

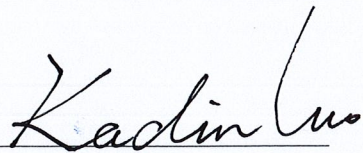
# TEST REPORT

Applicant : SHENZHEN FENDA TECHNOLOGY CO., LTD.  
Address : Fenda Hi-Tech Park, Zhoushi Road, Shiyian Town, Baoan District, Shenzhen City, Guangdong, China  
Manufacturer : SHENZHEN FENDA TECHNOLOGY CO., LTD.  
Address : Fenda Hi-Tech Park, Zhoushi Road, Shiyian Town, Baoan District, Shenzhen City, Guangdong, China  
Product Name : 5.1 Speaker System  
Trade Mark :   
Model No. : F5060X, F5080X, 5090X, F6000X, F6600X  
Ratings : Input: 100-240V~, 50/60Hz, 2.0A  
Standard : Audio, Video and Similar Electronic Apparatus: Safety Requirements EN 60065:2014

Date of Receiver : December 05, 2016  
Date of Test : December 06, 2016 to December 20, 2016  
Date of Issue : January 10, 2017  
Test Report Form No : NTCS-IEC60065-A1-E  
Test Result : Pass \*

This Test Report is Issued Under the Authority of :

Compiled by

  
Kadin Luo/ Engineer

Approved by & Authorized Signer



TESTE

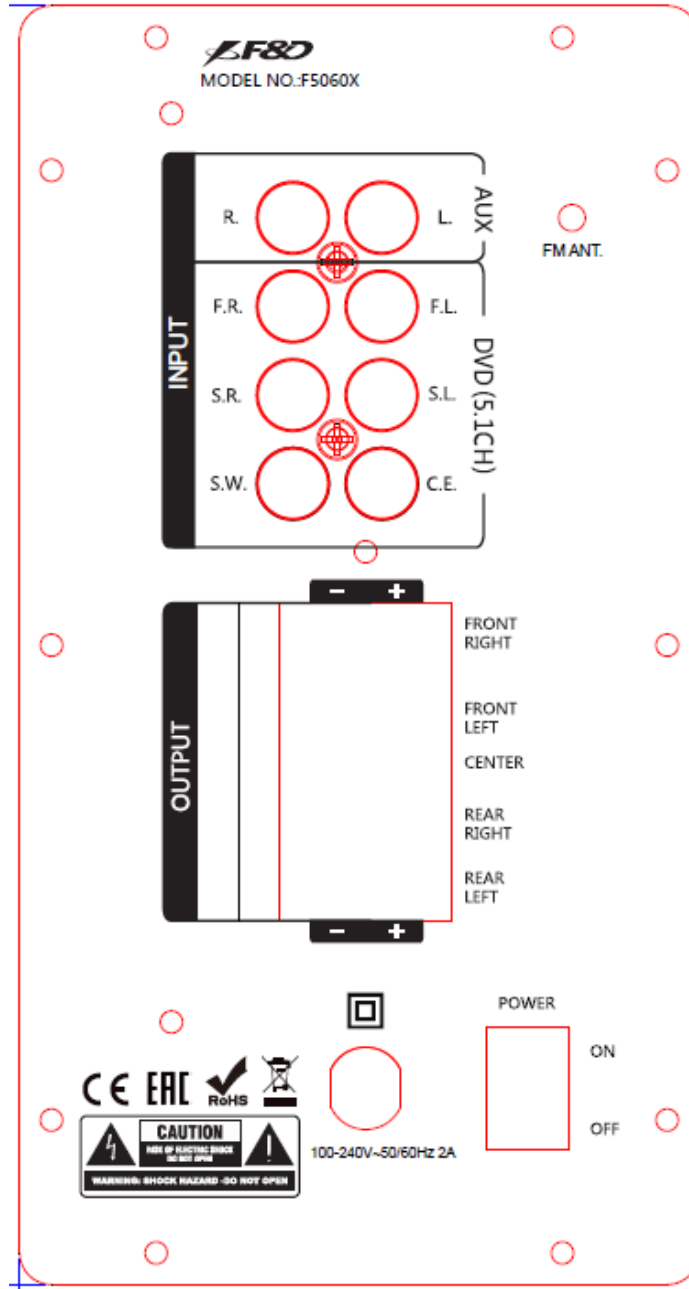
Ryan Luo / Authorized Signatory

\*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: (Representative)



Remarks:

1. The above markings are the minimum requirements required by the safety standard. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.
2. The CE marking and WEEE symbol should be at least 5.0mm and 7.0mm respectively in height.
3. All models are identical to each other except for model number .
4. The address of manufacturer will indicate on its packaging or in a document accompanying the product.
5. The importer information should be marked in product when this product import to European Marketing.

**Summary of testing:**

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

<b>Test item particulars</b> .....	5.1 Speaker System
Classification of installation and use .....	Class II apparatus
Supply Connection .....	Non-detachable power cord with plug

**Possible test case verdicts:**


- test case does not apply to the test object .....	N (N/A)
- test object does meet the requirement .....	P (Pass)
- test object does not meet the requirement .....	F (Fail)


**General remarks:**

"(see Enclosure #)" refers to additional information appended to the report.  
 "(see appended table)" refers to a table appended to the report.  
 Throughout this report a comma is used as the decimal separator.

**General product information:**

- The product covered by this report is a 5.1 Speaker System for Audio, Video and similar electronic apparatus, Class II equipment.
- In this report, the product is to be used under:
  - Maximum operating temperature: +35°C.
  - Altitude less than 2000m.
  - Indoor used only.
- All models are identical in circuitry and electrical, mechanical and physical construction, the only differences are the model names, color of appearance for trading purpose.  
 Unless otherwise noted, all tests were performed on model F5060X to represent the other similar models.
- All tests were measured under the most severe condition and the load conditions used during testing are:
  - The unit have four signal input modes, "R/L, FR/FL, SR/SL, S.W., C.E." input mode, "AUX IN" mode, "Bluetooth" and "USB" mode. Unless other specified, the testing is conducted under "Bluetooth" mode due to larger power consumption.
- USB only as a signal input port.

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
<b>3</b>	<b>GENERAL REQUIREMENTS</b>		P
	Safety class of the apparatus .....	Class II apparatus.	P
<b>4</b>	<b>GENERAL TEST CONDITIONS</b>		P
4.1.4	Ventilation instructions require the use of the test box	The temperature measured in an open-fronted wooden box	P
<b>5</b>	<b>MARKING AND INSTRUCTIONS</b>		P
5.1	General requirements		P
	Comprehensible and easily discernible	Located on enclosure	P
	Permanent durability against water and petroleum spirit	Compliance was checked by rubbing the marking by hand for 15 s with cloth soaked with water and cloth soaked with petroleum spirit, it was durable and legible after the test.	P
5.2	Identification and supply rating		P
	a) Identification, maker .....	See the Copy of marking plate	P
	b) Model number or type reference .....	See the Copy of marking plate	P
	c) Class II symbol or Class II with functional earth symbol if applicable .....		P
	d) Nature of supply .....	~	P
	e) Rated supply voltage .....	100-240V~	P
	f) Mains frequency if safety dependant .....	50/60Hz	P
	g) Rated current or power consumption for apparatus supplied by supply apparatus for general use, on apparatus or in instruction manual .....	The apparatus was intended for connection to an a.c. mains supply.	N
	Measured current or power consumption .....		N
	Deviation % (max 10%) .....		N
	h) Rated current or power consumption for apparatus intended for connection to an a.c. mains supply ..	2A	P
	Measured current or power consumption .....	(See appended table 7.1.)	P
	Measured current or power consumption for Television set .....		N
	Deviation % (max 10%) .....	Not exceed 10%	P
	Symbols explained in the user manual	Complied	P
5.3	Terminals		N
	a) Earth terminal	Class II apparatus.	N

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	b) Hazardous live terminals	No such terminals.	N
	c) Markings on supply output terminals		N
<b>5.4</b>	<b>Caution marking</b>		P
	a) Use of triangle with exclamation mark	 used in circuit diagram	P
	b) Marking on loudspeaker grille, IEC 60417-5036	No such grille used	N
	c) User-replaceable coin / button cell battery marking	AAA size consumer type battery used for remote control device only.	N
<b>5.5</b>	<b>Instructions</b>		P
5.5.1	Safety relevant information	English version user manual was provided (Version in other language will be provided when submitted for national approval)	P
5.5.2	a) Mains powered equipment not exposed to dripping or splashing. Warning concerning objects filled with liquid, etc.	The statement is provided in user's manual.	P
	b) Hazardous live terminals, instructions for wiring	No live terminals.	N
	c) Instructions for replacing lithium battery	No such batteries provided.	N
	d) Class I earth connection warning	Class II apparatus.	N
	e) Instructions for multimedia system connection	The statement is provided in user's manual.	P
	f) Special stability warning for attachment of the apparatus to the floor/wall	No special fixed installation necessary.	N
	g) Warning: battery exposure to heat	Provided in the user manual.	P
	h) Warning: protective film on CRT face	No such device.	N
	i) Warning: Non-floor standing TV >7kg		N
	j) Warning: User replaceable coin / button cell battery		N
5.5.3	a-b) Disconnect device: plug/coupler or all-pole mains switch location, accessibility and markings	Mains plug or all-pole switch used as disconnect device and user manual provided regarding being readily operable	P
	c) Instructions for permanently connected equipment	No such equipment	N
	Marking, signal lamps or similar for completely disconnection from the mains	No such device.	N
<b>6</b>	<b>HAZARDOUS RADIATION</b>		P
6.1	Ionizing radiation < 36 pA/kg (0,5 mR/h)	No ionizing radiation.	N
	Ionizing radiation under fault condition		N
6.2	Laser radiation, emission limits to IEC 60825-1:2007...		N

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	Emission limits under fault conditions .....		N
6.3	Light emitting diodes (LEDs) according to IEC 62471	See appended table 14 for the source details.	P

<b>7</b>	<b>HEATING UNDER NORMAL OPERATING CONDITIONS</b>		P
7.1	General		
7.1.1	Temperature rises not exceeding specified values; fuse links and other protective devices defeated	(See appended table 7.1)	P
7.1.2	Temperature rise of accessible parts	(See appended table 7.1)	P
7.1.3	Temperature rise of parts providing electrical insulation	(See appended table 7.1)	P
7.1.4	Temperature rise of parts acting as a support or as a mechanical barrier	(See appended table 7.1)	P
7.1.5	Temperature rise of windings	(See appended table 7.1)	P
7.1.6	Parts not subject to a limit under 7.1.1 to 7.1.4		N
7.2	Softening temperature of insulating material supporting parts conductively connected to the mains carrying a current > 0,2 A at least 150°C	Phenolic materials used for LF3 and transformer T1 consider as having softening temperature of 150°C, no other parts tested necessary.	N

<b>8</b>	<b>CONSTRUCTIONAL REQUIREMENTS WITH REGARD TO THE PROTECTION AGAINST ELECTRIC SHOCK</b>		P
8.1	Conductive parts covered by lacquer, paper, untreated textile oxide films and beads etc. considered to be bare	No such parts	N
8.2	No shock hazard when changing voltage setting device, fuse-links or handling drawers etc.	No such parts to be operated by user.	N
8.3	Insulation of hazardous live parts not provided by hygroscopic material	No hygroscopic material provided.	P
8.4	No risk of electric shock from accessible parts or from parts rendered accessible following the removal of a cover which can be removed by hand	No removable cover.	N
<b>8.5</b>	<b>Class I apparatus</b>		N
	Basic insulation between hazardous live parts and earthed accessible parts		N
	Resistors bridging basic insulation complying with 14.2a)		N
	Capacitors bridging basic insulation complying with 14.3.2 a)		N
	Protective earthing terminal		N

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
<b>8.6</b>	<b>Class II apparatus</b>		P
	a) Basic and supplementary insulation between hazardous live parts and accessible parts		N
	b) Reinforced insulation between hazardous live parts and accessible parts	Secondary circuit to primary circuit is separated by reinforced insulation or double insulation.	P
<b>8.7</b>	<b>Components bridging insulation</b>		P
	Basic insulation bridged by components complying with 14.4.5.3	No such components.	N
	Components bridging basic, supplementary, double or reinforced insulation complying with 14.2 a) or 14.4	Transformers T1 bridging reinforced insulation complying with 14.4, see clause 14.4.	P
	Basic and supplementary insulation each being bridged by a capacitor or RC-unit complying with 14.3.2 a)	No such components.	N
	Double or reinforced insulation being bridged with 2 capacitors or RC-units in series complying with 14.3.2a)		N
	Double or reinforced insulation being bridged with a single capacitor or RC-unit complying with 14.3.2 b)	See clause 14.3.2	P
<b>8.8</b>	<b>Insulation thickness and thin sheet materials</b>		P
	Basic or supplementary insulation > 0,4 mm (mm) :		N
	Reinforced insulation > 0,4 mm (mm) ..... :	- Approved opto-coupler with thickness at least 0.4mm; - Bobbin of transformers T1 with min. thickness 0.75mm;	P
	Thin sheet material used inside the equipment	Provided in the isolating transformers.	P
	Basic or supplementary insulation, at least two layers, each meeting 10.4		N
	Basic or supplementary insulation, three layers any two of which meet 10.4		N
	Reinforced insulation, two layers each of which meet 10.4		N
	Reinforced insulation, three layers any two which meet 10.4	3 layers insulation tape wrapped on external of transformer T1 as reinforced insulation. 3000Vac applied on any two layer of insulation tape	P



IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
8.9	Adequate insulation between internal hazardous live conductors and accessible parts, or between internal hazardous live parts and conductors connected to accessible parts	Reinforced or double insulation provided between internal hazardous live conductors and secondary circuits which are conductively connected to accessible parts.	P
8.10	Double insulation between accessible parts and conductors connected to the mains	Reinforced or double insulation provided.	P
	Double insulation between conductors connected to accessible parts and parts connected to the mains	Reinforced or double insulation provided.	P
<b>8.11</b>	<b>Detaching of wires</b>		P
	No undue reduction of creepage or clearance distances if wires become detached	Internal secondary wires were connected by pluggable wire, connector or fixed by cable tie and tapes	P
	Vibration test carried out .....	Considered.	P
8.12	Adequate fastening of windows, lenses, lamp covers etc. (pull test 20 N for 10 s)	No such parts	N
8.13	Adequate fastening of covers (push/pull test 50 N for 10 s)	Applied on enclosure only	P
8.14	No risk of damage to the insulation of internal wiring due to hot parts or sharp edges	Internal wires cannot touch hot parts or sharp edges which can damage its insulation.	P
8.15	Only special supply equipment can be used	Not special supply equipment.	N
8.16	Insulated winding wire without additional interleaved insulation		N
8.17	Endurance test as required by 8.16		N
<b>8.18</b>	<b>Disconnection from the mains</b>		P
	Disconnect device	Mains plug or all-pole switch used as disconnect device and user manual provided regarding being readily operable	P
	All-pole switch or circuit breaker with >3mm contact separation	All-pole switch	P
	Mains switch ON indication	Figure "I" used for ON indication	P
8.19	Switch not fitted in the mains cord	No switch fitted on the mains cord	P
8.20	Bridging components comply with clause 14		N
8.21	Non-separable thin sheet material		N

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
<b>9</b>	<b>ELECTRIC SHOCK HAZARD UNDER NORMAL OPERATING CONDITION</b>		P
<b>9.1</b>	<b>Testing on the outside</b>		P
<b>9.1.1</b>	<b>General</b>		P
<b>9.1.1.1</b>	<b>Requirements</b>		P
	Accessible parts shall not be hazardous live	Comply	P
	Inaccessible terminals are not accessible or comply with relevant requirements		P
	For voltages >1000 V ac or >1500 V dc complies with clause 13.3.1 for basic insulation .....	No voltages >1000Vac or >1500Vdc	N
<b>9.1.1.2</b>	<b>Determination of hazardous live parts</b>		P
	a) Open circuit voltages	The open-circuit voltage of the secondary circuit does not exceed 60 Vdc or 35 Vpeak or the touch current measurement was conducted with the test results in appended table 9.1.1.2 b).	P
	b) Touch current measured from terminal devices using the network in annex D .....	The measuring network was according to Annex D, see appended table 9.1.1.2 b).	P
	c) Discharge not exceeding 45 µC	The stores charges did not exceed 45 µC.	P
	d) Energy of discharge not exceeding 350 mJ	Less than 15 kV.	N
9.1.1.3	Test with test finger and test probe	The test finger and probe cannot touch hazardous parts.	P
9.1.2	No hazardous live shafts of knobs, handles or levers	No such parts.	N
9.1.3	Ventilation holes and other holes tested by means of 4 mm x 100 mm test pin	No hazardous live parts can be accessed	P
9.1.4	Terminal devices tested with 1 mm x 20 mm test pin (10 N); test probe D of IEC 61032	No hazardous live parts can be accessed	P
	Terminal devices tested with 1 mm x 100 mm straight wire (1 N); test probe D of IEC 61032	No hazardous live parts can be accessed	P
9.1.5	Pre-set controls tested with 2.5 mm x 100 mm test pin (10 N); test probe C of IEC 61032	No pre-set controls used	N
<b>9.1.6</b>	<b>Withdrawal of the mains plug</b>		P
	No shock hazard due to stored charge after 2 s ... :	18V, 2s after withdrawal of plug under normal operation. (limit: 60Vdc) 26V, 2s after withdrawal of plug with R1 open circuited. (limit: 120Vdc) No hazards.	P
	Bleeder resistor(s) comply with 14.2 or no shock hazard when open circuited	No shock hazard when open circuited. See above.	P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	If C is not greater than 0,1 $\mu$ F no test needed		N
<b>9.1.7</b>	<b>Resistance to external force</b>		P
	a) Test probe 11 of IEC 61032 for 10 s (50 N)	No damage of enclosure and no hazardous live parts are accessible.	P
	b) Test hook of fig. 4 for 10 s (20 N)	No hazardous live parts are accessible.	P
	c) 30 mm diameter test tool for 5 s (100 or 250 N)	100N	P
9.2	No hazard after removing a cover by hand		N

<b>10</b>	<b>INSULATION REQUIREMENTS</b>		P
10.2	Insulation resistance (M ) at least 2 M min. after surge test for basic and 4 M min. for reinforced insulation .....	Tested between primary and accessible parts, after tested, EUT complied with the requirements of 10.4	P
10.3	Humidity treatment 48 h or 120 h .....	95% R.H., 30°C, 48h	P
<b>10.4</b>	<b>Insulation resistance and dielectric strength</b>		P
	Between parts of different polarity directly connected to the mains	(See appended table 10.4)	P
	Between parts separated by BASIC or SUPPLEMENTARY insulation	Class II apparatus.	N
	Between parts separated by REINFORCED insulation	(See appended table 10.4)	P

<b>11</b>	<b>FAULT CONDITIONS</b>		P
11.1	No shock hazard under fault condition		P
<b>11.2</b>	<b>Heating</b>		P
<b>11.2.1</b>	<b>Requirements</b>		P
	No danger of fire to the surroundings	No fire occurred.	P
	Safety not impaired by abnormal heat		P
	Flames extinguish within 10 seconds	No flames occurred	N
	No hazard from softening solder	No softening of solder point.	P
	Soldered terminations not used as protective mechanism	No such part used.	P
11.2.2	Measurement of temperature rises	(see appended table 11.2)	P
11.2.3	Temperature rise of accessible parts	(see appended table 11.2)	P
11.2.4	Temperature rise of parts, other than windings and printed boards, providing electrical insulation	(see appended table 11.2)	P
11.2.5	Temperature rise of parts acting as a support or mechanical barrier	(see appended table 11.2)	P
11.2.6	Temperature rise of windings	(see appended table 11.2)	P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
<b>11.2.7</b>	<b>Printed boards</b>		P
	Temperature rise does not exceed the limits of table 3 or exceed the limits of table 3 by max. 100 K for max. 5 min	(see appended table 11.2)	P
	a) Temperature rise of V-0 or VTM-0 printed circuit boards exceeding the limits of table 3 by not more than 100 K for an area not greater than 2 cm <sup>2</sup>		N
	b) Temperature rise of V-0 or VTM-0 printed circuit boards exceeding the limits of table 3 up to 300 K for an area not greater than 2 cm <sup>2</sup> for a maximum of 5 min		N
	Meets all the special conditions if conductors on printed circuit boards are interrupted		N
	Class I protective earthing maintained	Class II apparatus.	N
11.2.8	Temperature rise of parts not subject to the limits of 11.2.2 to 11.2.7 shall not exceed the limits in table 3, item e), "Fault conditions".		N

<b>12</b>	<b>MECHANICAL STRENGTH</b>		P
<b>12.1</b>	<b>Complete apparatus</b>		P
12.1.1	The apparatus have adequate mechanical strength		P
12.1.2	Bump test where mass >7 kg	Mass= 7.05kg;	P
12.1.3	Vibration test	Complied.	P
12.1.4	Impact hammer test	0.5J, 3 times applied on top, sides, bottom, rear and front of enclosure (After tested, no damage and EUT can withstand the dielectric strength test as specified in 10.4 )	P
	Steel ball test	2J, 1 time applied on top, sides, bottom front of enclosure (After tested, no damage and EUT can withstand the dielectric strength test as specified in 10.4 )	P
12.1.5	Drop test for portable apparatus where mass ≤ 7 kg		N
12.1.6	Thermoplastic enclosures stress relief test		P
12.2	Fixing of knobs, push buttons, keys and levers		P
12.3	Remote controls with hazardous live parts	No such remote controls used.	N
12.4	Drawers (pull test 50 N, 10 s)	No drawers used.	N
12.5	Antenna coaxial sockets providing isolation	No such sockets	N
<b>12.6</b>	<b>Telescoping or rod antennas</b>	<i>No such antennas used</i>	N

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
12.6.1	6,0mm diameter end		N
	Prevented from falling into the apparatus		N
12.6.2	Physical securement, removal prevented		N
<b>12.7</b>	<b>Apparatus containing coin / button cell batteries</b>		N
12.7.2	Reduced possibility for children to remove battery		N
<b>12.7.3</b>	<b>Tests</b>		N
12.7.3.2	Stress relief test		N
12.7.3.3	Battery replacement test		N
12.7.3.4	Drop test		N
12.7.3.5	Impact test		N
12.7.4	Battery not accessible; or not removable		N
<b>13</b>	<b>CLEARANCES AND CREEPAGE DISTANCES</b>		P
13.1	Clearances in accordance with 13.3	Pollution degree 2 and material group IIIb.	P
	Creepage distances in accordance with 13.4		P
13.2	Determination of working voltage		P
<b>13.3</b>	<b>Clearances</b>		P
13.3.1	Comply with 13.3 or Annex J		P
13.3.2	Circuits conductively connected to the mains comply with table 8 and, where applicable, table 9 .....	(See appended table 13.3&13.4)	P
13.3.3	Circuits not conductively connected to the mains comply with table 10	No hazard when short circuited according to clause 11.	P
13.3.4	Measurement of transient voltages		N
13.4	Creepage distances not less than appropriate table 11 minimum values	(See appended table 13.3&13.4)	P
<b>13.5</b>	<b>Printed boards</b>		P
13.5.1	Conductors complying with pull-of and peel strength requirements, one of which may be conductively connected to the mains, as in fig. 10		P
13.5.2	Type B coated printed circuit boards complying with IEC 60664-3 (basic insulation only)		N
13.6	Conductive parts along uncemented joints clearances and creepage distances comply with 13.3 and 13.4		N
	Conductive parts along reliably cemented joints comply with 8.8		N
	Temperature cycle test and dielectric strength test		N
	500V test for transformers, magnetic coupler and similar devices, if insulation is relied upon for safety		N

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
13.7	Enclosed, enveloped or hermetically sealed parts not conductively connected to the mains, clearances and creepage distances as in table 12		N
13.8	Parts filled with insulating compound, meeting the requirements of 8.8	Approved optocoupler used. See appended table 14 for the source details.	P
<b>14</b>	<b>COMPONENTS</b>		P
14.1	Flammability according to IEC 60695-11-10 or annex G, or 20.2.5		P
<b>14.2</b>	<b>Resistors</b>		N
	Resistors separately approved .....	No such resistors.	N
	a) Resistors between hazardous live parts and accessible metal parts		N
	b) Resistors, other than between hazardous live parts and accessible parts		N
<b>14.3</b>	<b>Capacitors and RC units</b>		P
	Capacitors separately approved :		P
14.3.1	Damp heat test duration 21 days		N
14.3.2	Y capacitors tested to IEC 60384-14:2005 .....	Approved Y-capacitor CY1 used (see appended table 14)	P
14.3.3	X capacitors tested to IEC 60384-14:2005 .....	Approved X-capacitor CX1 and CX2 used (see appended table 14)	P
14.3.4	Capacitors operating at mains frequency but not connected to the mains: tests for X2 .....	No such components used.	N
14.3.6	Capacitors with volume exceeding 1750 mm <sup>3</sup> , where short-circuit current exceeds 0,2 A: compliance with IEC 60384-1, 4.38 category B or better .....	The capacitors except metal cased type provided with volume less than 1750 mm <sup>3</sup>	N
	Capacitors with volume exceeding 1750 mm <sup>3</sup> , mounted closer to a potential ignition source than table 13 permits: compliance with IEC 60384-1, 4.38 category B or better .....		N
<b>14.4</b>	<b>Inductors and windings</b>		P
14.4.1	Comply with IEC 61558-1, IEC 61558-2 (as relevant) and clause 20.2.5		N
	Transformers and inductors separately approved ..	Tested with appliance	N
14.4.2	Transformers and inductors marked with manufacturer's name and type .....	The transformer marked with the trademarks and type. See appended table 14.	P
14.4.3	General	See clause 14.4.4, 14.4.5 and 14.4.6.	P
	Insulation material complies with clause 20.2.5	See clause 20.2.5.	P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
<b>14.4.4</b>	<b>Constructional requirements</b>		P
14.4.4.1	Clearances and creepage distances comply with clause 13	Transformer complied with clause 13.	P
14.4.4.2	Transformers meet the constructional requirements	Complied.	P
<b>14.4.5</b>	<b>Separation between windings</b>		P
14.4.5.1	Class II transformers have adequate separation between hazardous live parts and accessible parts (double or reinforced insulation) .....	Double or reinforced insulation separated between primary windings and secondary windings.	P
	Coil formers and partition walls > 0,4 mm	Measured: Min. 0.75mm	P
14.4.5.2	Class I transformers, with basic insulation and protective screening only if all 7 conditions are met	Class II transformer	N
14.4.5.3	Separating transformers with at least basic insulation	No such transformers	N
<b>14.4.6</b>	<b>Insulation between hazardous live parts and accessible parts</b>		P
14.4.6.1	Class II transformers have adequate insulation between hazardous live parts and accessible parts (double or reinforced insulation)	Double or reinforced insulation separated between hazardous live windings and windings intended to be connected to output terminals. See also sub-clause 8.8.	P
	Coil formers and partition walls > 0,4 mm	Measured: Min. 0.75mm	P
14.4.6.2	Class I transformers have adequate insulation between hazardous live parts and accessible conductive parts or those conductive parts or protective screens connected to a protective earth terminal	Class II transformer	N
	Winding wires connected to protective earth have adequate current-carrying capacity		N
<b>14.5</b>	<b>High voltage components and assemblies (U &gt; 4kV peak)</b>		N
14.5.1	Component meets category V-1 of IEC 60695-11-10	No high-voltage components used.	N
14.5.2	High voltage transformers and multipliers		N
14.5.3	High voltage assemblies and other parts		N
<b>14.6</b>	<b>Protective devices</b>		P
14.6.1	Protective devices used within their ratings		P
	External clearances and creepage distances meet requirement of clause 13 for the voltage across the device when opened	(see appended table 13.3 & 13.4)	P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
<b>14.6.2</b>	<b>Thermal releases</b>		N
14.6.2.1	Comply with 14.6.2.2, 14.6.2.3 or 14.6.2.4	No such component.	N
14.6.2.2	a) Thermal cut-outs separately approved	No such component.	N
	b) Thermal cut-outs tested as part of the submission		N
14.6.2.3	a) Thermal links separately approved	No thermal links used	N
	b) Thermal links tested as part of the submission		N
14.6.2.4	Thermal devices re-settable by soldering	No such devices	N
<b>14.6.3</b>	<b>Fuses and fuse holders</b>		P
14.6.3.1	Fuse-links in the mains circuit according to IEC 60127	Approved mains fuse used	P
14.6.3.2	Correct marking of fuse-links adjacent to holder ... :	Marked on PCB adjacent to component: F1 T5AL 250Vac.	P
14.6.3.3	Not possible to connect fuses in parallel	Single fuse is used	P
14.6.3.4	Not possible to touch hazardous live parts when replacing fuse-links without the use of a tool ..... :	No fuse holder. Fuse can't be replaced without damaging equipment.	N
14.6.4	PTC thermistors comply with IEC 60730-1:2010	No such components provided.	N
	PTC devices (>15 W) category V-1 or better		N
14.6.5	Circuit protectors have adequate breaking capacity and their position is correctly marked	No such components provided.	N
<b>14.7</b>	<b>Switches</b>		P
14.7.1 a)	Separate testing to IEC 61058-1 including: - 10 000 operations - Normal pollution suitability - For CRT TV's, make and break speed independent of speed of actuation - V-0 or compliance with G.1.1	(see appended table 14)	P
<b>14.7.1 b)</b>	<b>Tested in the apparatus</b>		N
	Switch controlling > 0.2A with open contact voltage > 35 V (peak) / 24 V dc complying with 14.6.3, 14.6.4 and V-0 or G.1.1		N
	Switch controlling > 0.2A with open contact voltage < 35 V (peak) / 24 V dc complying with 14.6.3 and V-0 or G.1.1		N
	Switch controlling ≤ 0.2A with open contact voltage > 35 V (peak)/24 V dc complying with 14.6.4 and V-0 or G.1.1		N
14.7.2	Switch tested to 14.7.1 b) checked according to IEC 61058-1 clause 13.1 and 10 000 operation test		N
14.7.3	Switch tested to 14.6.1 b) compliant with IEC 61058- 1 subclause 16.2.2 d) and m) not attaining excessive temperatures in use		N



IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
14.7.4	Switch tested to 14.6.1 b) has adequate dielectric strength		N
14.7.5	Mains switch controlling mains socket outlets additional tests to IEC 61058-1		N
14.8	Safety interlocks according to 2.8 of IEC 60950-1	No safety interlocks used	N
14.9	Voltage setting device and the like are not likely to be changed accidentally		N
<b>14.10</b>	<b>Motors</b>	<i>No motors used</i>	N
14.10.1	a) Endurance test on motors	No such component.	N
	b) Motor start test		N
	Dielectric strength test		N
14.10.2	Not adversely affected by oil or grease etc.		N
14.10.3	Protection against moving parts		N
14.10.4	Motors with phase-shifting capacitors, three-phase motors and series motors meet clause. B.8, B.9 and B.10 of IEC 60950-1, Annex B		N
<b>14.11</b>	<b>Batteries</b> ( <i>Only non-rechargeable alkaline batteries used in remote control</i> )		N
14.11.1	Comply with IEC 62133 if applicable		N
	Batteries mounted with no risk of accumulation of flammable gases		N
14.11.2	No possibility of recharging user replaceable non rechargeable batteries		N
14.11.3	Recharging currents and times within manufacturers limits		N
	Lithium batteries discharge and reverse currents within the manufacturers limits		N
14.11.4	Battery mould stress relief		N
14.11.5	Battery drop test		N
<b>14.12</b>	<b>Optocouplers</b>		P
	Comply with constructional requirements of clause 8		P
	External clearances and creepage comply with 13.1		P
	Compound completely filling the casing or internal clearances and creepage comply with 13.1 .....		P
	a) Complies with 13.6 (jointed insulation) and N.3.2		N
	b) Complies with IEC 60747-5-5:2007	Approved optocoupler is used, see appended table 14 for the details.	P
	c) Complies with 13.8		N

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
<b>14.13</b>	<b>Surge suppression varistors</b>		N
	Comply with IEC 61051-2	No such components provided.	N
	Not connected between mains and accessible parts except for earthed parts of permanently connected apparatus		N
	GDT bridging basic insulation complies with electric strength and distance requirements		N
<b>15</b>	<b>TERMINALS</b>		P
<b>15.1</b>	<b>Plugs and sockets</b>		P
15.1.1	Mains plug, appliance inlet, interconnection couplers and mains socket-outlet meet the appropriate standard	Mains plug meet the appropriate standard. See appended table 14.	P
	Overloading of plugs or appliance inlets prevented if the apparatus has mains socket outlets	No mains socket outlets.	N
	Overloading of internal wiring prevented if the apparatus has mains socket outlets		N
15.1.2	Design of connectors other than for mains power		N
	Design of sockets with symbol of 5.3 b) design		N
15.1.3	Design of terminals and connectors used in output circuits of supply apparatus	Mismatching of connectors is not possible.	N
<b>15.2</b>	<b>Provision for protective earthing</b>		N
	Accessible conductive parts of Class I equipment reliably connected to earth terminal, within equipment	Class II apparatus.	N
	Protective earth conductors correctly fixed and coloured		N
	Separate protective earth terminal near mains terminal and comply with 15.3		N
	Protective earth terminal resistant to corrosion		N
	Earth resistance test: $< 0,1\Omega$ at 25 A .....		N
<b>15.3</b>	<b>Terminals for external flexible cords and for permanent connection to the mains supply</b>		P
15.3.1	Adequate terminals for connection of permanent wiring	Not permanent wiring	N
15.3.2	Reliable connection of non-detachable cords	A strain relief bushing was provided for the reliable connection	P
	Not soldered to conductors of a printed circuit board		P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

	Adequate clearances and creepage distances between connections should a wire break away		P
	Wire secured by additional means to the conductor		P
15.3.3	Screws and nuts clamping conductors have adequate threads: ISO 261, ISO 262 or similar		N
15.3.4	Conductors adequately fixed (two independent fixings)		P
15.3.5	Terminals allow connection of conductors having appropriate cross-sectional area		P
15.3.6	Terminals to 15.3.3 have sizes required by table 16		N
15.3.7	Terminals clamp conductors between metal and have adequate pressure		N
	Terminals designed to avoid conductor slipping out when tightened		N
	Terminals adequately fixed when tightened or loosened (no loosening, wiring not stressed, distances not reduced)		N
15.3.8	Terminals carrying a current more than 0,2 A: contact pressure not transmitted by insulating material except ceramic	A certified primary connector was used with its rating.	P
15.3.9	Termination of non-detachable cords: wires terminated near to each other	A certified primary connector was used with its rating.	P
	Terminals located and shielded: test with 8 mm strand		N
<b>15.4</b>	<b>Devices forming a part of the mains plug</b>		N
15.4.1	No undue strain on mains socket-outlets		N
15.4.2	Device complies with standard for dimensions of mains plugs		N
15.4.3	Device has adequate mechanical strength (tests a,b,c)		N

<b>16</b>	<b>EXTERNAL FLEXIBLE CORDS</b>		P
16.1	Mains cords sheathed type, complying with IEC 60227 for PVC or IEC 60245 for synthetic rubber cords .....	Approved PVC cord used. (See appended table 14)	P
	Non-detachable cords for Class I have green/yellow core for protective earth	Class II equipment.	N
16.2	Mains cords conductors have adequate cross-sectional area for rated current consumption of the equipment	Rated current < 3A, cross-sectional area: 2 x 0.5 mm <sup>2</sup> min, with length ≤ 2m (see appended table 14)	P
16.3	Flexible cords not complying with 16.1, used for interconnections between separate units of equipment used in combination and carrying hazardous live voltages comply with a) and b)		N

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
16.4	Flexible cords used for connection between equipment have adequate cross-sectional areas to avoid temperature rise under normal and fault conditions		N
16.5	Adequate strain relief on external flexible cords	Displacement: 0.8 mm (Limit: 2mm)	P
	Not possible to push cord back into equipment		P
	Strain relief device unlikely to damage flexible cord		P
	For mains cords of Class I equipment, hazardous live conductors become taut before earth conductor	Class II equipment.	N
16.6	Apertures for external flexible cord: no risk of damage to the cord during assembly or movement in use		P
16.7	Transportable apparatus have appliance inlet according to IEC 60320-1 or means of stowage to protect the cord		N

<b>17</b>	<b>ELECTRICAL CONNECTIONS AND MECHANICAL FIXINGS</b>		P
17.1	Table 20 torque test metal thread, 5 times.....:		N
	Table 20 torque test non-metallic thread, 10 times...:	Torque used: 0.5 Nm (Screws with diameter 2.84mm use for fixing metal enclosure); Torque used: 1.2 Nm (Screws with diameter 4.05mm use for fixing the biggest speaker).	P
17.2	Correct introduction into female threads in non- metallic material		P
17.3	Cover fixing screws captive or no hazard when replaced by a screw whose length is 10 times its diameter	No such screws used.	N
17.4	No loosening of conductive parts carrying a current > 0,2 A		P
17.5	Contact pressure not transmitted through insulating material other than ceramic for connections carrying a current > 0,2 A	Contact pressure not transmitted through plastic.	P
17.6	Stranded conductors of flexible supply cords carrying a current > 0,2 A with screw terminals not consolidated by solder		N
17.7	Cover fixing devices have adequate strength and their positioning is unambiguous		N
17.8	Fixing means for detachable legs or stands provided		N
17.9	Internal pluggable connections, affecting safety, unlikely to become disconnected		P

<b>18</b>	<b>MECHANICAL STRENGTH OF PICTURE TUBES AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION</b>		N
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IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
18.1	Comply with IEC 61965 or 18.2	No picture tube used.	N
18.2	Non-intrinsically protected tubes		N
<b>19</b>	<b>STABILITY AND MECHANICAL HAZARDS</b>		<b>P</b>
19.1	Apparatus > 7kg have adequate stability or is required to be fastened in place and provided with the warning of 5.5.2 f) .....	Mass < 7kg;	N
19.2	Test at 10° to the horizontal		N
19.3	Vertical force test 100 N applied downwards		N
19.4	Horizontal force test, 100 N or 13% of weight, applied horizontally to point of least stability		N
19.5	Edges or corners not hazardous	Edges and corners are smooth	P
<b>19.6</b>	<b>Mechanical strength of glass</b>		<b>N</b>
19.6.1	Glass surfaces (exc.laminated) with an area exceeding 0,1 m <sup>2</sup> or major dimension > 450 mm, pass the test of 12.1.4		N
19.6.2	Fragmentation test		N
<b>19.7</b>	<b>Wall or ceiling mounting means</b>		<b>N</b>
19.7.1 - 19.7.3	Not dislodged and remain mechanically intact after test according to 19.7.2 Test 1, Test 2 or Test 3.....:		N
<b>20</b>	<b>RESISTANCE TO FIRE</b>		<b>P</b>
20.1	Start and spread of fire is prevented	Complied.	P
<b>20.2</b>	<b>Electrical components and mechanical parts</b>		<b>P</b>
20.2.1	a) Exemption for components contained in an enclosure of material V-0 to IEC 60695-11-10 with openings not exceeding 1 mm in width	Wooden enclosure Minimum 6.0 mm thick and metallic enclosure used	P
	b) Exemption for small components	Some small components mounted on UL approved PCB with flammability of Min.V-1	P
20.2.2	Electrical components meet the requirements of Clause 14 or 20.2.5		P
20.2.3	Insulation of internal wiring working at voltages > 4 kV or leaving an internal fire enclosure, or located within the areas mentioned in Table 21, comply with G.2	No voltage > 4kV	N
20.2.4	Material of printed circuit boards on which the available power exceeds 15 W at a voltage between 50 V and 400 V (peak) a.c. or d.c. meets V-1 or better to IEC 60695-11-10, unless used in a fire enclosure	Min.V-1 PCB used for the power board	P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	Material of printed circuit boards on which the available power exceeds 15 W at a voltage >400 V (peak) a.c. or d.c. meets V-0 to IEC 60695-11-10.	See above for the power board	P
20.2.5	Components and parts not covered by 20.1.1, 20.1.2 and 20.1.3 (other than fire enclosures) mounted nearer to a potential ignition source than the distances in Table 21 comply with the relevant flammability category in Table 21		P
	Components and parts as above but shielded from a potential ignition source, with the barrier area in accordance with Table 21 and fig. 13	See above.	P
	Apparatus with voltages >4kV under normal operating conditions and distances to the enclosure exceed those specified Table 21, flammability classification HB40 or better is required for the enclosure	No voltage > 4kV	N
<b>20.3</b>	<b>Fire enclosure</b>		N
20.3.1	Potential ignition sources with open circuit voltage > 4 kV (peak) a.c. or d.c. contained in a fire enclosure to V-1	Open voltage not exceed 4 KV (peak) a.c. or d.c.	N
20.3.2	Internal fire enclosures with openings not exceeding 1 mm in width and with openings for wires completely filled		N
20.3.3	Requirements of 20.2.1 and 20.2.2 met by an internal fire enclosure		N
<b>ANNEX A</b>	<b>ADDITIONAL REQUIREMENTS FOR APPARATUS WITH PROTECTION AGAINST SPLASHING WATER</b>		N
A.5	Marking and instructions		N
A.5.1	A.5.2 i) Marked with at least IPX4 (IEC 60529) 5.5.2 a) does not apply	The equipment is used indoor	N
A.10	Insulation requirements		N
A.10.3	Splash and humidity treatment		N
A.10.3.1	The enclosure provide adequate protection against splashing water		N
A.10.3.2	Complies with 10.3,duration of the test is 168h		N
<b>ANNEX B</b>	<b>APPARATUS TO BE CONNECTED TO TELECOMMUNICATION THE TELECOMMUNICATION NETWORKS</b>		N
	Complies with IEC 62151 clause 1		N
	Complies with IEC 62151 clause 2		N
	Complies with IEC 62151 clause 3 modified		N
	Complies with IEC 62151 clause 4 modified		N
	Complies with IEC 62151 cause 5 modified		N

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	Complies with IEC 62151 clause 6		N
	Complies with IEC 62151 clause 7		N
	Complies with IEC 62151 annex A, B and C		N

<b>ANNEX L</b>	<b>ADDITIONAL REQUIREMENTS FOR ELECTRONIC FLASH APPARATUS FOR PHOTOGRAPHIC PURPOSES</b>		<b>N</b>
L.5	Marking and instructions		N
L.5.5.1	Instructions for battery chargers and Supply apparatus indicating type or model number of flash apparatus with which it is to be used	The EUT is not electronic flash apparatus.	N
	Instructions for flash apparatus indicating type or model number of battery chargers or Supply apparatus with which it is to be used		N
L.7	Heating under normal operating conditions		N
L.7.1.6	Lithium batteries meet permissible temp rise in Table 3		N
L.9	Electric shock hazard under normal operating conditions		N
L. 9.1.1.1	Terminals for connection to synchroniser not hazardous live		N
L.14	Components		N
L.14.6.7	Mains switch characteristics appropriate to its function under normal conditions		N

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Clause	Requirement + Test	Result - Remark	Verdict

**ATTACHMENT TO TEST REPORT IEC 60065  
 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES**  
 (Audio, video and similar electronic apparatus – Safety requirements)

**Differences according to** ..... : EN 60065:2014

**Attachment Form No.**..... : EU\_GD\_IEC60065L

**Master Attachment**..... : Date 2015-03

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<b>CENELEC COMMON MODIFICATIONS (EN)</b>			P	
General	1.1.3 Note 2  13.3.1 Note 4  15.2 Note 2 20 Note	5.4 Note  14.1 Note 1 and Note 2 16.1 Note 2 J.3 Note 1 and Table J.1 Note 2	5.5.2 Note 1 and Note 2 15.1.1 Note 1 and Note 2 16.2 Note	P
<b>1.2</b>	<b>Normative references</b>		N	
	<p><b>Add</b> the following:                      EN 71-1, <i>Safety of toys – Part 1: Mechanical and physical properties</i>                      EN 50332-1, <i>Sound system equipment: Headphones and earphones associated with personal music players – Maximum sound pressure level measurement methodology – Part 1: General method for "one package equipment"</i>                      EN 50332-2, <i>Sound system equipment: Headphones and earphones associated with personal music players – Maximum sound pressure level measurement methodology – Part 2: Matching of sets with headphones if either or both are offered separately, or are offered as one package equipment but with standardised connectors between the two allowing to combine components of different manufacturers or different design</i></p>	Added.	N	
<b>3</b>	<b>General requirements</b>		P	
3.Z1	<p><b>Protective devices</b>                      To protect against excessive current, short-circuits and earth faults in MAINS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):                      a) except as detailed in b) and c), protective devices necessary to comply with the requirements of Clause 11 shall be included as parts of the equipment;                      b) for components in series or parallel with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;                      c) it is permitted for equipment supplied via an industrial mains plug or for PERMANENTLY CONNECTED APPARATUS, to rely on dedicated over current and short-circuit protection in the building</p>	Complied	P	



IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>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 apparatus not supplied via an industrial mains plug or for PERMANENTLY CONNECTED APPARATUS the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>		
<b>4</b>	<b>General test conditions</b>		N
4.1.1	<p><b>Replace</b> the text of the note by: NOTE For ROUTINE TEST, reference is made to EN 50514:2008.</p>		N
<b>6</b>	<b>Hazardous radiations</b>		N
6.1	<p><b>Replace</b> the entire subclause by the following: Apparatus including a potential source of ionizing radiation shall be so constructed that personal protection against ionizing radiation is provided under normal operating conditions and under fault conditions.</p> <p><i>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 pre-sets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.</i></p> <p>NOTE 1 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 cm<sup>2</sup>, 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>The dose-rate shall not exceed 1 μSv/h (0,1 mR/h) taking account of the background level.</i></p> <p>NOTE 2 These values appear in Council Directive 96/29/Euratom of 13 May 1996.</p> <p><i>A picture is considered to be intelligible if the following conditions are met:</i></p> <ul style="list-style-type: none"> <li>- a scanning amplitude of at least 70 % of the usable screen width;</li> <li>- a minimum luminance of 50 cd/m<sup>2</sup> with locked blank raster provided by a test generator;</li> <li>- a horizontal resolution corresponding to at least 1,5 MHz in the centre, with a similar vertical degradation;</li> <li>- not more than one flashover per 5 min.</li> </ul>		N
<b>16</b>	<b>External flexible cords</b>		P
16.1	<p><b>Add</b> the following note after the first paragraph: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.</p>	Added.	P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
<b>Z1</b>	<b>Protection against excessive sound pressure from personal music players</b>		N
Z1.1	<p><b>General</b></p> <p>This subclause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. Requirements for earphones and headphones intended for use with personal music players are also covered.</p> <p>A personal music player is a portable equipment for personal use, that:</p> <ul style="list-style-type: none"> <li>- is designed to allow the user to listen to recorded or broadcast sound or video; and</li> <li>- uses a listening device, such as headphones or earphones that can be worn in or on or around the ears; and</li> <li>- is body worn (of a size suitable to be carried in a clothing pocket) and is intended for the user to walk around while in use.</li> </ul> <p>EXAMPLES CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment.</p> <p>A personal music player shall comply with the requirements of this subclause.</p> <p>NOTE 1 Protection against acoustic energy sources from telecom terminal equipment is referenced to ITU-T Recommendation P.360. The requirements in this subclause are valid for music or video mode only.</p> <p>The requirements do not apply to:</p> <ul style="list-style-type: none"> <li>- professional equipment;</li> </ul> <p>NOTE 2 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment.</p> <ul style="list-style-type: none"> <li>- hearing aid equipment and other devices for assistive listening;</li> <li>- the following types of analogue personal music players: <ul style="list-style-type: none"> <li>• long distance radio receiver (for example, a multiband radio receiver or a world band radio receiver, an AM radio receiver) and</li> <li>• cassette player/recorder;</li> </ul> </li> </ul> <p>NOTE 3 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies.</p> <ul style="list-style-type: none"> <li>- player while connected to an external amplifier that does not allow the user to walk around while in use.</li> </ul> <p>For equipment clearly designed or intended for use by young children, the limits of EN 71-1 apply.</p>	Not such apparatus.	N

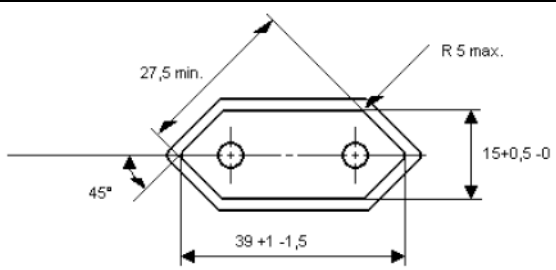
IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
Z1.2	<p><b>Equipment requirements</b></p> <p>No safety provision is required for equipment that complies with the following:</p> <ul style="list-style-type: none"> <li>– equipment provided as a package (personal music player with its listening device), where the acoustic output <math>L_{Aeq,T}</math> is <math>\leq 85</math> dB(A) measured while playing the fixed “programme simulation noise” as described in EN 50332-1; and</li> <li>– personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is <math>\leq 27</math> mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” as described in EN 50332-1.</li> </ul> <p>NOTE 1 Wherever the term acoustic output is used in this subclause, the 30 s A-weighted equivalent sound pressure level <math>L_{Aeq,T}</math> is meant. See also Z1.5 and Annex ZE.</p> <p>All other equipment shall:</p> <ul style="list-style-type: none"> <li>a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and</li> <li>b) have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; and</li> <li>c) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and</li> </ul> <p>NOTE 2 Examples of means include visual or audible signals. Action from the user is always required.</p> <p>NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off.</p> <ul style="list-style-type: none"> <li>d) have a warning as specified in Z1.3; and</li> <li>e) not exceed the following: <ul style="list-style-type: none"> <li>1) equipment provided as a package (player with its listening device), the acoustic output shall be <math>\leq 100</math> dB(A) measured while playing the fixed “programme simulation noise” described in EN 50332-1; and</li> <li>2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be <math>\leq 150</math> mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” described in EN 50332-1.</li> </ul> </li> </ul> <p>For music where the average sound pressure (long term <math>L_{Aeq,T}</math>) measured over the duration of the song is lower than the average produced by the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song does not exceed the basic limit of 85 dB(A). In</p>	Not such apparatus.	N

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>this case, <math>T</math> becomes the duration of the song.</p> <p>NOTE 4 Classical music typically has an average sound pressure (long term <math>L_{Aeq,T}</math>) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the song and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dB(A).</p> <p>NOTE 5 For example, if the player is set with the programme simulation noise to 85 dB(A), but the average music level of the song is only 65 dB(A), there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dB(A).</p>		
Z1.3	<p>The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following:</p> <ul style="list-style-type: none"> <li>- the symbol of Figure Z1 with a minimum height of 5 mm; and</li> <li>- the following wording, or similar:</li> </ul> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>To prevent possible hearing damage, do not listen at high volume levels for long periods.</p> </div> <div style="text-align: center; margin: 10px auto;">  </div> <p><b>Figure Z1 – Warning label (IEC 60417-6044)</b></p> <p>Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.</p>	Not such apparatus.	N
<b>Z1.4</b>	<b>Requirements for listening devices (headphones, earphones, etc.)</b>		N
Z1.4.1	<p><b>Corded passive listening devices with analogue input</b></p> <p>With 94 dB(A) sound pressure output <math>L_{Aeq,T}</math>, the input voltage of the fixed “programme simulation noise” described in EN 50332-2 shall be <math>\geq 75</math> mV.</p> <p>This requirement is applicable in any mode where the headphones can operate including any available setting (for example built-in volume level control, an additional sound feature like equalization, etc.).</p> <p>NOTE The values of 94 dB(A) – 75 mV correspond with 85 dB(A) – 27 mV and 100 dB(A) – 150 mV.</p>	Not such apparatus.	N
Z1.4.3	<p><b>Cordless listening devices</b></p> <p>In wireless mode:</p> <ul style="list-style-type: none"> <li>- with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and</li> <li>- respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and</li> <li>- with volume and sound settings in the listening device (for example built-in volume level control, additional sound feature like equalization, etc.) set to</li> </ul>	Not such apparatus.	N

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	the combination of positions that maximize the measured acoustic output for the above-mentioned programme simulation noise, the acoustic output $L_{Aeq,T}$ of the listening device shall be $\leq 100$ dB(A).		
Z1.5	<b>Measurement methods</b> Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable. Unless stated otherwise, the time interval $T$ shall be 30 s. NOTE Test method for cordless equipment provided without listening device should be defined.	Not such apparatus.	N
	<b>ANNEXES</b>		N
<b>Annex B</b>	<b>Replace</b> the text of Note 1 by the following: In the CENELEC countries listed in IEC 62151, special national conditions apply.	Replaced.	N
<b>Annex N</b>	After the note in N.1, <b>add</b> the following: For ROUTINE TEST, reference is made to EN 50514:2008.	Added.	N
<b>ZA</b>	<b>NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS</b>		—
<b>ZB</b>	<b>ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)</b>		P
2.6.1	<b>Denmark</b> The following is added: Certain types of Class I apparatus, see 15.1.1, may be provided with a plug not establishing earthing continuity when inserted in Danish socket-outlets <i>Justification:</i> Heavy Current Regulations, Section 6c	Not such apparatus.	N
3.Z1	<b>Denmark</b> <b>Add</b> 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.	Not such apparatus.	N
5.4	<b>Denmark, Finland, Norway and Sweden</b> To the end of the subclause the following is added: CLASS I apparatus which is intended for connection to the building installation wiring via a plug or an appliance coupler, or both and in addition is intended for connection to other apparatus or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network TERMINALS and ACCESSIBLE parts, have a marking stating that the apparatus must be connected to an earthed MAINS socket-outlet. The marking text in the applicable countries shall be as follows: In <b>Denmark</b> : "Apparatets stikprop skal tilsluttes en	Not such apparatus.	N

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Clause	Requirement + Test	Result - Remark	Verdict
	stikkontakt med jord, som giver forbindelse til stikkproppens jord.” In <b>Finland</b> : "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In <b>Norway</b> : "Apparatet må tilkoples jordet stikkontakt" In <b>Sweden</b> : "Apparaten skall anslutas till jordat uttag"		
5.5.2	<p><b>Norway and Sweden</b> <b>Add</b> to the end of 5.5.2 (after the compliance statement) the following: The screen of the coaxial cable 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 need to be isolated from the screen of a coaxial cable based television distribution system. It is however accepted to provide the insulation external to the apparatus by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the apparatus 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 has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)" NOTE In Norway, due to regulation for installations of CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): "Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplede utstyr – og er tilkoplede et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel-TV nettet." Translation to Swedish: "Utrustning 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 utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet."</p>	Not such apparatus.	N

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
13.3.1	<p><b>Norway</b> Add to the second paragraph the following: Due to the IT power distribution system used, the a.c. MAINS supply voltage is considered to be equal to the line-to-line voltage, and will remain 230 V in case of a single earth fault. <i>Justification:</i> Based on a use in Norway of an IT power distribution system where the neutral is not provided</p>		N
15.1.1	<p><b>Denmark</b> To the first paragraph the following is added: In Denmark, 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. Appliances of Class I provided with socket-outlets with earth contact 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 which assure earth continuity with the socket-outlet in accordance with DS 60884-2-D1. 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 60309-1. To the second paragraph the following is added: Socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance with DS 60884-2-D1 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with DS 60884-2-D1 Standard Sheet DKA 1-3a or DKA 1-1c. To the third paragraph the following is added: Mains socket-outlets with earthing contact shall be in compliance with DS 60884-2-D1, Standard sheet DK 1-3a, DK 1-1c, DK 1-1d, DK 1-5a or DK 1-7a <i>Justification:</i> Heavy Current Regulations, Section 6c</p>	Not such apparatus.	N
15.1.1	<p><b>Ireland</b> 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. <i>Justification:</i> SI 525: 1997</p>	Not such apparatus.	N

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
15.1.1	<p><b>Norway</b> Mains socket-outlets mounted on Class II apparatus shall comply with the specifications given in CEE Publ. 7 as far as applicable, with the following amendments: § 8 Dimensions a) 2,5 A 250 V two-pole socket-outlets for electronic apparatus shall comply with the enclosed Standard Sheet I.</p> <div style="border: 1px solid black; padding: 5px;"> <p>STANDARD SHEET I 2,5 A/250 V SOCKET-OUTLET FOR ELECTRONIC APPLIANCES OF CLASS II</p>  <p>Dimensions in mm Other dimensions according to CEE Publication 7 Standard Sheet I "Portable Single-Way Socket-Outlets".</p> </div> <p>§ 24 Mechanical strength a) 2,5 A, 250 V socket-outlets for Class II electronic apparatus are tested as specified in EN 60065:2014, 12.1.3. Also the protecting rim shall be tested. <i>Justification:</i> Act of 24 May 1929 relating to supervision of electrical installation (TEA 1929/FEL 1998).</p>	No socket-outlet used.	N
15.1.1	<p><b>United Kingdom</b> Apparatus 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 and plug shall be fitted with a "standard plug" in accordance with Statutory Instrument 1768: 1994: The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those Regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug. <i>Justification:</i> SI 1768: 1994</p>		N
Annex B	<p><b>Finland, Norway and Sweden</b> All sub clauses given below are sub clauses of IEC 62151 (ref. corrigenda 1 and 2 to IEC 62151). <b>Subclause 4.1.1 (corrigendum 2):</b> <b>Add</b> after the first paragraph: NOTE In <b>Finland, Norway and Sweden</b>, CLASS I equipment which is intended for connection to the building installation via a non-industrial plug or a</p>	Not such apparatus.	N



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Clause	Requirement + Test	Result - Remark	Verdict
	<p>non-industrial appliance coupler, or both and in addition is intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and ACCESSIBLE parts, has a marking stating that the equipment must be connected to an earthed mains socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</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> <p><b>Subclause 4.1.4 (corrigendum 1)</b> <b>Add</b> at the end of the subclause: NOTE In <b>Norway</b>, for requirements see 4.1.1, note and 5.3.1, note 1.</p> <p><b>Subclause 4.2.1.2 (corrigendum 1)</b> <b>Add</b> at the end of the subclause: NOTE 3 In <b>Norway</b>, for requirements see 5.3.1, note 1.</p> <p><b>Subclause 4.2.1.3 (corrigendum 2)</b> <b>Add</b> at the end of the subclause: NOTE In <b>Norway</b>, for requirements see 4.1.1, note and 5.3.1, note 1.</p> <p><b>Subclause 4.2.1.4 (corrigendum 1)</b> <b>Number</b> the existing note as NOTE 1 and <b>add</b> at the end of the subclause the following NOTE 2: NOTE 2 In <b>Norway</b>, for requirements see 4.1.1, note and 5.3.1, note 1.</p> <p><b>Subclause 5.3.1 (corrigendum 1)</b> <b>Add</b> after the first test specifications paragraph: NOTE 1 In <b>Finland, Norway and Sweden</b>, there are additional requirements for the insulation.</p> <p><b>Renumber</b> the existing note as NOTE 2. For additional requirements for the insulation in Finland, Norway and Sweden in NOTE 1 the following text is added between the first and the second paragraph (this text is identical to the corresponding EN 60950-1:2001): NOTE 1 In <b>Finland, Norway and Sweden</b>, if this insulation is solid, including insulation forming part of a component, it shall at least consist of either • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below</p> <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 the accordance with the compliance clause below and in addition:</p> <ul style="list-style-type: none"> <li>• passes the test and inspection criteria of 13.6 with</li> </ul>		

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Clause	Requirement + Test	Result - Remark	Verdict
	<p>an electric strength test of 10.3 using the test voltage of 1,5 kV multiplied by 1,6, and</p> <ul style="list-style-type: none"> <li>• is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5 kV (for performance of the test see N.2.1).</li> </ul> <p>It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2. A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> <li>• the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in IEC 62151:2000, 6.2.1;</li> <li>• the additional testing shall be performed on all the test specimens as described in EN 132400;</li> <li>• the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400 in the sequence of tests as described in EN 132400.</li> </ul> <p><b>Subclause 5.3.2 (corrigendum 1)</b> <b>Add after the fourth dash:</b> NOTE In <b>Finland, Norway</b> and <b>Sweden</b>, exclusions are applicable for equipment which is intended for connection to the building installation wiring using screw terminals or other reliable means, and for equipment which is intended for connection to the building installation wiring via an industrial plug and socket -outlet or an appliance coupler, or both, complying with EN 60309 or with a comparable national standard.</p>		
J.2	<p><b>Norway</b> After Table J.1 the following is added: Due to the IT power distribution system used, the a.c. MAINS supply voltage is considered to be equal to the line-to-line voltage, and will remain 230 V in case of a single earth fault. <i>Justification:</i> Based on a use in Norway of an IT power distribution system where the neutral is not provided</p>		N
<b>C</b>	<b>ANNEX ZC, NATIONAL DEVIATIONS (EN)</b>		--
5.1	<p><b>Italy</b> The following requirements shall be fulfilled: - The power consumption in Watts (W) shall be indicated on TV receivers and in their instruction for use (Measurement according to IEC 60107-1) NOTE EN 60555-2 has since been replaced by IEC 60107-1:1997. - TV receivers shall be provided with an instruction for use, schematic diagrams and adjustments procedure in Italian language. - Marking for controls and terminals shall be in Italian language. Abbreviation and international symbols are allowed provided that they are explained in the instruction for use. - The ECC manufacturers are bound to issue a conformity declaration according to the above requirements in the instruction manual. The correct statement for conformity to be written in the instruction manual, shall be: Questo apparecchio è fabbricato nella CEE nel rispetto delle disposizioni del D.M. marzo 1992 ed è in particolare conforme alle prescrizioni dell'art. 1 dello stesso D.M. - The first importers of TV receivers manufactured outside EEC are bound to submit the TV receivers for previous conformity certification to the Italian Post Ministry (PP.TT). The TV receivers shall have on the backcover the</p>	Not such apparatus.	N

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Clause	Requirement + Test	Result - Remark	Verdict
	certification number in the following form: D.M. 26/03/1992 xxxxx/xxxxx/S or T or pT S for stereo T for teletext pT for retrofitable teletext <i>Justification:</i> Ministerial Decree of 26 March 1992: National rules for television receivers trade. NOTE The ministerial decree above contains additional, but not safety relevant requirements.		
6.1	<b>Germany</b> 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. <i>Justification:</i> German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the Council Directive 96/29/Euratom in Germany. NOTE Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int+49-531-592-6320, Internet: <a href="http://www.ptb.de">http://www.ptb.de</a>	No such device.	N
14.1	<b>Sweden</b> The following requirements shall be fulfilled: Switches containing mercury such as thermostats, relays and level controllers are not allowed.	No such component.	N

7.1		TABLE: temperature rise measurements						P
		Power consumption in the OFF/Stand-by				OFF model: 0W		--
		Position of the functional switch (W) .....				--		--
Cond.	Un (V)	Hz	In (A)	Pn (W)	Uout (V)	Pout (W)	Operating Condition / Status	
1.	90	50	0.52	27.97	Front L/R: 2.76 Centre: 1.94 Rear L/R: 2.67 SUB: 5.05	Front L/R: 0.95 Centre: 0.47 Rear L/R: 0.89 SUB: 4.25	R/L, FR/FL, SR/SL, S.W., C.E. input mode, pink noise signal input, adjust volume to 1/8 of Max. Non-clipped output power on speakers	
2.	100	50	0.47	28.04				
3.	240	50	0.26	27.35				
4.	264	50	0.24	27.28				
5.	90	60	0.53	28.52				
6.	100	60	0.49	28.43				
7.	240	60	0.25	26.37				
8.	264	60	0.23	26.12				
9.	90	50	0.58	32.45	Front L/R: 2.68 Centre: 2.53 Rear L/R: 2.78 SUB: 5.48	Front L/R: 0.97 Centre: 0.80 Rear L/R: 0.97 SUB: 5.01	Bluetooth mode, pink noise signal input, adjust volume to 1/8 of Max. Non-clipped output power on speakers	
10.	100	50	0.55	32.31				
11.	240	50	0.31	30.44				
12.	264	50	0.28	30.56				
13.	90	60	0.56	31.62				
14.	100	60	0.51	31.35				
15.	240	60	0.27	30.57				
16.	264	60	0.25	30.27				
17.	90	50	0.58	31.74	Front L/R: 2.57 Centre: 2.52 Rear L/R: 2.46 SUB: 5.51	Front L/R: 0.83 Centre: 0.79 Rear L/R: 0.76 SUB: 5.06	USB mode, Pink noise signal input, adjust volume to 1/8 non-clipped power output on speakers, normal playing.	
18.	100	50	0.53	31.48				
19.	240	50	0.28	31.23				
20.	264	50	0.27	31.32				
21.	90	60	0.58	32.69				
22.	100	60	0.53	32.41				
23.	240	60	0.29	31.49				
24.	264	60	0.26	30.48				
25.	90	50	0.60	30.96	Front L/R: 2.90 Centre: 2.55 Rear L/R: 2.92 SUB: 5.66	Front L/R: 1.05 Centre: 0.81 Rear L/R: 1.07 SUB: 5.34	AUX mode, Pink noise signal input, adjust volume to 1/8 non-clipped power output on speakers, normal playing.	
26.	100	50	0.55	30.67				
27.	240	50	0.30	32.14				
28.	264	50	0.27	31.72				
29.	90	60	0.62	31.84				
30.	100	60	0.56	31.52				
31.	240	60	0.28	30.06				
32.	264	60	0.26	29.71				

	Loudspeaker impedance ( $\Omega$ ) .....	Sub: 6 $\Omega$ FR, FL, CEN, RR, RL: 8 $\Omega$	—	
	Several loudspeaker systems .....	Sub: 6 $\Omega$ x1pcs FR, FL, CEN, RR, RL: each 8 $\Omega$	--	
	Marking of loudspeaker terminals .....	Internally integrated	--	
Temperature Rise dT of Part		dT (K)		Limit max dT (K)
Supply voltage		No. _21_	No. _28_	--
Power cord (inside)		7.1	6.5	60
Internal AC wire		8.3	9.3	70
Power switch		7.0	6.3	50
AC connector (CON1)		8.5	9.6	50
PCB near RV1		12.3	15.7	70
Coil of Line filter LF2		8.8	9.3	85
X-capacitor CX2		7.4	7.5	50
Coil of Line filter LF3		8.5	11.2	85
PCB near BD1		10.4	14.8	70
PCB near U2		10.0	9.4	70
Electrolytic capacitor (EC2)		12.5	11.1	70
Electrolytic capacitor (EC1)		14.9	14.8	70
PCB near Q3		13.6	14.3	70
Opto-coupler U1		9.8	9.6	65
Winding of T1		11.4	11.6	75
Core of T1		10.9	11.0	75
Y-capacitor CY1		10.2	10.1	90
Electrolytic capacitor (EC4)		10.2	10.2	70
Coil of Line filter LF4		11.6	11.5	85
Electrolytic capacitor (EC6)		10.0	9.9	70
Line filter L402 body (on signal board)		30.0	29.6	85
E-capacitor (C111) (on signal board)		24.6	24.4	70
PCB under heat-sink (on signal board)		23.5	23.0	70
PCB near U4 (on signal board)		36.4	36.2	70
PCB near U150 (on signal board)		33.5	33.4	70
Internal DC wire connect to J1 (on signal board)		16.1	15.9	45
PCB near USB		17.2	17.1	70

Side wooden enclosure near T1, outside	4.6	4.0	60		
TOP wooden enclosure above power supply board, outside	4.9	3.7	60		
Metal enclosure near AC input wire, outside	5.8	4.8	40		
Metal enclosure near SW terminal, outside	5.3	4.3	40		
Plastic enclosure near USB, outside	5.8	5.3	60		
Button	4.9	4.3	50		
LED display	5.6	1.4	60		
Ambient(°C)	22.1	27.0	--		
Winding temperature rise measurements					
Ambient temperature t1 (°C) .....	--	--	--		
Ambient temperature t1 (°C) .....	--	--	--		
Temperature rise dT of winding: $dT = (R2 - R1) \times (234.5 + t1) - (t2 - t1)$ R1	R1 (Ω)	R2 (Ω)	dT (K)	Limit max (K)	Insulation class
--	--	--	--	--	--
--	--	--	--	--	--
Supplementary information:					
<ol style="list-style-type: none"> <li>Measurements were carried out with the apparatus positioned inside the box specified by the clause 4.1.4 of the standard.</li> <li>According to the user manual, the appliance is intended to be used in moderate climate, so the basic ambient temperature is 35°C.</li> <li>All the heating test was performed under USB mode and AUX mode.</li> <li>The USB as a signal input port only.</li> <li>Sub: Subwoofer Speaker; FR: Front Right Speaker; FL: Front Left Speaker; CEN: Centre Speaker; RR: Rear Right Speaker; RL: Rear Left Speaker.</li> </ol>					

<b>7.2</b>	<b>TABLE: softening temperature of thermoplastics</b>			<b>N</b>
Temperature T of part	T - normal conditions (°C)	T - fault conditions (°C)	Min T softening (°C)	
--	--	--	--	
--	--	--	--	
Supplementary information:				
Phenolic materials used for LF3 and transformer T1 consider as having softening temperature of 150°C, no other parts tested necessary.				

<b>9.1.1.2 a)</b>	<b>TABLE: Electric shock hazard under normal condition (open-circuit voltage)</b>			<b>P</b>
Open-circuit voltage measured between:	Condition	U (Vpk)	U (Vpk) Limit	
L/N of plug to wooden enclosure(with metal foil)	Normal condition	52	35	

L/N of plug to plastic enclosure (with metal foil)	Normal condition	62	35
L/N of plug to metal enclosure	Normal condition	252	35
L/N of plug to signals terminal	Normal condition	252	35
Notes: 1. If the voltage limits are exceeded, table 9.1.1.2 b) apply. 2. Using item a) in clause 9.1.1.2 to determine the hazardous live parts. 3. Input 264Vac/60Hz.			

<b>9.1.1.2 b)</b>	<b>TABLE: Electric shock hazard under normal condition (touch current)</b>					<b>P</b>
Touch current measured between:	Condition	U1 (V)	U1 (Vpk) Limit	U2 (V)	U2 (Vpk) Limited	
L/N of plug to plastic enclosure (with metal foil)	Normal condition	0.300	35	0.068	0.35	
L/N of plug to Wooden enclosure (with metal foil)	Normal condition	0.330	35	0.080	0.35	
L/N of plug to Metal enclosure	Normal condition	0.470	35	0.196	0.35	
L/N of plug to signal terminals	Normal condition	0.720	35	0.200	0.35	
Supplementary information: The touch current is measured according to 9.1.1.2 b) with the test circuit of Annex D connected between the specified points. Input 264Vac/60Hz.						

<b>10.4</b>	<b>TABLE: Insulation Resistance Measurements</b>		<b>P</b>
<b>Insulation resistance R between:</b>		<b>R (M )</b>	<b>Required R (M )</b>
Between L and N (fuse opened)		>100	Min. 2
Between L&N and accessible terminals		>100	Min. 4
Between L&N and metal enclosure		>100	Min. 4
Between L&N and wooden enclosure(with metal foil)		>100	Min. 4
Between L&N and plastic enclosure(with metal foil)		>100	Min. 4
Transformer T1 primary winding and secondary winding		>100	Min. 4
Transformer T1 secondary winding and core		>100	Min. 4
2 layer insulation tape of transformer		>100	Min. 4
Supplementary information: Triple insulated wire used for secondary winding of the transformer T1, Core of T1 considered as primary part.			

<b>10.4</b>	<b>TABLE: Dielectric Strength</b>	<b>P</b>
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Test voltage applied between:	Test potential applied (V)	Breakdown / flashover (Yes/No)
Between L and N (fuse opened)	1500Vac	No
Between L&N and accessible terminals	3000Vac	No
Between L&N and metal enclosure	3000Vac	No
Between L&N and wooden enclosure(with metal foil)	3000Vac	No
Between L&N and plastic enclosure(with metal foil)	3000Vac	No
Transformer T1 primary winding and secondary winding	3000Vac	No
Transformer T1 secondary winding and core	3000Vac	No
2 layer insulation tape of transformer	3000Vac	No
Supplementary information: Triple insulated wire used for secondary winding of the transformer T1, Core of T1 considered as primary part.		

11.1	TABLE: Electric shock hazard under abnormal condition					P
Touch current measured between:	Condition	U1 (V)	U1 (Vpk) Limit	U2 (V)	U2 (Vpk) Limit	
L/N of plug to plastic enclosure (with metal foil)	All fault condition that cause fuse F1 opened	0.128	70	0.064	1.4	
L/N of plug to Wooden enclosure (with metal foil)		0.084	70	0.052	1.4	
L/N of plug to Metal enclosure		0.264	70	0.070	1.4	
L/N of plug to signal terminals		0.368	70	0.087	1.4	
Supplementary information: The touch current is measured according to 9.1.1.2 b) with the test circuit of Annex D connected between the specified points. Input 264Vac/60Hz.						

11.2	TABLE: Fault Conditions			P
	Voltage (V) 0,9 or 1,1times rated voltage .....		100Vac x 0.9=90Vac or 240Vac x 1.1=264Vac	--
	Frequency (Hz) .....		50Hz (for 264Vac), 60Hz (for 90Vac)	--
	Ambient temperature (°C) .....		See below	--
No.	Component	Fault	dT (K) /Component	Test conditions, test duration, test result
01.	Speaker output	Max. non-clipped	See temperature rise appended table for fault test condition	Input power increase to 85.8W, temperature stabilization, no damaged, no hazards. I/P: 90Vac,1.47A, 85.8W.
02.	Ventilation openings	blocked	See temperature rise appended table for fault test condition	Temperature stabilization, no damaged, no hazards.



				I/P: 90Vac, 0.58A, 32.69W.
03.	Subwoofer Speaker output	S-C	See temperature rise appended table for fault test condition	Input power decrease to 26.6W. Normal operation, no hazards. I/P: 90Vac, 0.44A, 26.6W.
04.	Centre Speaker output	S-C	See temperature rise appended table for fault test condition	Input power decrease to 24.8W. Normal operation, no hazards. I/P: 90Vac, 0.42A, 24.8W.
05.	Rear Left Speaker output	S-C	See temperature rise appended table for fault test condition	Input power decrease to 25.1W. Normal operation, no hazards. I/P: 90Vac, 0.46A, 25.1W.
06.	Front Right Speaker output	S-C	See temperature rise appended table for fault test condition	Input power decrease to 25.0W. Normal operation, no hazards. I/P: 90Vac, 0.47A, 25.0W.
07.	Speaker output	1/2 load	See temperature rise appended table for fault test condition	Input power increase to 34.7W, temperature stabilization, no damaged, no hazards. I/P: 90Vac, 0.65A, 34.7W.
08	BD1 Pin1-2	S-C	--	Fuse F1 opened immediately, no hazards. I/P: 264Vac, 0A, 0W
09.	EC1	S-C	--	Fuse F1 opened immediately, no hazards. I/P: 264Vac, 0A, 0W
10.	Q3 Pin G-D	S-C	--	Fuse F1 opened immediately. Q3, R29, R33 damaged, no hazards. I/P: 264Vac, 0A, 0W.
11.	Q3 Pin G-S	S-C	--	Unit shut down immediately, no damage, no hazards. I/P: 264Vac, 0.036A, 0.4W.
12.	Q3 Pin D-S	S-C	--	Fuse F1 opened immediately. Q3, R29, R33 damaged, no hazards. I/P: 264Vac, 0A, 0W.
13.	R33	S-C	--	Fuse F1 opened immediately. Q3 damaged, no hazards. I/P: 264Vac, 0A, 0W.
14	U2 Pin1-2	S-C	--	Unit shut down immediately, no damage, no hazards. I/P: 264Vac, 0.036A, 0.4W.
15.	U2 Pin1-3	S-C	--	Unit shut down immediately, no damage, no hazards. I/P: 264Vac, 0.036A, 0.39W.
16.	U1 Pin1-2	S-C	--	Unit shut down immediately, no damage, no hazards. I/P: 264Vac, 0.036A, 0.4W.

17.	U1 Pin3-4	S-C	--	Input power decrease to 6.83W. No damage, no hazards. I/P: 264Vac, 0.072A, 6.83W.
18.	U1 Pin1	O-C	--	Unit shut down immediately, no damage, no hazards. I/P: 264Vac, 0.036A, 0.4W.
19	U1 Pin3	O-C	--	Unit shut down immediately, no damage, no hazards. I/P: 264Vac, 0.036A, 0.4W.
20	D3	S-C	--	Unit shut down immediately, no damage, no hazards. I/P: 264Vac, 0.036A, 0.39W.
21	D5	S-C	--	Unit shut down immediately, no damage, no hazards. I/P: 264Vac, 0.036A, 0.39W.
22	EC4	S-C	--	Unit shut down immediately, no damage, no hazards. I/P: 264Vac, 0.036A, 0.43W.
23	EC6	S-C	--	Unit shut down immediately, no damage, no hazards. I/P: 264Vac, 0.104A, 5.42W.
24	USB output	S-C	--	Input power decrease to 6.39W. No damage, no hazards. I/P: 264Vac, 0.072A, 6.39W.
25	U4 Pin 5-22	S-C	--	Unit shut down immediately, no damage, no hazards. I/P: 264Vac, 0.036A, 0.39W.
26	T1 Pin1-3	S-C	--	Unit shut down immediately, no damage, no hazards. I/P: 264Vac, 0.036A, 0.39W.
27	T1 Pin 4-6	S-C	--	Unit shut down immediately, no damage, no hazards. I/P: 264Vac, 0.036A, 0.45W.
28	T1 Pin8/9-10/11	S-C	--	Unit shut down immediately, no damage, no hazards. I/P: 264Vac, 0.036A, 0.4W.

Supplementary information:

1. After each of above test, unit can pass the dielectric strength test specified in table 10.4
2. Used abbreviations: S-C=short circuit, O-C=open circuit, O-L=overload, B-L=block ventilation openings, I/P=input current/input power.
3. For fault where opened, the current through the fuse exceed 2.1 times fuse rating, All source of fuse used with same result.

Fault Test Condition No.	No.01	No.02	No.03	No.04	No.05	No.06	P
Temperature Rise dT of Part	dT (K)						Limit max. dT (K)
Power cord (inside)	12.4	7.7	8.7	5.1	5.1	5.1	100
Internal AC wire	16.9	10.1	13.0	7.5	7.5	7.5	100
Power switch	10.5	7.1	8.4	4.8	4.8	4.8	Ref.
AC connector (CON1)	18.9	10.5	14.1	7.9	7.9	7.9	Ref.
PCB near RV1	20.8	17.0	24.4	14.2	14.2	14.2	110
Coil of Line filter LF2	19.9	10.2	17.5	7.8	7.8	7.8	150
X-capacitor CX2	16.7	8.2	15.3	6.0	6.0	6.0	Ref.
Coil of Line filter LF3	34.0	11.6	19.2	9.7	9.7	9.7	150
PCB near BD1	33.7	14.8	25.0	12.9	12.9	12.9	110
PCB near U2	19.0	10.5	15.6	7.8	7.8	7.8	110
Electrolytic capacitor (EC2)	22.2	12.5	21.0	9.5	9.5	9.5	Ref.
Electrolytic capacitor (EC1)	31.4	15.2	23.0	12.9	12.9	12.9	Ref.
PCB near Q3	30.6	15.1	29.0	12.6	12.6	12.6	110
Opto-coupler U1	17.2	10.0	13.8	7.6	7.6	7.6	Ref.
Winding of T1	22.8	11.6	22.2	9.6	9.6	9.6	140
Core of T1	21.8	11.5	19.7	9.4	9.4	9.4	Ref.
Y-capacitor CY1	16.5	10.3	17.7	8.7	8.7	8.7	Ref.
Electrolytic capacitor (EC4)	18.9	10.4	16.3	8.6	8.6	8.6	Ref.
Coil of Line filter LF4	20.6	11.8	17.6	9.8	9.8	9.8	150
Electrolytic capacitor (EC6)	16.7	10.9	16.7	8.3	8.3	8.3	Ref.
Line filter L402 body (on signal board)	31.0	30.7	41.7	28.0	28.0	28.0	150
E-capacitor (C111) (on signal board)	24.9	25.2	33.9	22.7	22.7	22.7	Ref.
PCB under heat-sink (on signal board)	28.7	24.1	43.3	21.6	21.6	21.6	140
PCB near U4 (on signal board)	42.6	37.2	49.4	34.0	34.0	34.0	140
PCB near U150 (on signal board)	34.3	34.3	48.9	31.4	31.4	31.4	110
Internal DC wire connect to J1 (on signal board)	18.8	16.6	23.8	14.3	14.3	14.3	100
PCB near USB	19.7	17.7	24.8	15.1	15.1	15.1	110
Side wooden enclosure near T1, outside	6.9	4.9	5.5	2.1	2.1	2.1	65
TOP wooden enclosure above power supply board, outside	6.3	5.2	6.4	1.4	1.4	1.4	65
Metal enclosure near signal input wire, outside	7.5	6.1	7.3	3.1	3.1	3.1	65
Metal enclosure near SW terminal, outside	6.7	5.6	6.6	2.6	2.6	2.6	65
Plastic enclosure near USB, outside	6.3	6.2	5.3	2.8	2.8	2.8	65
Button	5.2	5.3	5.4	1.4	1.4	1.4	65

LED display	6.0	6.0	6.1	2.1	2.1	2.1	65
Ambient(°C)	24.9	23.8	25.1	25.4	25.4	25.4	--
<b>Test Condition No.</b>	<b>No.07</b>	<b>No.--</b>	<b>No.--</b>	<b>No.--</b>	<b>No.--</b>	<b>No.--</b>	<b>—</b>
<b>Temperature Rise dT of Part</b>	<b>dT (K)</b>						<b>Limit max. dT (K)</b>
Power cord (inside)	8.8	--	--	--	--	--	100
Internal AC wire	11.8	--	--	--	--	--	100
Power switch	8.5	--	--	--	--	--	Ref.
AC connector (CON1)	12.2	--	--	--	--	--	Ref.
PCB near RV1	12.8	--	--	--	--	--	110
Coil of Line filter LF2	12.0	--	--	--	--	--	150
X-capacitor CX2	9.7	--	--	--	--	--	Ref.
Coil of Line filter LF3	15.0	--	--	--	--	--	150
PCB near BD1	18.8	--	--	--	--	--	110
PCB near U2	12.3	--	--	--	--	--	110
Electrolytic capacitor (EC2)	14.3	--	--	--	--	--	Ref.
Electrolytic capacitor (EC1)	18.4	--	--	--	--	--	Ref.
PCB near Q3	18.9	--	--	--	--	--	110
Opto-coupler U1	11.8	--	--	--	--	--	Ref.
Winding of T1	14.2	--	--	--	--	--	140
Core of T1	14.1	--	--	--	--	--	Ref.
Y-capacitor CY1	13.1	--	--	--	--	--	Ref.
Electrolytic capacitor (EC4)	13.0	--	--	--	--	--	Ref.
Coil of Line filter LF4	14.6	--	--	--	--	--	150
Electrolytic capacitor (EC6)	12.4	--	--	--	--	--	Ref.
Line filter L402 body (on signal board)	32.5	--	--	--	--	--	150
E-capacitor (C111) (on signal board)	27.7	--	--	--	--	--	Ref.
PCB under heat-sink (on signal board)	27.5	--	--	--	--	--	140
PCB near U4 (on signal board)	45.4	--	--	--	--	--	140
PCB near U150 (on signal board)	36.6	--	--	--	--	--	110
Internal DC wire connect to J1 (on signal board)	18.3	--	--	--	--	--	100
PCB near USB	19.5	--	--	--	--	--	110
Side wooden enclosure near T1, outside	5.5	--	--	--	--	--	65
TOP wooden enclosure above power supply board, outside	5.4	--	--	--	--	--	65
Metal enclosure near signal input wire, outside	6.7	--	--	--	--	--	65
Metal enclosure near SW terminal, outside	6.1	--	--	--	--	--	65

Plastic enclosure near USB, outside	5.9	--	--	--	--	--	65
Button	5.5	--	--	--	--	--	65
LED display	7.7	--	--	--	--	--	65
Ambient(°C)	23.0	--	--	--	--	--	--
<b>Winding temperature rise measurements</b>							
Ambient temperature t1 (°C) .....	--	--	--	--	--	--	—
Ambient temperature t2 (°C) .....	--	--	--	--	--	--	—
Temperature rise dT of winding:	R <sub>1</sub> (Ω)	R <sub>2</sub> (Ω)	dT (K)	Limit max (K)	Insulation class		
--	--	--	--	--	--		
--	--	--	--	--	--		

13.2	WORKING VOLTAGE MEASUREMENT			P
Location	RMS Voltage (V)	Peak Voltage (V)	Comments	
CY1 Primary pin- Secondary	220	356	--	
U1 Pin1- Pin3	231	392	--	
U1 Pin1- Pin4	230	384	--	
U1 Pin2- Pin3	231	392	--	
U1 Pin2- Pin4	230	384	--	
T1 Pin 1- Pin8/9	220	436	--	
T1 Pin 3- Pin8/9	222	464	--	
T1 Pin 4- Pin8/9	212	384	--	
T1 Pin 6- Pin8/9	211	368	--	
T1 Pin 1- Pin10/11	220	352	--	
T1 Pin 3- Pin10/11	<b>225</b>	<b>488</b>	Max. Vpeak and Vrms of T1	
T1 Pin 4- Pin10/11	211	360	--	
T1 Pin 6- Pin10/11	211	400	--	
Supplementary information: The unit connected to RATED SUPPLY VOLTAGE 240Vac/ dc, 60Hz, and working under normal condition.				

13.3&13.4	TABLE: Clearance ad Creepage Distance Measurements					P
Rated supply	100-240Vac	Pollution degree .. :	II		Material Group .....	IIIa or IIIb
2 N force on internal parts applied:			Component			
30 N force on outside of conductive enclosure applied:			Metal enclosure			
clearance and creepage distance at/of:	Working voltage (V)		Clearance (mm)		Creepage (mm)	
	U peak	U r.m.s.	Required	Measured	required	Measured
Different polarity of L &N before fuse F1 (BI)	<420	<250	2.0	4.6	2.5	4.6

Different polarity of fuse (BI)	<420	<250	2.0	2.6	2.5	2.6
CY1 capacitor primary to secondary (RI)	<420	<250	4.0	7.4	5.0	7.4
Optocoupler U1 primary to secondary (RI)	<420	<250	4.0	5.5	5.0	5.5
Transformer T1 primary to secondary on PCB Layout (RI)	488	225	4.2	5.5	5.0	5.5
Transformer T1 primary winding to secondary pins (RI)	488	225	4.2	6.0	5.0	6.0
Transformer T1 core to secondary pins (RI)	488	225	4.2	5.9	5.0	5.9

Supplementary information:

- Secondary circuits of Class II apparatus which have connector terminals that could be earthed (e.g. antenna signal input), are subjected to the requirements for circuits conductively connected to the mains in Tables 8 and 9.
- For insufficient clearances and creepage distances from secondary to secondary circuits and from secondary circuits to earth, see Cl. 4.3.1, 4.3.2 and 11.2.
- If the minimum creepage distance in Table 11 is less than the minimum required clearance in Tables 8, 9 or 10 as required, then the value for clearance is used as the minimum creepage distance .  
"Min" = minimum required. "Actual" = Actual dimensions measured.
- BI=Basic insulation; SI=Supplementary insulation; RI=Reinforce insulation
- Triple insulated wire used for secondary winding of the transformer T1, Core of T1 considered as primary part.

14	TABLE: Critical components information					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity*)	
Power cord	Shenzhen Xiekang Electric Co., Ltd.	H03VVH2-F	2 x 0.5 mm <sup>2</sup> or 2 x 0.75mm <sup>2</sup>	DIN VDE 0281-5, VDE 0281	VDE: 40029225	
(Alternate)	Various	H03VVH2-F	2 x 0.5 mm <sup>2</sup> or 2 x 0.75mm <sup>2</sup>	DIN VDE 0281-5, VDE 0281	VDE: 40023114	
Power plug	Shenzhen Xiekang Electric Co., Ltd.	XK-01	2.5A, 250Vac	DIN VDE 0620, EN 50075	VDE: 40009009	
(Alternate)	Various	Various	2.5A, 250Vac	DIN VDE 0620, EN 50075	VDE	
Power switch	Zhongxun Electronics Industry Company	KCD1-104	6A, 250Vac /10A, 250Vac	EN 61058-1:2002	TUV: R 50049218	
(Alternate)	Yueqing Huansheng Electronics Co., Ltd.	KCD-117	6A, 250Vac	EN 61058-1:2002	VDE : 40024304	
Plastic enclosure	FORMOSA CHEMICALS & FIBRE CORP PLASTICS DIV	AG15A1	HB, 60°C, Min. thickness 1.5 mm	UL94	UL: E162823	
Wooden	Interchangeable	Interchangeable	Min. thickness 6.0	IEC/EN 60065	Tested with	

enclosure			mm		appliance
Internal AC wire	DONGGUAN XIEHE WIRE CO LTD	1672	VW-1, 105°C, 300V, 18AWG	UL 758	UL: E251491
DC wire(connect to CON2 and Subwoofer speaker)	DONGGUAN XIEHE WIRE CO LTD	2468	VW-1, 80°C, 300V, 18AWG	UL 758	UL: E251491
(Alternate)	Interchangeable	Interchangeable	VW-1, Min. 80°C, Min. 300V, Min. 18AWG	UL 758	UL
PCB	CHEERFUL INDUSTRIAL (HK) LTD	CC-3	V-0, 130°C, Min. thickness 1.6mm	UL94, UL 796	UL: E141796
(Alternate)	Interchangeable	Interchangeable	Min. V-0, 105°C, Min. thickness 1.6mm	UL94, UL 796	UL
Fuse (F1)	XC Electronics (Shen Zhen) Corp. Ltd.	5TE-Serie(s)	T5AL, 250Vac	UL 248-1 EN 60127-1, EN 60127-3	UL: E249609, VDE: 40029550
Heat Shrinkable tube	DONGGUAN QUANTAI INDUSTRIAL CO LTD	T-2	VW-1, 125 °C, 600V	UL 224	UL: E227336
(Alternate)	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD	RSFR-H	VW-1, 125 °C, 600V	UL 224	UL: E203950
Insulating bushing	HEAVY POWER CO LTD	4k-4	Min. V-2	UL 635	UL: E107293
AC connector (CON1)	ZHEJIANG JINDA ELECTRONICS CO LTD	3.96T-02	7A, 250VAC, Max 85°C	UL 1977	UL: E237523
Bleeder resistors (R1, R2)	Interchangeable	Interchangeable	Max. 1.5MΩ, 1/4W	--	--
E-capacitors (EC1, EC2)	Interchangeable	Interchangeable	Max. 68uF, Min. 400V, Min. 105°C	--	--
Rectifier (BD1)	Interchangeable	Interchangeable	Min. 6A, Min. 800V	--	--
Transistor (Q3)	Interchangeable	Interchangeable	Min. 16A, Min. 650V	--	--
X-capacitor (CX1, CX2) (Optional)	HSUAN TAI ELECTRONICS CO LTD	MCY	Min. AC 250V, Max. 0.22uF, 85°C, X2 type	UL 1414, IEC 60384-14	UL: E199069, VDE: 125205
(Alternate)	Winday Electronic Industrial Co., Ltd.	MPX	Min. AC 250V, Max. 0.22uF, 110°C, X2 type	IEC 60384-14	VDE: 40030283
Y1 Capacitor (CY1)	Shantou High-New Technology	CD-Series	Min. AC 400V, Max. 2200pF, 125°C, Y1	UL 1414, IEC 60384-14	UL: E208107, VDE:40025754

(Optional)	Dev. Zone Songtian Enterprise Co., Ltd.		type		
(Alternate)	Shenzhen Haotian Electronic Co., Ltd.	HT	Min. AC 400V, Max. 2200pF, 125°C, Y1 type	UL 1414, IEC 60384-14	UL: E326483, VDE:40029300
Optocoupler (U1)	EVERLIGHT ELECTRONICS CO LTD	EL817	Dti=0.5mm, Int. dcr=6.0mm, Ext. dcr=7.7mm, 110°C	IEC 60747-5-2	VDE: 132249
Line filter (LF3)	SHENZHEN HUA XINGJINGCHENG ELECTRONIC TECHNOLOGY CO..LTD	ET24-15MH	Min. 15mH, 130°C	IEC/EN 60065	Tested with appliance
--Bobbin	CHANG CHUN PLASTICS CO., LTD	T375J	Phenolic, V-0, 150°C, Min. 0.45mm thickness	UL 94, UL 746C	UL: E59481
--Magnet wire	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	UEW/U@	130°C	UL 1446	UL: E201757
(Alternate)	Interchangeable	Interchangeable	Min. 130°C	UL 1446	UL
--Varnish	HANG CHEUNG PETROCHEMICA L LTD	8562/D	155°C	UL 1446	UL: E200154
Inductor (LF2)	B&M Magnetism Technology Limited	T10*6*4-35UH	130°C	IEC/EN 60065	Tested with appliance
--Magnet wire	BOLUO COUNTY XIN LONG ELECTRICIAN DATA CO LTD	2UEW	130°C	UL 1446	UL: E229423
(Alternate)	Interchangeable	Interchangeable	Min. 130°C	UL 1446	UL
--Multi-layer Insulated Winding	Dah Jin Technology Co. Ltd.	TLW-B(xx)(y)@	130°C	EN 60950-1, IEC 60950-1, UL 60950-1	VDE: 40008834 UL: E236542
Transformer (T1)	SHENZHEN HUA XINGJINGCHENG ELECTRONIC TECHNOLOGY CO..LTD	FDPOW001 REV1.0	Class B	IEC/EN 60065	Tested with appliance
--Bobbin	CHANG CHUN PLASTICS CO LTD	T375J	Phenolic, V-0, 150°C, Min. 0.75mm thickness	UL 94, UL 746C	UL: E59481
--Magnet wire	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	UEW/U@	130°C	UL 1446	UL: E201757
(Alternate)	SHANTOU SHENGANG ELECTRICAL INDUSTRIAL CO	2UEW/155	155°C	UL 1446	UL: E239508



	LTD				
(Alternate)	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	UEWN/U@	155°C	UL 1446	UL: E201757
(Alternate)	Interchangeable	Interchangeable	Min. 130°C	UL 1446	UL
--Insulation tape	CHANG SHU LIANG YI TAPE INDUSTRY CO LTD	LY-02A (h)	130°C	UL 510	UL: E246820
(Alternate)	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	PZ-280	130°C	UL 510	UL: E165111
(Alternate)	SUZHOU MAILADUONA ELECTRIC MATERIAL CO LTD	JY312#	130°C	UL 510	UL: E188295
--Margin Tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	WF-2902	130°C	UL 510	UL: E165111
--Multi-layer Insulated Winding	Furukawa Electric Co. Ltd.	TEX-E	130°C	EN 60950-1, IEC 60950-1 UL 60950-1	VDE: 40033527 UL: E206440
--Tube	CHANGYUAN ELECTRONICS GROUP CO LTD	CB-TT-T	300Vac, 200°C	UL 224	UL: E180908

\*)Provided evidence ensures the agreed level of compliance.

Supplementary information: "Interchangeable" means any type from any manufacturer that complies with the specification can be used.

Photo documentation  
Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6

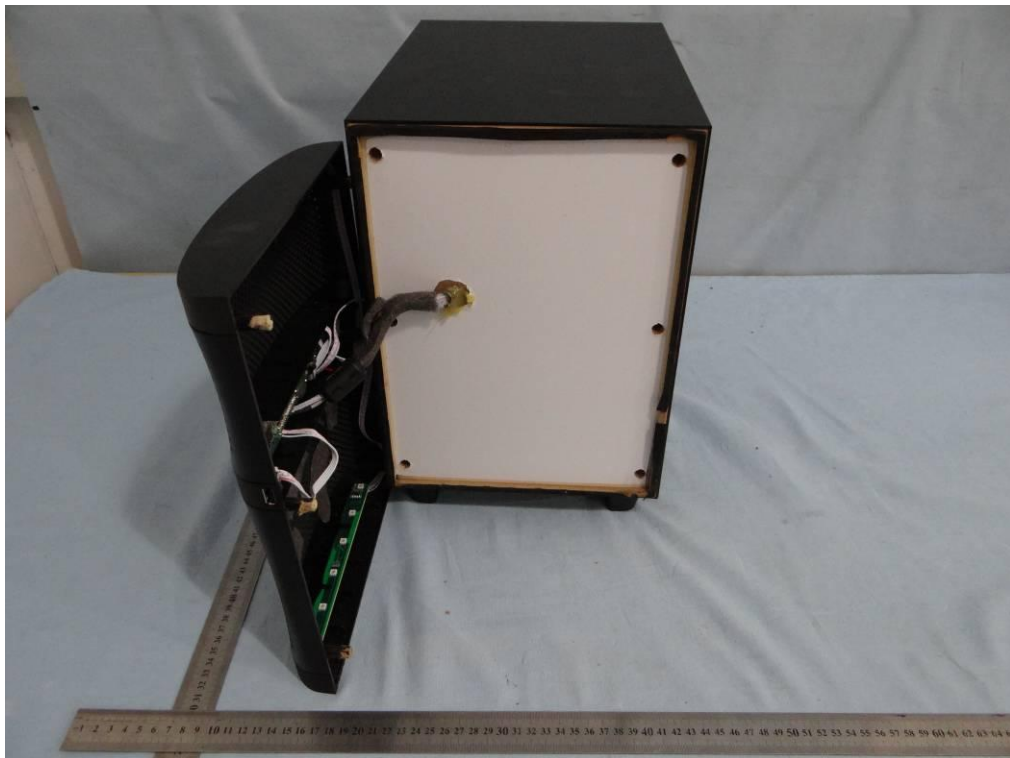


Photo 7



Photo 8

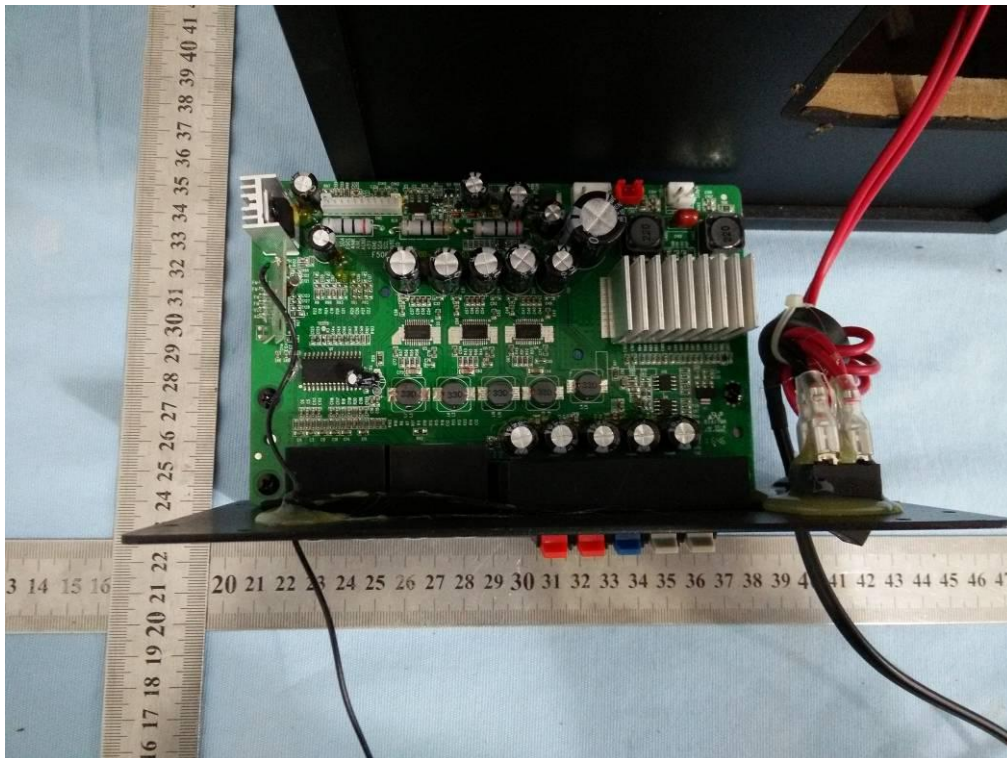


Photo 9

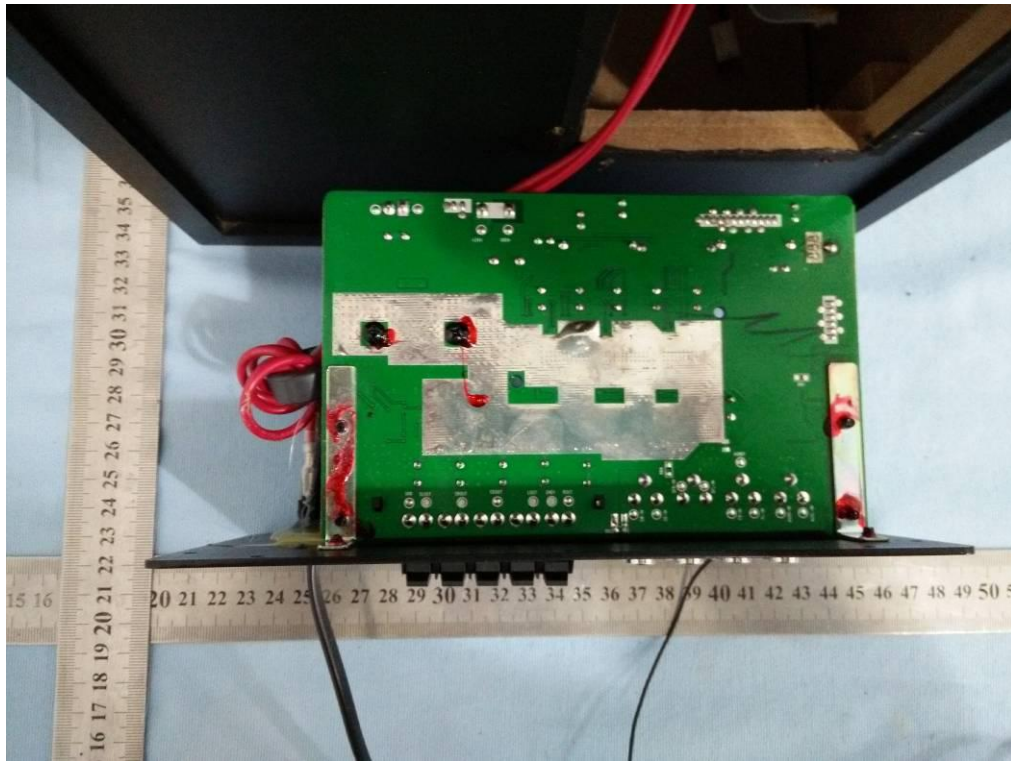


Photo 10

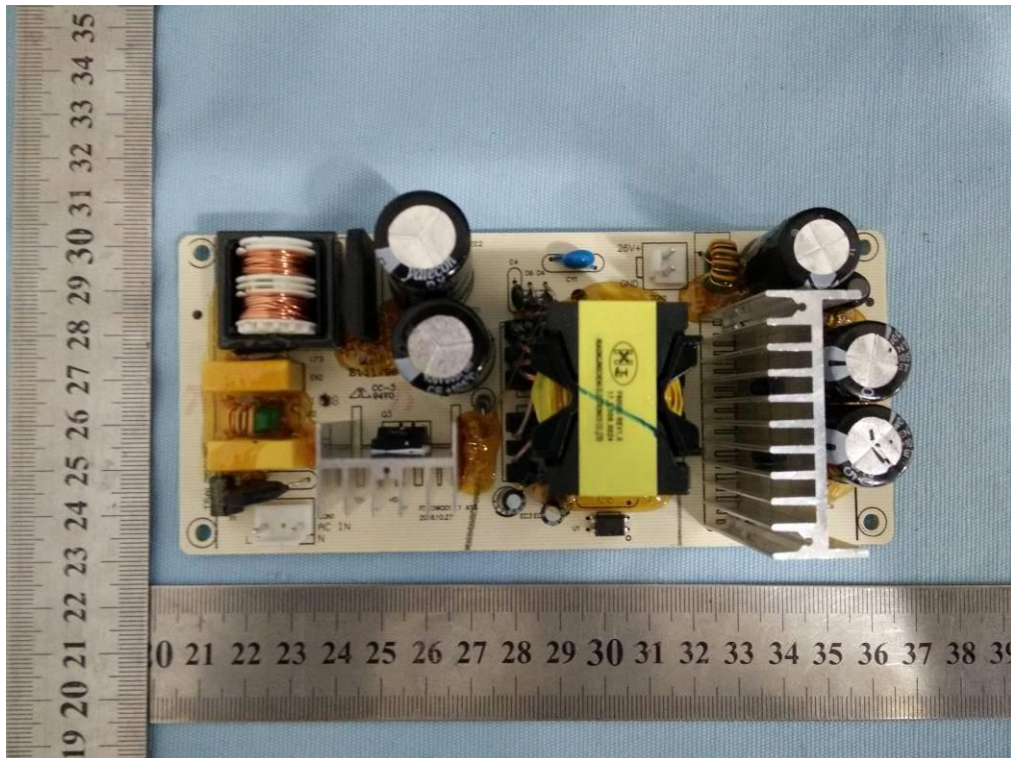


Photo 11

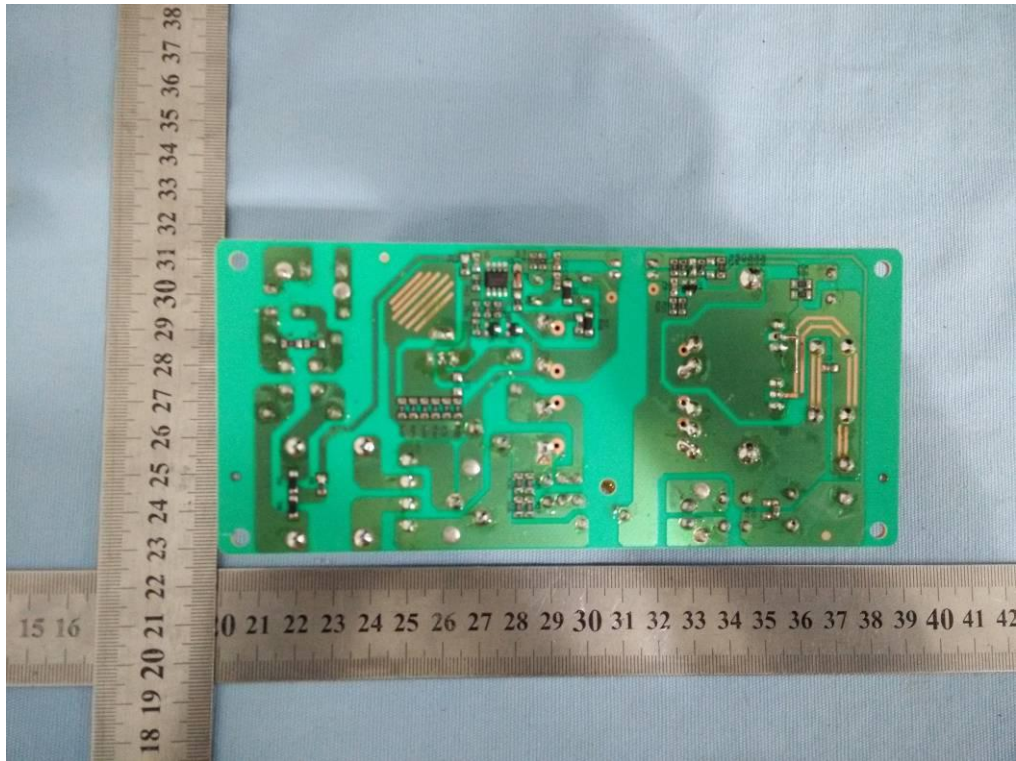


Photo 12

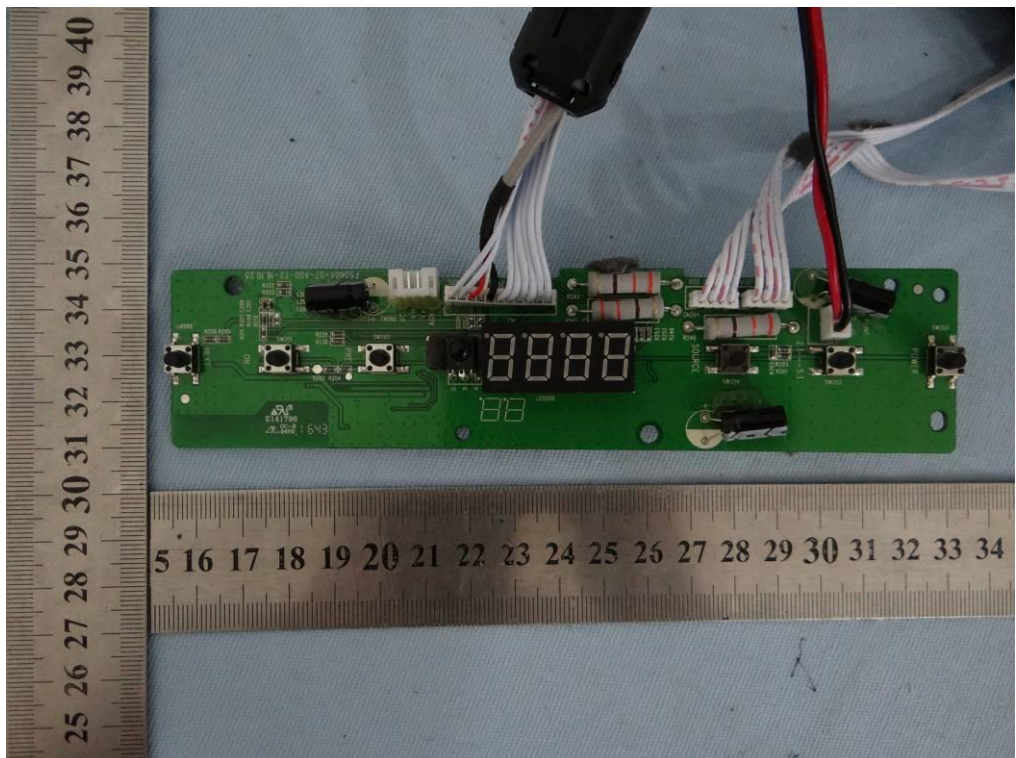


Photo 13

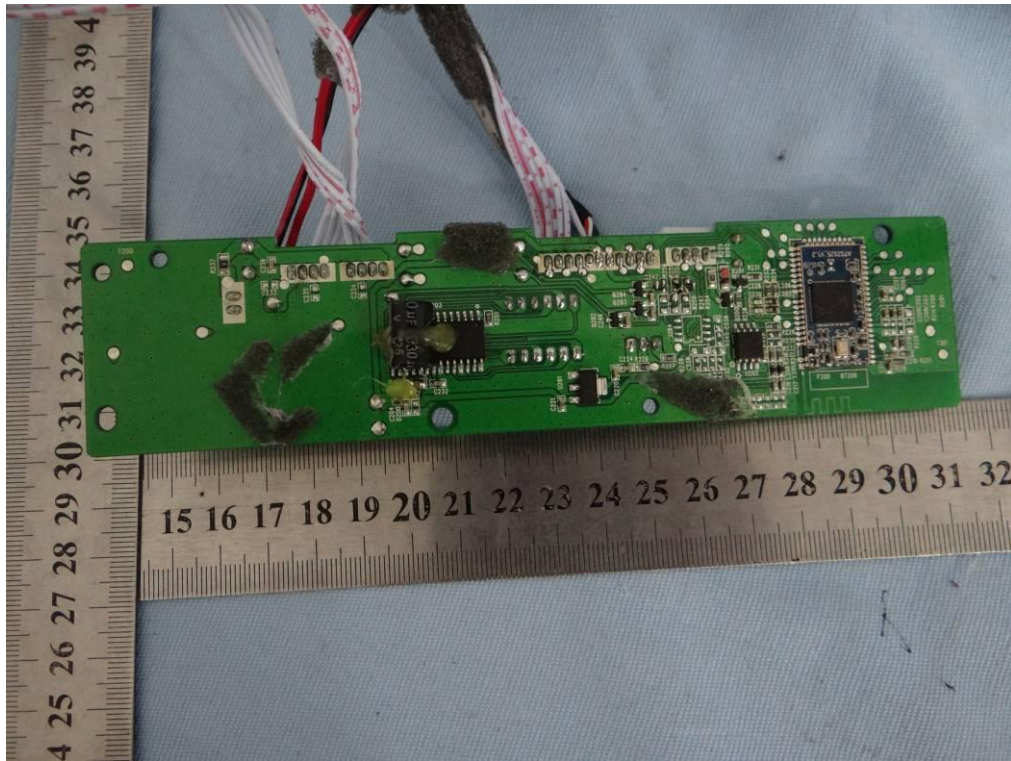


Photo 14



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