



# LVD TEST REPORT

**Report No.:** NTEK-2014NT0304467S  
**Product:** 5.1MULTIMEDIA SPEAKER  
**Model No.:** F6000U  
**Applicant:** SHENZHEN FENDA TECHNOLOGY CO., LTD.  
**Address:** Fenda Hi-Tech Park, Zhoushi Road, Shiyan Town, Baoan District, Shenzhen City, Guangdong, China  
**Issued by:** Shenzhen NTEK Testing Technology Co., Ltd.  
**Lab Location:** 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China  
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Report No. NTEK-2014NT0304467S

<b>TEST REPORT</b> <b>IEC/EN 60065</b> <b>Audio, Video and Similar Electronic Apparatus:</b> <b>Safety Requirements</b>	
Report Reference No. ....	NTEK-2014NT0304467S
Tested by (+ signature) .....	<div style="display: flex; align-items: center;"> <div style="text-align: center;">  </div> <div style="margin-left: 20px;"> <i>Emily Wang</i>  <hr style="width: 150px;"/> </div> </div>
Approved by (+ signature) .....	<div style="display: flex; align-items: center;"> <div style="text-align: center;">  </div> <div style="margin-left: 20px;"> <i>Coco Li</i>  <hr style="width: 150px;"/> </div> </div>
Date of issue .....	2014-03-08
Testing laboratory .....	Shenzhen NTEK Testing Technology Co., Ltd.
Address .....	1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China
Testing location .....	Same as above
Applicant's name .....	SHENZHEN FENDA TECHNOLOGY CO., LTD.
Address .....	Fenda Hi-Tech Park, Zhoushi Road, Shiyan Town, Baoan District, Shenzhen City, Guangdong, China
<b>Test specification</b>	
Standard .....	<input type="checkbox"/> IEC 60065:2001 + Amd 1:2005 <input checked="" type="checkbox"/> EN60065:2002+A1:2006+A11:2008+A2:2010+A12:2011
Test procedure .....	CE Attestation
Non-standard test method .....	N/A
<b>Test Report Form/blank test report</b>	
Test Report Form No. ....	IECEN60065
Test Report Form(s) Originator .....	NTEK
Master TRF .....	2010-06
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<b>Test item</b>	
Description .....	5.1MULTIMEDIA SPEAKER
Trademark .....	F&D
Model and/or type reference .....	F6000U
Rating(s) .....	Input:220-240V~, 50/60Hz, 0.55A
Manufacturer .....	SHENZHEN FENDA TECHNOLOGY CO., LTD.
Address.....	Fenda Hi-Tech Park, Zhoushi Road, Shiyan Town, Baoan District, Shenzhen City, Guangdong, China

<b>Particulars; test item vs. test requirements</b>	
Classification of installation and use .....	Class II
Protection against ingress of water .....	IP20

<b>Test case verdicts</b>	
Test case does not apply to the test object .....	N (Not applicable)
Test item does meet the requirement.....	P(ass)
Test item does not meet the requirement.....	F(ail)

<b>Attachment Photos</b>	
<b>Test</b>	
Date of receipt of test item .....	2014-03-04
Date(s) of performance of test.....	2014-03-04 to 2014-03-07

<b>General remarks</b>	
This test report shall not be reproduced except in full without the written approval of the testing laboratory.	
The test results presented in this report relate only to the item tested.	
“(See remark #)” refers to a remark appended to the report.	
“(See appended table)” refers to a table appended to the report.	
Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.	

<b>General product information:</b>	
The equipment is a 5.1 multimedia speaker for the general use in household, indoor use. The product with rating as following:	
Input:220-240V~, 50/60Hz, 0.55A	

**Sample of marking plate:**

5.1MULTIMEDIA SPEAKER

Model No: F6000U

Input: 220-240V~ 50/60Hz ,0.55A



SHENZHEN FENDA TECHNOLOGY  
CO., LTD.

**Made in China**

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
3	GENERAL REQUIREMENTS		P
	Safety class of the apparatus:	Not designed to be fed from the mains.	N

4	GENERAL CONDITIONS OF TESTS		P
4.1.4	Ventilation instructions require the use of the test box	Yes / No	P

5	MARKING		P
	Comprehensible and easily discernible		P
	Permanent durability against water and petroleum spirit		P
5.1	Identification, maker, model .....	(see marking plate)	P
	Class II symbol if applicable	(see marking plate)	P
	Rated supply voltage and symbol .....	(see marking plate)	P
	Frequency if safety dependant	(see marking plate)	P
	Rated current or power consumption .....	(see marking plate)	P
5.2	Earth terminal		N
	Hazardous live terminals	No hazardous live terminals	N
	Supply output terminals (other than mains)		N
5.3	Use of triangle with exclamation mark	Correct symbol applied: - In circuit diagram. - In user manual. - On equipment. Further; no incorrect use of this symbol is found.	P
5.4	Instructions for use	Given in English language or local language	P
5.4.1	Mains powered equipment not exposed to dripping or splashing. Warning concerning objects filled with liquid, etc.	Such information was provided in instructions	P
	Hazardous live terminals, instructions for wiring	No hazardous live terminals	N
	Instructions for replacing lithium battery		N
	Instructions for modem if fitted		N
	Class I earth connection warning		N

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	Instructions for multimedia system connection		N
	Special stability warning for fixed installation		N
	Warning: battery exposure to heat		N
	Warning: protective film on CRT face	No CRT	N
	Modify indent za) as follows: za) For a PORTABLE SOUND SYSTEM, a warning that excessive sound pressure from earphones and headphone can cause hearing loss (EN 60065/A11)		N
5.4.2	Disconnect device: plug/coupler or all-pole mains switch location, accessibility and markings	Mains plug will be served as disconnecting device. Adequate information included in User Instruction.	P
	Instructions for permanently connected equipment		N

6	HAZARDOUS RADIATION		N
6.1	Ionizing radiation 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. (EN 60065/A11)		N
	Compliance is checked by measurement: The dose-rate shall not exceed 1μSv/h (0,1 mR/h) taking account of the background level. (EN 60065/A11)		N
6.2	Laser radiation, emission limits to IEC 60825-1 .....		N
	Emission limits under fault conditions .....		N

7	HEATING UNDER NORMAL OPERATING CONDITIONS		P
7.1	Temperature rises not exceeding specified values, no operation of fuse links	(see appended table)	P
7.1.1	Temperature rise of accessible parts	(see appended table)	P
7.1.2	Temperature rise of parts providing electrical insulation	(see appended table)	P
7.1.3	Temperature rise of parts acting as a support or as a mechanical barrier	(see appended table)	P
7.1.4	Temperature rise of windings	(see appended table)	P
7.1.5	Parts not subject to a limit under 7.1.1 to 7.1.4	(see appended table)	P

	IEC/EN 60065		
Clause	Requirement – Test	Result - Remark	Verdict
7.2	Softening temperature of insulating material supporting parts conductively connected to the mains carrying a current > 0,2 A at least 150 °C		P

8	CONSTRUCTIONAL REQUIREMENTS WITH REGARD TO THE PROTECTION AGAINST ELECTRIC SHOCK		P
8.1	Conductive parts covered by lacquer, paper, untreated textile oxide films and beads etc. considered to be bare		P
8.2	No shock hazard when changing voltage setting device, fuse-links or handling drawers etc.		P
8.3	Insulation of hazardous live parts not provided by hygroscopic material	Hygroscopic material not used as insulation	P
8.4	No risk of electric shock following the removal of a cover which can be removed by hand	No cover can be removed by hand	P
8.5	Class I equipment		N
	Basic insulation between hazardous live parts and earthed accessible parts		N
	Resistors bridging basic insulation complying with 14.1 a)		N
8.6	Class II equipment and Class II constructions within Class I equipment		P
	Reinforced or double insulation between hazardous live parts and accessible parts	Reinforced or double insulation used between hazardous live parts and accessible parts	P
	Components bridging reinforced or double insulation complying with 14.1 a) or 14.3	Switching isolating transformer complied with clause 14.3	P
	Basic and supplementary insulation each being bridged by a capacitor complying with 14.1 a)		N
	Reinforced or double insulation being bridged with 2 capacitors in series complying with 14.2.1 a)		N
	Reinforced or double insulation being bridged with a single capacitor complying with 14.2.1 b)		P
	Basic insulation bridged by components complying with 14.3.4.3		N
8.7	This clause is void		N
8.8	Basic or supplementary insulation >0,4mm .....		P
	Reinforced insulation >0,4mm .....		P
	Thin sheet insulation (excluding non-separable thin sheet insulation. See 8.22)		P

	IEC/EN 60065		
Clause	Requirement – Test	Result - Remark	Verdict
	Basic or supplementary insulation, at least two layers, each meeting 10.3		N
	Basic or supplementary insulation, three layers any two of which meet 10.3		N
	Reinforced insulation, two layers each of which meet 10.3		P
	Reinforced insulation, three layers any two which meet 10.3		N
8.9	Adequate insulation between internal hazardous live conductors and accessible parts		P
	Adequate insulation between internal hazardous live parts and conductors connected to accessible parts		P
8.10	Double insulation between conductors connected to the mains and accessible parts.		P
	Double insulation between internal hazardous live parts and conductors connected to accessible parts.		P
8.11	Detaching of wires		P
	No undue reduction of creepages or clearance distances if wires become detached		P
	Vibration test carried out .....	Yes/No	P
8.12	This clause is void		N
8.13	Adequate fastening of windows, lenses, lamp covers etc. (pull test 20 N for 10 s)	No such devices	N
8.14	Adequate fastening of covers (pull test 50 N for 10 s)		P
8.15	No risk of damage to the insulation of internal wiring due to hot parts or sharp edges	2N applied, no risk	P
8.16	Only special supply equipment can be used		N
8.17	Insulated winding wire without additional interleaved insulation		N
8.18	Endurance test as required by 8.17		N
8.19	Disconnection from the mains		P
8.19.1	Disconnect device	The mains plug will be regarded as disconnect device.	P
	All-pole switch or circuit breaker with >3mm contact separation		N
8.19.2	Mains switch ON indication		N



	IEC/EN 60065		
Clause	Requirement – Test	Result - Remark	Verdict
8.20	Switch not fitted in the mains cord		P
8.21	Bridging components comply with clause 14		N
8.22	Non-separable thin sheet material		N

9	ELECTRIC SHOCK HAZARD UNDER NORMAL OPERATING CONDITIONS		P
9.1	Testing on the outside		P
9.1.1	For voltages >1000 V ac or >1500 V dc complies with clause 13.3.1 for basic insulation		N
9.1.1.1	a) Open circuit voltages		P
	b) Touch current measured from terminal devices using the network in annex D .....	Measured output terminal: 0.05mA < 0.7mA	P
	c) Discharge not exceeding 45 µC		N
	d) Energy of discharge not exceeding 350 mJ		N
9.1.1.2	Test with test finger and test probe	No hazard	P
9.1.2	No hazardous live shafts of knobs, handles or levers		P
9.1.3	Ventilation holes and other holes tested by means of 4 mm x 100 mm test pin		P
9.1.4	Terminal devices tested with 1 mm x 20 mm test pin (10 N); test probe D of IEC 61032	No hazard	P
	Terminal devices tested with 1 mm x 100 mm straight wire (1 N); test probe D of IEC 61032	No hazard	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	N
9.1.6	No shock hazard due to stored charge on withdrawal of the mains plug; voltage (V) after 2 s	Measured: 12V < 35Vpeak	P
	If C is not greater than 0,1 µF no test needed		N
9.1.7	a) Enclosure sufficiently resistant to external force		P
	Test probe 11 of IEC 61032 for 10 s (50 N)	No damage	P
	b) Test hook of fig. 4 for 10 s (20 N)	No damage	P
	c) 30 mm diameter test tool for 5 s (100 or 250 N)	No damage	P
9.2	No hazard after removing a cover by hand	No cover can be removed by hand	N

10	INSULATION REQUIREMENTS		P
10.1	Insulation resistance (MΩ) at least 2 MΩ min. after surge test for basic and 4 MΩ min. for reinforced insulation .....	No such antenna used.	N
10.2	Humidity treatment 48 h or 120 h .....	48 h, 30°C, 93%	P

	IEC/EN 60065		
Clause	Requirement – Test	Result - Remark	Verdict
10.3	Insulation resistance and dielectric strength between mains terminals	(see appended table)	P
	Insulation resistance and dielectric strength across BASIC or SUPPLEMENTARY insulation		P
	Insulation resistance and dielectric strength across REINFORCED insulation		P

11	FAULT CONDITIONS		P
11.1	No shock hazard under fault condition		P
11.2	Heating under fault condition	See below	P
	No hazard from softening solder		P
	Flames extinguish within 10 seconds		N
	Soldered terminations not used as protective mechanism		P
11.2.1	Measurement of temperature rises	(see appended table)	P
11.2.2	Temperature rise of accessible parts	(see appended table)	P
11.2.3	Temperature rise of parts, other than windings, providing electrical insulation	(see appended table)	P
	Temperature rise of printed circuit boards (PCB) exceeding the limits of table 3 by max. 100 K for max. 5 min		N
	a) Temperature rise of printed circuit boards (PCB) to 20.1.3, exceeding the limits of table 3 by not more than 100 K for an area not greater than 2 cm <sup>2</sup>		N
	b) Temperature rise of printed circuit boards (PCB) to 20.1.3 up to 300 K for an area not greater than 2 cm <sup>2</sup> for a maximum of 5 min		N
	Meets all the special conditions if conductors on printed circuit boards are interrupted		N
	Class I protective earthing maintained		N
11.2.4	Temperature rise of parts acting as a support or mechanical barrier	(see appended table)	P
11.2.5	Temperature rise of windings	(see appended table)	P
11.2.6	Temperature rise of parts not subject to the limits of 11.2.1 to 11.2.5	(see appended table)	P

12	MECHANICAL STRENGTH		P
12.1.1	Bump test where mass >7 kg	10.84Kg	P

	IEC/EN 60065		
Clause	Requirement – Test	Result - Remark	Verdict
12.1.2	Vibration test		P
12.1.3	Impact hammer test		P
	Steel ball test		P
12.1.4	Drop test for portable apparatus where mass < 7 kg		N
12.1.5	Thermoplastic enclosures strain relief test		P
12.2	Fixing of knobs, push buttons, keys and levers		N
12.3	Remote controls with hazardous live parts		N
12.4	Drawers (pull test 50 N, 10 s)		N
12.5	Antenna coaxial sockets providing isolation		N
12.6	Telescoping or rod antennas construction		N
12.6.1	Telescoping or rod antennas securement		N

13	CLEARANCE AND CREEPAGE DISTANCES		P
13.1	Clearances in accordance with 13.3		P
	Creepage distances in accordance with 13.4		P
13.2	Determination of operating voltage		P
13.3	Clearances		P
13.3.1	General		P
13.3.2	Circuits conductively connected to the mains comply with table 8 and, where applicable, table 9	(see appended table)	P
13.3.3	Circuits not conductively connected to the mains comply with table 10		P
13.3.4	Measurement of transient voltages		N
13.4	Creepage distances		P
	Creepage distances greater than table 11 minima	(see appended table)	P
13.5	Printed boards		N
13.5.1	Clearances and creepage distances between conductors on printed circuit boards, one of which may be conductively connected to the mains, as in fig. 10		N
13.5.2	Type B coated printed circuit boards complying with IEC 60664-3 (basic insulation only)		N
13.6	Conductive parts along uncemented joints clearances and creepage distances comply with 13.3 and 13.4		N

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	Conductive parts along reliably cemented joints comply with 8.8		N
	Temperature cycle test and dielectric strength test		N
13.7	Enclosed, enveloped or hermetically sealed parts: not conductively connected to the mains: clearances and creepage distances as in table 12		N
13.8	Parts filled with insulating compound, meeting the requirements of 8.8		N

14	COMPONENTS		P
14.1	Resistors		N
	a) Resistors between hazardous live parts and accessible metal parts		N
	b) Resistors, other than between hazardous live parts and accessible parts		N
	Resistors separately approved .....		N
14.2	Capacitors and RC units		P
	Capacitors separately approved		N
14.2.1	Y capacitors tested to IEC 60384-14, 2 <sup>nd</sup> edition ...		P
14.2.2	X capacitors tested to IEC 60384-14, 2 <sup>nd</sup> edition ...		P
14.2.3	Capacitors operating at mains frequency but not connected to the mains: tests for X2 .....		N
14.2.5	Capacitors with volume exceeding 1750 mm <sup>3</sup> , where short-circuit current exceeds 0,2 A: compliance with IEC60384-1, 4.38 category B or better .....		N
	Capacitors with volume exceeding 1750 mm <sup>3</sup> , mounted closer to a potential ignition source than table 5 permits: compliance with IEC 60 384-1, 4.38 category B or better .....		N
	Shielded by a barrier acc. to 20.1.4/ table 21 or metal :		N
14.3	Inductors and windings		P
	Comply with IEC 61558-1, IEC 61558-2 (as relevant) and clause 20.1.4		N
14.3.1	Transformers and inductors marked with manufacturer's name and type .....		P
	Transformers and inductors separately approved : <del>Yes</del> / No		N
14.3.2	General		P
	Insulation material complies with clause 20.1.4		P

	IEC/EN 60065		
Clause	Requirement – Test	Result - Remark	Verdict
14.3.3	Constructional requirements		P
14.3.3.1	Clearances and creepage distances comply with clause 13		P
14.3.3.2	Transformers meet the constructional requirements		P
14.3.4.1	Class II transformers have adequate separation between hazardous live parts and accessible parts (double or reinforced insulation)	Double or reinforced insulation use between hazardous live parts and accessible parts	P
	Coil formers and partition walls > 0,4 mm		N
14.3.4.2	Class I transformers, with basic insulation and protective screening only if all 7 conditions of 14.3.4.2 are met	Class II transformer	N
14.3.4.3	Separating transformers with at least basic insulation		N
14.3.5.1	Class II transformers have adequate insulation between hazardous live parts and accessible parts (double or reinforced insulation)	(see clause 14.3.4.1)	P
	Coil formers and partition walls > 0,4 mm		N
14.3.5.2	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		N
	Winding wires connected to protective earth have adequate current-carrying capacity		N
14.4	High voltage components	No high voltage components	N
	High-voltage components and assemblies: U > 4 kV (peak) separately approved		N
	Component meets category V-1 of IEC 60707		N
14.4.1	High voltage transformers and multipliers tested as part of the submission		N
14.4.2	High voltage assemblies and other parts tested as part of the submission		N
14.5	Protective devices		P
	Protective devices used within their ratings		P
	External clearances and creepage distances meet requirement of clause 13 for the voltage across the device when opened		P
14.5.1.1	a) Thermal cut-outs separately approved	No thermal cut-outs	N

	IEC/EN 60065		
Clause	Requirement – Test	Result - Remark	Verdict
	b) Thermal cut-outs tested as part of the submission		N
14.5.1.2	a) Thermal links separately approved	No thermal link.	N
	b) Thermal links tested as part of the submission		N
14.5.1.3	Thermal devices re-settable by soldering		N
14.5.2.1	Fuse-links in the mains circuit according to IEC 60127	Approved	P
14.5.2.2	Correct marking of fuse-links adjacent to holder ...	T3.15AL250V	P
14.5.2.3	Not possible to connect fuses in parallel .....		P
14.5.2.4	Not possible to touch hazardous live parts when replacing fuse-links without the use of a tool .....		P
14.5.3	PTC-S thermistors comply with IEC 60730-1	No such component	N
	PTC-S devices (15 W) category V-1 or better		N
14.5.4	Circuit protectors have adequate breaking capacity and their position is correctly marked		N
14.6	Switches	Approved	P
14.6.1 a)	Separate testing to IEC 61058 including: 10 000 operations Normal pollution suitability Resistance to heat and fire level 3 and make and break speed independent of speed of actuation V-0 compliance with annex G, G.1.1		N
14.6.1 b)	Tested in the apparatus:		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 in annex G, 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 in annex G, 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 in annex G, G.1.1		N
14.6.2	Switch tested to 14.6.1 b) constructed to IEC 61058-1 subclause 13.1 and has making/breaking action independent of speed of actuation		N
14.6.3	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
14.6.4	Switch tested to 14.6.1 b) has adequate dielectric strength		N
14.6.5	Mains switch controlling mains socket outlets additional tests to IEC 61058-1		N

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	Socket outlet current marking correct		N
14.7	Safety interlocks	No safety interlocks	N
	Safety interlocks to 2.8 of IEC 60950		N
14.8	Voltage setting devices and the like		N
	Voltage setting device not likely to be changed accidentally		N
14.9	Motors	No motor	N
14.9.1	Endurance test on motors		N
	Motor start test		N
	Dielectric strength test		N
14.9.2	Not adversely affected by oil or grease etc.		N
14.9.3	Protection against moving parts		N
14.9.4	Motors with phase-shifting capacitors, three-phase motors and series motors meet clause. B.8, B.9 and B.10 of IEC 60950, Annex B		N
14.10	Batteries		P
14.10.1	Batteries mounted with no risk of accumulation of flammable gases		P
14.10.2	No possibility of recharging non-rechargeable batteries		N
14.10.3	Recharging currents and times within manufacturers limits		N
	Lithium batteries discharge and reverse currents within the manufacturers limits		N
14.10.4	Battery mould stress relief		N
14.10.5	Battery drop test		N
14.11	Optocouplers	Approved	P
	Optocouplers comply with Cl. 8		P
	Internal and external dimensions to 13.1. or alternatively 13.6 (jointed insulation)		P
14.12	Surge suppression varistors		P
	Comply with IEC 61051-2	Approved	P
	Not connected between mains and accessible parts except for earthed parts of permanently connected apparatus		P
	Complies with the current pulse, fire hazard and thermal stress requirements of 14.12		P

	IEC/EN 60065		
Clause	Requirement – Test	Result - Remark	Verdict
15	TERMINALS		P
15.1.1	Mains plug, appliance inlet, interconnection couplers and mains socket-outlet meet the appropriate standard	(see appended table)	P
	Overloading of plugs or appliance inlets prevented if the apparatus has mains socket outlets		N
	Overloading of internal wiring prevented if the apparatus has mains socket outlets		N
15.1.2	Connectors for antenna, earth, audio, video or data:		P
	No risk of insertion in mains socket-outlets		N
	No risk of insertion into audio or video: outlets marked with the symbol of 5.2		N
15.1.3	Output terminals of a.c. adaptors or similar devices not compatible with household mains socket-outlets	No such terminals	N
15.2	Provision for protective earthing		N
	Accessible conductive parts of Class I equipment reliably connected to earth terminal, within equipment		N
	Protective earth conductors correctly coloured		N
	Equipment with non-detachable mains cord provided with separate protective earth terminal near mains input		N
	Protective earth terminal resistant to corrosion		N
	Earth resistance test: $< 0,1 \Omega$ at 25 A .....		N
15.3	Terminals for external flexible cords and for permanent connection to the mains supply		N
15.3.1	Adequate terminals for connection of permanent wiring		N
15.3.2	Reliable connection of non-detachable cords:		P
	Not soldered to conductors of a printed circuit board		P
	Adequate clearances and creepage distances between connections should a wire break away		N
	Wire secured by additional means to the conductor		N
15.3.3	Screws and nuts clamping conductors have adequate threads: ISO 261, ISO 262 or similar		N
15.3.4	Soldered conductors wrapped around terminal prior to soldering or held in place by additional means		N



	IEC/EN 60065		
Clause	Requirement – Test	Result - Remark	Verdict
	Clamping of conductor and insulation if not soldered or held by screws		N
15.3.5	Terminals allow connection of appropriate cross-sectional area of conductors, for the rated current of the equipment		P
15.3.6	Terminals to 15.3.3 have sizes required by table 16		N
15.3.7	Terminals clamp conductors between metal and have adequate pressure		N
	Terminals designed to avoid conductor slipping out when tightened or loosened		N
	Terminals adequately fixed to avoid loosening when the clamping is tightened or loosened and stress on internal wiring is avoided		N
15.3.8	Terminals carrying a current more than 0,2 A: contact pressure not transmitted by insulating material except ceramic		N
15.3.9	Termination of non-detachable cords: wires terminated near to each other		P
	Terminals located and shielded: test with 8 mm strand		N
15.4	Devices forming a part of the mains plug	Not direct plug-in equipment.	N
15.4.1	No undue strain on mains socket-outlets		N
15.4.2	Device complies with standard for dimensions of mains plugs		N
15.4.3	Device has adequate mechanical strength (tests a,b,c)		N

16	EXTERNAL FLEXIBLE CORDS		P
16.1	Mains cords sheathed type, complying with IEC 60227 for PVC or IEC 60245 for synthetic rubber cords .....	Approved mains cords provided	P
	Non-detachable cords for Class I have green/yellow core for protective earth		N
16.2	Mains cords conductors have adequate cross-sectional area for rated current consumption of the equipment		P

	IEC/EN 60065		
Clause	Requirement – Test	Result - Remark	Verdict
16.3	a) Flexible cords not complying with 16.1, used for interconnections between separate units of equipment used in combination and carrying hazardous live voltages, have adequate dielectric strength		P
	b) Flexible cords not complying with 16.1, withstand bending and mechanical stress (3.2 of IEC 60227-2)		N
16.4	Flexible cords used for connection between equipment have adequate cross-sectional areas to avoid temperature rise under normal and fault conditions		N
16.5	Adequate strain relief on external flexible cords		P
	Not possible to push cord back into equipment		P
	Strain relief device unlikely to damage flexible cord		P
	For mains cords of Class I equipment, hazardous live conductors become taut before earth conductor		N
16.6	Apertures for external flexible cord: no risk of damage to the cord during assembly or movement in use		P
16.7	Transportable musical instruments and amplifiers fitted with detachable cord set with appliance inlet to IEC 60320-1		N
	Transportable musical instruments and amplifiers fitted with detachable cord sets or with means of stowage to protect the cord		N

17	ELECTRICAL CONNECTIONS AND MECHANICAL FIXINGS		P
17.1	Torque test to table 20:		P
	- screws into metal: 5 times		P
	- screws into non-metallic material: 10 times	0.5Nm, no damage	P
17.2	Correct introduction into female threads in non-metallic material		P
17.3	Cover fixing screws: captive		N
	Non-captive fixing screws: 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		N

	IEC/EN 60065		
Clause	Requirement – Test	Result - Remark	Verdict
17.5	Contact pressure not transmitted through plastic other than ceramic for connections carrying a current > 0,2 A		N
17.6	Stranded conductors of flexible supply cords carrying a current > 0,2 A with screw terminals not consolidated by solder		N
17.7	Cover fixing devices other than screws have adequate strength and their positioning is unambiguous	No such device	N
17.8	Fixing devices for detachable legs or stands provided		N
17.9	Internal pluggable connections, affecting safety, unlikely to become disconnected		P

18	MECHANICAL STRENGTH OF PICTURE TUBES AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N
	Picture tube separately approved to IEC 61965:	No picture tubes	N
	Picture tube separately approved to 18.1 .....		N
18.1	Picture tubes > 16 cm intrinsically protected		N
	Non-intrinsically protected tubes > 16 cm used with protective screen		N
	Protective film as part of implosion protection: edges covered by enclosure		N
18.2	Intrinsically protected tubes: tests on 12 samples		N
18.2.1	Samples subject to ageing: 6		N
18.2.2	Samples subject to implosion test: 6		N
18.2.3	Samples subject to mechanical strength test (steel ball): 6		N
18.3	Non-intrinsically protected tubes tested to 18.3		N

19	STABILITY AND MECHANICAL HAZARDS		P
	Mass of the equipment exceeding 7 kg .....		P
	Apparatus intended to be fastened in place – suitable instructions		N
19.1	Test on a plane, inclined at 10° to the horizontal	Not overturn	P
19.2	100 N force applied vertically downwards		P
19.3	100 N force, or 13% of weight, applied horizontally to point of least stability.		N
19.4	Edges or corners not hazardous		P

	IEC/EN 60065		
Clause	Requirement – Test	Result - Remark	Verdict
19.5	Glass surfaces (exc.laminated) with an area exceeding 0,1 m <sup>2</sup> or maximum dimension > 450 mm, pass the test of 19.5.1		N
19.6	Wall or ceiling mountings adequate		N

20	RESISTANCE TO FIRE		P
20.1	Electrical components and mechanical parts		P
	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		N
	b) Exemption for small components as defined in 20.1	Small component mounting on PCB with flammability V-0	P
20.1.1	Electrical components meet the requirements of Clause 14 or 20.1.4	Critical components are meet clause 14 or 20.1.4	P
20.1.2	Insulation of internal wiring working at voltages > 4 KV or leaving an internal fire enclosure, or located within the areas mentioned in Table 21, not contributing to the spread of fire	Internal operating with voltage <4 KV and insulation consisting of PVC	N
20.1.3	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 IEC60707, unless used in a fire enclosure		N
	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 60707	V-0	P
20.1.4	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		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.		N
20.2	Fire enclosure		P

Report No. NTEK-2014NT0304467S

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
20.2.1	Potential ignition sources with open circuit voltage > 4 kV (peak) a.c. or d.c. contained in a fire enclosure to V-1	< 4 kV	N
20.2.2	Internal fire enclosures with openings not exceeding 1 mm in width and with openings for wires completely filled		N
20.2.3	Requirements of 20.2.1 and 20.2.2 met by an internal fire enclosure		N

A	APPENDIX A, ADDITIONAL REQUIREMENTS FOR APPARATUS WITH PROTECTION AGAINST SPLASHING WATER		N
A.5.1	j) Marked with IPX4 (IEC 60529), 5.4.1 a) does not apply	IPX0	N
A.10.2.1	Enclosure provides protection against splashing water		N
A.10.2.2	Humidity treatment carried out for 7 days		N

B	APPENDIX B, APPARATUS TO BE CONNECTED TO THE TELECOMMUNICATION NETWORKS		N
	Complies with IEC 62151 clause 1	No connection to TNV	N
	Complies with IEC 62151 clause 2		N
	Complies with IEC 62151 clause 3 but with 3.5.4 modified to 2.4.10 of this standard		N
	Complies with IEC 62151 clause 4 but with 4.1.2, 4.1.3 and 4.2.1.2 modified in accordance with annex B of this standard		N
	Complies with IEC 62151 clause 5 but with 5.3.1 modified in accordance with annex B of this standard		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

L	APPENDIX L, ADDITIONAL REQUIREMENTS FOR ELECTRONIC FLASH APPARATUS FOR PHOTOGRAPHIC PURPOSES.		N
L5.4	Marking and Instructions		N
L9.1.1	Terminals to connection to synchroniser not HAZARDOUS LIVE		N

Report No. NTEK-2014NT0304467S

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
L7.1.5 & L11.2.6	Lithium batteries meet permissible temp rise in Table 3 , unless comply with 6.3.2 of IEC 60086-4		N
L14.6.6	Mains switch characteristics appropriate to its function under normal conditions		N

ZA	Normative references to international publications with their corresponding European publications (EN 60065/A11)	P
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Publication	Date	Title	EN/HD	Date
-	-	Audio, video and similar electronic apparatus - Routine electrical safety testing in production	EN 50333	2001
IEC 60027	Series	Letter symbols to be used in electrical technology	EN 60027	Series
IEC 60038	2002	IEC standard voltages	-	-
IEC 60068-2-6 + corr. March	1995 1995	Environmental testing -Part 2: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	1995
IEC 60068-2-32	1975	Environmental testing -Part 2: Tests - Test Ed: Free fall	EN 60068-2-32 1)	1993
IEC 60068-2-75	1997	Environmental testing -Part 2: Tests - Test Eh: Hammer tests	EN 60068-2-75	1997
IEC 60068-2-78	2001	Environmental testing -Part 2: Tests - Test Cab: Damp heat, steady state	EN 60068-2-78	2001
IEC 60085	2004	Electrical insulation - Thermal evaluation	EN 60085	2004
IEC 60086-4	2000	Primary batteries -Part 4: Safety of lithium batteries	EN 60086-4	2000
IEC 60112	2003	Method for the determination of the proof and the comparative tracking indices of solid insulating materials	EN 60112	2003
IEC 60127	Series	Miniature fuses	EN 60127	Series
IEC 60167	1964	Methods of test for the determination of the insulation resistance of solid insulating materials	HD 568 S1	1990
IEC 60216	Series	Electrical insulating materials Thermal endurance properties -	EN 60216	Series
IEC 60227 (mod) 2)	Series	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V	-	-
IEC 60245 (mod) 3)	Series	Rubber insulated cables - Rated voltages up to and	-	-

IEC/EN 60065				
Clause	Requirement – Test		Result - Remark	Verdict
		including 450/750 V		
IEC 60249-2	Series	Base materials for printed circuits -Part 2: Specifications	EN 60249-2	Series
IEC 60268-1	1985	Sound system equipment - Part 1: General	HD 483.1 S2 4)	1989
IEC 60317	Series	Specifications for particular types of winding wires	EN 60317	Series
IEC 60320	Series	Appliance couplers for household and similar general purposes	EN 60320	Series
IEC 60335-1 (mod)	2001	Household and similar electrical	EN 60335-1	2002
A1	2004	appliances - Safety - Part 1: General requirements	A1 + corr. January	2004 2007
A2 + corr. August	2006		A2 + A11	2006 2004
			+ A12	2006
IEC 60384-1 (mod)	1999	Fixed capacitors for use in electronic equipment - Part 1: Generic specification	EN 60384-1	2001
IEC 60384-14	2005	Fixed capacitors for use in electronic equipment - Part 14: Sectional specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains	EN 60384-14	2005
IEC 60417	Data-base	Graphical symbols for use on equipment	-	-
IEC 60454	Series	Pressure-sensitive adhesive tapes for electrical purposes	EN 60454	Series
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
A1	1999		A1	2000
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007
IEC 60664-3	2003	Insulation coordination for equipment within low-voltage systems - Part 3: Use of coating, potting or moulding for protection against pollution	EN 60664-3	2003
IEC 60691	2002	Thermal links - Requirements and	EN 60691	2003
A1	2006	application guide	A1	2007
IEC 60695-2-2	1991	Fire hazard testing - Part 2: Test methods - Section 2: Needle-flame test	EN 60695-2-2	1994

IEC/EN 60065				
Clause	Requirement – Test		Result - Remark	Verdict
IEC 60695-11-10	1999	Fire hazard testing -	EN 60695-11-10	1999
A1	2003	Part 11-10: Test flames - 50 W horizontal and vertical flame test methods	A1	2003
IEC 60695-11-20	1999	Fire hazard testing -	EN 60695-11-20	1999
A1	2003	Part 11-20: Test flames - 500 W flame test methods	A1	2003
IEC 60730 (mod)	Series	Automatic electrical controls for household and similar use	EN 60730	Series
IEC 60747-5-5	2007	Semiconductor devices - Discrete devices - Part 5-5: Optoelectronic devices - Photocouplers	EN 60747-5-5	-
IEC 60825-1 + corr. December	1993 1994 1997 2001	Safety of laser products Part 1: Equipment classification, requirements and user's guide	EN 60825-1 + corr. February A1 A2 + A2/corr. April	1994 1995 2002 2001 2004
IEC 60851	Series	Winding wires - Test methods	EN 60851	Series
IEC 60884	Series	Plugs and socket-outlets for household and similar purposes	-	-
IEC 60885-1	1987	Electrical test methods for electric cables - Part 1: Electrical tests for cables, cords and wires for voltages up to and including 450/750 V	-	-
IEC 60906	Series	IEC system of plugs and socket-outlets for household and similar purposes	-	-
IEC 60950-1 (mod)	2005	Information technology equipment - Safety -Part 1: General requirements	EN 60950-1	2006
IEC 60990	1999	Methods of measurement of touch-current and protective conductor current	EN 60990	1999
IEC 60998-2-2 (mod)	2002	Connecting devices for low-voltage circuits for household and similar purposes - Part 2-2: Particular requirements for connecting devices as separate entities with screwless-type clamping units	EN 60998-2-2	2004
IEC 60999-1	1999	Connecting devices -Electrical copper conductors –Safety requirements for screw-type	EN 60999-1	2000



IEC/EN 60065				
Clause	Requirement – Test		Result - Remark	Verdict
		and screwless-type clamping units - Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm <sup>2</sup> up to 35 mm <sup>2</sup> (included)		
IEC 61032	1997	Protection of persons and equipment by enclosures – Probes for verification	EN 61032	1998
IEC 61051-2	1991	Varistors for use in electronic equipment – Part 2: Sectional specification for surge suppression varistors	-	-
IEC 61058-1 (mod) + A1	2000 2001	Switches for appliances - Part 1: General requirements	EN 61058-1	2002
IEC 61558-2-17	1997	Safety of power transformers, power supply units and similar - Part 2-17: Particular requirements for transformers for switch mode power supplies	EN 61558-2-17	1997
IEC 61965	2003	Mechanical safety of cathode ray tubes	EN 61965	2003
IEC 62087	2002	Methods of measurement for the power consumption of audio, video and related equipment	EN 62087	2003
IEC 62151	2000	Safety of equipment electrically connected to a telecommunication network	-	-
IEC/TS 62441	2006	Accidentally caused candle flame ignition for audio/video, communication and information technology equipment	CLC/TS 62441	2007
ISO 261 6)	1973	ISO general purpose metric screw threads - General plan	-	-
ISO 262 7)	1973	ISO general purpose metric screw threads - Selected sizes for screws,	-	-

IEC/EN 60065				
Clause	Requirement – Test		Result - Remark	Verdict
		bolts and nuts		
ISO 306	1994	Plastics - Thermoplastic materials - Determination of Vicat softening temperature (VST)	EN ISO 306 8)	1996
ISO 7000 9)	1989	Graphical symbols for use on equipment - Index and synopsis	-	-
ITU-T Recommendation K17	1988	Tests on power-fed repeaters using solid-state devices in order to check the arrangements for protection from external interference	-	-
ITU-T Recommendation K21	1996	Resistibility of telecommunication equipment installed in customer's premises to overvoltages and overcurrents	-	-
ZB	ANNEX ZB TO EN 60 065, SPECIAL NATIONAL CONDITIONS			N
2.6.1	DK: 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			N
5.4 EN 60065/A11	Finland, Norway and Sweden To the end of 5.4 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 MAINS socket-outlet with protective earth. The marking text in the applicable countries shall be as follows: In Finland: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan" In Norway: "Apparatet må tilkoples jordet stikkontakt" In Sweden: "Apparaten skall anslutas till jordat uttag"			N

	IEC/EN 60065		
Clause	Requirement – Test	Result - Remark	Verdict
5.4.1 EN 60065/A11	<p>Norway and Sweden</p> <p>To the end of 5.4.1 (after the compliance statement) the following is added: The screen of the cable 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 cable distribution system.</p> <p>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by e.g. a retailer.</p> <p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: “Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing – and to a cable distribution system using</p>		N
	<p>coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)”</p>		N

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	<p>NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>“Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare.</p> <p>For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel-TV nettet.”</p> <p>Translation to Swedish:</p> <p>”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.</p> <p>För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet.”</p>		N
13.3.1	<p>NO: In Norway, due to 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 230V in case of a single earth fault.</p>		N
15.1.1	<p>DK: supply cords of single-phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations Section 107-2-D1.</p> <p>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 in accordance with the Heavy Current Regulations, Section 107-2-D1 standard sheet DK 2-1a.</p> <p>( EN 60065/A11)</p>		N

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	DK: Socket outlets intended for providing power to CLASS II apparatus with a rated current of 2,5 A shall be in accordance with the Heavy Current Regulation, Section 107-2-D1 standard sheet DKA 1-4a. Other current ratings socket outlets shall be in compliance with the Heavy Current Regulation, Section 107-2-D1 standard sheet DKA 1-3a or DKA 1-3b. (EN 60065/A11)		N
	DK: Mains socket-outlets with earthing contact shall be in compliance with the Heavy Current Regulation, Section 107-2-D1 standard sheet DK 1-3a, DK 1-5a or DK 1-7a. (EN 60065/A11)		N
	Ireland: 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.		N
	Norway: 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. § 24 Mechanical strength a 2,5 A, 250 V socket-outlets for CLASS II electronic apparatus are tested as specified in 12.1.3 of EN 60065. Also the protecting rim shall be tested		N
	United Kingdom: 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.		N
J.2	NO: In Norway, due to 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 230V in case of a single earth fault.		N
B	ANNEX B		N
	All subclauses given below are subclauses of IEC 62151 (ref. corrigenda 1 and 2 to IEC 62151).		N

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	<p><b>Subclause 4.1.1 (corrigendum 2):</b>  <b>Add</b> after the first paragraph:  NOTE In <b>Finland, Norway</b> and <b>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 suojamaadoituskoskettimilla varustettuun pistorasiaan"  In Norway: "Apparatet må tilkoples jordet stikkontakt"  In Sweden: "Apparaten skall anslutas till jordat uttag"</p> <p><b>Subclause 4.1.4 (corrigendum 1)</b>  <b>Add</b> at the end of the subclause:  NOTE In <b>Norway</b>, for requirements see 4.1.1, note and 5.3.1, note 1.</p> <p><b>Subclause 4.2.1.2 (corrigendum 1)</b>  <b>Add</b> at the end of the subclause:  NOTE 3 In <b>Norway</b>, for requirements see 5.3.1, note 1.</p> <p><b>Subclause 4.2.1.3 (corrigendum 2)</b>  <b>Add</b> at the end of the subclause:  NOTE In <b>Norway</b>, for requirements see 4.1.1, note and 5.3.1, note 1.</p> <p><b>Subclause 4.2.1.4 (corrigendum 1)</b>  <b>Number</b> the existing note as NOTE 1 and <b>add</b> at the end of the subclause the following NOTE 2:  NOTE 2 In <b>Norway</b>, for requirements see 4.1.1, note and 5.3.1, note 1.</p> <p><b>Subclause 5.3.1 (corrigendum 1)</b>  <b>Add</b> after the first test specifications paragraph:  NOTE 1 In <b>Finland, Norway</b> and <b>Sweden</b>, 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</p>		N

IEC/EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	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, Subclause 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. <b>Subclause 5.3.2 (corrigendum 1)</b> <b>Add</b> after the fourth dash: NOTE In <b>Finland, Norway and Sweden</b> , exclusions are applicable for equipment which is intended for connection to the building installation wiring using screw terminals or other reliable means, and for equipment which is intended for connection to the building installation wiring via an industrial plug and socket -outlet or an appliance coupler, or both, complying with EN 60309 or with a comparable national standard.		N
ZC	ANNEX ZC TO EN 60 065, A-DEVIATIONS		N
5	DE: additional markings required in German language:		N
	- cathode ray tubes with an accelerating voltage between 20 kV and 30 kV (marking on the tube)		N
	- TV receivers whose picture tube has an accelerating voltage between 20 kV and 30 kV		N
	- TV receivers whose picture tube has an accelerating voltage greater than 30 kV		N
	- TV receivers whose picture tube has an accelerating voltage less than 20 kV		N
5.1	IT: additional markings on the outside of the TV receiver in Italian language		N

Report No. NTEK-2014NT0304467S

	IEC/EN 60065		
Clause	Requirement – Test	Result - Remark	Verdict
	IT: user instructions in Italian language including a conformity declaration		N
	IT: certification number on the back cover		N
14	SE: Switches containing mercury such as thermostats, relays and level controllers are not allowed.		N

Z1	Resistance to candle flame ignition (EN 60065/A11)		N
	A television set shall be so designed that the likelihood of ignition and the spread of fire caused by a candle flame is reduced.		N
	-This requirement does not apply to the display screen of rear projection TV's.		N
	Wood and WOOD-BASED MATERIAL with a thickness of at least 6 mm is considered to fulfil the V-1 requirement when applying CLC/TS 62441.		N
	Compliance is checked according to CLC/TS 62441.	Enclosure material: at least V-1, no test required.	N



	<b>A 2:2010 to EN 60065:2002</b>		
<b>3.Z1</b>	<p>After 3.2 <b>add</b> a new clause 3.Z1:</p> <p>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):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 11 shall be included as parts of the equipment;</p> <p>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;</p> <p>c) it is permitted for equipment supplied via an industrial mains plug or for</p> <p><b>PERMANENTLY CONNECTED APPARATUS</b>, 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 not via an industrial mains plug or for <b>PERMANENTLY CONNECTED APPARATUS</b> the building installation shall be regarded</p>		N
General	<p>In IEC 60065:2001/A2</p> <p><b>Delete</b> all the “country” notes according to the following list:</p> <p>5.3 Note</p> <p>5.4.1 Note</p> <p>20 Note</p> <p>For special national conditions, see Annex ZB.</p>		N
3.Z1	<p><b>Denmark</b></p> <p><b>Add</b> to the end of the subclause</p> <p>Due to many existing installations where the socket-outlets can be protected with</p> <p>fuses with higher rating than the rating of the socket-outlets the protection for</p> <p>pluggable equipment type A shall be an integral part of the equipment.</p> <p><i>Justification:</i></p> <p>In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.</p>		N

5.3	<p><b>Finland, Norway and Sweden</b></p> <p>To the end of the subclause the following is <b>added</b>:</p> <p>CLASS I apparatus which is intended for connection to the building installation wiring</p> <p>via a plug or an appliance coupler, or both and in addition is intended for connection</p> <p>to other apparatus or a network shall, if safety relies on connection to protective earth</p> <p>or if surge suppressors are connected between the network TERMINALS and</p> <p>ACCESSIBLE parts, have a marking stating that the apparatus must be connected to an</p> <p>earthed MAINS socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In <b>Finland</b>: « Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan »</p> <p>In <b>Norway</b>: “Apparatet må tilkoples jordet stikkontakt”</p> <p>In <b>Sweden</b>: “Apparaten skall anslutas till jordat uttag”</p>		N
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A 12:2011 to EN 60065:2002			
2.2	<p>In EN 60065:2002/A11:2008</p> <p>Delete the definition 2.2.Z1</p>		N
3.1	<p>In EN 60065:2002</p> <p>Delete the addition of indent regarding sound pressure excessive</p>		N
5.4.1	<p>In EN 60065:2002/A1:2006 and EN 60065:2002/A11:2008</p> <p>Delete the modification in indent za)</p> <p>Add the following clause and annex to the existing standard and amendments</p>		N
General	<p>In IEC 60065:2001/A2</p> <p><b>Delete</b> all the “country” notes according to the following list:</p> <p>5.3 Note</p> <p>5.4.1 Note</p> <p>20 Note</p> <p>For special national conditions, see Annex ZB.</p>		N

7.1	TABLE: temperature rise measurements		P
	Power consumption in the OFF/Stand-by	0/0.39W	--
	Position of the functional switch (W) .....	--	—
Operating conditions			
Mode: AUX in ( 100% Max. non-clipped output power )			
Un (V)	Pn (W)	In (mA)	output (W)
198V 50Hz	96.1	880	--
220V 50Hz	96.5	706	--
240V 50Hz	99.0	683	--
264V 50Hz	95.7	660	--
198V 60Hz	94.2	794	--
220V 60Hz	97.6	722	--
240V 60Hz	97.3	711	--
264V 60Hz	100.4	681	--
Mode: AUX in ( 1/8 Max. non-clipped output power )			
Un (V)	Pn (W)	In (mA)	output (W)
198V 50Hz	24.4	228	Tweeter:1.34W,woofer:0.94W,speaker:0.73W
220V 50Hz	23.1	190	Tweeter:1.34W,woofer:0.94W,speaker:0.73W
240V 50Hz	22.1	185	Tweeter:1.34W,woofer:0.94W,speaker:0.73W
264V 50Hz	22.7	158	Tweeter:1.34W,woofer:0.94W,speaker:0.73W
198V 60Hz	23.3	207	Tweeter:1.34W,woofer:0.94W,speaker:0.73W
220V 60Hz	23.7	180	Tweeter:1.34W,woofer:0.94W,speaker:0.73W
240V 60Hz	25.1	152	Tweeter:1.34W,woofer:0.94W,speaker:0.73W
264V 60Hz	27.7	142	Tweeter:1.34W,woofer:0.94W,speaker:0.73W

Operating conditions					
	Loudspeaker impedance ( $\Omega$ ) .....	woofer: 6 $\Omega$ X1, tweeter: 4 $\Omega$ X4, Speaker: 8 $\Omega$ X1			—
	Several loudspeaker systems	--			—
	Marking of loudspeaker terminals	--			—
monitored point:		dT (K)		Required dT (K)	
		198V/50Hz	264V/50Hz		
1	Power switch	7.7	7.8	50	
2	Power cord	6.7	6.7	45	
3	Input wire	11.5	11.8	60	
4	CON1 body	6.7	6.8	60	
5	CX1 body	21.2	21.1	65	
6	LF1 coil	23.0	22.2	75	
7	CX2 body	19.8	19.7	65	
8	LF2 coil	20.5	20.7	75	
9	LF3 coil	44.1	45.1	75	
10	EC1 body	28.3	31.0	70	
11	PCB near BD1	41.1	42.3	85	
12	PCB near Q1	43.2	44.1	85	
13	T1 coil	49.0	53.2	65	
14	T1 core	45.8	49.7	Ref.	
15	CY1 body	37.3	40.9	50	
16	C47 body	40.4	42.4	70	
17	PCB near IC1 on the main board	23.1	24.5	85	
18	Enclosure inside near power board	19.9	19.8	60	
19	Enclosure outside near power board	10.6	10.4	60	
20	Panel	5.1	5.3	60	
21	Button	3.5	3.6	60	
Winding temperature rise measurements					N
Ambient temperature t1 ( $^{\circ}\text{C}$ ) .....		21.5			—
Ambient temperature t2 ( $^{\circ}\text{C}$ ) .....		21.7			—
temperature rise dT of winding:		R <sub>1</sub> ( $\Omega$ )	R <sub>2</sub> ( $\Omega$ )	dT (K)	required dT (K)
--		--	--	--	--

10.3	TABLE: insulation resistance measurements		P
Insulation resistance R between:		R (MΩ)	Required R (MΩ)
Different polarity		>100	2
L/N to accessible parts		>100	4

10.3	TABLE: electric strength measurements		P
Test voltage applied between:		Test voltage (Vrms)	Breakdown
Different polarity		AC 1500	No
L/N to accessible parts		AC 3000	No

11.2	TABLE: summary of fault condition tests					P
		Voltage (V) 0,9 or 1,1 times rated voltage .....		See below		—
		Ambient temperature (°C) .....		25.0°C, if no specify		—
component No.	fault	test voltage (V)	test time	fuse No.	fuse current (A)	result
BD1	Short circuit	264	1s	--	0	Fuse opened immediately, no hazard.
EC1	Short circuit	264	1s	--	0	Fuse opened immediately, no hazards.
Q1(g-s)	Short circuit	264	10min	--	0.044	Unit shut down immediately and can recoverable, no damaged, no hazard.
Q1(g-d)	Short circuit	264	1s	--	0	Fuse opened immediately, Q40 damage, no hazards.
Q1(d-s)	Short circuit	264	1s	--	0	Fuse opened immediately, Q40 damage, no hazards.
T1 Pin1-3	Short circuit	264	10min	--	0.038	Unit shut down immediately and can recoverable, No damaged, no hazard.
T1 Pin4-5	Short circuit	264	10min	--	0.040	Unit shut down immediately and can recoverable, No damaged, no hazard.
T1 Pin9-11	Short circuit	264	10min	--	0.041	Unit shut down immediately and can recoverable, No damaged, no hazard.
D3	Short circuit	264	10min	--	0.041	Unit shut down immediately and can recoverable, No damaged, no hazard.
EC4	Short circuit	264	10min	--	0.044	Unit shut down immediately and can recoverable, No damaged, no hazard.

Report No. NTEK-2014NT0304467S

Speaker	Max non-clipped output power	264	2hrs40mins	--	0.681	Unit works as normal, no hazard. No damage. T1 coil: 69.1K; Enclosure outside: 19.8K;
Opening	block	264	1hrs39mins	--	0.158	Unit works as normal, no hazard. No damage. T1 coil: 53.2K; Enclosure outside: 22.4K;
woofer	Short circuit	264	1hrs45mins	--	0.148	Unit works as normal, no hazard. No damage. T4 coil: 51.6K; Enclosure outside: 18.6K;
Tweeter	Short circuit	264	1hrs44mins	--	0.154	Unit works as normal, no hazard. No damage. T4 coil: 52.5K; Enclosure outside: 17.8K;
Speaker	Short circuit	264	1hrs52mins	--	0.156	Unit works as normal, no hazard. No damage. T4 coil: 52.6K; Enclosure outside: 28.1K;

13.3	TABLE: Clearance distance measurements				P
Clearance distance cl. At/of:		Up (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)
L to N before Fuse		339	240	2.0	3.7
Primary to secondary of T1		464	235	4.2	7.5
Live parts to accessible parts		464	235	4.2	>6

13.4	TABLE: Creepage distance measurements				P
Creepage distance dcr at/of:		Up (V)	U r.m.s. (V)	Required dcr (mm)	dcr (mm)
L to N before Fuse		339	240	2.4	3.7
Primary to secondary of T1		464	235	4.7	7.5
Live parts to accessible parts		464	235	4.7	>6

14	TABLE: list of critical components and materials					P
object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity1)	
Plug	Awin Wire & Cable Co., Ltd.	AW112	2.5A, AC 250V	DIN VDE 0620, EN 50075	VDE: 40010116	
Power cord	Shenzhen Bao Hing Electric Wire & Cable Manufacture Co. Ltd.	H03VVH2-F	2x 0.5 mm <sup>2</sup> or 2 x 0.75mm <sup>2</sup>	DIN VDE 0281-5, VDE 0281	VDE: 131689	
Alternate	Awin Wire & Cable Co., Ltd.	H03VVH2-F	2x 0.5 mm <sup>2</sup> or 2 x 0.75mm <sup>2</sup>	DIN VDE 0281-5, VDE 0281	VDE: 40023114	
Power switch	ZHONGXUN ELECTRONICS INDUSTRY COMPANY	KCD1-104	6A 250V /10A 250V	EN 61058-1:2002	TUV Certificate No.: R 50049218	
Alternate	Yueqing Huansheng Electronics	KCD-117	6A 250V	EN 61058-1:2002	VDE 40024304	
Plastic	FORMOSA CHEMICALS & FIBRE CORP PLASTICS DIV	AG15A1	HB,50°C	UL94, UL746C	UL: E162823	
Heat Shrinkable tube	DONGGUAN QUANTAI INDUSTRIAL CO LTD	T-2	VW-1, 125 °C, 600V.	UL 224	UL: E227336	
(Alternate)	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD	RSFR-H	VW-1, 125 °C, 600V.	UL 224	UL: E203950	
(Alternate)	Various	Various	Min. VW-1, 125 °C, 600V.	UL 224	UL	
Power board PCB	BOLUO EVERSUN ELECTRONICS PLANT	YY-CK11 YY-CZ11 YY-VK10 YY-VZ10	V-0, 130°C	UL746	UL E250664	
Alternative	PREMIER ELECTRONIC PLASTIC LTD	ZR-01 ZR-04	V-0, 130°C	UL746	UL E317642	
Alternative	DONG GUAN NEW ENERGY PRINTED CIRCUIT BOARD CO LTD	NE1000 NE1000A NE5000 NE5000A	V-0, 130°C	UL746	UL E206420	
Alternative	EASTOP INTERNATIONAL LTD	ET-002 ET-003	V-0, 130°C	UL746	UL E226038	
Alternative	TECHNI TECHNOLOGY LTD	T2/T2A/T2B/ T4	V-0, 130°C	UL746	UL E154355	
AC Connector (CON1)	ZHEJIANG JINDA ELECTRONICS CO LTD	3.96T-02	V-0	UL1997	UL E237523	
Alternative	SHENZHEN YONG FENG YING ELECTRONIC CO LTD	CS-1120	V-0	UL1997	UL E241915	
Alternative	SHANGHAI YUESHEN ELECTRONIC CO LTD	YSF6 Series	V-0	UL1997	UL E204074	

Fuse(F1)	Dongguan Better Electronic Technology Co., Ltd.	524	T5AH 250V	IEC/EN 60127-1 IEC/EN 60127-2	VDE 40025424
Alternative	Shenzhen Lanson Electronics Co. Ltd.	5 N - Series	T5AH 250V	IEC/EN 60127-1 IEC/EN 60127-2	VDE 40019482
Alternative	Walter Electronic Co. Ltd.	TSC	T5AH 250V	IEC/EN 60127-1 IEC/EN 60127-2	VDE 40016670
X2 capacitor(CX1 CX2)	Tenta Electric Industrial Co. Ltd.	MEX	0.22uF 275V	IEC/EN 60384-14	VDE 119119
Alternative	Dain Electronics Co., Ltd.	MPX	0.22uF 275V	IEC/EN 60384-14	VDE 40018798
Alternative	Shantou High-new Technology Development Zone Songtian Enterprise Co., Ltd	MPX	0.22uF 275V	IEC/EN 60384-14	VDE 40034679
Alternative	Dongguan Easy-gather Electronic Co., Ltd.	MKP-X2	0.22uF 300V	IEC/EN 60384-14	VDE 40022258
Alternative	Shenzhen Su Rong Capacitors Co., Ltd.	MPX/MKP	0.22uF 280V	IEC/EN 60384-14	VDE 40008924
Y capacitor(CY2 CY3)	Guangdong South Hongming Electronic Science and Technology Co., Ltd.	F	470pF,250V	IEC/EN 60384-14	VDE 118357
Alternative	JYA-NAY Co., Ltd.	JN series	470pF,400V	IEC/EN 60384-14	TUV R50232059
Alternative	Shaanxi Huaxing Electronic Development Co. Ltd.	CT7Y1	470pF,400V	IEC/EN 60384-14	VDE 40015542
Alternative	Dongguan Easy-gather Electronic Co., Ltd.	DCF	470pF,400V	IEC/EN 60384-14	VDE 40022942
Alternative	Shenzhen Teruixiang Electronic Co, Ltd.	TYB; TYE; TYF	470pF,400V	IEC/EN 60384-14	VDE 40023136
Thermistor(T R1)	Nanjing Shiheng Electronics Co.,Ltd.	MF72-8D13	8 $\Omega$ ,4A	EN 60539-1:2008	TUV R50245892
Alternative	Thinking Electronic Industrial Co., Ltd.	SCK-084	8 $\Omega$ ,4A	EN60539-1:2002 EN60730-1:2000	TUV R50050155
Optocoupler(I C2)	Everlight Electronics Co., Ltd.	EL817 (blank;V)	--	EN60747-5-2	VDE 132249
Alternative	Bright Led Electronics Corp.	BPC-817C	--	EN60747-5-2	VDE 40007240
Alternative	Lite-On Technology Corporation	LTV-817	--	EN60747-5-2	VDE 40015248
Transformer(T1)	SHENZHEN TOPOW ELECTRONICS CO LTD	PQ3230	CLASS B	EN60065	Test with appliance



---Magnet wire	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	UEW/U	130℃	UL1446	UL E201757
---Bobbin	Changchun Plastics Co.,Ltd	T375J	V-0,150℃	UL94	UL E59481
---Insulating tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	PZ/CT	130℃	UL510	UL E165111
-Margin tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	WF	130℃	UL510	UL E165111
-Tube	GREAT HOLDING INDUSTRIAL CO LTD	TFL	200℃	UL224	UL E156256
---Varnish	JOHN C DOLPH CO	BC-346A	200℃	UL1446	ULE317427
Filter (LF1)	SHENZHEN TOPOW ELECTRONICS CO LTD	UU16 30mH	CLASS B	EN60065	Test with appliance
---Bobbin	Changchun Plastics Co.,Ltd	T375J	V-0,150℃	UL94	UL E59481
Filter (LF2)	SHENZHEN TOPOW ELECTRONICS CO LTD	2.5mH	Class B	EN60065	Test with appliance
Filter (LF3)	SHENZHEN TOPOW ELECTRONICS CO LTD	T12*8*5	CLASS B	EN60065	Test with appliance
1) an asterisk indicates a mark which assures the agreed level of surveillance 2) "NR" - indicates Unlisted and only visual examination is necessary.					

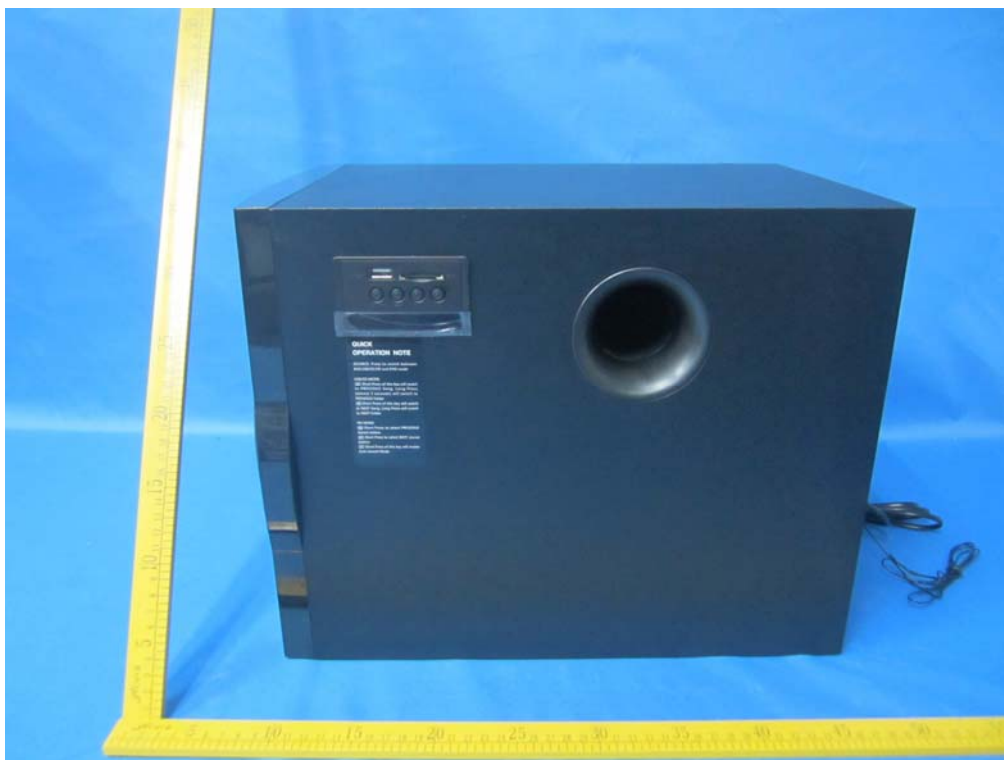
## Attachment – Photos



Fig. 1



Fig. 2



**Fig. 3**



**Fig. 4**

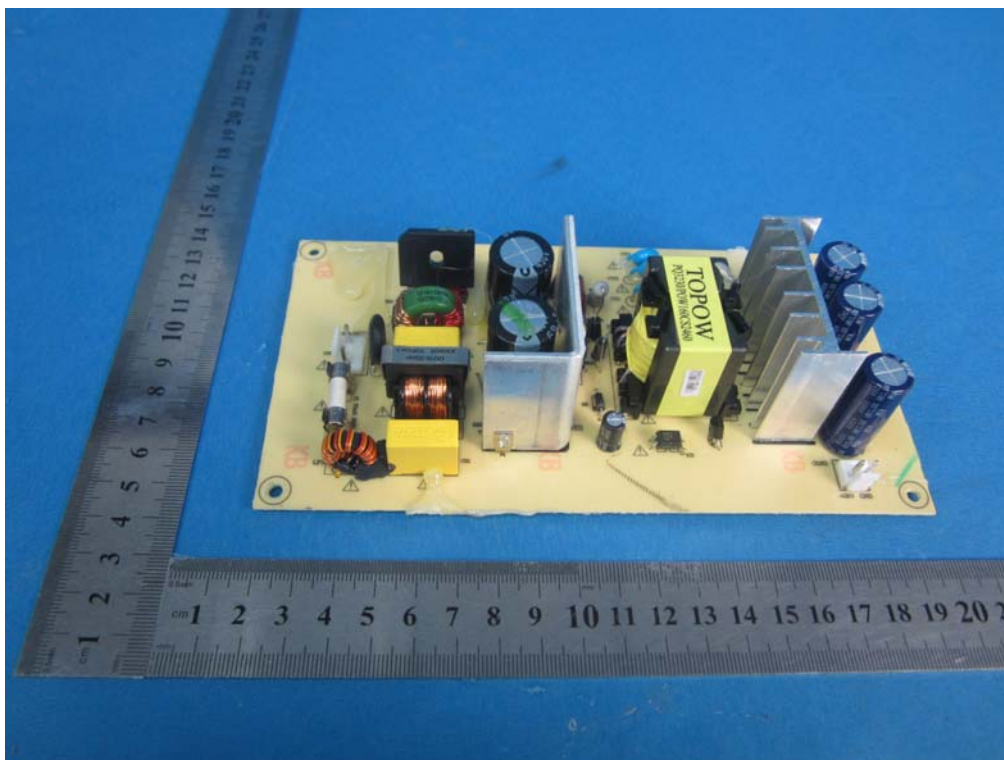


**Fig. 5**

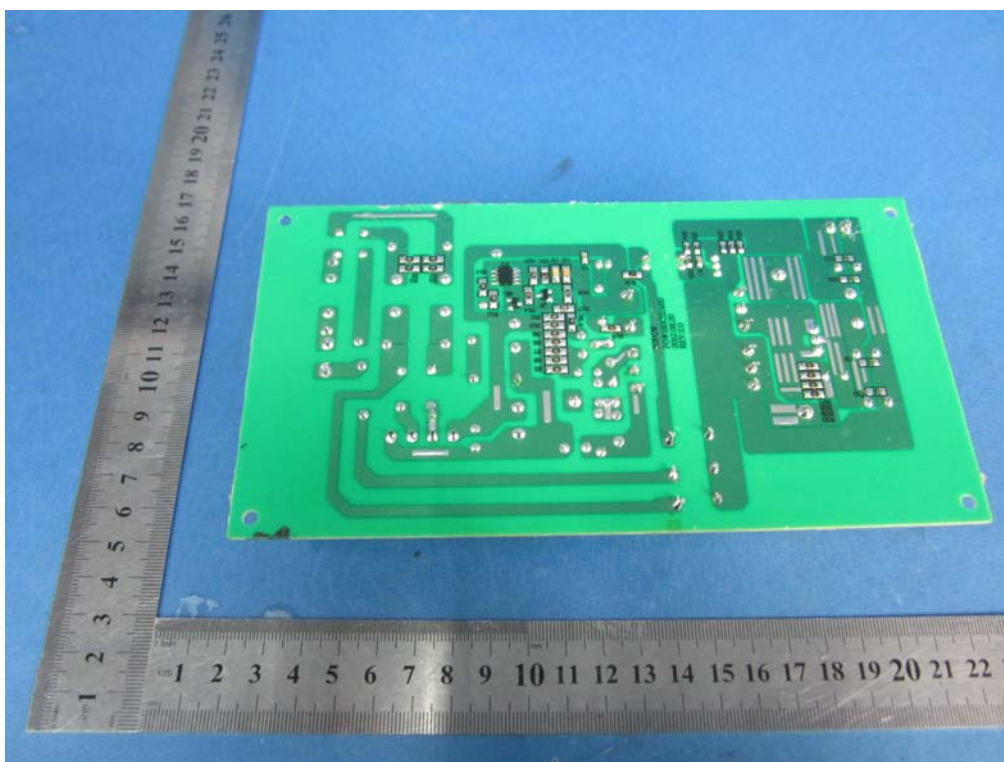


**Fig. 6**





**Fig. 7**



**Fig. 8**

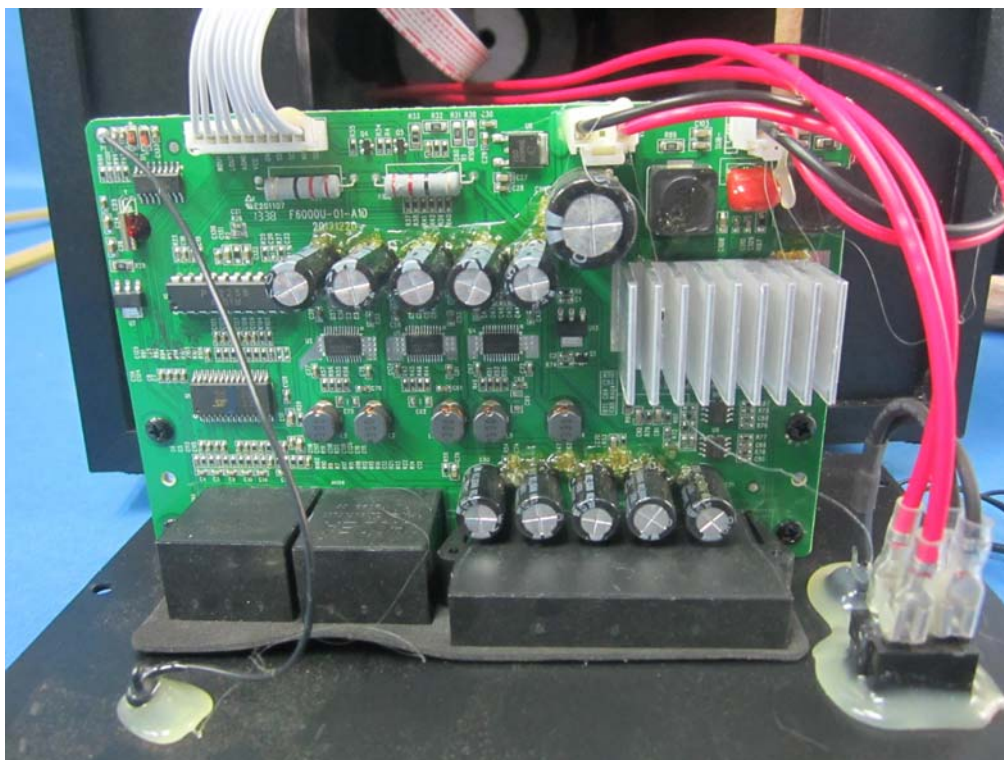


Fig. 9

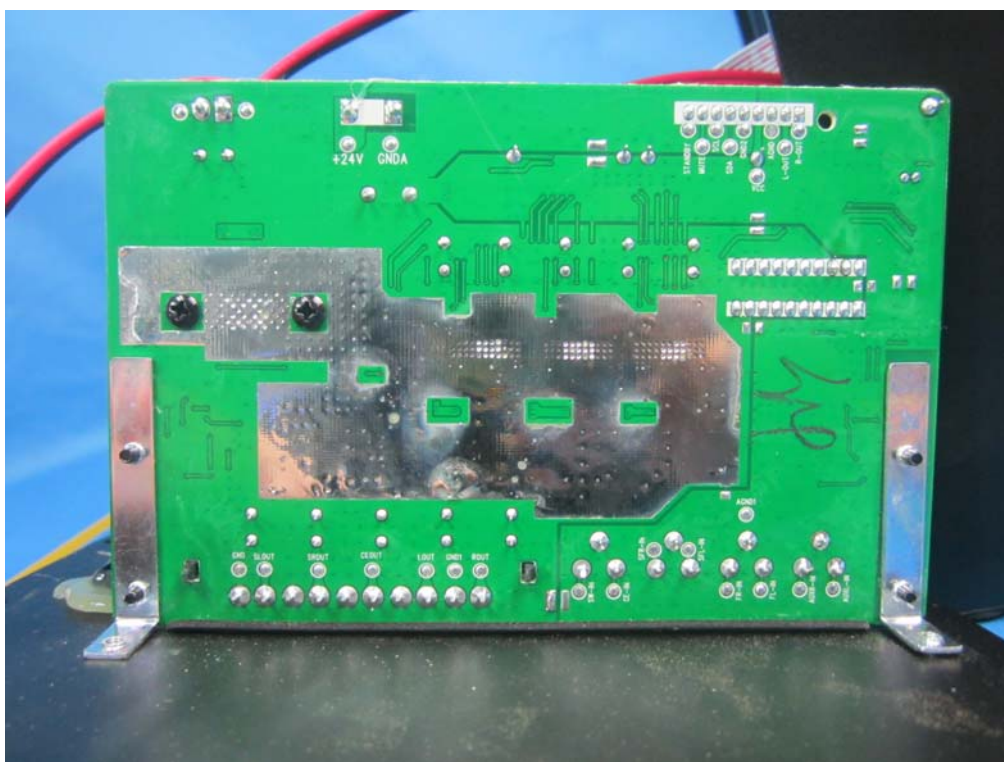


Fig. 10

\*\*\*END OF REPORT\*\*\*