

**APPLICATION FOR LOW VOLTAGE DIRECTIVE**

**On Behalf of**

**Shenzhen GGMM Industrial Company Limited**

**M-Freedom**

**WS-301**

**Prepared for :** Shenzhen GGMM Industrial Company Limited  
Room110, F518 Idea Land, Baoyuan Road, Baoan District,  
Shenzhen

**Prepared By :** Shenzhen TCT Testing Technology Co., Ltd.  
1F, No.1 Building, Yibaolai Industrial Park, No.1 Chongqing  
Road, Qiaotou Village, Fuyong Town, Baoan District, Shenzhen

**Date of Test:** Mar.28, 2014 to May.09, 2014

**Date of Report:** May.09, 2014

**Report Number:** TCT140428011S1-1

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# TEST REPORT

**EN 60065:2002+A1:2006+A11:2008+A2:2010+A12:2011**

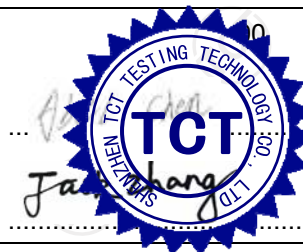
**Audio, video and similar apparatus**

**Safety requirements**

Report reference No .....: TCT140428011S1-1

Tested by (+ signature)..... Able Chen

Approved by (+ signature)..... Jack Zhang



Date of issue.....: May.09, 2014

Testing Laboratory Name .....: Shenzhen TCT Testing Technology Co., Ltd.

Address .....: 1F, No.1 Building, Yibaolai Industrial Park, No.1 Chongqing Road,  
Qiaotou Village, Fuyong Town, Baoan District, Shenzhen

Testing location .....: CBTL ☐ CCATL ☐ SMT ☐ TMP ☐

Address.....: Same as above.

Applicant's Name .....: Shenzhen GGMM Industrial Company Limited

Address .....: Room110, F518 Idea Land, Baoyuan Road, Baoan District,  
Shenzhen

Standard .....: EN 60065:2002+A1:2006+A11:2008+A2:2010+A12:2011

Test procedure .....: LVD Approval

Procedure deviation .....: N/A

Non-standard test method .....: N/A

Test item Description.....: M-Freedom

Manufacturer name.....: Shenzhen GGMM Industrial Company Limited

Manufacturer address..... Building No5, Yongxin Street, Shiyan, Baoan District, Shenzhen

Trademark.....: GGMM

Model and/or type reference.....: WS-301

Rating(s) ..... I/P: 18V--- 30W

**Test item particulars :**

Equipment mobility .....: Transportable equipment  
Operating condition .....: Continuous  
Tested for IT power systems .....: N/A  
IT testing, phase-phase voltage (V) .....: N/A  
Class of equipment .....: Class III  
Protection against ingress of water .....: IPX0

**Test case verdicts:**

Test case does not apply to the test object .....: N(/A.)  
Test item does meet the requirement.....: P(ass)  
Test item does not meet the requirement.....: F(ail)

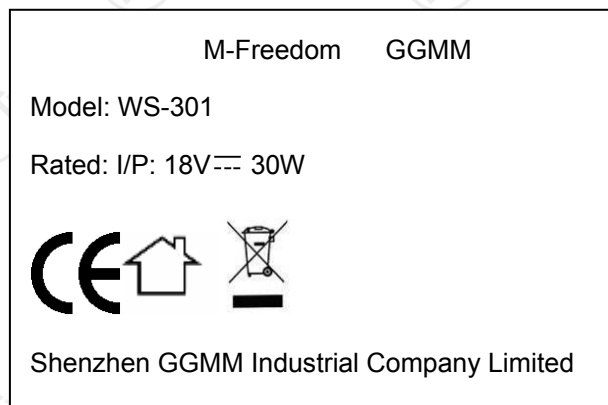
**Testing:**

Date of receipt of test item .....: Mar.27, 2014  
Date(s) of performance of test .....: Mar.28, 2014 to May.09, 2014

## Model List

Model List:	
Rating	I/P: 18V $\overline{\text{---}}$ 30W
Test Model	WS-301
Other Models	N/A
<ol style="list-style-type: none"><li>1. All tests are carried out on WS-301</li><li>2. WS-301 has same diagram circuit, PCB layout, except different colour of enclosure</li></ol>	

## Label



## Note:

1. The height of graphical symbols shall not be less than 5 mm;
2. The height of letters and numerals shall not be less than 2 mm;
3. The main rating label was attached in enclosure,

<b>General remarks:</b>	
<p>"(see remark #)" refers to a remark appended to the report.</p> <p>"(see appended table)" refers to a table appended to the report.</p> <p>Throughout this report a comma is used as the decimal separator.</p> <p>The test results presented in this report relate only to the object tested.</p> <p>All is excluded test of the scope of CNAS accreditation, the test results for this test from an accredited lab. by CNAS.</p> <p>This report shall not be reproduced except in full without the written approval of the testing laboratory.</p>	<p>Attached with:</p> <ul style="list-style-type: none"> <li>A. Equipment list</li> <li>B. Photo documentation</li> </ul>

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
<b>3</b>	<b>General requirements</b>		<b>P</b>
	Safety class of the apparatus .....	Class III	P
<b>4</b>	<b>General test conditions</b>		<b>P</b>
4.1.4	Ventilation instructions require the use of the test box		P
<b>5</b>	<b>Marking and instructions</b>		<b>P</b>
	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
5.1	a) Identification, maker .....	See marking	P
	b) Model number or type reference .....	See product label	P
	c) Class II symbol if applicable .....		N/A
	d) Nature of supply .....	---	P
	e) Rated supply voltage .....	18V	P
	f) Mains frequency if safety dependant .....		N/A
	g) Rated current or power consumption for apparatus supplied by supply apparatus for general use .....	30W	P
	h) Rated current or power consumption for apparatus intended for connection to an a.c. mains supply :	See product label	N/A
	Measured current or power consumption .....	See appended table 7.1	N/A
	Measured current or power consumption for Television set .....		N/A
	Deviation % (max 10%) .....	Not exceed the marked value by more than 10%	N/A
5.2	a) Earth terminal		N/A
	b) Hazardous live terminals	No hazardous live terminals	N/A
	c) Markings on supply output terminals		N/A
5.3	a) Use of triangle with exclamation mark	Such symbol is indicated on circuit diagram for specific components	N/A
	b) marking on loudspeaker grille, IEC 60417-5036		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
5.4	Instructions for use	Reviewed English version	P
5.4.1	a) Mains powered equipment not exposed to dripping or splashing. Warning concerning objects filled with liquid, etc.		N/A
	b) Hazardous live terminals, instructions for wiring	Not such terminal	N/A
	c) Instructions for replacing lithium battery		N/A
	d) Class I earth connection warning	Stated in user's manual	N/A
	e) Instructions for multimedia system connection		P
	f) Special stability warning for attachment of the apparatus to the floor/wall	Not fixed installation	N/A
	g) Warning: battery exposure to heat		N/A
	h) Warning: protective film on CRT face		N/A
5.4.2	a-b) Disconnect device: plug/coupler or all-pole mains switch location, accessibility and markings		N/A
	c) Instructions for permanently connected equipment		N/A
	Marking, signal lamps or similar for completely disconnection from the mains		N/A
<b>6</b>	<b>Hazardous radiation</b>		<b>N/A</b>
6.1	Ionizing radiation <36pA/kg (0,5 mR/h)	There is no CRT. No Ionizing Radiation generated	N/A
	Ionizing radiation under fault condition		N/A
6.2	Laser radiation, emission limits to IEC60825-1:2007 .....	No laser radiation	N/A
	Emission limits under fault conditions .....		N/A
<b>7</b>	<b>Heating under normal operating conditions</b>		<b>P</b>
7.1	Temperature rises not exceeding specified values; fuse links and other protective devices defeated	See appended table 7.1	P
7.1.1	Temperature rise of accessible parts	See appended table 7.1	P
7.1.2	Temperature rise of parts providing electrical insulation	See appended table 7.1	N/A
7.1.3	Temperature rise of parts acting as a support or as a mechanical barrier	See appended table 7.1	N/A
7.1.4	Temperature rise of windings		N/A
7.1.5	Parts not subject to a limit under 7.1.1 to 7.1.4	See appended table 7.1	P

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		N/A
<b>8</b>	<b>Constructional requirements with regard to the protection against electric shock</b>		<b>P</b>
8.1	Conductive parts covered by lacquer, paper, untreated textile oxide films and beads etc. considered to be bare	Class III equipment	P
8.2	No shock hazard when changing voltage setting device, fuse-links or handling drawers etc.		N/A
8.3	Insulation of hazardous live parts not provided by hygroscopic material	No such material	N/A
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 cover can be removed by hand	N/A
8.5	Class I equipment.		N/A
	Basic insulation between hazardous live parts and earthed accessible parts		N/A
	Resistors bridging basic insulation complying with 14.1 a)		N/A
	Capacitors bridging basic insulation complying with 14.2.1 a)		N/A
	Protective earthing terminal		N/A
8.6	Class II equipment and Class II constructions within Class I equipment	Class III equipment	N/A
	Double or reinforced insulation between hazardous live parts and accessible parts		N/A
	Components bridging double or reinforced insulation complying with 14.1 a) or 14.3		N/A
	Basic insulation bridged by components complying with 14.3.4.3.		N/A
	Basic and supplementary insulation each being bridged by a capacitor complying with 14.1 a)		N/A
	Double or reinforced insulation being bridged with 2 capacitors in series complying with 14.2.1 a)	No used bridge capacitor	N/A
	Double or reinforced insulation being bridged with a single capacitor complying with 14.2.1 b)	No used bridge capacitor	N/A
8.7	This clause is void		—

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
8.8	Basic or supplementary insulation > 0,4 mm (mm)...		N/A
	Reinforced insulation > 0,4 mm (mm) .....		N/A
	Thin sheet insulation (excluding non-separable thin sheet insulation. See 8.22)		N/A
	Basic or supplementary insulation, at least two layers, each meeting 10.3		N/A
	Basic or supplementary insulation, three layers any two of which meet 10.3		N/A
	Reinforced insulation, two layers each of which meet 10.3		N/A
	Reinforced insulation, three layers any two which meet 10.3		N/A
8.9	Adequate insulation between internal hazardous live conductors and accessible parts		N/A
	Adequate insulation between internal hazardous live parts and conductors connected to accessible parts		N/A
8.10	Double insulation between conductors connected to the mains and accessible parts.		N/A
	Double insulation between internal hazardous live parts and conductors connected to accessible parts.		N/A
8.11	Detaching of wires	No risk of any wire becoming detached.	N/A
	No undue reduction of creepages or clearance distances if wires become detached	Internal wirings were well routed and secured	N/A
	Vibration test carried out .....		N/A
8.12	This clause is void		—
8.13	Adequate fastening of windows, lenses, lamp covers etc. (pull test 20 N for 10 s)		N/A
8.14	Adequate fastening of covers (push/pull test 50 N for 10 s)		N/A
8.15	No risk of damage to the insulation of internal wiring due to hot parts or sharp edges	No risk of damage to the insulation of internal wiring due to high temperature, sharp edges or pinches	P
8.16	Only special supply equipment can be used		N/A
8.17	Insulated winding wire without additional interleaved insulation		N/A
8.18	Endurance test as required by 8.17		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
8.19	Disconnection from the mains	Non-detachable power supply with plug	N/A
8.19.1	Disconnect device		N/A
	All-pole switch or circuit breaker with >3mm contact separation		N/A
8.19.2	Mains switch ON indication		N/A
8.20	Switch not fitted in the mains cord		N/A
8.21	Bridging components comply with clause 14		N/A
8.22	Non-separable thin sheet material		N/A
<b>9</b>	<b>Electric shock hazard under normal operating conditions</b>		<b>N/A</b>
9.1	Testing on the outside		N/A
9.1.1	For voltages >1000 V ac or >1500 V dc complies with clause 13.3.1 for basic insulation	No such high voltage	N/A
9.1.1.1	a) Open circuit voltages		N/A
	b) Touch current measured from terminal devices using the network in annex D .....		N/A
	c) Discharge not exceeding 45 $\mu$ C		N/A
	d) Energy of discharge not exceeding 350 mJ		N/A
9.1.1.2	Test with test finger and test probe		N/A
9.1.2	No hazardous live shafts of knobs, handles or levers		N/A
9.1.3	Ventilation holes and other holes tested by means of 4 mm x 100 mm test pin		N/A
9.1.4	Terminal devices tested with 1 mm x 20 mm test pin (10 N); test probe D of IEC 61032		N/A
	Terminal devices tested with 1 mm x 100 mm straight wire (1 N); test probe D of IEC 61032		N/A
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/A
9.1.6	No shock hazard due to stored charge on withdrawal of the mains plug; voltage (V) after 2 s .....	No used X-capacitor	N/A
	If C is not greater than 0,1 $\mu$ F no test needed		N/A
9.1.7	Resistance to external forces		N/A
	a) Test probe 11 of IEC 61032 for 10 s (50 N)		N/A
	b) Test hook of fig. 4 for 10 s (20 N)		N/A
	c) 30 mm diameter test tool for 5 s (100 or 250 N)		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict

9.2	No hazard after removing a cover by hand	Apparatus covers are not removable by hand	N/A
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<b>10</b>	<b>Insulation requirements</b>		<b>P</b>
10.1	Insulation resistance (MΩ) at least 2 MΩ min. after surge test for basic and 4 MΩ min. for reinforced insulation .....		P
10.2	Humidity treatment 48 h or 120 h .....	48h /95%	P
10.3	Insulation resistance and dielectric strength between mains terminals	See appended table 10.3	P
	Insulation Resistance and dielectric strength across BASIC or SUPPLEMENTARY insulation (Class I)		N/A
	Insulation resistance and dielectric strength across REINFORCED insulation (Class II)		N/A

<b>11</b>	<b>Fault conditions</b>		<b>P</b>
11.1	No shock hazard under fault condition		P
11.2	Heating under fault condition	See appended table 11.2	P
	Flames extinguish within 10 seconds	No any flames during fault conditions testing	P
	No hazard from softening solder	Solder did not become softened or fluid during fault conditions testing.	P
	Soldered terminations not used as protective mechanism	No soldered termination used as protective mechanism in the EUT.	P
11.2.1	Measurement of temperature rises	See appended table 11.2	P
11.2.2	Temperature rise of accessible parts	See appended table 11.2	P
11.2.3	Temperature rise of parts, other than windings and printed boards, providing electrical insulation	See appended table 11.2	P
11.2.4	Temperature rise of parts acting as a support or mechanical barrier		N/A
11.2.5	Temperature rise of windings	See appended table 11.2	N/A
11.2.6	Temperature rise of printed boards shall not exceed the limits of table 3 by max. 100 K for max. 5 min		P
	Printed circuit boards (PCB) classified as V-0 according to 60695-11-10 or Clause G.1 may exceed the limit in table 3 in case a) and b):		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	a) Temperature rise of printed circuit boards exceeding the limits of table 3 by not more than 100 K for an area not greater than 2 cm <sup>2</sup> .....		N/A
	b) Temperature rise of printed circuit boards exceeding the limits of table 3 up to 300 K for an area not greater than 2 cm <sup>2</sup> for a maximum of 5 min		N/A
	Meets all the special conditions if conductors on printed circuit boards are interrupted		N/A
	Class I protective earthing maintained		N/A
11.2.7	Temperature rise of parts not subject to the limits of 11.2.1 to 11.2.6 shall not exceed the limits in table 3, item e), "Fault conditions".	(see appended table 7.1)	P
<b>12</b>	<b>Mechanical strength</b>		<b>P</b>
12.1.1	Bump test where mass >7 kg	<7Kg	N/A
12.1.2	Vibration test	Examination of the apparatus revealed that no parts or connections were loosened	P
12.1.3	Impact hammer test	0.5J, three blows, no damage and the apparatus can withstand the dielectric strength test as specified in 10.3	P
	Steel ball test	2J applied, no damage and the apparatus can withstand the dielectric strength test as specified in 10.3.	P
12.1.4	Drop test for portable apparatus where mass ≤ 7 kg	<7Kg	P
12.1.5	Thermoplastic enclosures stress relief test	70°C, 7hours, No damage to the enclosure and no parts become hazardous live	P
12.2	Fixing of knobs, push buttons, keys and levers	Push buttons are fastened that their use did not impair the protection against electric shock	P
12.3	Remote controls with hazardous live parts		N/A
12.4	Drawers (pull test 50 N, 10 s)	No drawer	N/A
12.5	Antenna coaxial sockets providing isolation		N/A
12.6	Telescoping or rod antennas construction		N/A
12.6.1	Telescoping or rod antennas securement		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
<b>13</b>	<b>Clearances and creepage distances</b>		<b>N/A</b>
13.1	Clearances in accordance with 13.3	Class III equipment	N/A
	Creepage distances in accordance with 13.4	See appended table 13.3 & 13.4	N/A
13.2	Determination of working voltage		N/A
13.3	Clearances	See appended table 13.3 & 13.4	N/A
13.3.1	General		N/A
13.3.2	Circuits conductively connected to the mains comply with table 8 and, where applicable, table 9 .....		N/A
13.3.3	Circuits not conductively connected to the mains comply with table 10		N/A
13.3.4	Measurement of transient voltages		N/A
13.4	Creepage distances	See appended table 13.3 & 13.4.	N/A
	Creepage distances greater than table 11 minimum values		N/A
13.5	Printed boards		N/A
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/A
13.5.2	Type B coated printed circuit boards complying with IEC 60664-3 (basic insulation only)	No such printed board	N/A
13.6	Conductive parts along uncemented joints clearances and creepage distances comply with 13.3 and 13.4		N/A
	Conductive parts along reliably cemented joints comply with 8.8		N/A
	Temperature cycle test and dielectric strength test		N/A
	500V test for transformers, magnetic coupler and similar devices, if insulation is relied upon for safety		N/A
13.7	Enclosed, enveloped or hermetically sealed parts not conductively connected to the mains, clearances and creepage distances as in table 12		N/A
13.8	Parts filled with insulating compound, meeting the requirements of 8.8		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
<b>14</b>	<b>Components</b>		<b>N/A</b>
14.1	Resistors	No such resistors	N/A
	a) Resistors between hazardous live parts and accessible metal parts		N/A
	b) Resistors, other than between hazardous live parts and accessible parts		N/A
	Resistors separately approved .....		N/A
14.2	Capacitors and RC units	No such capacitors	N/A
	Capacitors separately approved .....	See below	N/A
14.2.1	Y capacitors tested to IEC 60384-14:2005 .....	No such capacitors	N/A
14.2.2	X capacitors tested to IEC 60384-14:2005 .....	No such capacitors	N/A
14.2.3	Capacitors operating at mains frequency but not connected to the mains: tests for X2 .....	No such capacitor	N/A
14.2.5	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 .....	Capacitor by metal enclosure	N/A
	Capacitors with volume exceeding 1750 mm <sup>3</sup> , mounted closer to a potential ignition source than table 5 permits: compliance with IEC 60384-1, 4.38 category B or better .....		N/A
	Shielded by a barrier acc. to 20.1.4/ table 21 or metal .....	No such capacitor	N/A
14.3	Inductors and windings	No such inductors	N/A
	Comply with IEC 61558-1, IEC 61558-2 (as relevant) and clause 20.1.4		N/A
14.3.1	Transformers and inductors marked with manufacturer's name and type .....	No Transformers	N/A
	Transformers and inductors separately approved ...		N/A
14.3.2	General		N/A
	Insulation material complies with clause 20.1.4		N/A
14.3.3	Constructional requirements		N/A
14.3.3.1	Clearances and creepage distances comply with clause 13		N/A
14.3.3.2	Transformers meet the constructional requirements	Considered	N/A
14.3.4	Separation between windings		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
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 used between hazardous live parts and accessible parts	N/A
	Coil formers and partition walls > 0,4 mm		N/A
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	No such transformer used	N/A
14.3.4.3	Separating transformers with at least basic insulation		N/A
14.3.5	Insulation between HAZARDOUS LIVE parts and ACCESSIBLE parts		N/A
14.3.5.1	Class II transformers have adequate insulation between hazardous live parts and accessible parts (double or reinforced insulation)		N/A
	Coil formers and partition walls > 0,4 mm		N/A
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/A
	Winding wires connected to protective earth have adequate current-carrying capacity		N/A
14.4	High voltage components		N/A
	High-voltage components and assemblies: U > 4 kV (peak) separately approved		N/A
	Component meets category V-1 of IEC 60707		N/A
14.4.1	High voltage transformers and multipliers tested as part of the submission		N/A
14.4.2	High voltage assemblies and other parts tested as part of the submission		N/A
14.5	Protective devices	See below	N/A
	Protective devices used within their ratings		N/A
	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.	N/A
14.5.1.1	a) Thermal cut-outs separately approved		N/A
	b) Thermal cut-outs tested as part of the submission		N/A
14.5.1.2	a) Thermal links separately approved		N/A
	b) Thermal links tested as part of the submission		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
14.5.1.3	Thermal devices re-settable by soldering		N/A
14.5.2.1	Fuse-links in the mains circuit according to IEC 60127	See appended table 14	N/A
14.5.2.2	Correct marking of fuse-links adjacent to holder .....		N/A
14.5.2.3	Not possible to connect fuses in parallel .....		N/A
14.5.2.4	Not possible to touch hazardous live parts when replacing fuse-links without the use of a tool .....	Tool required	N/A
14.5.3	PTC thermistors comply with IEC 60730-1:2007	No such PTC used	N/A
	PTC devices (15 W) category V-1 or better		N/A
14.5.4	Circuit protectors have adequate breaking capacity and their position is correctly marked		N/A
14.6	Switches		N/A
14.6.1 a)	Separate testing to IEC 61058-1 including: - 10 000 operations - Normal pollution suitability - Make and break speed independent of speed of actuation V-0 compliance with annex G, G.1.1		N/A
14.6.1 b)	Tested in the apparatus:		N/A
	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/A
	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/A
	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/A
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/A
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/A
14.6.4	Switch tested to 14.6.1 b) has adequate dielectric strength		N/A
14.6.5	Mains switch controlling mains socket outlets additional tests to IEC 61058-1		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	Socket outlet current marking correct		N/A
14.7	Safety interlocks	No safety interlocks used	N/A
	Safety interlocks to 2.8 of IEC 60950-1		N/A
14.8	Voltage setting devices and the like	No voltage setting devices	N/A
	Voltage setting device not likely to be changed accidentally		N/A
14.9	Motors		N/A
14.9.1	Endurance test on motors		N/A
	Motor start test		N/A
	Dielectric strength test		N/A
14.9.2	Not adversely affected by oil or grease etc.		N/A
14.9.3	Protection against moving parts		N/A
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 60950-1, Annex B		N/A
14.10	Batteries	See a table of 14.10	N/A
14.10.1	Batteries mounted with no risk of accumulation of flammable gases		N/A
14.10.2	No possibility of recharging non-rechargeable batteries		N/A
14.10.3	Recharging currents and times within manufacturers limits		N/A
	Lithium batteries discharge and reverse currents within the manufacturers limits		N/A
14.10.4	Battery mould stress relief		N/A
14.10.5	Battery drop test		N/A
14.11	Optocouplers		N/A
	a) Comply with 13.6 (jointed insulation) and N.2.1		N/A
	b) Comply with IEC 60747-5-5:2007		N/A
	Alternative to a) and b) optocoupler comply with 13.8		N/A
	a) Comply with 13.6 (jointed insulation) and N.2.1		N/A
14.12	Surge suppression varistors		N/A
	Comply with IEC 61051-2		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	Not connected between mains and accessible parts except for earthed parts of permanently connected apparatus		N/A
	Complies with the current pulse, fire hazard and thermal stress requirements of 14.12		N/A
<b>15</b>	<b>Terminals</b>		<b>P</b>
15.1.1	Mains plug, appliance inlet, interconnection couplers and mains socket-outlet meet the appropriate standard	Refer to appended table 14	P
	Overloading of plugs or appliance inlets prevented if the apparatus has mains socket outlets		N/A
	Overloading of internal wiring prevented if the apparatus has mains socket outlets		N/A
15.1.2	Connectors for antenna, earth, audio, video or data		P
	No risk of insertion in mains socket-outlets		N/A
	No risk of insertion into audio- or video- outlets marked with the symbol of 5.2		P
15.1.3	Output terminals of a.c. adaptors or similar devices not compatible with household mains socket-outlets		N/A
15.2	Provision for protective earthing		N/A
	Accessible conductive parts of Class I equipment reliably connected to earth terminal, within equipment		N/A
	Protective earth conductors correctly coloured		N/A
	Equipment with non-detachable mains cord provided with separate protective earth terminal near mains input	No such equipment	N/A
	Protective earth terminal resistant to corrosion		N/A
	Earth resistance test: $< 0,1 \Omega$ at 25 A .....		N/A
15.3	Terminals for external flexible cords and for permanent connection to the mains supply		N/A
15.3.1	Adequate terminals for connection of permanent wiring		N/A
15.3.2	Reliable connection of non-detachable cords		N/A
	Not soldered to conductors of a printed circuit board		N/A
	Adequate clearances and creepage distances between connections should a wire break away		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	Wire secured by additional means to the conductor		N/A
15.3.3	Screws and nuts clamping conductors have adequate threads: ISO 261, ISO 262 or similar	No such screws and nuts	N/A
15.3.4	Soldered conductors wrapped around terminal prior to soldering or held in place by additional means		N/A
	Clamping of conductor and insulation if not soldered or held by screws		N/A
15.3.5	Terminals allow connection of appropriate cross-sectional area of conductors, for the rated current of the equipment		N/A
15.3.6	Terminals to 15.3.3 have sizes required by table 16		N/A
15.3.7	Terminals clamp conductors between metal and have adequate pressure		N/A
	Terminals designed to avoid conductor slipping out when tightened or loosened		N/A
	Terminals adequately fixed to avoid loosening when the clamping is tightened or loosened and stress on internal wiring is avoided		N/A
15.3.8	Terminals carrying a current more than 0,2 A: contact pressure not transmitted by insulating material except ceramic		N/A
15.3.9	Termination of non-detachable cords: wires terminated near to each other		N/A
	Terminals located and shielded: test with 8 mm strand		N/A
15.4	Devices forming a part of the mains plug	Not direct plug-in equipment	N/A
15.4.1	No undue strain on mains socket-outlets		N/A
15.4.2	Device complies with standard for dimensions of mains plugs		N/A
15.4.3	Device has adequate mechanical strength (tests a,b,c)		N/A
<b>16</b>	<b>External flexible cords</b>		<b>N/A</b>
16.1	Mains cords sheathed type, complying with IEC 60227 for PVC or IEC 60245 for synthetic rubber cords .....		N/A
	Non-detachable cords for Class I have green/yellow core for protective earth		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
16.2	Mains cords conductors have adequate cross-sectional area for rated current consumption of the equipment		N/A
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		N/A
	b) Flexible cords not complying with 16.1, withstand bending and mechanical stress (3.2 of IEC 60227-2)		N/A
16.4	Flexible cords used for connection between equipment have adequate cross-sectional areas to avoid temperature rise under normal and fault conditions		N/A
16.5	Adequate strain relief on external flexible cords		N/A
	Not possible to push cord back into equipment	A strain-relief bushing was provided to prevent the push back of the power supply cord	N/A
	Strain relief device unlikely to damage flexible cord		N/A
	For mains cords of Class I equipment, hazardous live conductors become taut before earth conductor		N/A
16.6	Apertures for external flexible cord: no risk of damage to the cord during assembly or movement in use		N/A
16.7	Transportable musical instruments and amplifiers fitted with detachable cord set with appliance inlet to IEC 60320-1		N/A
	Transportable musical instruments and amplifiers fitted with detachable cord sets or with means of stowage to protect the cord		N/A
<b>17</b>	<b>Electrical connections and mechanical fixings</b>		<b>P</b>
17.1	Torque test to table 20		P
	- screws into metal: 5 times		N/A
	- screws into non-metallic material: 10 times		P
17.2	Correct introduction into female threads in non-metallic material		N/A
17.3	Cover fixing screws: captive		N/A
	Non-captive fixing screws: no hazard when replaced by a screw whose length is 10 times its diameter		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
17.4	No loosening of conductive parts carrying a current > 0,2 A		N/A
17.5	Contact pressure not transmitted through plastic other than ceramic for connections carrying a current > 0,2 A	No contact pressure transmitted through insulating material	N/A
17.6	Stranded conductors of flexible supply cords carrying a current > 0,2 A with screw terminals not consolidated by solder		N/A
17.7	Cover fixing devices other than screws have adequate strength and their positioning is unambiguous		N/A
17.8	Fixing devices for detachable legs or stands provided	No detachable legs or stands provided	N/A
17.9	Internal pluggable connections, affecting safety, unlikely to become disconnected		N/A
<b>18</b>	<b>Mechanical strength of picture tubes and protection against the effects of implosion</b>		<b>N/A</b>
18.1	Picture tube separately approved to IEC 61965 ... :		N/A
	Picture tube separately approved to 18.2 ..... :		N/A
18.2	Non-intrinsically protected tubes tested to 18.2		N/A
<b>19</b>	<b>Stability and mechanical hazards</b>		<b>P</b>
	Mass of the equipment exceeding 7 kg ..... :	<7Kg	N/A
	Apparatus intended to be fastened in place – suitable instructions ..... :	Not intended to be fastened in place-suitable	N/A
19.1	Test on a plane, inclined at 10° to the horizontal	No overturn	N/A
19.2	100 N force applied vertically downwards	No overturn	N/A
19.3	100 N force, or 13% of weight, applied horizontally to point of least stability		N/A
19.4	Edges or corners not hazardous	All edges and corners are judged to be sufficiently well rounded so as not to constitute a hazard	P
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	No glass surfaces	N/A
19.6	Wall or ceiling mountings adequate		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
<b>20</b>	<b>Resistance to fire</b>		<b>P</b>
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/A
	b) Exemption for small components as defined in 20.1		N/A
20.1.1	Electrical components meet the requirements of 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	No wires working at voltages > 4kV, Insulation of all wires is PVC material	N/A
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 IEC 60707, unless used in a fire enclosure	PCB base material is of flammability category V-0	N/A
	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	PCB base material is of flammability category V-0	N/A
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	V-0 flammability plastic enclosure used.	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 barrier used	N/A
	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 voltages exceeding 4kV	N/A
20.2	Fire enclosure	V-0 flammability plastic enclosure used.	P
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	No voltages exceeding 4kV	N/A
20.2.2	Internal fire enclosures with openings not exceeding 1 mm in width and with openings for wires completely filled	No internal fire enclosure	N/A
20.2.3	Requirements of 20.2.1 and 20.2.2 met by an internal fire enclosure		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
<b>A</b>	<b>Annex A, Additional requirements for apparatus with protection against splashing water</b>		<b>N/A</b>
A.5	Marking and instructions		N/A
A.5.1	j) Marked with IPX4 (IEC 60529), 5.4.1 a) does not apply		N/A
A.10	Insulation requirements		N/A
A.10.2	Splash and humidity treatment		N/A
A.10.2.1	Enclosure provides protection against splashing water		N/A
A.10.2.2	Humidity treatment carried out for 7 days		N/A
<b>B</b>	<b>ANNEX B: APPARATUS TO BE CONNECTED TO THE TEL ECOMMUNICATION NETWORKS (No such connection means)</b>		<b>N/A</b>
B.5.4.1	Where the separation of TNV circuits from other circuits relies on protective earthing the instructions make it clear that protective earthing is essential		N/A
B.8.1	TNV circuits separated from the mains circuit and from hazardous live parts by either		N/A
	double or reinforced insulation		N/A
	basic insulation with earthed protective screening		N/A
B.8.2	TNV circuits separated from circuits other than those in B.8.1 and from accessible conductive parts by basic insulation meeting the requirements for clearances and creepage distances for the voltages concerned		N/A
B.9.1.1	TNV circuit terminals contacts which cannot be touched by probe B.1, exempt from the requirements inaccessible terminal contacts in 9.1.1		N/A
B.10.1	Insulation between TNV terminals and antenna terminals (including interconnection terminals which may be connected to equipment with antenna terminals) withstands the 50 discharges of 10.1		N/A
B.14.12	Surge suppressors between TNV circuits and other parts of the equipment have breakdown voltage at least 1,8 times the mains voltage		N/A
<b>C</b>	<b>ANNEX C: BAND-PASS FILTER FOR WIDE-BAND NOISE MEASUREMENT</b>		<b>N/A</b>
<b>D</b>	<b>ANNEX D: MEASURING NETWORK FOR TOUCH CURRENTS (see 9.1.1.1)</b>		<b>N/A</b>
	Measuring instrument	As in figure D.1 used.	N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
<b>E</b>	<b>ANNEX E: MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 13)</b>		<b>N/A</b>
<b>F</b>	<b>ANNEX F: TABLE OF ELECTROCHEMICAL POTENTIALS</b>		<b>N/A</b>
<b>G</b>	<b>ANNEX G: FLAMMABILITY TEST METHODS</b>		<b>P</b>
<b>H</b>	<b>ANNEX H: INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION</b>		<b>N/A</b>
H.1	Intentionally kept free		N/A
H.2	Type tests		N/A
H.2.1	Dielectric strength		N/A
H.2.2	Flexibility and adherence		N/A
H.2.3	Heat shock		N/A
H.2.4	Retention of dielectric strength after bending		N/A
H.3	Testing during manufacture		N/A
H.3.1	Routine test		N/A
H.3.2	Sampling test		N/A
<b>J</b>	<b>ANNEX J: ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES</b>		<b>N/A</b>
J.1	Summary of the procedure of for determining minimum clearances		N/A
J.2	Determination of mains transient voltage		N/A
J.3	Determination of telecommunication network transient voltage		N/A
J.4	Determination of required withstand voltage		N/A
J.5	Measurement of transient levels		N/A
J.6	Determination of minimum clearances		N/A
<b>K</b>	<b>ANNEX K: IMPULSE TEST GENERATORS</b>		<b>N/A</b>
<b>M</b>	<b>ANNEX M: EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES</b>		<b>N/A</b>
M.1	Reduced clearances (see 13.3)		N/A
<b>N</b>	<b>ANNEX M: ROUTINE TESTS</b>		<b>N/A</b>
N.1	Tests during the production process		N/A
N.1.1	Correct polarity and connection of components or subassemblies		N/A
N.1.2	Correct values of components		N/A
N.1.3	Protective earthing connection of screens and metal barriers		N/A
N.1.4	Correct position of internal wiring		N/A
N.1.5	Correct fit of internal plug connections		N/A
N.1.6	Safety relevant markings inside the apparatus		N/A
N.1.7	Correct mounting of mechanical parts		N/A
N.2	Tests at the end of the production process		N/A


EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
N.2.1	Dielectric strength test		N/A
N.2.2	Protective earthing connection		N/A
N.2.3	Safety relevant marking on the outside of the apparatus		N/A
IEC 60065, GROUP DIFFERENCES (CENELEC common modifications (EN))			
Contents	Add the following annexes: Annex ZA (normative) Other international publications quoted in this standard with the references of the relevant European publications (See the CB Bulletin) Annex ZB (nominative) Special national conditions Annex ZC (informative) A-deviations		P P
Definition 2.2.Z1 (A11:2008)	Add after the definition 2.2.12 the following new definition: PORTABLE SOUND SYSTEM small battery powered audio equipment: whose prime purpose is to listen to recorded or broadcasted sound; and that uses headphones or earphones that can be worn in or on or around the ears; and that allows the user to walk around NOTE Examples are mini-disc or CD players, MP3 audio players or similar equipment.		N/A
2.2 (A12:2011)	In EN 60065:2002/A11:2008 Delete the definition 2.2.Z1		N/A
3.1	Add the following indent at the end of the list Exposure to excessive sound pressures from headphones or earphones NOTE A new method of measurement is described in EN 50332-1, Sound system equipment: M-Freedoms and earphones associated with portable audio equipment – Maximum sound pressure level measurement methodology and limit considerations – Part 1: General method for "one package equipment", and in EN 50332-2, Sound system equipment: M-Freedoms and earphones associated with portable audio equipment – Maximum sound pressure level measurement methodology and limit considerations – Part 2: Guidelines to associate sets with headphones coming from different manufacturers.		N/A
3.1 (A12:2011)	In EN 60065:2002 Delete the addition of indent regarding sound pressure excessive		N/A
3.Z1 (A2:2010)	After 3.2 add a new clause 3.Z1: 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):		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	<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 PERMANENTLY 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 not 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>		
4.1.1	Replace the text of the note by: NOTE For ROUTINE TEST reference is made to EN 50514.		N/A
5.4.1 za) (A11:2008)	Modify indent za) as follows: za) For a PORTABLE SOUND SYSTEM, a warning that excessive sound pressure from earphones and headphones can cause hearing loss.		N/A
5.4.1 (A12:2011)	In EN 60065:2002/A1:2006 and EN 60065:2002/A11:2008 Delete the modification in indent za) Add the following clause and annex to the existing standard and amendments		N/A
	Zx Protection against excessive sound pressure from personal music players		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	<p><b>Zx.1 General</b> This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with personal music players.</p> <p>A personal music player is a portable equipment for personal use, that: is designed to allow the user to listen to recorded or broadcast sound or video; and primarily uses headphones or earphones that can be worn in or on or around the ears; and allows the user to walk around while in use. NOTE 1 Examples are hand-held or body-worn portable CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment.</p> <p>A personal music player and earphones or headphones intended to be used with personal music players shall comply with the requirements of this sub-clause.</p> <p>The requirements in this sub-clause are valid for music or video mode only.</p> <p>The requirements do not apply: while the personal music player is connected to an external amplifier; or while the headphones or earphones are not used. NOTE 2 An external amplifier is an amplifier which is not part of the personal music player or the listening device, but which is intended to play the music as a standalone music player.</p> <p>The requirements do not apply to: hearing aid equipment and professional equipment; NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment. analogue personal music players (personal music players without any kind of digital processing of the sound signal) that are brought to the market before the end of 2015. NOTE 4 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. For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.</p>		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
Cont.	<p>Zx.2 Equipment requirements</p> <p>No safety provision is required for equipment that complies with the following:</p> <p>equipment provided as a package (personal music player with its listening device), where</p> <p>the acoustic output LAeq,T is <math>\leq 85</math> dBA measured while playing the fixed "programme simulation noise" as described in EN 50332-1;</p> <p>and</p> <p>a 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 clause, the 30 s A-weighted equivalent sound pressure level LAeq,T is meant. See also Zx.5 and Annex Zx.</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 Zx.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> dBA 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>	$\leq 85$ dBA	N/A
Cont.			

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>For music where the average sound pressure (long term LAeq,T) 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 is below the basic limit of 85 dBA. In this case T becomes the duration of the song.</p> <p>NOTE 4 Classical music typically has an average sound pressure (long term LAeq,T) 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 dBA.</p> <p>For example, if the player is set with the programme simulation noise to 85 dBA, but the average music level of the song is only 65 dBA, 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 dBA.</p>		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Zx.3 Warning</p> <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> <p>the symbol of Figure 1 with a minimum height of 5 mm; and</p> <p>the following wording, or similar:</p> <p>“To prevent possible hearing damage, do not listen at high volume levels for long periods.”</p>  <p>Figure 1 – Warning label (IEC 60417-6044)</p> <p>Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.</p>	The marking be on the packaging.	N/A
Cont.	Zx.4 Requirements for listening devices (headphones and earphones)		N/A
	<p>Zx.4.1 Wired listening devices with analogue input</p> <p>With 94 dBA sound pressure output LAeq,T, the input voltage of the fixed “programme simulation noise” described in EN 50332-2 shall be <math>\geq 75</math> mV.</p> <p>This requirement is applicable in any mode where the headphones can operate (active or passive), including any available setting (for example built-in volume level control).</p> <p>NOTE The values of 94 dBA – 75 mV correspond with 85dBA – 27 mV and 100 dBA – 150 mV.</p>		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Zx.4.2 Wired listening devices with digital input</p> <p>With any playing device playing the fixed “programme simulation noise” described in EN 50332-1 (and respecting the digital interface standards, where a digital interface standard exists that specifies the equivalent acoustic level), the acoustic output LAeq,T of the listening device shall be <math>\leq 100</math> dBA.</p> <p>This requirement is applicable in any mode where the headphones can operate, including any available setting (for example built-in volume level control, additional sound feature like equalization, etc.).</p> <p>NOTE An example of a wired listening device with digital input is a USB headphone.</p>	No earphone to sell with the EUT.	N/A
	<p>Zx.4.3 Wireless listening devices</p> <p>In wireless mode: with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and 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 LAeq,T of the listening device shall be <math>\leq 100</math> dBA.</p> <p>NOTE An example of a wireless listening device is a Bluetooth headphone.</p>		N/A
	<p>Zx.5 Measurement methods</p> <p>Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable. Unless stated otherwise, the time interval T shall be 30 s.</p> <p>NOTE Test method for wireless equipment provided without listening device should be defined.</p>		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
6.1 (A11:2008)	<p>Replace the entire subclause in EN 60065:2002 and EN 60065:2002/A1:2006 by:</p> <p><b>Ionizing radiation</b></p> <p>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>Compliance is checked by measurement under the following conditions:</p> <p>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.</p> <p>NOTE 1 Soldered joints and paint lockings are examples of adequate locking.</p> <p>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.</p> <p>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.</p> <p>The dose-rate shall not exceed 1μSv/h (0,1 mR/h) taking account of the background level.</p> <p>NOTE 2 These values appear in Directive 96/29/Euratom of 13th May 1996.</p> <p>A picture is considered to be intelligible if the following conditions are met:</p> <ul style="list-style-type: none"> <li>- a scanning amplitude of at least 70 % of the usable screen width;</li> <li>- a minimum luminance of 50 cd/m<sup>2</sup> with locked blank raster provided by a test generator;</li> <li>- a horizontal resolution corresponding to at least 1,5 MHz in the centre, with a similar vertical degradation;</li> <li>- not more than one flashover per 5 min.</li> </ul>		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
Z1 (A11:2008)	<p>Add the following new clause after Clause 20:</p> <p><b>Z1 Resistance to candle flame ignition</b> A television set shall be so designed that the likelihood of ignition and the spread of fire caused by a candle flame is reduced.</p> <p>NOTE 1 An apparatus with a viewing screen is not regarded to be a television set if it is declared not to be so by the manufacturer.</p> <p>This requirement does not apply to the display screen of rear projection TV's.</p> <p>NOTE 2 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> <p>NOTE 3 The frame around the screen is not exempted from the requirements.</p> <p>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.</p> <p>Compliance is checked according to CLC/TS 62441.</p> <p>NOTE 4 The term vertical, as used in the first dash of clause 5.2 of CLC/TS 62441, does not mean a perfectly vertical position. It should be interpreted as any surface that can be touched by the flame of a candle of 150 mm height and 20mm diameter while the candle is still touching the supporting surface. A typical candle used in the home is assumed to be 20 mm diameter.</p> <p>NOTE 5 It is expected that CLC/TS 62441 will in the future be replaced by a standard, at which time that standard will become applicable, subject to a vote by National Committees at the time.</p>		N/A
General	<p>13.3.1 Delete note 4.</p> <p>14 Delete note 4 and note 5.</p> <p>15.1.1 Delete notes 1 and 2.</p> <p>15.2 Delete note 2.</p> <p>16.1 Delete note 1.</p> <p>16.2 Delete the note.</p> <p>20 Delete note 2.</p> <p>Annex B Replace note 1 by: In the CENELEC countries listed in IEC 62151, special national conditions apply.</p> <p>Annex G Delete the note.</p> <p>Annex J.2 Delete the notes of Table J.1.</p> <p>Annex N Add after the introduction: For ROUTINE TEST reference is made to EN 50333. (Replaced by EN 50514)</p>		N/A
General (A2:2010)	<p>In IEC 60065:2001/A2</p> <p>Delete all the "country" notes according to the following list:</p> <p>5.3 Note</p>		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	5.4.1 Note 20 Note For special national conditions, see Annex ZB.		
Bibliography	Additional EN standards.		N/A
<b>ZA</b>	<b>ANNEX ZA: OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD WITH THE REFERENCES OF THE RELEVANT EUROPEAN PUBLICATIONS</b>		<b>N/A</b>
<b>ZB</b>	<b>ANNEX ZB TO EN 60065, SPECIAL NATIONAL CONDITIONS (EN)</b>		<b>N/A</b>
2.6.1	DK: 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 Justification: Heavy Current Regulations, Section 107.		N/A
3.Z1 (A2:2010)	Denmark Add to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. Justification: In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
5.3 (A2:2010)	<p>Finland, Norway and Sweden</p> <p>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.</p> <p>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"</p>		N/A
5.4 (A11:2008)	<p>Finland, Norway and Sweden</p> <p>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.</p> <p>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>		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.1 (A11:2008)	<p><b>Norway and Sweden</b></p> <p>To the end of 5.4.1 (after the compliance statement) the following is <b>added</b>:</p> <p>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:</p> <p>“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 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> <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. 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/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
13.3.1	NO: To the second paragraph the following is added: In Norway, 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. Justification: Based on a use in Norway of an IT power distribution system where the neutral is not provided.		N/A
15.1.1 (A11:2008)	Denmark The text of the Danish SNC in EN 60065:2002 has been modified as follows: 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 the Heavy Current Regulations Section 107-2-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 in accordance with the Heavy Current Regulations, Section 107-2-D1 standard sheet DK 2-1a. 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 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. To the third paragraph the following is added: 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. Justification: Heavy Current Regulations, Section 107-2-D1		N/A
15.1.1	IE: Apparatus which is fitted with a flexible cable or cord shall be provided with a 13 A plug in accordance with Statutory Instrument 525:97, "13 A Plugs and Conversion Adapters for Domestic Use Regulations:1997. Justification: SI 525: 1997		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
15.1.1	<p>NO: 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:</p> <p>§ 8 Dimensions</p> <p>a 2.5 A 250 V two-pole socket-outlets for electronic apparatus shall comply with the enclosed Standard Sheet I.</p> <p>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:</p> <p>§ 8 Dimensions</p> <p>a 2.5 A 250 V two-pole socket-outlets for electronic apparatus shall comply with the enclosed Standard Sheet I.</p> <p>§ 24 Mechanical strength</p> <p>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.</p> <p>Justification: Act of 24 May 1929 relating to supervision of electrical installation (TEA 1929/FEL 1998).</p>		N/A
15.1.1	<p>UK: 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.</p> <p>NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p> <p>Justification: SI 1768: 1994</p>		N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
J.2	NO: After Table J.1 the following is added: In Norway, 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. Justification: Based on a use in Norway of an IT power distribution system where the neutral is not provided.		N/A
<b>ZC</b>	<b>ANNEX ZC: A-DEVIATIONS</b>		<b>N/A</b>
5	DE: additional markings required in German language:		N/A
	cathode ray tubes with an accelerating voltage between 20 kV and 30 kV (marking on the tube)		N/A
	TV receivers whose picture tube has an accelerating voltage between 20 kV and 30 kV		N/A
	TV receivers whose picture tube has an accelerating voltage greater than 30 kV		N/A
	TV receivers whose picture tube has an accelerating voltage less than 20 kV		N/A
5.1	IT: additional markings on the outside of the TV receiver in Italian language		N/A
	IT: user instructions in Italian language including a conformity declaration		N/A
	IT: certification number on the back cover		N/A
6.1	DE: 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. Justification: German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. NOTE Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int+49-531-592-6320, Internet: <a href="http://www.ptb.de">http://www.ptb.de</a>		N/A
14	Sweden: switches containing mercury such as thermostats, relays and level controllers are not allowed		N/A

Table 7.1	TABLE: temperature rise measurements					P
	Voltage	Frequency	Ampere	Watts	Note	
	18V DC	--	1.24A	22.3W	Normal operation	
	Power consumption in the OFF/Stand-by			--	--	
	Position of the functional switch (W) .....			--	--	
Operating conditions						
Loudspeaker impedance ( $\Omega$ ) .....	--				—	
Several loudspeaker systems	--				--	
Monitored point:	dT (K)			Limit dT (K)		
	Normal operation					
Speaker	13.4			Ref		
Internal wire	12.1			45		
Enclosure inside near speaker	8.6			45		
Enclosure outside near speaker	7.5			45		
Remark:35°C ambient considered						

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

10.3	TABLE: insulation resistance measurements		N/A
Insulation resistance R between:		R (M $\Omega$ )	Required R (M $\Omega$ )
Input to plastic enclosure		--	--

10.3	TABLE: electric strength measurements		P
Test voltage applied between:		Test voltage (V)	Breakdown
Input to enclosure		707VDC	No

14.10	TABLE: Batteries	N/A
Manufacturer .....		
Type / model .....		
Voltage.....		
Capacity.....		
Tested and Certified by (incl. Ref. No.) .....		
Circuit protection diagram.....		

MARKINGS AND INSTRUCTIONS (5.4.1, 14.10)	
Location of replaceable battery	
Language(s):	
Close to the battery	
In the servicing instructions	
In the operating instructions	

14.10	TABLE: Batteries	N/A
The tests of 14.10 are applicable only when appropriate battery data is not available		Appropriate battery data is available.
Is it possible to install the battery in a reverse polarity position?		No
Temperature		Measured temperature: Ref. 11.2

	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Unintentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. spec.		Meas. current	Manuf. spec.	Meas. current	Manuf. spec.	Meas. current	Manuf. spec.
Max current during normal conditions	--	--	--	--	--	--	--	1)	1)
Max current during fault conditions	--	--	--	--	--	--	--	1)	1)

supplementary information:

1)--Refer to table 11.2 for test results.

2) Battery polarity can't be reversed according to the design of enclosure and connector.

Test results:	Appropriate battery data is available.	Verdict
- Chemical leaks	No chemical leaks affecting required insulation.	N/A
- Explosion of the battery	No explosion	N/A
- Emission of flame or expulsion of molten metal	No emission of flame or expulsion of molten metal.	N/A
- Electric strength test of equipment after completion of tests	Class III equipment	N/A

supplementary information:

11.2	TABLE: summary of fault condition tests		P
	Voltage (V) 0,9 or 1,1 times rated voltage .....	18.0V	—
	Frequency (Hz).....	DC	—
	Ambient temperature (°C) .....	See below	—

No.	Component	Supply voltage (V)	Fault	Test time	dT (K) / Component	Other results (include description and test duration)
1	C1	18.0Vdc	S-C	10 mins	--	Amplifier shut down, no components damaged, no hazards
2	D3	18.0Vdc	S-C	10 mins	--	Amplifier shut down, no components damaged, no hazards
3	U1(1-4)	18.0Vdc	S-C	10 mins	--	Amplifier shut down, no components damaged, no hazards
4	Speaker	18.0Vdc	S-C	2h25mins	--	No components damaged, no hazards

13.2	TABLES: clearances and creepage distances			N/A
Location	RMS Voltage (V)	Peak Voltage (V)	Comments	
--	--	--	--	

14	TABLE: list of critical components and materials					P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity <sup>1)</sup>	
SPEAK	--	--	8 OHM, 10W	EN 60065	Tested with appliance	
Enclosure	--	--	Wooden, 10.38mm	--	--	
Heat shrinkable tube	GUANGZHOU KAIHENG NEW MATERIAL CO LTD	K-102	600V, 125°C,VW-1	UL 224	UL	
PCB	Various	Various	130°C V-1	UL 796	UL	
SWITCHING ADAPTER	SHENZHEN FUJIA APPLIANCE CO LTD	FJ-SW1802000D	Input:100-240V~50/60Hz 1.5A MAX Output:18V---2A	UL 60065 IEC 60065	UL GS	
<sup>1)</sup> An asterisk indicates a mark which assures the agreed level of surveillance						
Supplementary information:						

## ANNEX AA: Equipment list

Code	Name	Model/Type	S/N	Calibrated date	Next Calibration Date	Manufacture
TC-001	Digital Multimeter	34401A	MY47043456	2014.02.19	2015.02.18	agilent
TC-004	Push/pull gauge	NK-500	2Q10060932	2014.02.19	2015.02.18	
TC-005	Electronic weight	DSI-861	198692	2014.02.19	2015.02.18	shangdeli
TC-006	Insulation resistance tester	CS2676CX	1107032-009	2014.02.19	2015.02.18	changshen
TC-007	Earthing resistance tester	YD2668-4B	4B-2307	2014.02.19	2015.02.18	Yangzi
TC-008	HI-pot/Insulation tester	CS2672C	1108006-002	2014.02.19	2015.02.18	changshen
TC-010	AC Voltage Regulator	TDGC2J		2014.02.19	2015.02.18	SAKO
TC-013	AC power source	HPA-3110	3513	2014.02.19	2015.02.18	Henqiang
TC-014	Temperature/Humidity chamber	SDJ-80L	SDJ-80J	2014.02.19	2015.02.18	Shenzhen hongjian
TC-015	Electric oven	HK45AS	F11011008	2014.02.19	2015.02.18	Guangzhou KENTON
TC-017	AC digital power meter	PF9901	YG100731N11070075	2014.02.19	2015.02.18	Yuanfang
TC-022	Leakage current tester	228	10-866030	2014.02.19	2015.02.18	simpson
TC-023	Oscilloscope	TDS1012C-SC	C013300	2014.02.20	2015.02.19	tektronix
TC-024	Tape measure	DK-2041		2014.02.22	2015.02.21	Proskit
TC-025	Stop watch	TA-228		2014.02.20	2015.02.19	KTJ
TC-026	Data acquisition/switch unit	34970A	MY44057668	2014.02.23	2015.02.22	Agilent
TC-027	Temperature/humidity meter	VC230		2014.02.20	2015.02.19	ViCTOR
TC-028	Torque drive	3RTD	435850B	2013.05.14	2014.05.13	TOHNICHI
TC-033	Test finger	ZLT-I02	I021203	2014.02.22	2015.02.21	Guangzhou zhilitong
TC-034	Test pin	ZLT-I09	I091201	2014.02.22	2015.02.21	Guangzhou zhilitong
TC-038	Test apparatus of the mains plug	ZLT-LJ2	LJ011202	2014.02.19	2015.02.18	Guangzhou zhilitong
TC-039	Ball pressure apparatus	ZLT-QY1	Q011202	2014.02.20	2015.02.19	Guangzhou zhilitong

TC-040	Impact hammer	ZLT-CJ1	LJ011206	2014.02.20	2015.02.19	Guangzhou zhilitong
TC-041	Impact hammer	ZLT-CJ1	LJ011205	2014.02.20	2015.02.19	Guangzhou zhilitong
TC-042	Caliper rule	CD-6 " CSX	500-196-20	2013.07.04	2014.07.03	MITUTOYO
TC-044	Glow wire tester	ZRS-2	12121304	2013.12.16	2014.12.15	Guangzhou Xinna
TC-045	Needle flame tester	ZY-2	12121311	2013.12.16	2014.12.15	Guangzhou Xinna
TC-107	"Van der Hoofden" test head	EMF827	R21SW	2013.12.16	2014.12.15	Shenzhen HLKS
TC-107-a	Measurement receiver	EMF827-a	R21SW	2013.12.16	2014.12.15	Shenzhen HLKS

## ANNEX BB: Photo-documentation

**Photo 1**

- ☐ front
- ☐ rear
- ☐ right side
- ☐ left side
- ☒ top
- ☐ bottom
- ☐ internal



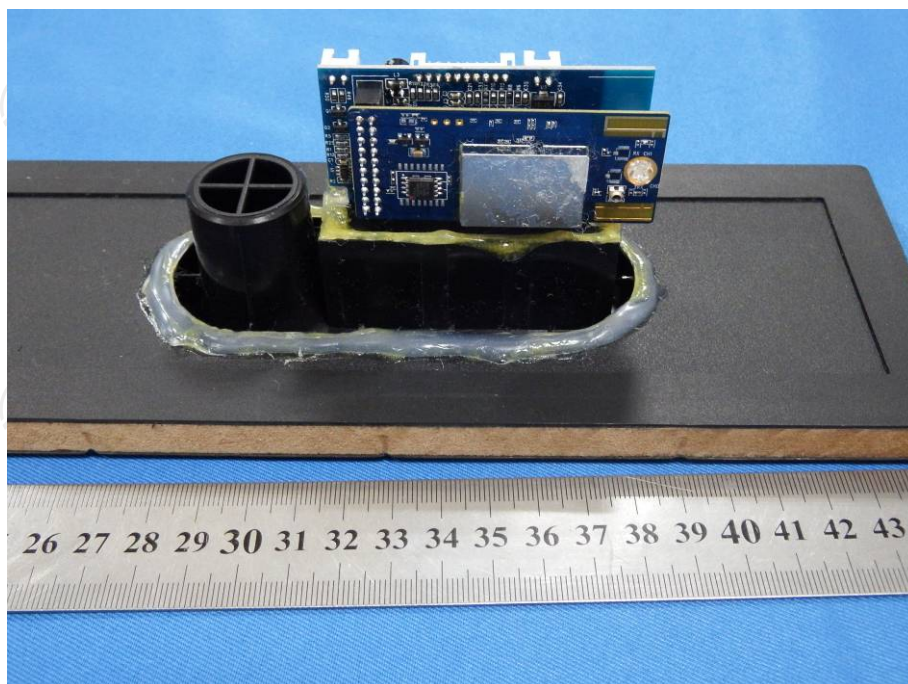
**Photo 2**

- ☐ front
- ☐ rear
- ☐ right side
- ☐ left side
- ☐ top
- ☒ bottom
- ☐ internal



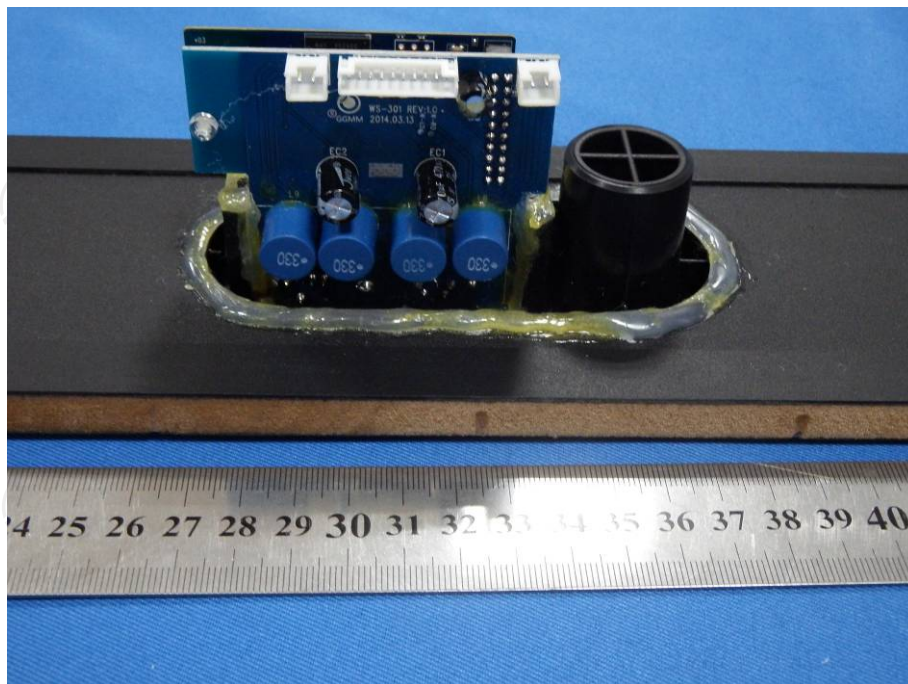
**Photo 3**

- ☐ front
- ☐ rear
- ☐ right side
- ☐ left side
- ☐ top
- ☒ bottom
- ☐ internal



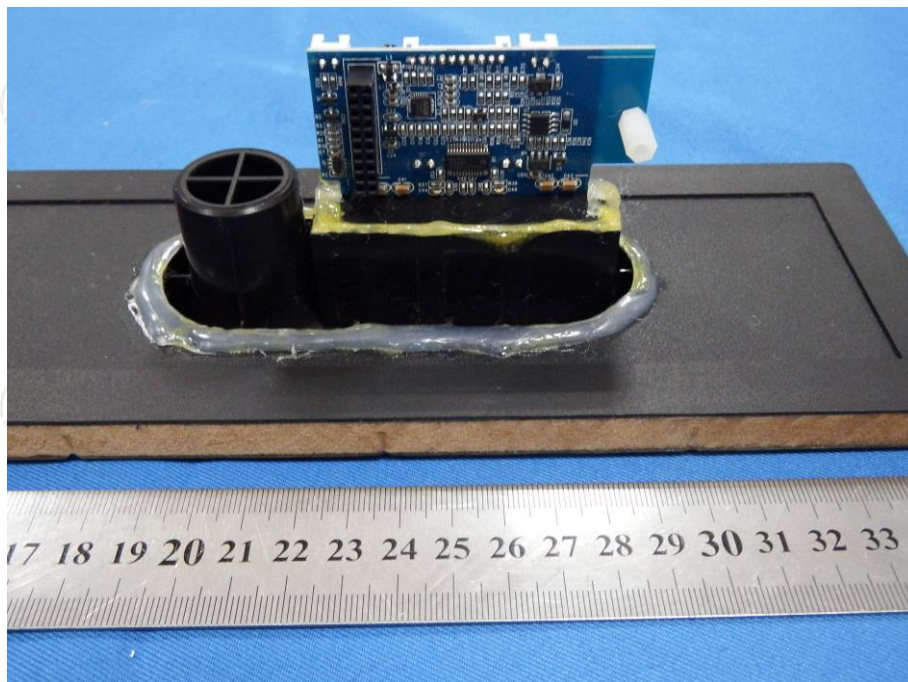
**Photo 4**

- ☐ front
- ☐ rear
- ☐ right side
- ☐ left side
- ☐ top
- ☐ bottom
- ☒ internal



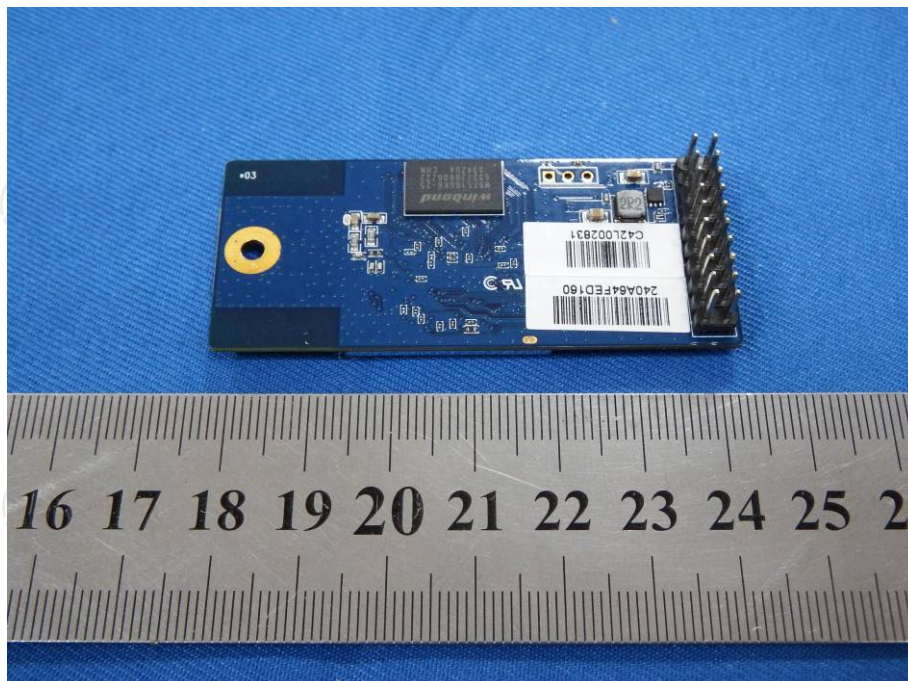
**Photo 5**

- ☐ front
- ☐ rear
- ☐ right side
- ☐ left side
- ☐ top
- ☐ bottom
- ☒ internal



**Photo 6**

- ☐ front
- ☐ rear
- ☐ right side
- ☐ left side
- ☐ top
- ☐ bottom
- ☒ internal



\*\*\*End of Test Report\*\*\*