

# TEST REPORT

Applicant : Guangzhou HD Electronics Technology Co., Ltd.  
Address : No.1 Jiaochanggang, Shiji Town, Panyu District, Guangzhou, Guangdong Province, 511450, P.R.China  
Manufacturer : Guangzhou HD Electronics Technology Co., Ltd.  
Address : No.1 Jiaochanggang, Shiji Town, Panyu District, Guangzhou, Guangdong Province, 511450, P.R.China  
Product Name : LED TV  
Trade Mark : WINSTAR  
Model No. : 50SUD30  
Ratings : Input: 100-240V~, 50/60Hz, ≤120W  
USB output : 5V=500mA  
Standard : Audio, Video and Similar Electronic Apparatus: Safety Requirements  
EN 60065: 2014+A11: 2017

Date of Receiver : December 24, 2019  
Date of Test : December 24, 2019 to December 30, 2019  
Date of Issue : January 06, 2020  
Test Report Form No : NTCS-IEC60065-A1-E  
Test Result : Pass \*

This Test Report is Issued Under the Authority of :

Compiled by



James Zhu/ Engineer

Approved by & Authorized Signer



Ryan luo / Authorized Signatory

**\*Remarks:**

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



Revision History of This Test Report

Report Number	Description	Issued Date
NTC1912300SV00	Initial Issue	2020-01-06
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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. The importer information (Name and Address) and manufacturer information (Name and Address) 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.

**Test item particulars:**

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 point is used as the decimal separator.


**General product information:**

The product covered in this report is a LED TV which is used with audio/video equipment.

The unit has following features:

- 1.. A Mylar sheet is used located between the power board trace side and the panel metal plate fixed by mechanical method. The Mylar sheet is large enough to cover the whole area of the primary part, and considered as reinforced insulation.
2. The manufacturer specified maximum ambient temperature is +35 °C;
3. The unit is used at altitudes not exceeding 2000m above sea level.
4. The unit weight 9.3Kg Max. with base.

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	Marking plate was provided on the behind of product, it was comprehensible and easily discernible.	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 .....	Trade mark : WINSTAR	P
	b) Model number or type reference .....	Model: 50SUD30	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 .:	120W	P
	Measured current or power consumption .....	(See appended table 7.1)	P
	Measured current or power consumption for Television set .....	(See appended table 7.1)	P
	Deviation % (max 10%) .....	Not exceed 10%	P
	Symbols explained in the user manual	Explained in the user manual.	P
5.3	Terminals		P
	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	USB rated output rating: 5V $\overline{\text{---}}$ 500mA marked on the rating label.	P
<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.	Provided in the user 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	Provided in the user 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	Not such equipment.	N
	j) Warning: User replaceable coin / button cell battery	No such batteries provided.	N
5.5.3	a-b) Disconnect device: plug/coupler or all-pole mains switch location, accessibility and markings	The mains plug is used as disconnect device, and mentioned in the user manual.	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	No ionizing radiation.	N
6.2	Laser radiation, emission limits to IEC 60825-1:2007...	No laser radiation	N

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	Emission limits under fault conditions .....	No laser radiation	N
6.3	Light emitting diodes (LEDs) according to IEC 62471	Indicating LED on secondary is inherently exempt group according to IEC 62471.	P
<b>7</b>	<b>HEATING UNDER NORMAL OPERATING CONDITIONS</b>		P
7.1	General		P
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	No such part.	N
7.2	Softening temperature of insulating material supporting parts conductively connected to the o mains carrying a current > 0,2 A at least 150 °C	Material of bobbin for transformer and line filter are phenolic which meets the softening test requirement, no other parts need to test.	P
<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	The windings covered by lacquer were considered to be bare.	P
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	Class II equipment.	N
	Resistors bridging basic insulation complying with 14.2a)	Class II equipment.	N
	Capacitors bridging basic insulation complying with 14.3.2 a)	Class II equipment.	N
	Protective earthing terminal	Class II equipment.	N
<b>8.6</b>	<b>Class II apparatus</b>		P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	a) Basic and supplementary insulation between hazardous live parts and accessible parts	No such construction.	N
	b) Reinforced insulation between hazardous live parts and accessible parts	Reinforced insulation is provided between hazardous live parts and accessible part.	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	Transformer bridging reinforced insulation complying with 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)	No such components.	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) ..... :	<ul style="list-style-type: none"> <li>- Approved optocouplers with DTI at least 0.4mm;</li> <li>- The plastic enclosure with min. thickness 1.5 mm;</li> <li>- Bobbin of transformers with Min. thickness 0.70mm;</li> <li>- Insulation sheet under PCB with thickness at least 0.4mm.</li> </ul>	P
	Thin sheet material used inside the equipment	Provided in the isolating transformer.	P
	Basic or supplementary insulation, at least two layers, each meeting 10.4	No such construction.	N
	Basic or supplementary insulation, three layers any two of which meet 10.4	No such construction.	N
	Reinforced insulation, two layers each of which meet 10.4	2 layers of insulating tape used wrapping core and between pri. and sec. winding of transformers as reinforced insulation. 3000Vac applied on any each layer of insulation tape.	P
	Reinforced insulation, three layers any two which meet 10.4	No such construction.	N



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 (which fixed the secondary wires on the metal plate of panel or plastic enclosure).	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 part	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	The internal wiring does not touch heat sources or sharp edges that may damage the insulation or cause hazards when considered the 2 N force.	P
8.15	Only special supply equipment can be used	Not special supply equipment.	N
8.16	Insulated winding wire without additional interleaved insulation	Approved triple insulated wire used as winding in transformer	P
8.17	Endurance test as required by 8.16	See above	N
<b>8.18</b>	<b>Disconnection from the mains</b>		P
	Disconnect device	The mains plug is used as disconnect device, and mentioned in the user manual	P
	All-pole switch or circuit breaker with >3mm contact separation	No switch used.	N
	Mains switch ON indication	No switch used.	N
8.19	Switch not fitted in the mains cord	No switch fitted on the mains cord.	N
8.20	Bridging components comply with clause 14	No such component.	N
8.21	Non-separable thin sheet material	No such sheet material used.	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	Accessible parts don't be hazardous live.	P
	Inaccessible terminals are not accessible or comply with relevant requirements	The terminals don't be hazardous live.	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	See appended table 9.1.1.2.a)	P
	b) Touch current measured from terminal devices using the network in 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 probe B, test probe 13, test probe 18 and 19 used can not access to hazardous live parts.	P
9.1.2	No hazardous live shafts of knobs, handles or levers	Such parts was not be hazardous.	P
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 ... :	8V, 2s after withdrawal of plug under normal operation. (limit: 60Vdc); 16V, 2s after withdrawal of plug with RB1 open circuited. (limit: 60Vdc); 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
	If C is not greater than 0,1 µF no test needed	CXB1 =0.33uF	N

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
<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, no damage, no hazard.	P
9.2	No hazard after removing a cover by hand	No such cover.	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. :	After tested, the 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	See appended table 10.4.	P
	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	(see appended table 11.1)	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	Safety not impaired.	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.	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
<b>11.2.7</b>	<b>Printed boards</b>		P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	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	Temperature rise does not exceed the limits of table 3.	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>	No such part.	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	No such part.	N
	Meets all the special conditions if conductors on printed circuit boards are interrupted	No conductors were interrupted on printed circuit boards.	N
	Class I protective earthing maintained	No protective earthing.	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".	No such part.	N

<b>12</b>	<b>MECHANICAL STRENGTH</b>		<b>P</b>
<b>12.1</b>	<b>Complete apparatus</b>		<b>P</b>
12.1.1	The apparatus have adequate mechanical strength	The apparatus have adequate mechanical strength.	P
12.1.2	Bump test where mass >7 kg	Complied.	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 plastic 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, rear and front of plastic 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	No such equipment.	N
12.1.6	Thermoplastic enclosures stress relief test	70°C, 7 hours (After tested, the hazardous live parts cannot be touched, and all the internal tape which fixed for internal cable and glue do not loosen with 2 N force)	P
12.2	Fixing of knobs, push buttons, keys and levers		P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
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
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>	<i>(No such batteries used)</i>	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	(See appended table 13.3&13.4)	P
	Creepage distances in accordance with 13.4	(See appended table 13.3&13.4)	P
13.2	Determination of working voltage	(See appended table 13.2)	P
<b>13.3</b>	<b>Clearances</b>		P
13.3.1	Comply with 13.3 or Annex J	(See appended table 13.3&13.4)	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	Considered only normal transient voltage.	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	(See appended table 13.3&13.4)	P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
13.5.2	Type B coated printed circuit boards complying with IEC 60664-3 (basic insulation only)	No such part.	N
13.6	Conductive parts along uncemented joints clearances and creepage distances comply with 13.3 and 13.4	No such part.	N
	Conductive parts along reliably cemented joints comply with 8.8	No such part.	N
	Temperature cycle test and dielectric strength test	No such part.	N
	500V test for transformers, magnetic coupler and similar devices, if insulation is relied upon for safety	No such part.	N
13.7	Enclosed, enveloped or hermetically sealed parts not conductively connected to the mains, clearances and creepage distances as in table 12	No such part.	N
13.8	Parts filled with insulating compound, meeting the requirements of 8.8	Approved optocouplers used. (See appended table 14 )	P

<b>14</b>	<b>COMPONENTS</b>		P
14.1	Flammability according to IEC 60695-11-10 or annex G, or 20.2.5	Accepted flammability category material provided	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	No such resistors.	N
	b) Resistors, other than between hazardous live parts and accessible parts	No such resistors.	N
<b>14.3</b>	<b>Capacitors and RC units</b>		P
	Capacitors separately approved :	Approved Y1-capacitor and X2-capacitor used.	P
14.3.1	Damp heat test duration 21 days		N
14.3.2	Y capacitors tested to IEC 60384-14:2005 .....	Approved Y-capacitors (CYB1, CYB2, CYB3, CYB4) used.	P
14.3.3	X capacitors tested to IEC 60384-14:2005 .....	Approved X-capacitors (CXB1, CXB2) used .	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 .....	The capacitors except metal cased type provided with volume less than 1750 mm <sup>3</sup>	N
<b>14.4</b>	<b>Inductors and windings</b>		P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
14.4.1	Comply with IEC 61558-1, IEC 61558-2 (as relevant) and clause 20.2.5	Tested with apparatus.	N
	Transformers and inductors separately approved .:	Tested with apparatus.	N
14.4.2	Transformers and inductors marked with manufacturer's name and type .....	The transformer marked with the trademarks and type.	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
<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	See clause 8.8.	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 transformer	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.	P
	Coil formers and partition walls > 0,4 mm	See clause 8.8.	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	No such transformer.	N
	Winding wires connected to protective earth have adequate current-carrying capacity	No such transformer.	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	See sub-clauses 14.6.3.	P



IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	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
<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	No such component.	N
14.6.2.3	a) Thermal links separately approved	No thermal links used.	N
	b) Thermal links tested as part of the submission	No thermal links used.	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: FB1 T5AL 250V~	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 ..... :	Cannot be replaced without the use of a tool.	N
14.6.4	PTC thermistors comply with IEC 60730-1:2010	No such component.	N
	PTC devices (>15 W) category V-1 or better	No such component.	N
14.6.5	Circuit protectors have adequate breaking capacity and their position is correctly marked	No such component.	N
<b>14.7</b>	<b>Switches</b>		N
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	No switch used.	N
<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



IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
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
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		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		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	Approved optocouplers used.	P
	External clearances and creepage comply with 13.1	Approved optocouplers used.	P
	Compound completely filling the casing or internal clearances and creepage comply with 13.1 .....	Approved optocouplers used.	P
	a) Complies with 13.6 (jointed insulation) and N.3.2		N
	b) Complies with IEC 60747-5-5:2007	Approved optocouplers used.	P
	c) Complies with 13.8		N
<b>14.13</b>	<b>Surge suppression varistors</b>		N

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	Comply with IEC 61051-2	No such component.	N
	Not connected between mains and accessible parts except for earthed parts of permanently connected apparatus	No such component.	N
	GDT bridging basic insulation complies with electric strength and distance requirements	No such component.	N
	Complies with the climatic, voltage, current pulse, fire hazard and thermal stress requirements of 14.13	No such component.	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	Approved power plug used. (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	No mains socket outlets.	N
15.1.2	Design of connectors other than for mains power	The connector was designed not insertion into a mains socket-outlet.	P
	Design of sockets with symbol of 5.3 b) design	No such part	N
15.1.3	Design of terminals and connectors used in output circuits of supply apparatus	No such part	N
<b>15.2</b>	<b>Provision for protective earthing</b> <i>(Class II apparatus)</i>		N
	Accessible conductive parts of Class I equipment reliably connected to earth terminal, within equipment		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: < 0,1Ω 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	The power cord connected to power board by approved primary connector.	P
	Not soldered to conductors of a printed circuit board	The power cord connected to power board by approved primary connector.	P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	Adequate clearances and creepage distances between connections should a wire break away	The power cord connected to power board by approved primary connector.	P
	Wire secured by additional means to the conductor	Crimped quick connector terminal	P
15.3.3	Screws and nuts clamping conductors have adequate threads: ISO 261, ISO 262 or similar	No such screw used	N
15.3.4	Conductors adequately fixed (two independent fixings)	No such construction	N
15.3.5	Terminals allow connection of conductors having appropriate cross-sectional area	Approved primary connector was used within its rating.	P
15.3.6	Terminals to 15.3.3 have sizes required by table 16	No such terminal used	N
15.3.7	Terminals clamp conductors between metal and have adequate pressure	No such terminal used	N
	Terminals designed to avoid conductor slipping out when tightened	No such terminal used	N
	Terminals adequately fixed when tightened or loosened (no loosening, wiring not stressed, distances not reduced)	No such terminal used	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	No such construction.	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 non-detachable power cord used.	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	The power cord is used within its rating	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)	No such kinds of flexible cords used.	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	No such construction.	N
16.5	Adequate strain relief on external flexible cords	Displacement : 1 mm (Limit: 2mm)	P
	Not possible to push cord back into equipment	A strain-relief bushing was provided to prevent the push back of the power supply cord	P
	Strain relief device unlikely to damage flexible cord	The strain relief bushing is unlikely to damage the power 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	The strain relief bushing is unlikely to damage the power cord.	P
16.7	Transportable apparatus have appliance inlet according to IEC 60320-1 or means of stowage to protect the cord	The EUT is not such apparatus.	N

17	<b>ELECTRICAL CONNECTIONS AND MECHANICAL FIXINGS</b>		P
17.1	Table 20 torque test metal thread, 5 times.....:	Torque used: 0.5 Nm (Screws with diameter 2.95mm fix plastic enclosure) Torque used: 0.5Nm (Screws with diameter 2.86mm fix plastic enclosure) Torque used: 0.5Nm (Screws with diameter 2.92mm fix PCB)	P
	Table 20 torque test non-metallic thread, 10 times...:	No such screws used.	N
17.2	Correct introduction into female threads in non- metallic material	No such screws used.	N
17.3	Cover fixing screws captive or no hazard when replaced by a screw whose length is 10 times its diameter	No hazard when replaced by a screw whose length is 10 times its diameter.	P
17.4	No loosening of conductive parts carrying a current > 0,2 A	The conductive parts are fixed together securely and no loosening under normal operating.	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	No such part	N
17.7	Cover fixing devices have adequate strength and their	No such part	N

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	positioning is unambiguous		
17.8	Fixing means for detachable legs or stands provided	Complied.	P
17.9	Internal pluggable connections, affecting safety, unlikely to become disconnected	Internal pluggable connector would not be disconnected under 2 N force	P

18	<b>MECHANICAL STRENGTH OF PICTURE TUBES AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION</b>		N
18.1	Comply with IEC 61965 or 18.2	No picture tube used.	N
18.2	Non-intrinsically protected tubes		N

19	<b>STABILITY AND MECHANICAL HAZARDS</b>		P
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) .....		P
19.2	Test at 10° to the horizontal		P
19.3	Vertical force test 100 N applied downwards		P
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
19.6	<b>Mechanical strength of glass</b>		N
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	No such glass surface.	N
19.6.2	Fragmentation test	No such glass surface.	N
19.7	<b>Wall or ceiling mounting means</b>		P
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.....:	For Test 2 : Mass of unit is approx. 9.312kg (with base) and 365 N test for it. For Test 3 : Torque used: 0.8 Nm (Screws dimension : M3 Screws)	P

20	<b>RESISTANCE TO FIRE</b>		P
20.1	Start and spread of fire is prevented	Complied.	P
20.2	<b>Electrical components and mechanical parts</b>		P
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	No such enclosure	N
	b) Exemption for small components	Some small components mounted on UL approved	P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
		PCB with flammability of V-0	
20.2.2	Electrical components meet the requirements of Clause 14 or 20.2.5	For components covered in the Clause 14, the certified components were used.	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 internal wiring working at voltage higher than 4 KV.	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	V-0 PCB used.	P
	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.	V-0 PCB used.	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	No such construction.	N
	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 component working at voltage exceeds 4 kV	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>		
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 only.	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

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

A.10.3.2	Complies with 10.3,duration of the test is 168h		N
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<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
	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>		N
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



IEC 60065			
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	5.4 Note	5.5.2 Note 1 and Note 2	P
	13.3.1 Note 4	14.1 Note 1 and Note 2	15.1.1 Note 1 and Note 2	
	15.2 Note 2	16.1 Note 2	16.2 Note	
	20 Note	J.3 Note 1 and Table J.1 Note 2		

**1.2 Normative references** 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
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**3 General requirements** N


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</p>		N
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IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>CONNECTED APPARATUS, to rely on dedicated over current and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for 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>	No ionizing radiation.	N

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
<b>16</b>	<b>External flexible cords</b>		P
16.1	<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.	Added.	P
<b>Z1</b>	<b>Protection against excessive sound pressure from personal music players</b>		N
Z1.1	<p><b>General</b> 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. 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. A personal music player shall comply with the requirements of this subclause. 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. 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
Z1.2	<p><b>Equipment requirements</b> 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</li> </ul>	Not such apparatus.	N

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>fixed “programme simulation noise” as described in EN 50332-1; and</p> <p>– 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.</p> <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> <p>a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and</p> <p>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</p> <p>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</p> <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> <p>d) have a warning as specified in Z1.3; and</p> <p>e) not exceed the following:</p> <p>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</p> <p>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.</p> <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 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</p>		

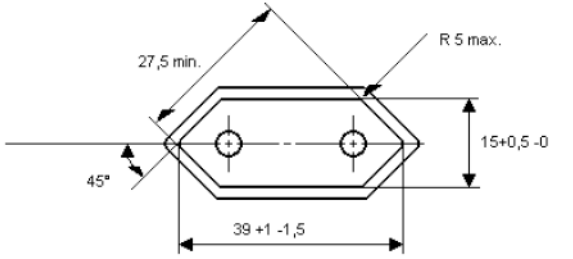
IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	simulation noise to 85 dB(A), but the average music level of the song is only 65 dB(A), there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dB(A).		
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: 5px 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 0;">  </div> <p><b>Figure Z1 – Warning label (IEC 60417-6044)</b> 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> 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. 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.). 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> 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 the combination of positions that maximize the measured acoustic output for the above-mentioned programme simulation noise, the acoustic output <math>L_{Aeq,T}</math> of the listening device shall be <math>\leq 100</math> dB(A).</li> </ul>	Not such apparatus.	N
Z1.5	<p><b>Measurement methods</b> Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable. Unless stated</p>	Not such apparatus.	N

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	otherwise, the time interval $T$ shall be 30 s. NOTE Test method for cordless equipment provided without listening device should be defined.		
	<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.		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 stikkontakt med jord, som giver forbindelse til stikproppens 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"	Not such apparatus.	N

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
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 jordtilkoplet utstyr – og er tilkoplet 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
13.3.1	<p><b>Norway</b>  <b>Add</b> 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



IEC 60065					
Clause	Requirement + Test	Result - Remark	Verdict		
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		
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> <table border="1" data-bbox="327 1825 922 1912"> <tr> <td>STANDARD SHEET I</td> </tr> <tr> <td>2,5 A/250 V SOCKET-OUTLET FOR ELECTRONIC APPLIANCES OF CLASS II</td> </tr> </table>	STANDARD SHEET I	2,5 A/250 V SOCKET-OUTLET FOR ELECTRONIC APPLIANCES OF CLASS II	No socket-outlet used.	N
STANDARD SHEET I					
2,5 A/250 V SOCKET-OUTLET FOR ELECTRONIC APPLIANCES OF CLASS II					

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	 <p>Dimensions in mm Other dimensions according to CEE Publication 7 Standard Sheet I "Portable Single-Way Socket-Outlets".</p> <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>		
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 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. The marking text in the applicable countries shall be as follows: In Finland: " Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan " In Norway: "Apparatet må tilkoples jordet stikkontakt" In Sweden: "Apparaten skall anslutas till jordat uttag" <b>Subclause 4.1.4 (corrigendum 1)</b> <b>Add</b> at the end of the subclause: NOTE In Norway, for requirements see 4.1.1, note and 5.3.1, note 1. <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>	Not such apparatus.	N



IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	<p><b>Subclause 4.2.1.3 (corrigendum 2)</b>  <b>Add</b> at the end of the subclause:                      NOTE In Norway, 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 Norway, 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 Finland, Norway and Sweden, there are additional requirements for the insulation.  <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</b> and <b>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                      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:                      • passes the test and inspection criteria of 13.6 with an electric strength test of 10.3 using the test voltage of 1,5 kV multiplied by 1,6, and                      • 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).                      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:                      • 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;                      • the additional testing shall be performed on all the test specimens as described in EN 132400;                      • 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.</p> <p><b>Subclause 5.3.2 (corrigendum 1)</b>  <b>Add</b> after the fourth dash:                      NOTE In Finland, Norway and Sweden, 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>		

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
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 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.</p>	Not such apparatus.	N
6.1	<p><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.</p>	No such device.	N

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	<p><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></p>		
14.1	<p><b>Sweden</b>            The following requirements shall be fulfilled:            Switches containing mercury such as thermostats, relays and level controllers are not allowed.</p>	No such component.	N

<b>ATTACHMENT TO TEST REPORT IEC 60065</b> <b>EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</b> (Audio, video and similar electronic apparatus – Safety requirements)			
Differences according to ..... : EN 60065:2014+A11:2017			
ZC	<b>ANNEX ZC, NATIONAL DEVIATIONS (EN)</b>		P
5.1	Delete the Italian deviation.		P

7.1							TABLE: temperature rise measurements:		P
Power consumption in the OFF/Stand-by mode of the functional switch (W) :							--		
Cond.	Un (V)	Hz	In (A)	Pn (W)	Uout (V)	Pout (W)	Operating Condition / Status		
Input mode: HDMI mode.									
1.	90	50	1.333	118.8	L=R=2.36	L=R=0.696	Playing three vertical bar signal and 1KHz audio signal to deliver the 1/8 Max. Non-Clipped output power on speakers. USB loading : 5Vdc/500mA.		
2.	90	60	1.339	119.1					
3.	100	50	1.178	117.2					
4.	100	60	1.184	117.5					
5.	240	50	0.497	113.9					
6.	240	60	0.498	113.9					
7.	264	50	0.457	113.5					
8.	264	60	0.460	113.8					
Loudspeaker impedance (Ω) .....							4ohm		—
Several loudspeaker systems.....							4ohm *2pcs		--
Marking of loudspeaker terminals.....							Internally integrated		--
Temperature Rise dT of Part					dT (K)		Limit max dT (K)		
Supply voltage					90V60Hz		264V60Hz		--
AC Inlet					13.8		11.5		60
AC connector (CNB1)					7.9		5.3		50
LCB1 winding					22.2		14.8		75
X-capacitor(CXB1)body					24.6		15.3		65
LCB2 winding					49.6		20.0		75
LCB2 bobbin					43.0		19.3		75
X-capacitor(CXB2)body					33.4		19.0		65
LCB3 winding					53.6		21.2		75
LCB3 bobbin					44.2		19.5		75
PCB under DB2					47.3		23.5		85
CB2					37.3		19.6		70
PCB near NTCB1					51.4		51.2		85
E- capacitor (EB201)					30.6		23.5		70
PCB near DB203					43.4		27.6		85
LB201 winding					47.4		27.6		85
LB201 bobbin					47.6		28.9		85
PCB near QB201					60.0		39.1		85
PCB under DB201					55.1		39.8		85
PCB near RB216					16.2		15.9		85
PCB near UB401					36.7		26.3		85

PCB near RB148	57.6	51.7	85
PCB near QB101	58.0	55.1	85
PCB under DB106	58.7	56.3	85
Transformer(TB101)winding	55.9	55.1	75
Transformer(TB101)bobbin	55.5	55.3	75
PCB near UD5	27.8	27.6	85
Optocoupler (PCB101)	25.4	24.3	85
Y-capacitor (CYB1) body	16.6	14.5	70
Y-capacitor (CYB2) body	18.0	15.6	70
Y-capacitor (CYB3) body	31.3	29.3	70
Y-capacitor (CYB4) body	15.6	13.6	70
LB801 winding	59.6	58.8	75
PCB near QB801	58.6	57.8	70
E- capacitor (EB105)	48.3	47.6	70
E- capacitor (EB102)	16.0	15.8	70
Heat sink(HS1)	40.7	40.5	85
PCB near USB	15.7	15.5	85
Plastic Enclosure near TB101, inside	25.8	24.8	Ref
Plastic Enclosure near TB101, outside	20.7	20.3	60
Button surface	1.3	1.6	60
LED panel	7.8	7.6	60
Ambient	25.6	25.8	--
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:

1. Measurements were carried out with the apparatus positioned inside the box specified by the clause 4.1.4 of the standard.
2. All the heating test was performed under HDMI mode.
3. According to the user manual, the appliance is intended to be used in tropical climate, so the basic ambient temperature is 35 °C .
4. L=Left speaker, R=Right speaker.

7.2	TABLE: softening temperature of thermoplastics			N
Temperature T of part	T - normal conditions (°C)	T - fault conditions (°C)	Min T softening (°C)	
--	--	--	--	

Supplementary information:

Material of bobbin for transformer and line filter are phenolic which meets the softening test requirement, no other parts need to test.

9.1.1.2 a)	TABLE: Electric shock hazard under normal condition (open-circuit voltage)			P
Terminals	In (V)	Peak Voltage or dc (V)		
		load	No load	
L /N → secondary terminals	264	346	368	
L /N → metal enclosure	264	346	368	
L /N → plastic enclosure wrap with metal foil	264	46	58	
L /N → LED Panel wrap with metal foil	264	238	256	

Supplementary information:

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. EUT supplied with 264Vac/60Hz.
4. The apparatus could be used in temperate climate.

9.1.1.2 b)	TABLE: Electric shock hazard under normal condition (touch current)				P
Touch current measured between:	Condition	U1 (Vpk)	U1 (Vpk) Limited	U2 (Vpk)	U2 (Vpk) Limited
L /N → secondary terminals	Normal condition	0.16	35	0.08	0.35
L /N → metal enclosure	Normal condition	0.16	35	0.08	0.35
L /N → plastic enclosure wrap with metal foil	Normal condition	0.032	35	0.02	0.35
L /N → LED Panel wrap with metal foil	Normal condition	0.056	35	0.02	0.35

Supplementary information:

1. The touch current was measured according to 9.1.1.2 b) with the test circuit of Annex D connected between the specified points.
2. EUT supplied with 264Vac/60Hz.
3. All Y-capacitors are maximum rating according to table 14.
4. The apparatus could be used in temperate climate.

10.4	TABLE: Insulation Resistance Measurements		P
Insulation resistance R between:	R (MΩ)	Required R (MΩ)	
Between L and N (fuse opened)	>100	2	
Between L&N and secondary terminals	>100	4	
Between L&N and plastic enclosure with metal foil	>100	4	
Between L&N and metal enclosure	>100	4	
Transformer TB101 primary winding and secondary winding	>100	4	

Transformer TB101 primary winding and core	>100	4
One layer insulation tape of transformer	>100	4
Supplementary information: Triple insulated wire used for secondary winding of the transformer TB101, Core of TB101 considered as primary part.		

10.4	TABLE: Dielectric Strength			P
Test voltage applied between:	Test potential applied (Vdc)	Breakdown / flashover (Yes/No)		
Between L and N (fuse opened)	2120	No		
Between L&N and secondary terminals	4240	No		
Between L&N and plastic enclosure with metal foil	4240	No		
Between L&N and metal enclosure	4240	No		
Transformer TB101 primary winding and secondary winding	4240	No		
Transformer TB101 primary winding and core	4240	No		
One layer insulation tape of transformer	4240	No		
Supplementary information: *Triple insulated wire used for secondary winding of the transformer TB101, Core of TB101 considered as primary part.				

11.1	TABLE: Electric shock hazard under abnormal condition					P
Touch current measured between:	Condition	U1 (Vpk)	U1 (Vpk) Limited	U2 (Vpk)	U2 (Vpk) Limited	
L /N→ secondary terminals	All fault condition that cause fuse FB1 opened	0.24	70	0.20	0.7	
L /N → metal enclosure		0.24	70	0.20	0.7	
L /N → plastic enclosure wrap with metal foil		0.064	70	0.04	0.7	
L /N → LED Panel wrap with metal foil		0.108	70	0.04	0.7	
Supplementary information: 1. The touch current was measured according to 9.1.1.2 b) with the test circuit of Annex D connected between the specified points. 2. EUT supplied with 264Vac/60Hz. 3. All Y-capacitors are maximum rating according to table 14. 4. The apparatus could be used in temperate climate.						

11.2	TABLE: Fault Conditions		P
	Voltage (V) 0,9 or 1,1times rated voltage .....	264Vac	--
	Frequency (Hz) .....	50	--
	Ambient temperature (°C) .....	See blow	--



No.	Component	Fault	dT (K) /Component	Test conditions, test duration, test result
1	DB1	SC	--	The Fuse FB1 opened with breaking current exceeding 2.1 times of the fuse rating, no hazard. Test time: 1s I/P:264V 0A 0W
2	EB201	SC	--	The Fuse FB1 opened with breaking current exceeding 2.1 times of the fuse rating, no hazard. Test time: 1s I/P:264V 0A 0W
3	RB216	SC	--	The Fuse FB1 opened with breaking current exceeding 2.1 times of the fuse rating, no hazard. Test time: 1s I/P:264V 0A 0W
4	UB401 Pin1-3	SC	--	The unit shutdown immediately. After testing, no damaged, no hazards. Test time: 10min I/P:264V 0.065A 0.48W
5	CB206	SC	--	The unit shutdown immediately. After testing, no damaged, no hazards. Test time: 10min I/P:264V 0.065A 0.48W
6	DB107	SC	--	The unit shutdown immediately. After testing, no damaged, no hazards. Test time: 10min I/P:264V 0.065A 0.48W
7	QB101 S-D	SC	--	The Fuse FB1 opened with breaking current exceeding 2.1 times of the fuse rating, QB101 damaged, no hazard. Test time: 1s I/P:264V 0A 0W
8	QB101 D-G	SC	--	The Fuse FB1 opened with breaking current exceeding 2.1 times of the fuse rating, QB101 damaged, no hazard. Test time: 1s I/P:264V 0A 0W
9	QB101 S-G	SC	--	The unit shutdown immediately. After testing, no damaged, no hazards. Test time: 10min I/P:264V 0.065A 0.48W
10	RB148	SC	--	The Fuse FB1 opened with breaking current exceeding 2.1 times of the fuse rating, QB101 damaged, no hazard. Test time: 1s I/P:264V 0A 0W

11	DB105	SC	--	The unit shutdown immediately. After testing, no damaged, no hazards. Test time: 10min I/P:264V 0.065A 0.48W
12	TB101 Pin 6 to Pin 9	SC	--	The unit shutdown immediately. After testing, no damaged, no hazards. Test time: 10min I/P:264V 0.065A 0.48W
13	TB101 Pin 11 to Pin 10	SC	--	The unit shutdown immediately. After testing, no damaged, no hazards. Test time: 10min I/P:264V 0.065A 0.48W
14	TB101 Pin 4 to Pin 2	SC	--	The unit shutdown immediately. After testing, no damaged, no hazards. Test time: 10min I/P:264V 0.065A 0.48W
15	TB101 Pin 5 to Pin 1	SC	--	The unit shutdown immediately. After testing, no damaged, no hazards. Test time: 10min I/P:264V 0.065A 0.48W
16	DB102	SC	--	The unit shutdown immediately. After testing, no damaged, no hazards. Test time: 10min I/P:264V 0.065A 0.48W
17	EB104	SC	--	The unit shutdown immediately. After testing, no damaged, no hazards. Test time: 10min I/P:264V 0.065A 0.48W
18	DB101	SC	--	The unit shutdown immediately. After testing, no damaged, no hazards. Test time: 10min I/P:264V 0.065A 0.48W
19	LED"+""-"	SC	--	The unit shutdown immediately. After testing, no damaged, no hazards. Test time: 10min I/P:264V 0.065A 0.48W
20	PCB101 Pin 1-2	SC	--	The unit shutdown immediately. After testing, no damaged, no hazards. Test time: 10min I/P:264V 0.065A 0.48W
21	PCB101 Pin 3-4	SC	--	The unit shutdown immediately. After testing, no damaged, no hazards. Test time:10min I/P:264V 0.065A 0.48W
22	PCB101 Pin 1	OC	--	The unit shutdown immediately. After testing, no damaged, no hazards. Test time: 10min

				I/P:264V 0.065A 0.48W
23	PCB101 Pin 3	OC	--	The unit shutdown immediately. After testing, no damaged, no hazards. Test time: 10min I/P:264V 0.065A 0.48W
24	USB	SC	--	The unit shutdown immediately. After testing, no damaged, no hazards. Test time: 10min I/P:264V 0.069A 3.03W
25	Speakers	Max	See below table	The stable temperature rise was obtained. Input power increased to 129.1W. After testing, no damaged, no hazards. Test time:1h20min
26	Speakers	SC	See below table	The stable temperature rise was obtained. Input power decrease to 112.0W. After testing, no damaged, no hazards. Test time:1h30min
27	Openings	BL	See below table	The stable temperature rise was obtained. After testing, no damaged, no hazards. Test time:1h10min
28	USB	OL	See below table	Max. loading current was 1.3A, when the USB loading current was increased to 1.4A, the USB shutdown. After testing, no damaged, no hazards. Test time:1h20min

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.

TABLE: temperature rise measurements under abnormal condition tests					P
Test condition	No. 25	No. 26	No. 27	No. 28	--
Test voltage	264V	264V	264V	264V	--
Monitored point:	dT (K)				Limit dT (K)
AC Inlet	13.1	10.1	15.1	11.0	100
AC connector (CNB1)	6.4	5.4	7.8	5.7	110
LCB1 winding	16.6	13.3	18.5	14.4	110
X-capacitor(CXB1)body	17.3	13.7	19.1	14.9	110
LCB2 winding	23.7	17.9	23.5	20.0	150
LCB2 bobbin	22.8	17.3	22.6	19.1	150
X-capacitor(CXB2)body	21.4	17.4	22.8	18.6	110
LCB3 winding	24.0	19.7	25.8	21.4	150
LCB3 bobbin	21.9	17.9	23.6	19.2	150

PCB under DB2	26.4	22.3	28.8	24.9	110
CB2	21.7	18.5	24.5	20.0	110
PCB near NTCB1	27.9	23.7	30.4	27.3	110
E- capacitor (EB201)	28.0	20.9	26.0	23.4	110
PCB near DB203	26.3	22.9	29.2	24.8	110
LB201 winding	29.4	26.2	32.7	27.5	150
LB201 bobbin	31.1	27.3	33.9	28.7	150
PCB near QB201	41.5	38.0	44.4	41.1	110
PCB under DB201	42.7	38.5	45.2	42.9	110
PCB near RB216	16.9	15.8	17.4	17.3	110
PCB near UB401	29.7	24.3	30.2	26.6	110
PCB near RB148	58.2	49.4	56.8	56.6	110
PCB near QB101	61.1	53.1	60.2	60.5	110
PCB under DB106	62.1	54.1	61.1	62.4	110
Transformer(TB101)winding	58.2	51.2	59.6	59.1	140
Transformer(TB101)bobbin	66.6	52.1	60.9	59.7	140
PCB near UD5	33.1	24.2	60.9	29.1	110
Optocoupler (PCB101)	29.1	20.4	27.2	24.9	110
Y-capacitor (CYB1) body	17.6	10.9	17.2	14.3	110
Y-capacitor (CYB2) body	19.3	11.6	18.1	15.2	110
Y-capacitor (CYB3) body	35.5	26.0	31.9	30.6	110
Y-capacitor (CYB4) body	16.6	10.2	16.4	13.4	110
LB801 winding	60.1	56.6	63.5	61.5	150
PCB near QB801	59.6	56.2	62.1	64.2	110
E- capacitor (EB105)	50.5	45.2	52.1	50.3	110
E- capacitor (EB102)	18.4	12.1	18.4	15.0	110
Heat sink(HS1)	42.4	38.9	44.5	42.6	110
PCB near USB	16.4	15.3	20.0	16.7	110
Plastic Enclosure near TB101, inside	29.2	23.0	28.1	25.5	Ref
Plastic Enclosure near TB101, outside	22.8	18.5	22.1	20.0	70
Button surface	1.6	1.6	1.6	1.6	65
LED panel	7.9	7.2	7.6	7.1	70
Ambient	25.6	25.6	25.6	25.6	--
Supplementary information: --					

<b>13.3&amp;13.4</b>	<b>TABLE: Clearance ad Creepage Distance Measurements</b>				<b>P</b>
Rated supply	100-240Vac	Pollution degree .. :	II	Material Group ....:	IIIa or IIIb

2 N force on internal parts applied:			Component				P
30 N force on outside of conductive enclosure applied:			Metal enclosure				P
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 FB1 (BI)	<420	<250	2.0	4.7	2.5	4.7	
Different polarity of fuse (BI)	<420	<250	2.0	3.0	2.5	3.0	
CYB1 capacitor primary to secondary (RI)	<420	<250	4.0	7.8	5.0	7.8	
CYB2 capacitor primary to secondary (RI)	<420	<250	4.0	7.8	5.0	7.8	
CYB3 capacitor primary to secondary (RI)	<420	<250	4.0	7.8	5.0	7.8	
CYB4 capacitor primary to secondary (RI)	<420	<250	4.0	7.8	5.0	7.8	
Optocoupler PCB101 primary to secondary (RI)	<420	<250	4.0	6.0	5.0	6.0	
Transformer TB101 primary to secondary on PCB Layout (RI)	472	267	4.2	7.8	5.2	7.8	
Transformer TB101 primary winding to secondary pins (RI)	472	267	4.2	11.1	5.2	11.1	
Transformer TB101 core to primary pins (RI)	472	267	4.2	11.3	5.2	11.3	
Primary trace to metal case of display screen (RI)	<420	<250	4.0	7.5	5.0	7.5	
Primary components to surface of plastic enclosure (RI)	<420	<250	4.0	8.6	5.0	8.6	
<p>Notes:</p> <ol style="list-style-type: none"> <li>1. 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.</li> <li>2. 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.</li> <li>3. 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 .</li> <li>4. Triple insulated wire used for secondary winding of the transformer TB101, Core of TB101 considered as primary part.</li> <li>5. BI=Basic insulation; SI=Supplementary insulation; RI=Reinforce insulation.</li> </ol>							

<b>14</b>	<b>TABLE: list of critical components and materials</b>					<b>P</b>
Component	Manufacturer/ trademark	Type/model	Value / rating	Standard	Mark(s) of Conformity*)	
Plug(UK type)	Guangzhou Huanqiu Electrical & Appliance Co., Ltd.	HQ-BS301	13A, 250VAC	BS 1363-1	ASTA 1024	

Plug(UK type)	Shenzhen G-Cinda Power Solution Co., Ltd	GXD-018	13A, 250VAC	BS 1363-1	ASTA 1152
Plug(UK type)	Guangzhou Towell Electrical Appliance Co., Ltd.	8802	13A, 250VAC	BS 1363-1	ASTA 805
Plug(UK type)	Volex Cable Assembly Shenzhen Co., Ltd.	LQ-224	13A, 250VAC	BS 1363-1	ASTA 713
Plug(UK type)	Guangdong Kaihua Electric Appliance Co., Ltd	KH-9933	13A, 250VAC	BS 1363-1	ASTA 1053
Plug(UK type)	Shenzhen Xiekang Electric Co., Ltd.	XK-28	13A, 250VAC	BS 1363-1	ASTA 972
Plug (UK type)	Jiexi MianHu HuanQiu Electric Power Supply Cord Factory	HQ-AC021	13A, 250VAC	BS 1363-1	ASTA 1360
Plug (UK type)	Shenzhen G-CINDA Power Solution Co., Ltd	GXD-018	3A/10A/13A, 250VAC	BS 1363-1	4347096.01GC C
Plug(UK type)	Interchangeable	Interchangeable	3A, Min, 250VAC	BS 1363-1	BS
- Description:	Interchangeability base on dimensions due to mounting(including connections) and specified ratings				
Plug (Saudi Arabia)	Guangdong Kaihua Electric Appliance Co., Ltd	KH-9933/KH-993 3A	13A, 250VAC	SASO2203:2015	KSA R310389
Plug (Saudi Arabia)	Dongguan Yingtai Electric Co., Ltd	CWL668	13A, 250VAC	SASO2203:2015	SZES1309001 93901
Plug (Saudi Arabia)	De-Chang Electronic Manufactory	DC-168A	13A, 250VAC	SASO2203:2015	SZES1606102 26801
Plug (Saudi Arabia)	Luen Tai Ip's Electrical (Shenzhen) Co., Ltd.	PMS-9518	13A, 250VAC	SASO2203:2015	KSA R-310638
Plug(Saudi Arabia)	Shenzhen G-Cinda Power Solution Co., Ltd	GXD-018	13A, 250VAC	SASO2203:2015	17121202HK G-003VOC
Plug(Saudi Arabia)	Luen Tai Ip's Electrical (Shenzhen) Co., Ltd.	PMS-9518	13A, 250VAC	SASO2203:2015	KSA R-310638
Plug(Saudi Arabia)	Interchangeable	Interchangeable	13A, 250VAC	SASO2203:2015	SASO
- Description:	Interchangeability base on dimensions due to mounting(including connections) and specified ratings				
Plug(South Africa)	Taiwan Line Tek Electronics Co., Ltd	PE-364	16A, 250VAC	SABS 164	SABS:14980
Plug(South Africa)	Interchangeable	Interchangeable	16A, 250VAC	SABS 164	SABS

- Description:	Interchangeability base on dimensions due to mounting(including connections) and specified ratings				
Plug(VDE)	Shenzhen G-Cinda Power Solution Co., Ltd	DRF-03	2.5A/250Vac	DIN VDE 0620	VDE 40019774
Plug(VDE)	Shenzhen Shigang Technology Co, Ltd	M4206	2.5A/250Vac	DIN VDE 0620	VDE 137417
Plug(VDE)	Jiexi Mianhu Huanqiu Electric Power Supply Cord Factory	HQ-10	2.5A/250VAC	DIN VDE 0620	VDE 40027668
Plug(VDE)	Shenzhen Xiekang Electric Co., Ltd.	XK-01	2.5A/250Vac	DIN VDE 0620	VDE 40009009
Plug(VDE)	Jiexi MianHu HuanQiu Electric Power Supply Cord Factory	HQ-AC003	16A,250Vac	DIN VDE 0620	VDE 40048822
Plug(VDE)	Jiexi MianHu HuanQiu Electric Power Supply Cord Factory	HQ-AC008	16A,250Vac	DIN VDE 0620	VDE 40048774
Plug(VDE)	Interchangeable	Interchangeable	2.5A/250VAC	DIN VDE 0620	VDE
- Description:	Interchangeability base on dimensions due to mounting(including connections) and specified ratings				
Fuse in the UK type plug	Shenzhen Deer Electronics Co., Ltd	DISSMANN JADE	3/5/10/13A 250V ~	BS 1362	ASTA 997
Fuse in the UK type plug	Dongguan Ubill Electrical Co., Ltd	UBL8808	3/5/10/13A 250V ~	BS 1362	ASTA 1204
Fuse in the UK type plug	Dongguan Dawei Electrical Co., Ltd	625	3/5/10/13A 250V ~	BS 1362	ASTA 1207
Power cord	Guangzhou Huanqiu Electrical & Appliance Co., Ltd.	H05VV-F H03VV-F H03VVH2-F H05VVH2 F	2x 0.75 mm <sup>2</sup> 2x 0.5 mm <sup>2</sup>	VDE (0285-525-2-11)	VDE 40000917
Power cord	Shenzhen Tongyuan Industrial Co., Ltd.	H05VV-F H03VV-F H03VVH2-F H05VVH2-F	2x 0.75 mm <sup>2</sup> 2x 0.5 mm <sup>2</sup>	VDE (0285-525-2-11)	VDE 101980
Power cord	Shenzhen Dongju Wire & Cable Co., Ltd.	H05VV-F H03VV-F H03VVH2-F H05VVH2-F	2x 0.75 mm <sup>2</sup> 2x 0.5 mm <sup>2</sup>	VDE (0285-525-2-11)	VDE 129988
Power cord	Shenzhen G-CINDA Power Solution Co., Ltd.	H05VV-F H03VV-F H03VVH2-F H05VVH2-F	2x 0.75 mm <sup>2</sup> 2x 0.5 mm <sup>2</sup>	VDE (0285-525-2-11)	VDE 40040170
Power cord	Shenzhen Baohing Electric Wire & Cable Manufacture Co., Ltd.	H05VV -F H03VV-F H03VVH2-F H05VVH2-F	2x 0.75 mm <sup>2</sup> 2x 0.5 mm <sup>2</sup>	VDE (0285-525-2-11)	VDE 103727



Power cord	Guangzhou Jinying Special Wire Factory Jiufu Industry Zone	H05VV-F H03VV-F H03VVH2-F H05VVH2-F	2x 0.75 mm <sup>2</sup> 2x 0.5 mm <sup>2</sup>	VDE (0285-525-2-11)	VDE 40022725
Power cord	Guangdong Kaihua Electric Appliance Co., Ltd	H05VV-F H03VV-F H03VVH2-F H05VVH2-F	2x 0.75 mm <sup>2</sup> 2x 0.5 mm <sup>2</sup>	VDE (0285-525-2-11)	VDE 40001903
Power cord	Shenzhen Xiekang Electric Co., Ltd.	H05VV-F H03VV-F H03VVH2-F H05VVH2-F	2x 0.75 mm <sup>2</sup> 2x 0.5 mm <sup>2</sup>	VDE (0285-525- 2-11)	VDE 40029225
Power cord	Jiexi MianHu HuanQiu Electric Power Supply Cord Factory	H05VV-F H03VV-F H03VVH2-F H05VVH2-F	2x0.75 mm <sup>2</sup> 2x0.5 mm <sup>2</sup>	VDE (0285-525-2-11)	VDE 40047549
Power cord	Interchangeable	H05VV-F H03VV-F H03VVH2-F H05VVH2-F	2x 0.75 mm <sup>2</sup> 2x 0.5 mm <sup>2</sup>	VDE (0285-525-2-11)	VDE
Front housing	Formosa Chemicals Fibre Corp Plastics Div	AG15AB	ABS, Minimum 1.5 mm thick, HB	UL94	UL E162823
Rear housing	Silver Age Engineering Plastics (Dongguan) Co., Ltd.	HIPS930	HIPS, Minimum 1.5 mm thick, V-0	UL94	UL E225348
Rear housing	Interchangeable	Interchangeable	V-0	UL94	UL
LED Display	Guangzhou HD Electronics Technology Co., Ltd	KM0500LD xxxxxx (x=0-9,A-Z or blank)	50 inch LED	IEC60065	Tested within appliance
Main board with SMPS	CVT Electronics Group	TP.MT5522S.PC82 2	100-240V~, 50/60Hz, 2.2A	IEC60065	Tested within appliance
PCB	Longnan Champion Asia Electronic Technology Co Ltd.	F-D	V-0, 130°C	UL 796	UL:E254215
Alternate	SHENZHEN RUOMEI ELECTRONICS CO LTD	RM-01	V-0, 130°C	UL 796	UL:E214887
Alternate	AOSHIKANG PRECISION CIRCUIT (HUIZHOU) CO LTD	A-2,K-2,S-2	V-0, 130°C	UL 796	UL:E239218
Alternate	JIANGMEN BENLIDA PRINTED CIRCUIT CO.,LTD	BLD-B,BLD-D	V-0, 130°C	UL 796	UL:E203640
Alternate	Trustech Electronics (Shenzhen) Co., Ltd.	CL-1	V-0, 130°C	UL 796	UL: E241819
Alternate	TOPSEARCH PRINTED CIRCUITS (HK) LTD	TS-D-8V03C SG TS-D-7V04 SG	V-0, 130°C	UL 796	UL:E96016
Alternate	Shenzhen Wuzhu Tech Co.,Ltd.	WZ-6	V-0, 130°C	UL796	UL:E170968

Alternate	PALWONN ELECTRONICS (SHENZHEN) CO LTD	D3,D6	V-0, 130°C	UL 796	UL:E230435
Alternate	SHENZHEN MANKUN ELECTRONICS CO LTD	MK-D,MK-D600,MK-DC	V-0, 130°C	UL 796	UL:E248237
Alternate	SUZHOU WUTONG ELECTRONICS CO LTD	GS-2	V-0, 130°C	UL 796	UL:E236256
Alternate	VICTORY GIANT TECHNOLOGY (HUIZHOU) CO LTD	SH1,SH9	V-0, 130°C	UL 796	UL:E248779
Alternate	RONG HUI ELECTRONICS (HUIZHOU) CO LTD	RH-3	V-0, 130°C	UL 796	UL:E252098
Alternate	XIN FENG FU CHANG FA ELECTRONIC CO LTD	FCF-3	V-0, 130°C	UL 796	UL:E232205
Alternate	MEIZHOU DINGTAI P C B CO LTD	DT-2	V-0, 130°C	UL 796	UL:E320008
Alternate	JIANGXI UNIONGAIN ELECTRONICS TECHNOLOGY CO LTD	DS2,DS3	V-0, 130°C	UL 796	UL:E464601
Alternate	SHANTOU FENGLIDA ELECTRONICS TECHNOLOGY CO LTD	FLD-02	V-0, 130°C	UL 796	UL:E347210
Alternate	ZHUHAI KINGSUN ELECTRONICS AND TECHNOLOGY CO LTD	KS-D,KS-D1,KS-D2	V-0, 130°C	UL 796	UL:E465853
Alternate	HUIZHOU CHINA EAGLE ELECTRONIC TECHNOLOGY CO LTD	CA-F120	V-0, 130°C	UL 796	UL:E198681
Alternate	ELEC & ELTEK MULTILAYER PCB LTD	E3330E	V-0, 130°C	UL 796	UL:E54926
Alternate	SHENZHEN KINWONG ELECTRONIC CO LTD	5、5C、10、10B	V-0, 130°C	UL 796	UL:E243951
Alternate	INNO CIRCUITS LTD	IQE-D1,IQE-D2,IQE-D3	V-0, 130°C	UL 796	UL:E365781
Alternate	SHEN ZHEN SUN & LYNN CIRCUITS CO LTD	SL-2,SL-D,SL-HD	V-0, 130°C	UL 796	UL:E234156
Alternate	Various	Various	V-0, 130°C	UL 796	UL
Mylar	Shenzhen Bornsun Industrial Co., Ltd.	BN-FP	V-0, 130°C	UL 94	UL: E256822
Alternate	Sabic Japan L L C	FR700	V-0, 130°C	UL 94	UL: E207780

Alternate	Suzhou Omay Optical Materials Co., Ltd.	SE42B	V-0, 80°C	UL 94	UL: E249605
Alternate	Shenzhen teesun technology Co.,Ltd.	TS-FR1370	V-0, 130°C	UL 94	UL: E329660
Alternate	Sichuan Longhua Film Co Ltd	PC1870A(a)-ECO	V-0, 80°C	UL 94	UL:E254551
Alternate	SICHUAN DONGFANG INSULATING MATERIAL CO LTD	DFR700	V-0, 80°C	UL 94	UL:E199019
Alternate	CHENGDU KANGLONGXIN PLASTICS CO LTD	H KLX FRPC-870B	V-0, 80°C	UL 94	UL:E315185
Alternate	Sabic Japan L L C	FR500	V-0, 80°C	UL 94	UL: E207780
Discharged resistance(RB 3,RB2)	TA-I Technology (Suzhou) Co., Ltd	SMD1206	750kohm,1/4W	EN 60065	Tested within appliance
Alternate	Walsin Technology Corporation	WR12	750kohm,1/4W	EN 60065	Tested within appliance
Alternate	Ralec Technology(Kunshan)Co.,Ltd.	RTT06	750kohm,1/4W	EN 60065	Tested within appliance
Alternate	ROYAL ELECTRONIC FACTORY(THAILAND)CO.,LTD	1206	750kohm,1/4W	EN 60065	Tested within appliance
Alternate	Uniroyal Electronics Industry Co., Ltd.	1206	750kohm,1/4W	EN 60065	Tested within appliance
Alternate	FENG HUA ADVANCED TECHNOLOGY (HOLDING)CO., LTD	1206	750kohm,1/4W	EN 60065	Tested within appliance
Alternate	Interchangeable	Interchangeable	750kohm,1/4W	EN 60065	Tested within appliance
AC connector(CN B1)	Zhejiang Jieshitai Electronics Co., Ltd.	A3962 A-(02~14),A3962 AW-(02~14),A3962 AWG-(02~14),A3962 Y-(02~14)	250V,7A, 105°C	EN61984:2009-11 EN61984:2009	VDE:40025278
Alternate	SUZHOU XINYA ELECTRONIC COMMUNICATION CO LTD	W7913-02RVA, D7913-02P	250V,7A, 85°C	EN61984:2009 IEC61984:2008	TUV NORD 4478016406748-012
Alternate	ZHEJIANG AMA & HIEN TECHNOLOGY CO LTD	VHC-2AW-D, VH-nA, VH-nAW, VH-nY, VHR-nA, VHR-nAW	250V,10A, 85°C	EN61984:2009-11 EN61984:2009	VDE:40044095
Fuse(FB1)	Shenzhen Lanson Electronics Co., Ltd.	SMT	T5AL 250Vac	EN60127-1 EN60127-3	VDE:40013102
Alternate	Suzhou Walter Electronic Co. Ltd.	2010 Serie(s)	T5AL 250Vac	EN60127-1 EN60127-3	VDE: 40018781
Alternate	XC Electronics (Shenzhen) Corp. Ltd.	5TE	T5AL 250Vac	EN60127-1 EN60127-3	VDE:40036821 VDE:40029550
Alternate	Littelfuse, Inc.	392	T5AL 250Vac	EN60127-1 EN60127-3	VDE:126983

Alternate	Dongguan Chevron Electronic Technology Co., Ltd.	SET	T5AL 250Vac	EN60127-1 EN60127-3	VDE:40038565 TUV:J 50426507
Alternate	Dongguan Better Electronics Technology Co., Ltd.	932	T5AL 250Vac	EN60127-1 EN60127-3	VDE:40033369
Alternate	Hollyland Company Limited	5ET	T5AL 250Vac	EN60127-1 EN60127-3	VDE:40015669
Thermistor(NT CB1)	Thinking Electronic Industrial Co., Ltd.	SCK-2R58	Min. 8A, 2.5Ω at 25°C	EN60539-1, EN60730-1	TUV Rheinland:R 50050155
Alternate	JOYIN CO LTD	JNR15S2R5M	Min. 8A, 2.5Ω at 25°C	EN 60539-1	TUV Rheinland:R 50236285
Alternate	Interchangeable	Interchangeable	Min. 8A, 2.5Ω at 25°C	--	--
Optocoupler(P CB101)	Lite-On Technology Corporation	LTV-817	Di ≥0.4mm, Ex ≥7.0mm	EN 60747-5-5	VDE: 40015248
Alternate	Everlight Electronics Co., Ltd.	EL817	Di ≥0.4mm, Ex ≥7.6mm	EN 60747-5-5	VDE:132249
Alternate	COSMO Electronics Corporation	K1010	Di ≥0.4mm, Ex ≥6.5mm	EN60747-5-5	VDE:101347
Alternate	CT Micro International Corporation	CT817	Di ≥0.4mm, Ex ≥7.0mm	EN 60747-5-5	VDE:40039590
X Capacitor(CX B2)	Carli Electronics Co., Ltd.	MPX	Max0.22uF, Min275Vac, 100°C X2 Type	EN 60384-14	VDE: 40008520
Alternate	Shenzhen Jinghao Capacitor Co., Ltd.	CBB62B	Max0.22uF, Min275Vac, 110°C X2 Type	EN 60384-14	VDE: 40018690
Alternate	Europtronic (SuZhou) Co. Ltd.	MPX2	Max0.22uF, Min275Vac, 110°C X2 Type	EN 60384-14	VDE:40025981
Alternate	Guangdong Fengming Electronic Tech Co., Ltd.	MKP-X2	Max0.22uF, Min275Vac, 105°C X2 Type	EN60384-14	VDE:40025702
Alternate	Xiamen Faratronic Co. Ltd.	MKP62	Max0.22uF, Min275Vac, 110°C X2 Type	EN 60384-14	VDE: 40000358
Alternate	ZhuHai Sung Ho Electronics Co. Ltd.	CMPP	Max0.22uF, Min275Vac, 105°C or 110°C X2 Type	EN 60384-14	VDE:40026078

Alternate	KEMET Electronics Corporation	R.46	Max0.22uF, Min275Vac, 110°C X2 Type	EN 60384-14	ENEC:DAT9700 0141
X Capacitor(CX B1)	Carli Electronics Co., Ltd.	MPX	Max0.47uF Min275Vac, 100°C X2 Type	EN 60384-14	VDE: 40008520
Alternate	Shenzhen Jinghao Capacitor Co., Ltd.	CBB62B	Max0.47uF, Min275Vac, 110°C X2 Type	EN 60384-14	VDE: 40018690
Alternate	Europtronic (SuZhou) Co. Ltd.	MPX2	Max0.47uF, Min275Vac, 110°C X2 Type	EN 60384-14	VDE:40025981
Alternate	Guangdong Fengming Electronic Tech Co., Ltd.	MKP-X2	Max0.47uF, Min275Vac, 105°C X2 Type	EN60384-14	VDE:40025702
Alternate	Xiamen Faratronic Co. Ltd.	MKP62	Max0.47uF, Min275Vac, 110°C X2 Type	EN 60384-14	VDE: 40000358
Alternate	ZhuHai Sung Ho Electronics Co. Ltd.	CMPP	Max0.47uF, Min275Vac, 105°C or 110°C X2 Type	EN 60384-14	VDE:40026078
Alternate	KEMET Electronics Corporation	R.46	Max0.47uF, Min275Vac , 110°C X2 Type	EN 60384-14	ENEC:DAT9700 0141
Y Capacitor(CY B4)	TDK Corporation	CD	Max47pF, Min250Vac 125°C Y1 Type	EN 60384-14	VDE: 40017931
Alternate	Yinan Don's Electronic Component Co., Ltd.	CT81	Max47pF, Min 250Vac 125°C Y1 Type	EN 60384-14	VDE:135256
Alternate	Walsin Technology Corp	AH	Max47pF, Min250Vac 125°C Y1 Type	EN 60384-14	VDE: 40001804
Alternate	TDK CORPORATION	CD series	Max47pF, Min250Vac 125°C Y1 Type	EN 60384-14	ENEC:ENEC- 01048-A1
Alternate	Murata Mfg. Co., Ltd.	KX	Max47pF, Min250Vac 125°C Y1 Type	EN60384-14	VDE:40002831
Alternate	Kunshan Wansheng Electronics Co., Ltd	CT7	Max47pF, Min250Vac 125°C Y1 Type	EN60384-14	VDE:40012143
Alternate	Guangdong South Hongming Electronic Science and Technology Co., Ltd.	F	Max47pF, Min250Vac 125°C Y1 Type	EN60384-14	VDE:40036393
Y Capacitor(CY B2,CYB1)	TDK Corporation	CD	Max470pF, Min250Vac, 125°C Y1 Type	EN 60384-14	VDE: 40029780
Alternate	TDK Corporation	CD	Max470pF, Min250Vac 125°C Y1 Type	EN 60384-14	VDE: 40017931

Alternate	Yinan Don's Electronic Component Co., Ltd.	CT81	Max470pF, Min250Vac, 125°C Y1 Type	EN 60384-14	VDE:135256
Alternate	Walsin Technology Corp	AH	Max470pF, Min250Vac 125°C Y1 Type	EN 60384-14	VDE: 40001804
Alternate	TDK CORPORATION	CD series	Max470pF, Min250Vac 125°C Y1 Type	EN 60384-14	ENEC:ENEC-01048-A1
Alternate	Murata Mfg. Co., Ltd.	KX	Max470pF, Min 250Vac, 125°C Y1 Type	EN60384-14	VDE:40002831
Alternate	Kunshan Wansheng Electronics Co., Ltd	CT7	Max470pF, Min 250Vac, 125°C Y1 Type	EN60384-14	VDE:40012143
Alternate	Guangdong South Hongming Electronic Science and Technology Co., Ltd.	F	Max470pF, Min 250Vac, 125°C Y1 Type	EN60384-14	VDE:40036393
Y Capacitor(CY B3)	Walsin Technology Corp	AH	Max560pF, Min250Vac 125°C Y1 Type	EN 60384-14	VDE: 40001804
Alternate	Yinan Don's Electronic Component Co., Ltd.	CT81	Max560pF, Min 250Vac, 125°C Y1 Type	EN 60384-14	VDE:135256
Alternate	TDK CORPORATION	CD series	Max560pF, Min250Vac 125°C Y1 Type	EN 60384-14	ENEC:ENEC-01048-A1
Alternate	Kunshan Wansheng Electronics Co., Ltd	CT7	Max560pF, Min 250Vac, 125°C Y1 Type	EN60384-14	VDE:40012143
Alternate	Guangdong South Hongming Electronic Science and Technology Co., Ltd.	F	Max560pF, Min 250Vac, 125°C Y1 Type	EN60384-14	VDE:40036393
Line filter(LCB1)	Guangzhou Shiyuan Electronic Technology Company Limited	SYT09-L230uA	130°C	EN 60950	Tested within appliance
-Bobbin	CHANG CHUN PLASTICS CO LTD	T200HF	150°C,V-0	UL 94, UL746	UL:E59481
-Wire	Shen Zhen Chengwei Industry Co., Ltd.	(x)UEW-F-(&)-(*)	155°C	UL 1446	UL:E227475
--Alternate	TAI-I COPPER (GUANZHOU) CO LTD	UEW	130°C	UL 1446	UL:E234896
--Alternate	Interchangeable	Interchangeable	Min. 130°C	UL 1446	UL
-Triple insulated wire	SHENZHEN DARUN SCIENCE AND TECHNOLOGY CO.,LTD	DRTIW-B	130°C	UL 2353	UL:E335841 VDE:40032470
--Alternate	Great Leoflon Industrial Co., Ltd.	TRW(B)*(UL) TRW(B) Serie(s)(VDE)	130°C	UL 2353	UL:E211989 VDE:136581
--Alternate	E&B TECHNOLOGY CO LTD	E&B-XXXB(UL) E&B-XXXB*(VDE)	130°C	UL 2353	UL:E315265 VDE:40023473



--Alternate	Suzhou Yusheng Electronic Co Ltd	TIW-B*(UL) TIW-B(VDE)	130°C	UL 2353	UL:E332529 VDE:40033527
-Tube	Dongguan Ling Free Hardware Plastics Product Co., Ltd.	LFST-002	125°C	UL 224	UL: E352366
-Varnish	Shenzhen Xingshida Scien Tech Prod Co., Ltd.	SD-1182	130°C	UL 1446	UL: E327170
--Alternate	SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO LTD	T-4260(a)	130°C	UL 1446	UL:E228349
Line filter(LCB2)	Guangzhou Shiyuan Electronic Technology Company Limited	SYUC15-L10.5mA	130°C	EN 60065	Tested within appliance
-Bobbin	CHANG CHUN PLASTICS CO LTD	T375HF	150°C,V-0	UL 94, UL746	UL:E59481
--Alternate	SUMITOMO BAKELITE CO LTD	PM-9823	150°C,V-0	UL 94, UL746	UL:E41429
-Wire	SHANDONG PENGTAI STOCK CO LTD	xUEWF/155, QAB-x/155	155°C	UL 1446	UL:E166187
--Alternate	TATUNG CO	UEW	130°C	UL 1446	UL:E106004
--Alternate	Interchangeable	Interchangeable	Min. 130°C	UL 1446	UL
Line filter(LCB3)	Guangzhou Shiyuan Electronic Technology Company Limited	SYUC19-L017mA	130°C	EN 60065	Tested within appliance
-Bobbin	CHANG CHUN PLASTICS CO LTD	T375J	150°C,V-0	UL 94, UL746	UL:E59481
--Alternate	CHANG CHUN PLASTICS CO LTD	T375HF	150°C,V-0	UL 94, UL746	UL:E59481
--Alternate	CHANG CHUN PLASTICS CO LTD	T200HF	150°C,V-0	UL 94, UL746	UL:E59481
--Alternate	SUMITOMO BAKELITE CO LTD	PM-9823	150°C,V-0	UL 94, UL746	UL:E41429
-Varnish	SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO LTD	T-4260(a)	130°C	UL 1446	UL: E228349
PFC CHOKE(LB20 1)	Guangzhou Shiyuan Electronic Technology Company Limited	SYEQ2713Z-L250uA	130°C	EN 60065	Tested within appliance
-Bobbin	SUMITOMO BAKELITE CO LTD	PM-9823	150°C,V-0	UL 94, UL746	UL:E41429
--Alternate	CHANG CHUN PLASTICS CO LTD	T200HF	150°C,V-0	UL 94, UL746	UL:E59481
--Alternate	Interchangeable	Interchangeable	Min. 155°C	UL 1446	UL
-Triple insulated wire	Shanghai Lucky Trade Co Ltd	TIW-B	130°C	UL 2353	UL:E305883 VDE:40023686
--Alternate	SHENZHEN DARUN SCIENCE AND TECHNOLOGY CO.,LTD	DRTIW-B	130°C	UL 2353	UL:E335841 VDE:40032470
--Alternate	E&B TECHNOLOGY CO LTD	E&B-XXXB(UL) E&B-XXXB*(VDE)	130°C	UL 2353	UL:E315265 VDE:40023473



-Tape	Xinyu Shengdafeng Electric Material Co., Ltd.	SDF-312	130°C	UL 510	UL:E317896
-Tube	Dongguan Ling Free Hardware Plastics Product Co., Ltd.	LING FREE PTFE TUBE	200°C	UL 224	UL: E352366
--Alternate	FLUO TECH INDUSTRIES CO LTD	TFL	200°C	UL 224	UL E175982
Transformer(T B101)	Guangzhou Shiyuan Electronic Technology Company Limited	SYEQ3314-T012055B	Primary: N2:11-10 0.20mm*2P*3Ts* 5.5mm*2TS N1:9-8 0.30mm*1P*16Ts* *5.5mm*2TS N5:6-7 0.55mm*1P*8Ts* 5.5m*2TS Secondary: N3:4-2 0.10mm*35P*1C* 7Ts N4:5-1 0.10mm*40P*2C* 2Ts*5.5mm*2Ts Class B	EN 60065	Tested within appliance
-Bobbin	SUMITOMO BAKELITE CO LTD	PM-9823	150°C,V-0	UL 94, UL746	UL:E41429
--Alternate	CHANG CHUN PLASTICS CO LTD	T200HF	150°C,V-0	UL 94, UL746	UL:E59481
-Triple insulated wire	Shanghai Lucky Trade Co Ltd	TIW-B	130°C	UL 2353	UL:E305883 VDE:40023686
--Alternate	SHENZHEN DARUN SCIENCE AND TECHNOLOGY CO.,LTD	DRTIW-B	130°C	UL 2353	UL:E335841 VDE:40032470
--Alternate	E&B TECHNOLOGY CO LTD	E&B-XXXB(UL) E&B-XXXB*(VDE)	130°C	UL 2353	UL:E315265 VDE:40023473
-Tube	Dongguan Ling Free Hardware Plastics Product Co., Ltd.	LING FREE PTFE TUBE	200°C	UL 224	UL: E352366
--Alternate	FLUO TECH INDUSTRIES CO LTD	TFL	200°C	UL 224	UL E175982
MOS(QB101)	Interchangeable	Interchangeable	Min.4.5A,Min.600V	EN 60065	Tested within appliance
Diode(DB1, DB2, DB3, DB4)	Interchangeable	Interchangeable	Min.1A,Min.800V	EN 60065	Tested within appliance
CAP(EB201)	Interchangeable	Interchangeable	Max.100uF,Min.400V	EN 60065	Tested within appliance
Current limitation resistor(RB148)	Interchangeable	Interchangeable	2W,0.15ohm	EN 60065	Tested within appliance
Speaker	Interchangeable	Interchangeable	8Ω, 10W	EN 60065	Tested within appliance

**Supplementary information:**

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

“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

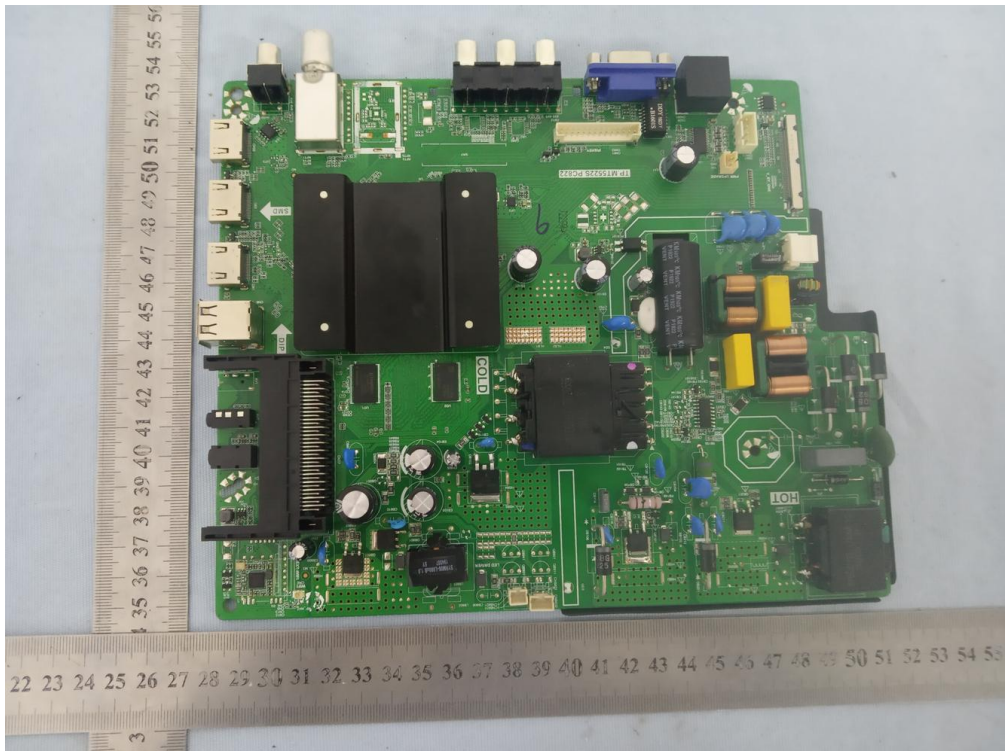




Photo 11

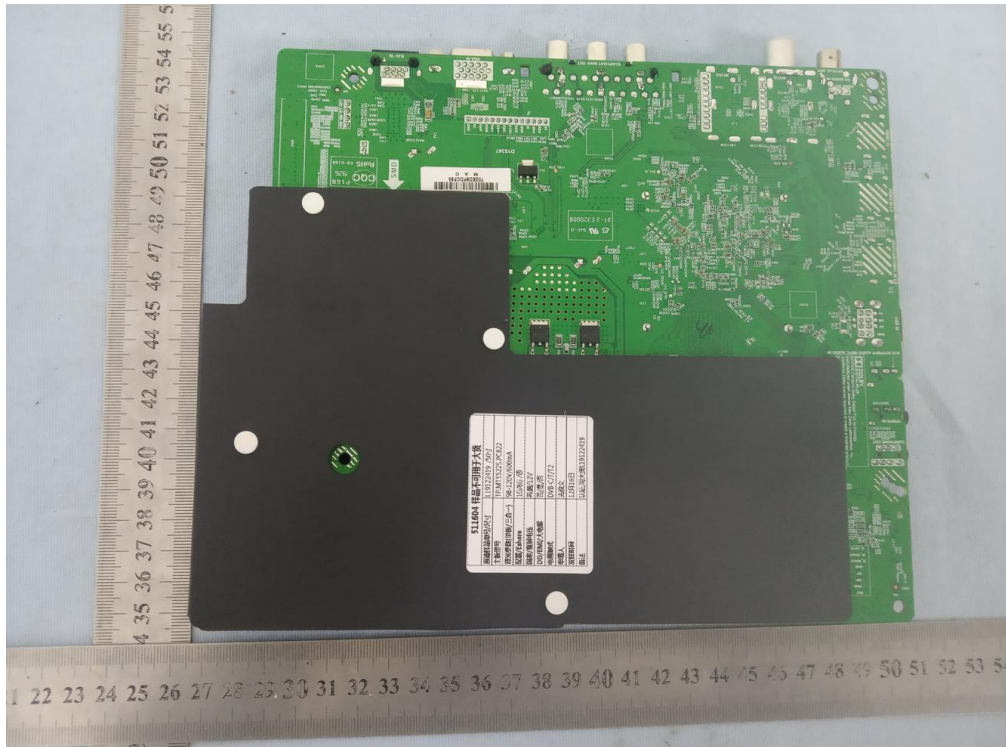
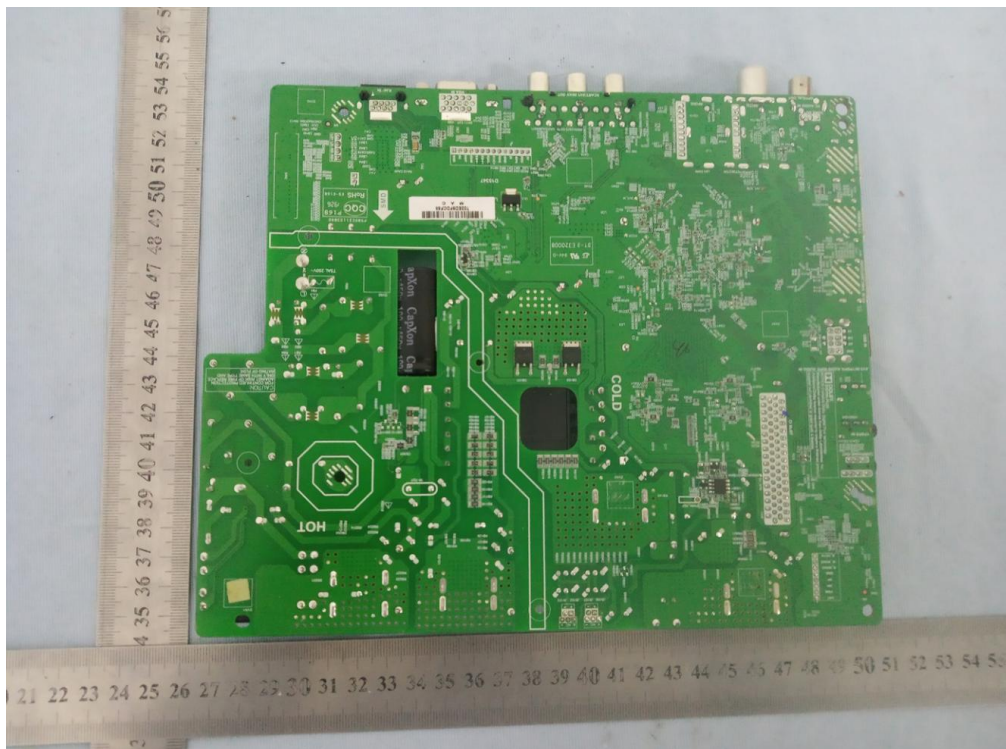


Photo 12



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