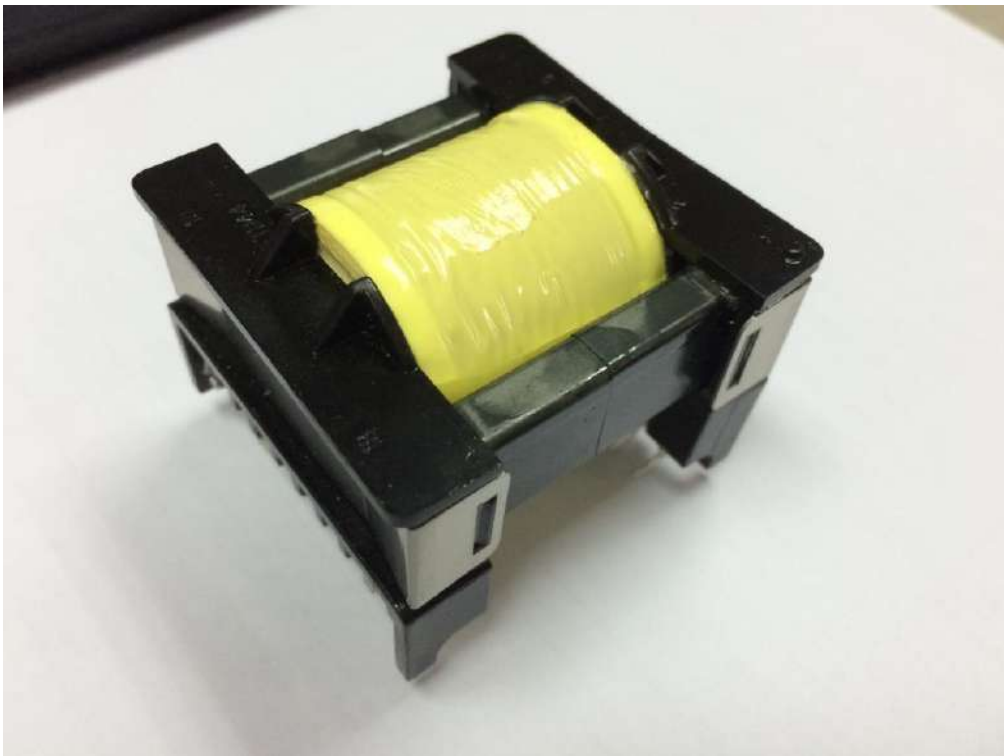


Photo 16



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