IEC REPORT

Azlan logistics limited

PAIR 60W ACTIVE CEILING LOUD SPEAKERS

Model: CS-1600P

Prepared For : Azlan logistics limited
Redwood 2, Chineham Business Park, Crockford Lane,
Basingstoke, Hampshire, RG248WQ, United Kingdom

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Date of Test: Sept. 01, 2015 to Oct. 12, 2015
Date of Report: Oct. 12, 2015
Report Number: R011508965S

TEST REPORT

IEC 60065

Audio, video and similar electronic apparatus – Safety requirements

Report

Report reference No.....: R011508965S

Tested by (+ signature).....: Damon Yan

Approved by (+ signature).....: Andy Shen

Date of issue.....: Oct. 12, 2015

Contents.....: 44 pages (including 8 pages of photo)

Testing laboratory

Name.....: Shenzhen Anbotek Compliance Laboratory Limited

Address.....: 1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China

Testing location.....: As above

Client

Name.....: Azlan logistics limited

Address.....: Redwood 2, Chineham Business Park, Crockford Lane, Basingstoke, Hampshire, RG248WQ, United Kingdom

Test specification

Standard.....: IEC 60065:2001 (Seventh Edition) + A1:2005 + A2:2010

Test procedure.....: Compliance with IEC 60065:2001 (Seventh Edition) + A1:2005 + A2:2010

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

Test item

Description.....: PAIR 60W ACTIVE CEILING LOUD SPEAKERS

Trademark.....: VISION

Model/type reference.....: CS-1600P

Manufacturer.....: Azlan logistics limited

Address.....: Redwood 2, Chineham Business Park, Crockford Lane, Basingstoke, Hampshire, RG248WQ, United Kingdom

Factory.....: Azlan logistics limited

Address.....: Redwood 2, Chineham Business Park, Crockford Lane, Basingstoke, Hampshire, RG248WQ, United Kingdom

Rating.....: 24V⎓, 2.5A, 60W
Adapter: Input: 110-240V~, 50/60Hz, 1.2A Max
Output: 24V⎓, 2.5A

Particulars: test item vs. test requirements

Equipment mobility: Equipment for building-in

Operating condition: Continuous operation

Tested for IT power systems: N.A.

IT testing, phase-phase voltage (V): N.A.

Class of equipment: N.A.

Protection against ingress of water: IPX0

Possible test case verdicts

-test case does not apply to the test object: N (N.A.)

-test object does meet the requirement: P (Pass)

-test object does not meet the requirement: F (Fail)

Testing

Date of receipt of test item: Sept. 01, 2015

Data of performance of test: Sept. 01, 2015 to Oct. 12, 2015

General remarks

"(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 dot is used as the decimal separator.

The test results presented in this report relate only to the object tested.

This report shall not be reproduced except in full without the written approval of the testing laboratory.

Procedure deviation

N.A.

Comments

N.A.

General product information

1. The enclosures fixed together by screws and mechanical fixing.
2. Clearance was evaluated for altitude up to 2000m above sea level.

Copy of marking plate(s)

PAIR 60W ACTIVE CEILING LOUD SPEAKERS

Model: CS-1600P

Rating: 24V⎓, 2.5A, 60W

Azlan logistics limited

Made in China

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
3	**General requirements**		-
	Safety class of the apparatus ..... :	Neither class Ⅰ equipment nor class Ⅱ equipment	P
4	**General conditions of tests**		-
4.1.4	Ventilation instructions require the use of the test box	According to user's manual	P
5	**Marking and instructions**		-
	Comprehensible and easily discernible	Compliance checked	P
	Permanent durability against water and petroleum spirit	Slight rubbing by hand with a water soaked cloth and with a petroleum soaked cloth for 15s each The printed markings were still legible	P
5.1	a) Identification, maker..... :	Azlan logistics limited.	P
	b) Model number or type reference..... :	CS-1600P	P
	c) Class II symbol if applicable..... :	Not Class Ⅱ apparatus	N
	d) Nature of supply..... :	⎓	P
	e) Rated supply voltage..... :	24V	P
	f) Mains frequency if safety dependant..... :		N
	g) Rated current or power consumption for apparatus supplied by supply apparatus for general use..... :	2.5A	P
	Measured current or power consumption..... :		P
	Deviation % (max 10%)..... :		P
5.2	a) Earth terminal..... :		N
	b) Hazardous live terminals..... :	No hazardous live terminals	N
	c) Markings on supply output terminals..... :	No such terminals	N
5.3	Use of triangle with exclamation mark	Used in the circuits	P
5.4	Instructions for use	Given English language	P
5.4.1	a) Mains powered equipment not exposed to dripping or splashing. Warning concerning objects filled with liquid, etc.		N
	b) Hazardous live terminals, instructions for wiring	No hazardous live terminals	N
	c) Instructions for replacing lithium battery		N
	d) Class I earth connection warning		N
	e) Instructions for multimedia system connection		N

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	f) Special stability warning for attachment of the apparatus to the floor/wall		N
	g) Warning: battery exposure to heat		P
	h) Warning: protective film on CRT face		N
5.4.2	a-b) Disconnect device: plug/coupler or all-pole mains switch location, accessibility and markings		N
	c) Instructions for permanently connected equipment	Not permanently connected equipment	N
	Marking, signal lamps or similar for completely disconnection from the mains	No such parts	N
6	**Hazardous radiations**		–
6.1	Ionizing radiation < 36 pA/kg (0,5 mR/h)	No ionizing radiation	N
	Ionizing radiation under fault condition		N
6.2	Laser radiation, emission limits to IEC 60825-1:2007		N
	Emission limits under fault conditions		N
7	**Heating under normal operating conditions**		–
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)	P
7.1.3	Temperature rise of parts acting as a support or as a mechanical barrier		N
7.1.4	Temperature rise of windings	(see appended table 7.1)	N
7.1.5	Parts not subject to a limit under 7.1.1 to 7.1.4	(see appended table 7.1)	P
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
8	**Constructional requirements with regard to the protection against electric shock**		–
8.1	Conductive parts covered by lacquer, paper, untreated textile oxide films and beads etc. considered to be bare		N
8.2	No shock hazard when changing voltage setting device, fuse-links or handling drawers etc.	No such components are replaced by hand	N
8.3	Insulation of hazardous live parts not provided by hygroscopic material		N

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
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		N
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
	Capacitors bridging basic insulation complying with 14.2.1 a)		N
	Protective earthing terminal		N
8.6	Class II equipment and Class II constructions within Class I equipment	Only SELV circuit within the EUT	–
	Double or reinforced insulation between hazardous live parts and accessible parts		N
	Components bridging double or reinforced insulation complying with 14.1 a) or 14.3		N
	Basic insulation bridged by components complying with 14.3.4.3		N
	Basic and supplementary insulation each being bridged by a capacitor complying with 14.1 a)		N
	Double or reinforced insulation being bridged with 2 capacitors in series complying with 14.2.1 a)		N
	Double or reinforced insulation being bridged with a single capacitor complying with 14.2.1 b)		N
8.7	This clause is void		–
8.8	Basic or supplementary insulation > 0,4 mm (mm)····· :		N
	Reinforced insulation > 0,4 mm (mm) ····· :		N
	Thin sheet insulation (excluding non-separable thin sheet insulation. See 8.22)		N
	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		N
	Reinforced insulation, three layers any two which meet 10.3		N
8.9	Adequate insulation between internal wiring hazardous live conductors and accessible parts	Only SELV circuits within the EUT	N
	Adequate insulation between internal hazardous live parts and conductors connected to accessible parts		N

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
8.10	Double insulation between conductors connected to the mains and accessible parts.	Only SELV circuits within the EUT	N
	Double insulation between internal hazardous live parts and conductors connected to accessible parts.		N
8.11	Detaching of wires		N
	No undue reduction of creepages or clearance distances if wires become detached		N
	Vibration test carried out ..... :		N
8.12	This clause is void		–
8.13	Adequate fastening of windows, lenses, lamp covers etc. (pull test 20 N for 10 s)		N
8.14	Adequate fastening of covers (push/pull test 50 N for 10 s)		N
8.15	No risk of damage to the insulation of internal wiring due to hot parts or sharp edges		N
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		N
8.19.1	Disconnect device		N
	All-pole switch or circuit breaker with >3mm contact separation		N
8.19.2	Mains switch ON indication		N
8.20	Switch not fitted in the mains cord		N
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**		–
9.1	Testing on the outside		N
9.1.1	For voltages >1000 V ac or >1500 V dc complies with clause 13.3.1 for basic insulation	No high voltage	N
9.1.1.1	a) Open circuit voltages		N
	b) Touch current measured from terminal devices using the network in annex D ..... :		N
	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		N

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
9.1.2	No hazardous live shafts of knobs, handles or levers		N
9.1.3	Ventilation holes and other holes tested by means of 4 mm x 100 mm test pin		N
9.1.4	Terminal devices tested with 1 mm x 20 mm test pin (10 N); test probe D of IEC 61032		N
	Terminal devices tested with 1 mm x 100 mm straight wire (1 N); test probe D of IEC 61032		N
9.1.5	Pre-set controls tested with 2.5 mm x 100 mm test pin (10 N); test probe C of IEC 61032		N
9.1.6	No shock hazard due to stored charge on withdrawal of the mains plug; voltage (V) after 2 s ····· :		N
	If C is not greater than 0,1 µF no test needed		N
9.1.7	Resistant to external force	Only SELV circuits within the EUT	N
	a) Test probe 11 of IEC 61032 for 10 s (50 N)		N
	b) Test hook of fig. 4 for 10 s (20 N)		N
	c) 30 mm diameter test tool for 5 s (100 or 250 N)·····:		N
9.2	No hazard after removing a cover by hand		N
10	**Insulation requirements**		–
10.1	Insulation resistance (MΩ) at least 2 MΩ min. after surge test for basic and 4 MΩ min. for reinforced insulation ·····:		N
10.2	Humidity treatment 48 h or 120 h ····· :	48h, 30℃, 93%	P
10.3	Insulation resistance and dielectric strength between mains terminals		N
	Insulation Resistance and dielectric strength across BASIC or SUPPLEMENTARY insulation (Class I)		N
	Insulation resistance and dielectric strength across REINFORCED insulation (Class II)		N
11	**Fault conditions**		–
11.1	No shock hazard under fault condition		P
11.2	Heating under fault condition	No fire hazard	P

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	Flames extinguish within 10 seconds	No flames	P
	No hazard from softening solder		P
	Soldered terminations not used as protective mechanism		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, providing electrical insulation	(see appended table 11.2)	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^2		N
	b) Temperature rise of printed circuit boards (PCB) to 20.1.3 up to 300K for an area not greater than 2 cm^2 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 11.2)	P
11.2.5	Temperature rise of windings	(see appended table 11.2)	P
11.2.6	Temperature rise of parts not subject to the limits of 11.2.1 to 11.2.5 shall not exceed the limits in table 3, item e), “Fault conditions”		P
12	**Mechanical strength**		–
12.1	Complete apparatus	Checked by the tests of 12.1.1 to 12.1.5	–
12.1.1	Bump test where mass >7 kg	Less then 7kg	N
12.1.2	Vibration test	30mins, no damaged	P
12.1.3	Impact hammer test		P
	Steel ball test		P
12.1.4	Drop test for portable apparatus where mass ≤ 7 kg	1m, 3 times	P
12.1.5	Thermoplastic enclosures stress relief test	Not plastic enclosures	N
12.2	Fixing of knobs, push buttons, keys and levers		P
12.3	Remote controls with hazardous live parts		N
12.4	Drawers (pull test 50 N, 10 s)	No drawers	N

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
12.5	Antenna coaxial sockets providing isolation	Coaxial socket without isolation function	P
12.6	Telescoping or rod antennas construction	No hazards	N
12.6.1	Telescoping or rod antennas securement	Ditto	N
13	**Clearance and creepage distances**		-
13.1	Clearances in accordance with 13.3	Only SELV circuits within the EUT	N
	Creepage distances in accordance with 13.4		N
13.2	Determination of operating voltage		N
13.3	Clearances		N
13.3.1	General		N
13.3.2	Circuits conductively connected to the mains comply with table 8 and, where applicable, table 9		N
13.3.3	Circuits not conductively connected to the mains comply with table 10		N
13.3.4	Measurement of transient voltages		N
13.4	Creepage distances		N
	Creepage distances greater than table 11 minimum values		N
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
	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**		-
14.1	Resistors	No such resistor	N

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	a) Resistors between hazardous live parts and accessible metal parts	No such resistor	N
	b) Resistors, other than between hazardous live parts and accessible parts	Ditto	N
	Resistors separately approved ·····:		N
14.2	Capacitors and RC units		N
	Capacitors separately approved	No such capacitor	N
14.2.1	Y capacitors tested to IEC 60384-14, 2nd edition ·····:		N
14.2.2	X capacitors tested to IEC 60384-14, 2nd edition ·····:		N
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 mm³, where short-circuit current exceeds 0,2 A: compliance with IEC60384-1, 4.38 category B or better ·····:		N
	Capacitors with volume exceeding 1750 mm³, mounted closer to a potential ignition source than table 5 permits: compliance with IEC 60384-1, 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		N
	Comply with IEC 61558-1, IEC 61558-2 (as relevant) and clause 20.1.4		–
14.3.1	Transformers and inductors marked with manufacturer's name and type ·····:		N
	Transformers and inductors separately approved ·····:		N
14.3.2	General		N
	Insulation material complies with clause 20.1.4		N
14.3.3	Constructional requirements		N
14.3.3.1	Clearances and creepage distances comply with clause 13		N
14.3.3.2	Transformers meet the constructional requirements		N
14.3.4	Separation between windings		N
14.3.4.1	Class II transformers have adequate separation between hazardous live parts and accessible parts (double or reinforced insulation)		N
	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		N
14.3.4.3	Separating transformers with at least basic insulation		N

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
14.3.5	Insulation between HAZARDOUS LIVE parts and ACCESSIBLE parts		N
14.3.5.1	Class II transformers have adequate insulation between hazardous live parts and accessible parts (double or reinforced insulation)		N
	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		-
	High- voltage components and assemblies: U > 4 kV (peak) separately approved	No high voltage components used	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		-
	Protective devices used within their ratings	No such device	N
	External clearances and creepage distances meet requirement of clause 13 for the voltage across the device when opened		N
14.5.1.1	a) Thermal cut-outs separately approved		N
	b) Thermal cut-outs tested as part of the submission		N
14.5.1.2	a) Thermal links separately approved		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		N
14.5.2.2	Correct marking of fuse-links adjacent to holder ····· :		N
14.5.2.3	Not possible to connect fuses in parallel ·····:		N
14.5.2.4	Not possible to touch hazardous live parts when replacing fuse-links without the use of a tool ·····:		N
14.5.3	PTC- S thermistors comply with IEC 60730-1:2007	No such device	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

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
14.6	Switches	No such device	–
14.6.1 a)	Separate testing to IEC 61058-1 including: -10 000 operations -Normal pollution suitability -Resistance to heat and fire level 3 -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:		–
	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
	Socket outlet current marking correct	No socket outlet used	N
14.7	Safety interlocks		–
	Safety interlocks to 2.8 of IEC 60950-1	No safety interlocks used	N
14.8	Voltage setting devices and the like		–
	Voltage setting device not likely to be changed accidentally	No voltage setting devices used	N
14.9	Motors		–
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	See sub-clause 14.9	N

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
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
14.10	Batteries		–
14.10.1	Batteries mounted with no risk of accumulation of flammable gases		N
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		–
	a) Optocouplers comply with 13.6 (jointed insulation) and N.2.1		N
	b) Comply with IEC 60747-5-5:2007		N
	Alternative to a) and b) optocoupler comply with 13.8		N
	a) Comply with 13.6 (jointed insulation) and N.2.1		N
14.12	Surge suppression varistors		–
	Comply with IEC 61051-2	No surge suppression varistors used	N
	Not connected between mains and accessible parts except for earthed parts of permanently connected apparatus		N
	Complies with the current pulse, fire hazard and thermal stress requirements of 14.12		N
15	**Terminals**		–
15.1	Plugs and sockets		–
15.1.1	Mains plug, appliance inlet, interconnection couplers and mains socket-outlet meet the appropriate standard		N
	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

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
15.1.2	Connectors for antenna, earth, audio, video or data:		–
	No risk of insertion in mains socket- outlets	No such outlet	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 devices provided	N
15.2	Provision for protective earthing		–
	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 Ω at 25 A ····· :		N
15.3	Terminals for external flexible cords and for permanent connection to the mains supply		–
15.3.1	Adequate terminals for connection of permanent wiring		N
15.3.2	Reliable connection of non-detachable cords:		N
	Not soldered to conductors of a printed circuit board		N
	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
	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		N
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

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
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		N
	Terminals located and shielded: test with 8 mm strand		N
15.4	Devices forming a part of the mains plug		–
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**		–
16.1	Mains cords sheathed type, complying with IEC 60227 for PVC or IEC 60245 for synthetic rubber cords ·····:		N
	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		N
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
	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		N
	Not possible to push cord back into equipment		N
	Strain relief device unlikely to damage flexible cord		N
	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		N
16.7	Transportable musical instruments and amplifiers fitted with detachable cord set with appliance inlet to IEC 60320-1		N

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	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**		–
17.1	Torque test to table 20		P
	- screws into metal: 5 times		N
	- screws into non-metallic material: 10 times		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	No such parts	N
17.5	Contact pressure not transmitted through plastic other than ceramic for connections carrying a current > 0,2 A	No such parts	N
17.6	Stranded conductors of flexible supply cords carrying a current > 0,2 A with screw terminals not consolidated by solder	No such parts	N
17.7	Cover fixing devices other than screws have adequate strength and their positioning is unambiguous	Cover fixed with screws	P
17.8	Fixing devices for detachable legs or stands provided		N
17.9	Internal pluggable connections, affecting safety, unlikely to become disconnected		N
18	**Mechanical strength of picture tubes and protection against the effects of implosion**		–
	Picture tube separately approved to IEC 61965..... :	No picture tube used	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	Non-intrinsically protected tubes tested to 18.2		N
18.2.1	Samples subject to ageing: 6 samples		N
18.2.2	Samples subject to implosion test: 6 samples		N

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
18.2.3	Samples subject to mechanical strength test (steel ball): 6 samples		N
18.3	Non-intrinsically protected tubes tested to 18.3		N
19	**Stability and mechanical hazards**		–
	Mass of the equipment exceeding 7 kg ..... :		N
	Apparatus intended to be fastened in place – suitable instructions		N
19.1	Test on a plane, inclined at 10° to the horizontal		N
19.2	100 N force applied vertically downwards		N
19.3	100 N force, or 13% of weight, applied horizontally to point of least stability.		N
19.4	Edges or corners not hazardous	Edges and corners are smooth, no hazard existed	P
19.5	Glass surfaces (exc. laminated) with an area exceeding 0,1 m² or maximum dimension > 450 mm, pass the test of 19.5.1		N
19.6	Wall or ceiling mountings adequate	Not intended for wall or ceiling mountings	N
20	**Resistance to fire**		–
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	Some small components mounted on UL listed PCB with flammability of V-1 or better	P
20.1.1	Electrical components meet the requirements of Clause 14 or 20.1.4	The plastic front enclosure complied with sub-clause 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 voltage > 4 kV	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 IEC 60707, unless used in a fire enclosure	V-1or better PCB used	P
	Material of printed circuit boards on which the available power exceeds 15 W at a voltage >400 V (peak) a.c. or d.c. meets V-0 to IEC 60707	See above	N

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
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		–
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 voltage > 4 kV	N
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
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**		–
A.5	Marking and instructions	The EUT is not such apparatus	N
A.5.1	j) Marked with IPX4 (IEC 60529), 5.4.1 a) does not apply		N
A.10.	Insulation requirements		N
A.10.2	Splash and humidity treatment		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**		–
	Complies with IEC 62151 clause 1	Not connected 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

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	Complies with IEC 62151 cause 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	**Annex L: Additional requirements for electronic flash apparatus for photographic purposes**		–
L.5	Marking and instructions	The EUT not such apparatus	N
L.5.4	Instructions for battery chargers and Supply apparatus indicating type or model number of flash apparatus with which it is to be used		N
	Instructions for flash apparatus indicating type or model number of battery chargers or Supply apparatus with which it is to be used		N
L.7	Heating under normal operating conditions		N
L.7.1.5 & L.11.2.7	Lithium batteries meet permissible temp rise in Table 3, unless comply with 6.2.2.1 or 6.2.2.2 of IEC 60086-4		N
L.9	Electric shock hazard under normal operating conditions		N
L.9.1.1	Terminals to connection to synchroniser not HAZARDOUS LIVE		N
L.10	Insulation requirements		N
L.10.3.2	High frequency plus ignition		N
L.12	Mechanical strength		N
L.12.1.3	Windows for flash tubes are excluded from steel ball impact test		N
L.14	Components		N
L.14.6.6	Mains switch characteristics appropriate to its function under normal conditions		N
L.20	Resistance to fire		N
L.20.1 c)	Trigger coil for discharge purpose is not considered to be a POTENTIAL IGNITION SOURCE		N

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict

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

Differences according to..... : EN 60065:2002+A1:2006+A11:2008+A2:2010+A12:2011

Attachment Form No..... : EU_GD_IEC60065K_II

Master Attachment..... : Date (2011-08)

IEC 60065, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement – Test	Result - Remark	Verdict
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** (normative) Special national conditions **Annex ZC** (informative) A-deviations		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
2.2 (A12:2011)	In EN 60065:2002/A11:2008 Delete the definition 2.2.Z1		N
3.1	**Add** the following indent at the end of the list: - Exposure to excessive sound pressures from headphone or earphones NOTE A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones 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: Headphones 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
3.1 (A12:2011)	In EN 60065:2002 Delete the addition of indent regarding sound pressure excessive.		N

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
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): a) except as detailed in b) and c), protective devices necessary to comply with the reqirements of 11 shall be included as parts of the equipment; b) for components in series or parallel with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for equipment supplied via an industrial mains plug or for PERMANENTLY CONNECTED APPARATUS, to rely on deticated over curren 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. 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.		N
4.1.1	Replace the text of the note by: NOTE For ROUNTINE TEST reference is made to EN 50514.		P
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
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
	Zx Protection against excessive sound pressure from personal music players		N
	Zx.1 General 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. A personal music player is a portable equipment for personal use, that:		N

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	is designed to allow the user to listen to recorded or broadcast sound or video; and primarily users headphones or earphones that can be worn in or on or around the ear; 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. 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. The requirements in this sub-clause are valid for musci or video mode only. The requirements do not apply: while the personal music player is connected to an external amplifier; or while the headphone 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. The requirements do not apply to: hearing aid equipment and professional equipment; NOTE 3 Professional equipment is equipment sold through special sale s channels. All products sold through normal electronics stores are considered not to 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.		N
	Zx.2 Equipment requirements No safety provision is required for equipment that complies with the following: equipment provided as a package (personal music player with its listening device), where the acoustic output $L_{Aeq,T}$, is ≤ 85 dBA measured while playing the fixed "programme simulation noise" as described in EN 50332-1; and a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured as described in EN 50332-2, while		N

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	playing the fixed “programme simulation noise” as described in EN 50332-1. NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equipment sound pressure level $L_{Aeq,T}$, is meant. See also Zx.5 and Annex Zx. All other equipment shall: a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and 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 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 NOTE 2 Examples of means include visual or audible signals. Action from the user is always required. 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. d) have a warning as specified in Zx.3; and e) not exceed the following: 1) equipment provided as a package (player with Its listening device), the acoustic output shall be ≤ 100 dBA measured while playing the fixed “programme simulation noise” described in EN 50332-1; and 2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be ≤ 150 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” described in EN 50332-1. For music where the average sound pressure (long term $L_{Aeq,T}$) 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. NOTE 4 Classical music typically has an average sound pressure (long term $L_{Aeq,T}$) 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.		

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	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.		
	Zx.3 Warning The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following: the symbol of Figure 1 with a minimum height of 5 mm; and the following wording, or similar: "To prevent possible hearing damage, do not listen at high volume levels for long periods."  **Figure 1 – Warning label (IEC 60417-6044)** 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
	Zx.4 Requirements for listening devices (headphones and earphones)		N
	Zx.4.1 Wired listening devices with analogue input With 94 dBA sound pressure output $L_{Aeq,T}$, the input voltage of the fixed "programme simulation noise" described in EN 50332-2 shall be ≥ 75 mV. 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). NOTE The values of 94 dBA – 75 mV correspond with 85dBA – 27 mV and 100 dBA – 150 mV.		N
	Zx.4.2 Wired listening devices with digital input 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 $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA. 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.). NOTE An example of a wired listening device with digital input is a USB headphone.		N
	Zx.4.3 Wireless listening devices In wireless mode: with any playing and transmitting device playing		N

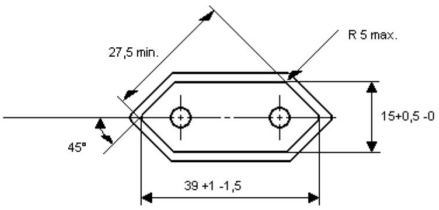
IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	the fixed programme simulation noise described in EN 50332-1; and respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and with volume and sound settings in 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 abovementioned programme simulation noise, the acoustic output LAeq,T of the listening device shall be ≤ 100 dBA. NOTE An example of a wireless listening device is a Bluetooth headphone.		
	Zx.5 Measurement methods Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable. Unless stated otherwise, the time interval T shall be 30 s. NOTE Test method for wireless equipment provided without listening device should be defined.		N
6.1 (A11:2008)	**Replace** the entire subclause in EN 60065:2002 and EN 60065:2002/A1:2006 by: **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. *Compliance is checked by measurement under the following conditions:* *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.* NOTE 1 Soldered joints and paint lockings are examples of adequate locking. *The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm^2, at any point 10 cm from the outer surface of the apparatus. 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.* *The dose-rate shall not exceed 1μSv/h (0,1 mR/h) taking account of the background level.* NOTE 2 These values appear in Directive 96/29/Euratiom of 13th May 1996. *A picture is considered to be intelligible if the following conditions are met:* *- a scanning amplitude of at least 70% of the usable screen width;* *- a minimum luminance of 50 cd/m^2 with locked blank*		N

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	raster provided by a test generator; *- a horizontal resolution corresponding to at least 1,5 MHz in the centre, with a similar vertical degradation;* *- not more than one flashover per 5 min.*		
Z1 (A11:2008)	**Add** the following new clause after Clause 20: **Z1 Resistance to candle flame ignition** A television set shall be so designed that the likelihood of ignition and the spread of fire caused by a candle flame is reduced. 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. This requirement does not apply to the display screen of rear projection TV's. 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. NOTE 3 The frame around the screen is not exempted from the requirements. 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. *Compliance is checked according to CLC/TS 62441.* NOTE 4 The term vertical, as used in the first dash of clause 5.2 of CLC/TS 62441, does not mean a 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 20 mm diameter while the candle is still touching the supporting surface. A typical candle used in the home is assumed to be 20 mm diameter. 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.		N
General	13.3.1 **Delete** note 4. 14 **Delete** note 4 and note 5. 15.1.1 **Delete** notes 1 and 2. 15.2 **Delete** note 2. 16.1 **Delete** note 1. 16.2 **Delete** the note. 20 **Delete** note 2. Annex B **Replace** note 1 by: In the CENELEC countries listed in IEC 62151, special national conditions apply. Annex G **Delete** the note. Annex J.2 **Delete** the notes of Table J.1. Annex N **Add** after the introduction: For ROUTINE TEST reference is made to EN 50333. (Replaced by EN 50514)		P
General (A2:2010)	In IEC 60065:2001/A2 **Delete** all the "country" notes according to the following list: 5.3 Note 5.4.1 Note 20 Note For special national conditions, see Annex ZB.		P

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
Bibliography	Additional EN standards.		P
ZA	**Normative references to international publications with their corresponding European publications**		P
ZB	**ANNEX ZB TO EN 60065, SPECIAL NATIONAL CONDITIONS (EN)**		P
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
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
5.3 (A2:2010)	**Finland**, **Norway** and **Sweden** To the end of the subclause the following is added: CLASS I apparatus which is intended for connection to the building installation wiring via a plug or an appliance coupler, or both and in addition is intended for connection to other apparatus or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network TERMINALS and ACCESSIBLE parts, have a marking stating that the apparatus must be connected to an earthed MAINS socket-outlet. The marking test in the applicable countries shall be as follows: In **Finland**: “Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan” In **Norway**: “Apparatet mä tilkoples jordet stikkontakt” In **Sweden**: “Apparaten skall anslutas till jordat uttag”		N
5.4 (A11:2008)	**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 of 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		N

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	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 suojakoskettimilla varustettuun pistorasiaan” In **Norway**: “Apparatet mä tilkoples jordet stikkontakt” In **Sweden**: “Apparaten skall anslutas till jordat uttag”		
5.4.1 (A11:2008)	**Norway** and **Sweden** 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. 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. 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 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)” 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. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret		N

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet." Translation to Swedish: "Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet."		
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 230V 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
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 4-2b. 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 DKA 1-3a or DKA 1-5a or DK 1-7a.		N

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	Justification: Heavy Current Regulation, Section 107-2-D1		
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
15.1.1	NO: Mains socket-outlets mounted on CLASS II apparatus shall comply with the specifications given in CEE Publ. 7 as far as a applicable, with the following amendments: § 8 Dimensions a 2,5 A 250 V two-pole socket-outlets for electronic apparatus shall comply with the enclosure 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. *Justification*: Act of 24 May 1929 relating to supervision of electrical installation (TEA 1929/FEL 1998).		N
15.1.1	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, unless exempted by those Regulations. NOTE “Standard plug” is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug. *Justification*: SI 1768:1994		N
J.2	NO: After J.1 the following is added: 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

IEC 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	Justification: Based on a use in Norway of an IT power distribution system where the neutral is not provided.		
ZC	**ANNEX ZC TO EN 60065, A-DEVIATIONS (EN)**		P
5.1	IT: additional markings on the outside of the TV receiver in Italian language		N
	IT: user instructions in Italian language including a conformity declaration		N
	IT: certification number on the back cover		N
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, Bundeshallee 100, D-38116 Braunschweig, Tel.: Int+49-531-592-6320, Internet :http://www.ptb.de		N
14	SE: Switches containing mercury such as thermostats, relays and level controllers are not allowed. *Justification*: Ordinance (1990:944) on Prohibition in Connection with handing. Importation and exportation of Chemical Products (Certain Cases)		N

Test Tables

7.1	**TABLE: Temperature rise measurement**						**P**
	Power consumption in the OFF/Stand-by ..... :				--		--
	Position of the functional switch (W) ..... :				--		--
Operating conditons							
Un (V)	Hz	In (A)	Pn (W)	Uout (V)	Pout (W)	Operating Condition/Status	
99	50	0.630	37.6	--	--	1/8 of Max output power on speakers	
110	50	0.519	37.5	--	--		
240	50	0.334	37.2	--	--		
264	50	0.313	37.1	--	--		
99	60	0.751	37.7	--	--		
110	60	0.652	37.5	--	--		
240	60	0.392	37.1	--	--		
264	60	0.373	37.1	--	--		
	Supply voltage (V)			99V 60Hz	264V60Hz		--
	Ambient T_{min} (°C)			35.0	35.0		--
	Ambient T_{max} (°C)			35.0	35.0		--
Maximum measured temperature T of part/at:				(Normal operation)			Allowed T_{max} (°C)
PCB near IC				24.5	24.7		95=130-35
DC terminal				15.4	15.2		Ref.
Enclosure outside				9.3	9.4		45=80-35
Enclosure inside				11.4	11.6		60=95-35
E-cap(C88)				28.6	29.1		70=105-35
Ambient				35℃	35℃		---
Comments: 1. The temperatures were measured by thermal couple under worst case normal mode defined in 4.2.1 and at voltage as described above.							
	Winding temperature rise measurements						--
	Ambient temperature t1 (℃) ..... :				--		--
	Ambient temperature t2 (℃) ..... :				--		--
Temperature rise dT of winding: $dT = \frac{(R_2 - R_1)}{R_1} \times (234.5 + t1) - (t2 - t1)$			R_1 (Ω)	R_2 (Ω)	dT (K)	Limit max. (K)	Insulation class

Test Tables

--	--	--	--	--	--
Note: According to the user manual, the appliance is intended to be used in moderate climate, so the basic ambient temperature is 35℃.					

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

10.3	TABLE: Insulation resistance measurements		N
Insulation resistance R between	R (MΩ)	Required R (MΩ)	
--	--	--	
Note: 1) BI: Basic insulation; SI: Supplementary insulation; DI: Double insulation; RI: Reinforced insulation 2) Evaluated with external adapter, the test performed between L/N and the terminal/enclosure of sample.			

10.3	TABLE: Electric strength measurements		P
Test voltage applied between	Test voltage (V)	Breakdown	
Input to enclosure	DC 500V	No	
Note: 1) BI: Basic insulation; SI: Supplementary insulation; DI: Double insulation; RI: Reinforced insulation 2) Evaluated with external adapter, the test performed between L/N and the terminal/enclosure of sample.			

11.2	TABLE :Summary if fault condition Tests					P
	Voltage (V) 0,9 or 1,1 times rated Voltage……:				24Vd.c.	–
	Frequency (Hz)……:				--	–
	Ambient temperature (℃)……:				25℃	–
No.	Component no.	Fault	Test time	Fuse current (A)	Result	
1	E-cap(C88)	s-c	30 mins	--	After SC, unit shut down immediately and recoverable when fault removed. No damage, no hazards.	
Note: 1) Supplementary information : o-c: open circuit, s-c: short circuit, o-l: overload, b-l: blocked, l-k: locked						

13.3/13.4	TABLE: Clearances and creepage distances					N
	Operating Voltage [V]		Clearance [mm]		Creepage [mm]	
Location	Urms [V]	Upeak [V]	Minimum	Actual	Minimum	Actual
Basic/Supplementary:						

Test Tables

--	--	--	--	--	--	--
Reinforced/Double:						
--	--	--	--	--	--	--
Test conditions: - Pollution degree: II - Material group: IIIb - Main transient voltage: 2,50KV Note: (RI) ≡ Reinforced insulation, (SI) ≡ Supplementary insulation, (BI) ≡ Basic insulation						

14	**TABLE: List of critical components**				**P**
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1])
PCB	Huan qiang electronice co,LTD	FR-4 ,94-V0	V-0, 130℃, Min thickness 0.8mm	UL 94	UL E251754
Adapter	PINLEI	HC-60SV24	Input: 100-240V~ 50/60Hz 1.2 MAX output: 24V ⎓ 2.5A	IEC EN 60950-1	TUV
1) An asterisk indicates a mark which assures the agreed level of surveillance.					

Photos

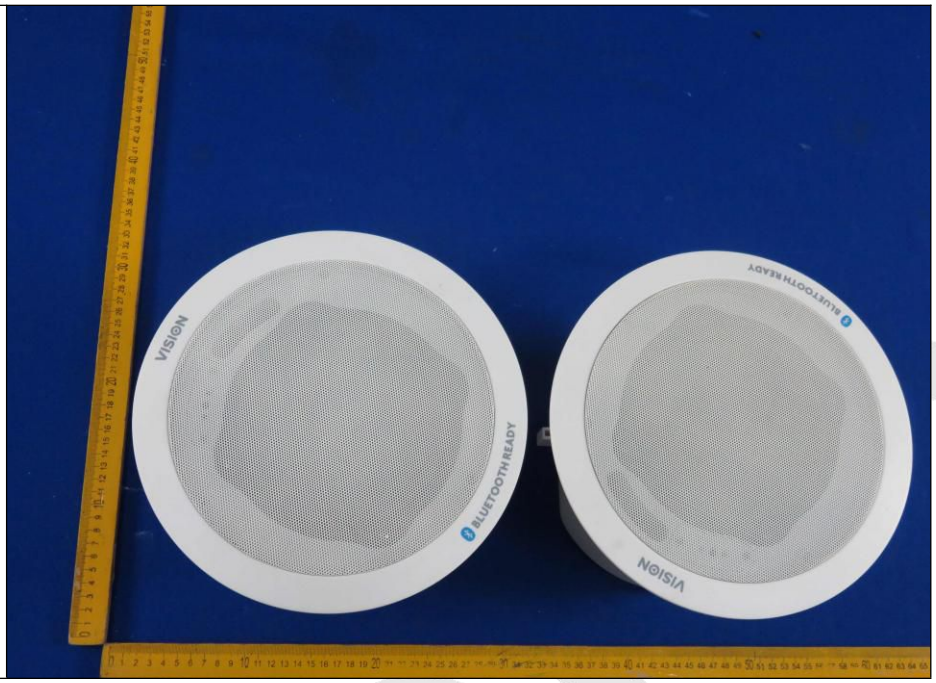
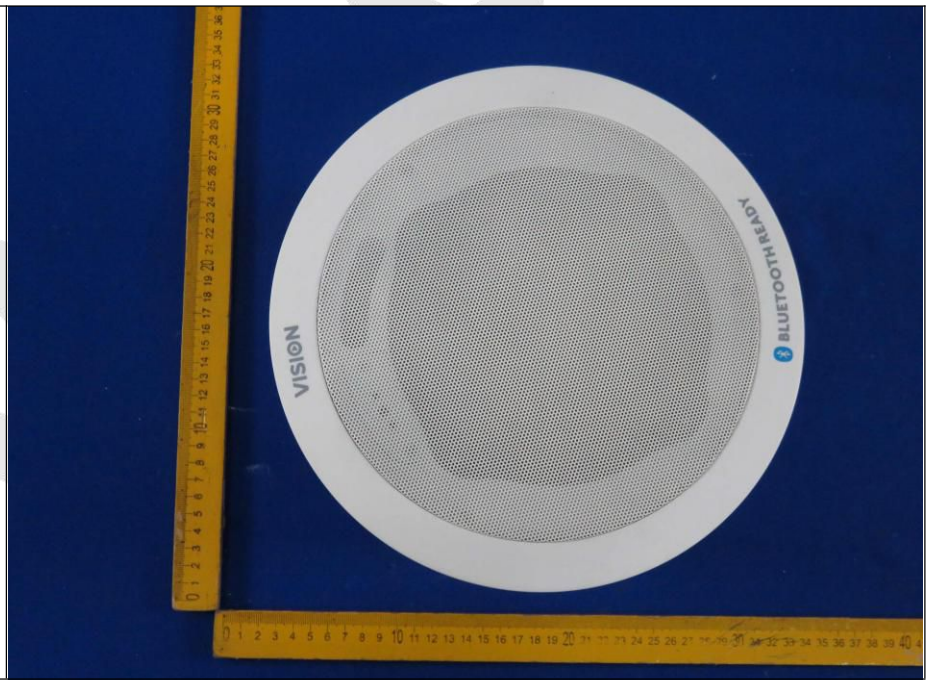
Photo 1 [√] front [ ] rear [ ] right side [ ] left side [ ] top [ ] bottom [ ] internal	

Photo 2 [√] front [ ] rear [ ] right side [ ] left side [ ] top [ ] bottom [ ] internal	

Photos

Photo 3 [ ] front [√] rear [ ] right side [ ] left side [ ] top [ ] bottom [ ] internal	

Photo 4 [ ] front [ ] rear [ ] right side [ ] left side [√] top [ ] bottom [ ] internal	

Photos

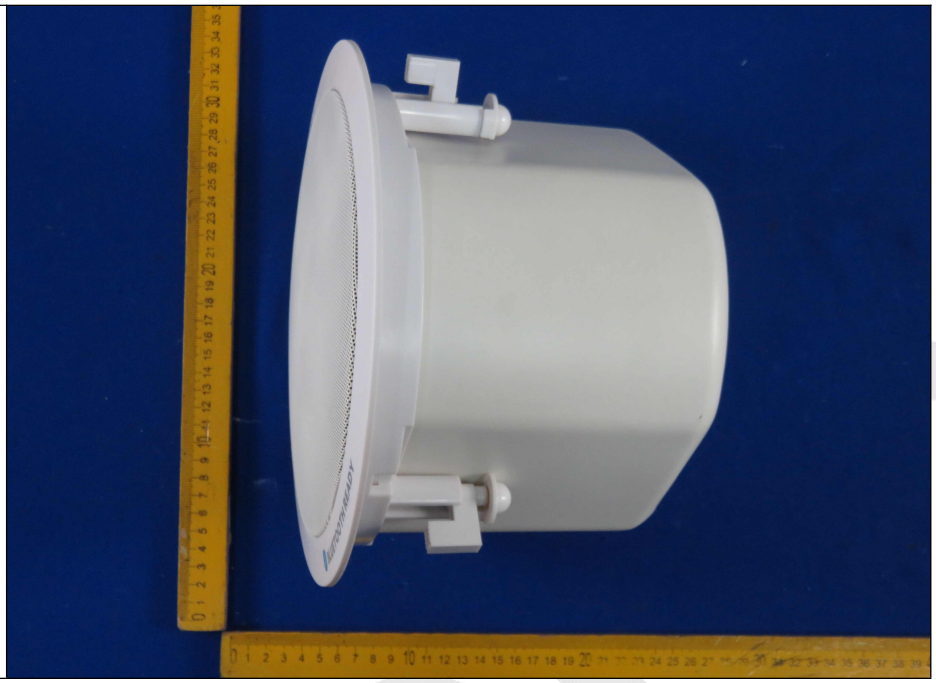
Photo 5 [ ] front [ ] rear [ ] right side [ ] left side [ ] top [√] bottom [ ] internal	

Photo 6 [ ] front [ ] rear [ ] right side [ ] left side [ ] top [ ] bottom [√] internal	

Photos

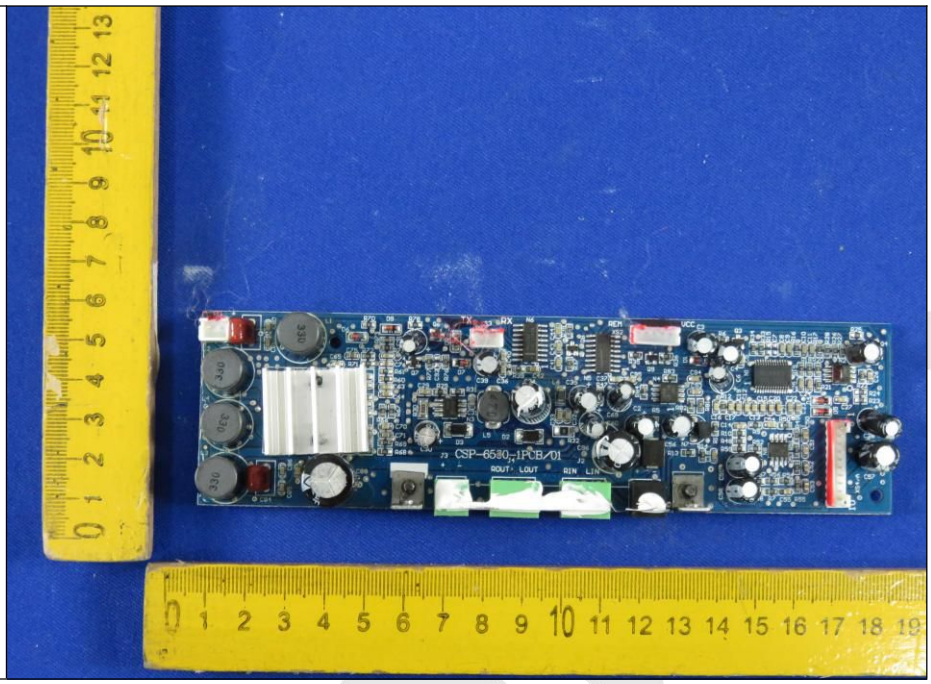
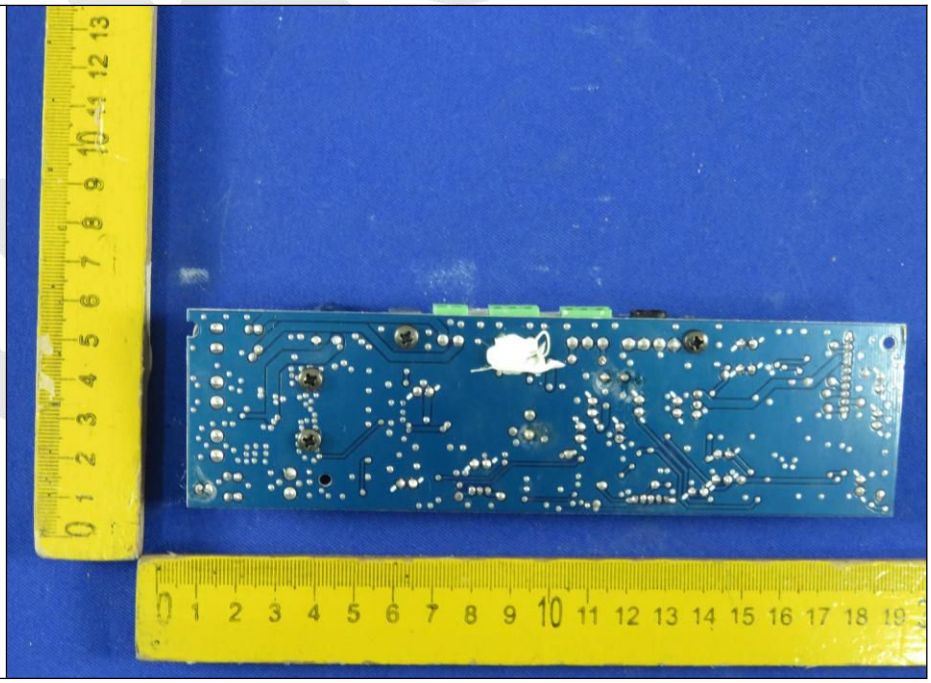
Photo 7 [ ] front [ ] rear [ ] right side [ ] left side [ ] top [ ] bottom [√] internal	

Photo 8 [ ] front [ ] rear [ ] right side [ ] left side [ ] top [ ] bottom [√] internal	

Photos

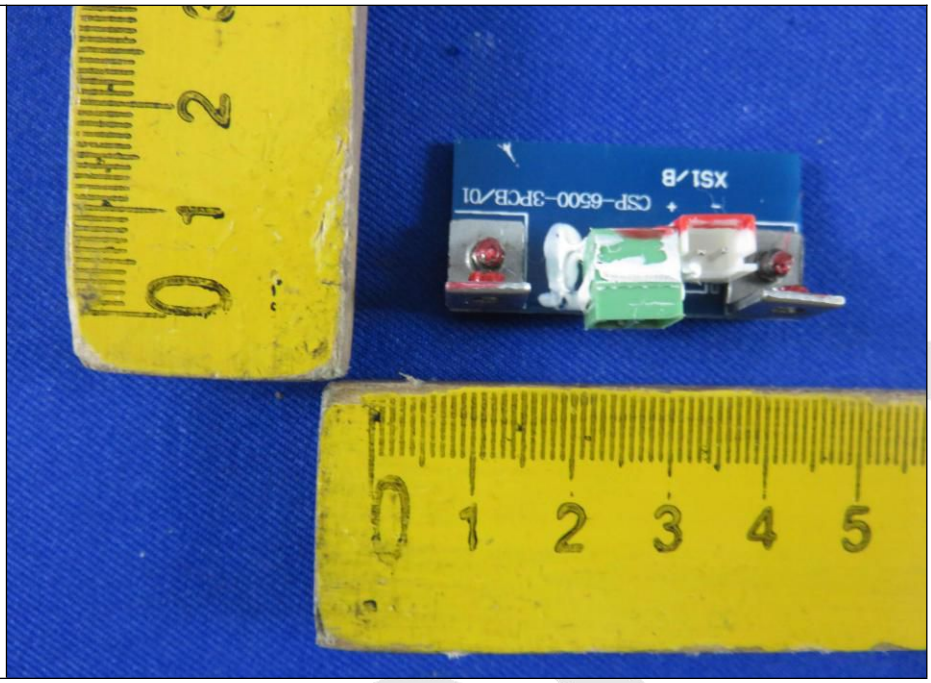
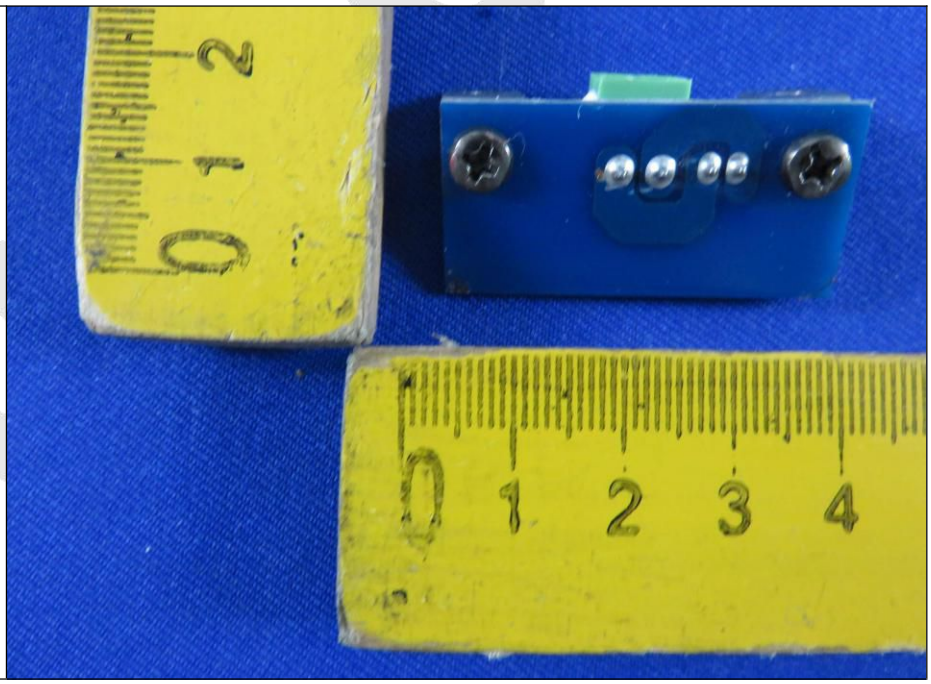
Photo 9 [ ] front [ ] rear [ ] right side [ ] left side [ ] top [ ] bottom [√] internal	

Photo 10 [ ] front [ ] rear [ ] right side [ ] left side [ ] top [ ] bottom [√] internal	

Photos

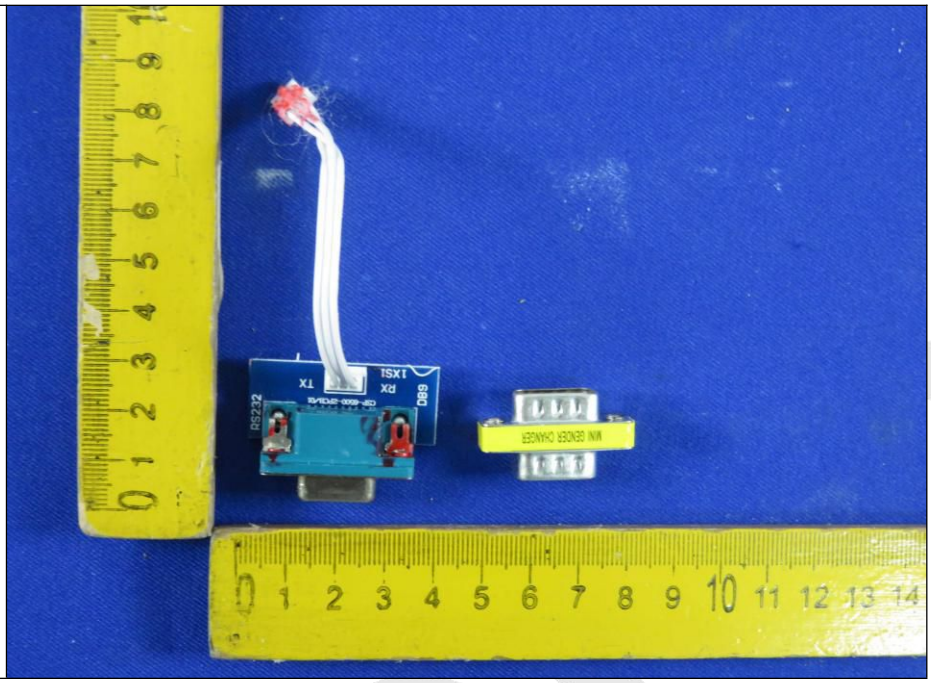
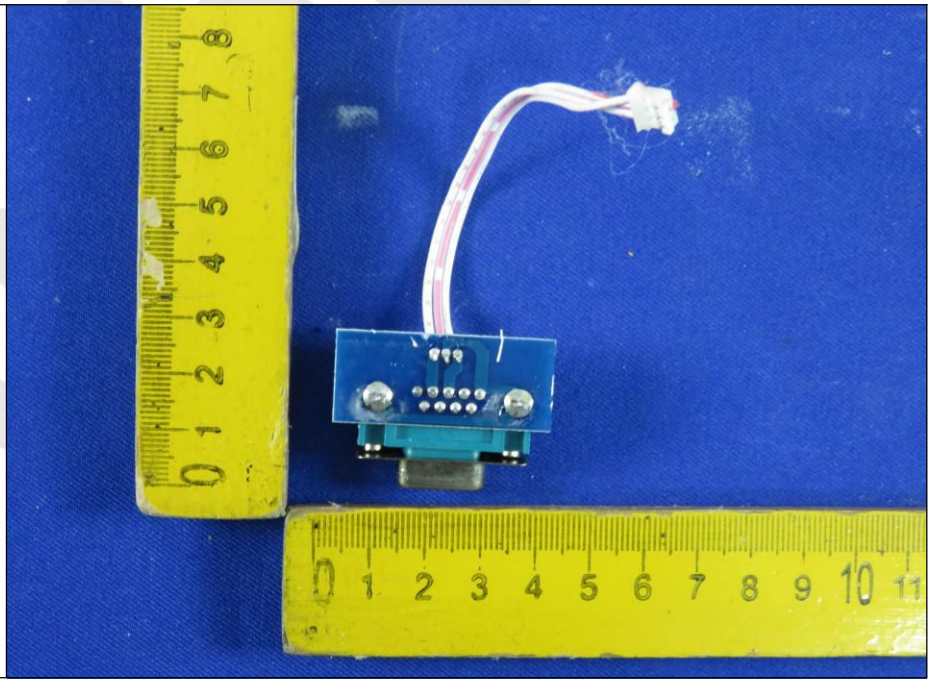
Photo 11 [ ] front [ ] rear [ ] right side [ ] left side [ ] top [ ] bottom [√] internal	

Photo 12 [ ] front [ ] rear [ ] right side [ ] left side [ ] top [ ] bottom [√] internal	

Photos

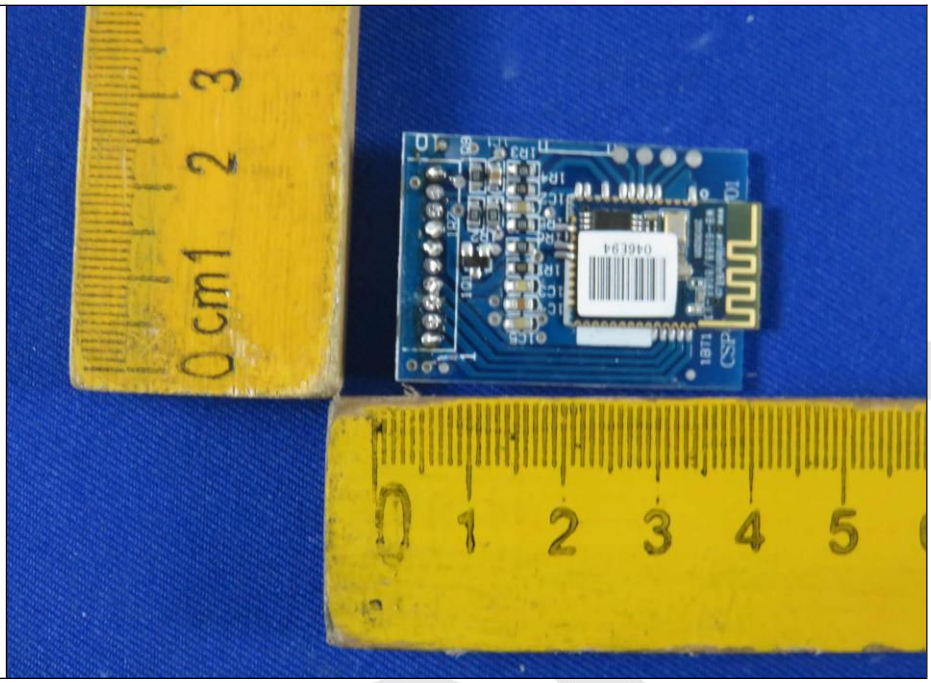
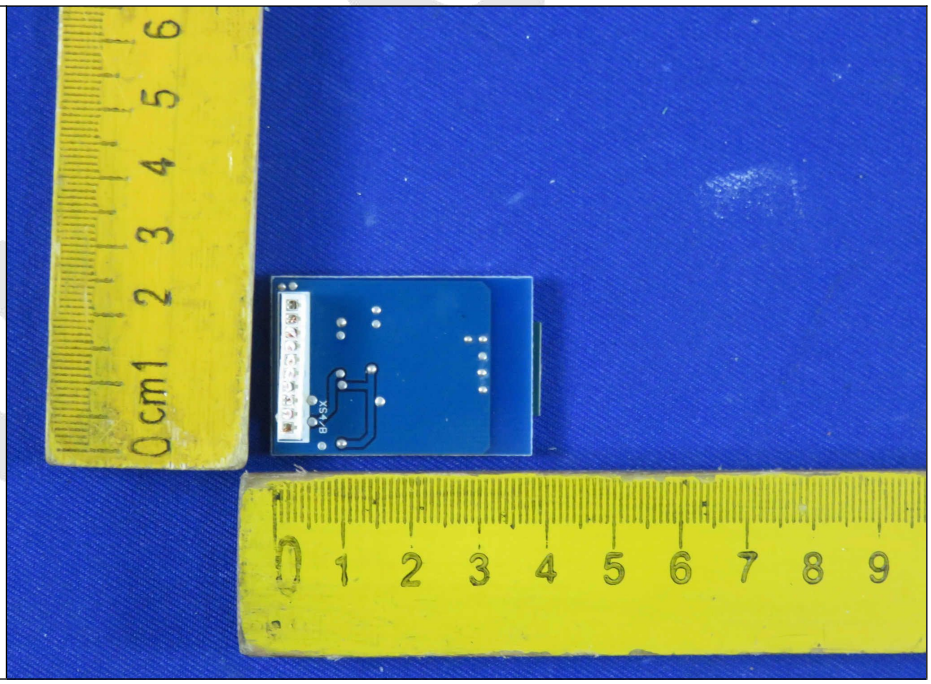
Photo 13 [ ] front [ ] rear [ ] right side [ ] left side [ ] top [ ] bottom [√] internal	

Photo 14 [ ] front [ ] rear [ ] right side [ ] left side [ ] top [ ] bottom [√] internal	

Photos

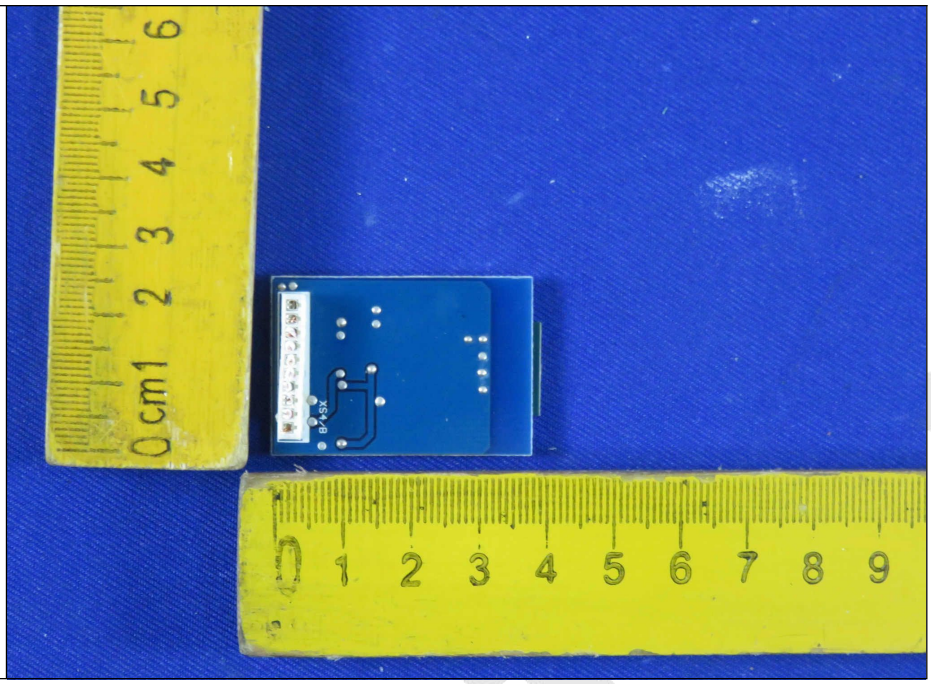
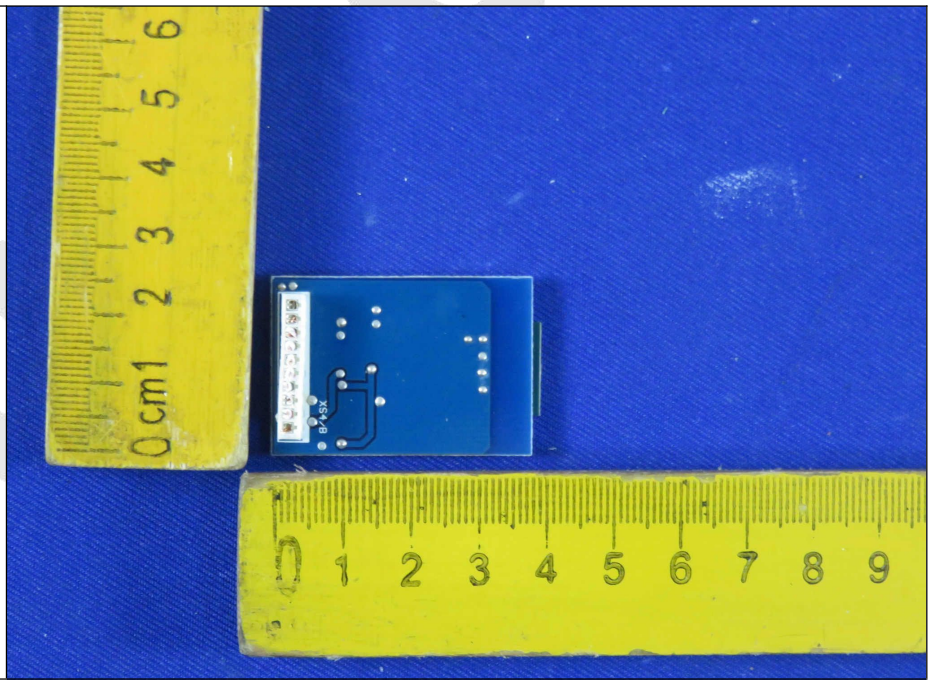
Photo 15 [ ] front [ ] rear [ ] right side [ ] left side [ ] top [ ] bottom [√] internal	

Photo 16 [ ] front [ ] rear [ ] right side [ ] left side [ ] top [ ] bottom [√] internal	

End of the report