DENON

D&M Holdings Inc.
2-1 Nisshin-cho, Kawasaki-ku, Kawasaki-shi, Kanagawa, 210-8569 Japan
Phone: +81-44-670-2665 Fax: +81-44-670-2697

DM-CE15025

EU Declaration of Conformity

We, D&M Holdings Inc., declare under our sole responsibility that the product;

Brand name: **DENON**

Product: **Wireless Speaker**

Model: **HEOS 7 HS2**

following the provisions of EC/EU directives and EC regulation as follows;

R&TTE: ***1999/5/EC***
LV: ***2006/95/EC***
EMC: ***2004/108/EC***
RoHS: ***2011/65/EU***
ErP: ***EC regulation 1275/2008 and its frame work directive 2009/125/EC including amendment 801/2013***

to which this declaration relates is in conformity with the following standards for

* Standards applied

Safety: ***EN60065:2002 + A1:2006 + A11:2008 + A2:2010 + A12:2011***
EMC: ***EN55032:2012 + AC:2013***
EN55020:2007+A11:2011

EN55024:2010
EN61000-3-2:2014 Class A
EN61000-3-3:2013
EN301489-1 V1.9.2:2011
EN301489-17 V2.2.1:2012
Radio: ***EN300328 V1.9.1:2015***
EN301893 V1.8.1:2015
Health: ***EN62311:2008***
ErP: ***EN50564:2011***
RoHS: ***EN50581:2012***

CE Mark first affixed in 2015

Manufacturer:

Jun Sakurai, Director
Quality Assurance Dep.
D&M Holdings Inc.
2-1 Nisshin-cho, Kawasaki-ku,
Kawasaki-shi, Kanagawa,
210-8569 Japan

18-November-2015
Date:

EU Representative:

Oliver Kriete
Product Manager D&M Europe
D&M Germany GmbH
An der Kleinbahn 18, Nettetal
D-41334, Germany

18-November-2015
Date:

IEC IECEE CB SCHEME

Ref. Certif. No.

JPTUV-067165

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE CERTIFICATS D ESSAIS DES EQUIPEMENTS ELECTRIQUES (IECEE) METHODE OC

CB TEST CERTIFICATE

CERTIFICAT D'ESSAI OC

Product Produit	Wireless Speaker
Name and address of the applicant Nom et adresse du demandeur	Tymphany HK Limited Room 1307-8 Dominion Centre 43-59 Queen's Road East, WanChai, Hong Kong
Name and address of the manufacturer Nom et adresse du fabricant	D&M Holdings Inc. 2-1 Nisshin-cho, Kawasaki-ku Kawasaki-shi, Kanagawa, 210-8569 JAPAN
Name and address of the factory Nom et adresse de l'usine	Premium Loudspeakers (Huizhou) Co. Ltd. Tymphany Industrial Area Xinlian Village, Xinxu Town, Huizhou City, Guangdong, P.R. China
Ratings and principal characteristics Valeurs nominales et charactéristiques principales	Input: 24Vdc , 3.75A
Trademark (if any) Marque de fabrique (si elle existe)	DENON
Type of Manufacturer's Testing Laboratories used Type de programme du laboratoire d'essais constructeur	N/A
Model / Type Ref. Ref. de type	HEOS 7, HEOS 7 HS2
Additional information (if necessary may also be reported on page 2) Les informations complémentaires (si nécessaire, peuvent être indiqués sur la 2ème page)	
A sample of the product was tested and found to be in conformity with Un échantillon de ce produit a été essayé et a été considéré conforme à la	IEC 60065:2001 + A1 + A2 National differences see test report
As shown in the Test Report Ref. No. which forms part of this Certificate Comme indiqué dans le Rapport d'essais numéro de référence qui constitue partie de ce Certificat	17053271 001

This CB Test Certificate is issued by the National Certification Body
Ce Certificat d'essai OC est établi par l'Organisme National de Certification

TÜVRheinland®

TÜV Rheinland Japan Ltd.
Global Technology Assessment Center
4-25-2 Kita-Yamata, Tsuzuki-ku
Yokohama 224-0021 Japan
Phone + 81 45 914-3888
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Mail: info@jpn.tuv.com
Web: www.tuv.com

Date: 02.11.2015

Signature: Dipl.-Ing. (FH) C. Padel

Test Report issued under the responsibility of:

TÜVRheinland®

TEST REPORT
IEC 60065
Audio, video and similar electronic apparatus - Safety requirements

Report Number :	17053271 001
Date of issue :	30 Oct., 2015
Total number of pages :	31
Applicant's name :	**Tymphany HK Limited**
Address :	Room 1307-8, Dominion Centre, 43-59 Queen's Road East, WanChai, Hong Kong
Test specification:	
Standard :	IEC 60065:2001 (Seventh Edition) + A1:2005 + A2:2010
Test procedure :	CB Scheme
Non-standard test method :	N/A
Test Report Form No. :	IEC60065K
Test Report Form(s) Originator :	Intertek Semko AB
Master TRF :	Dated 2010-10

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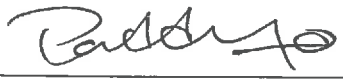
This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

Test item description :	Wireless Speaker
Trade Mark :	DENON
Manufacturer :	**D&M Holdings Inc.**
Manufacturer address :	2-1 Nisshin-cho, Kawasaki-ku, Kawasaki-shi, Kanagawa, 210-8569 JAPAN
Model/Type reference :	HEOS 7, HEOS 7 HS2
Ratings :	24V⎓, 3.75A

Testing procedure and testing location:			
☒	**CB Testing Laboratory:**	**TÜV Rheinland (Shenzhen) Co., Ltd.**	
Testing location/ address .....:		East of F/1, F/2~F/4, Building 1, Cybio Technology Building No. 6 Langshan No.2 Road, North Hi-tech Industry Park 518057 Shenzhen Nanshan District CHINA	
☐	**Associated CB Laboratory:**		
Testing location/ address .....:			
	Tested by (name + signature).....:	Paddy Qiu	
	Approved by (name + signature)..:	Crystal Ye	
☐	**Testing procedure: TMP**		
Testing location/ address .....:			
	Tested by (name + signature).....:		
	Approved by (name + signature)..:		
☐	**Testing procedure: WMT**		
Testing location/ address .....:			
	Tested by (name + signature).....:		
	Witnessed by (name + signature).:		
	Approved by (name + signature)..:		
☐	**Testing procedure: SMT**		
Testing location/ address .....:			
	Tested by (name + signature).....:		
	Approved by (name + signature)..:		
	Supervised by (name + signature):		
☐	**Testing procedure: RMT**		
Testing location/ address .....:			
	Tested by (name + signature).....:		
	Approved by (name + signature)..:		
	Supervised by (name + signature):		

List of Attachments (including a total number of pages in each attachment):

- Attachment 1: National differences (67 pages)
- Attachment: Photo documentation (13 pages)

Summary of testing:

Tests performed (name of test and test clause):

1) The Maximum ambient temperature is 45°C.
2) EUT is designed for altitudes up to and including 2000m above sea level.
3) Following tests performed during evaluation

Clause	Test
5	Durability of Marking Test
5.1	Input Current Test
7.1	Heating under Normal Operations
11.2	Heating under Fault Conditions

Note: All the test data derived from report 16056652 001 and 16056652 002, only to add an alternative model no. HEOS 7 HS2 with a new main board and amplifier board, only tests on model HEOS 7 HS2 were evaluated, no other test necessary.

Testing location:

See page 2.

Summary of compliance with National Differences

List of countries addressed:

EU Group Differences, EU Special National Conditions, EU A-Deviations, AT, AU, BE, CA*, CH, CN*, CZ, DE, DK, FI, FR, GB, GR, HU, IT, JP*, KR*, NL, NO, PL, SE, SI, SK, US.

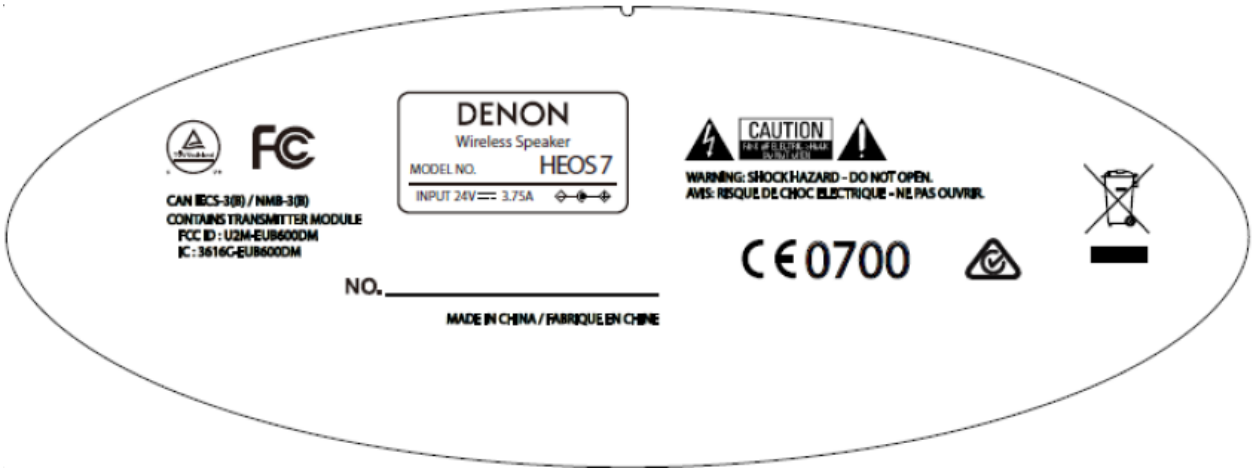
AT=Austria, AU=Australia, BE=Belgium, CA*=Canada, CH=Switzerland, CN=China, CZ=Czech Republic, DE=Germany, DK=Denmark, FI=Finland, FR=France, GB=United Kingdom, GR=Greece, HU=Hungary, IT=Italy, JP=Japan, KR=Korea, NL=The Netherlands, NO=Norway, PL=Poland, SE=Sweden, SI=Slovenia, SK=Slovakia, US=United States of America.

* The attached deviations are those declared to the standard based on IEC 60065 + A1 only for the indicated country, no other differences are added according to the standard A2: 2012 to CAN/CSA-C22.2 No. 60065:03.

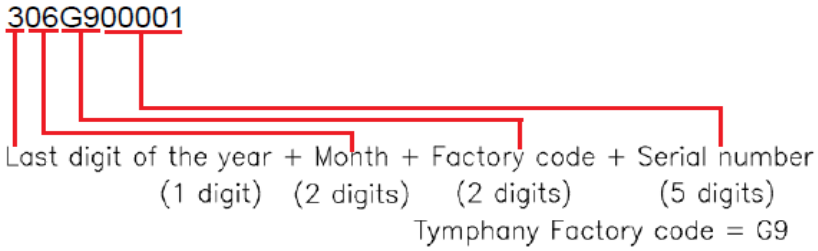
For National Differences see end of this test report.

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.



Date code:



Note:

- The date code was included in series no. and labelled on above rating label.

Test item particulars ..... :	
Classification of installation and use ..... :	N/A
Supply Connection ..... :	Not directly connected to the mains
..... :	
Possible test case verdicts:	
- test case does not apply to the test object ..... :	N/A (Not Applicable)
- test object does meet the requirement ..... :	P (Pass)
- test object does not meet the requirement ..... :	F (Fail)

Testing:	
Date of receipt of test item ..... :	25 Sep., 2015
Date (s) of performance of tests ..... :	25 Sep., 2015 – 10 Oct., 2015

General remarks:

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 Issuing testing laboratory.
"(see Enclosure #)" refers to additional information appended to the report.
"(see appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

Manufacturer's Declaration per sub-clause 6.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided .....:	☐ **Yes** ☒ **Not applicable**
Name and address of factory (ies) .....:	**Premium Loudspeakers (Huizhou) Co., Ltd.** Tymphany Industrial Area, Xin Lian Village，Xin Xu Town, Hui Yang District, Hui Zhou City, Guangdong, P.R. China

General product information:

1. The EUT covered by this report is a wireless speaker which used as audio apparatus, it is supplied by an external approved adaptor, see appended table 14 for details.

2. The manufacturer specified maximum ambient temperature is 45°C. The specified altitude is up to and including 2000m above sea level.

The product mainly consists of:

- Speakers with main board and amplifier board.
- Plastic enclosure and grille cloth for speaker

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
3	**General requirements**		**P**
	Safety class of the apparatus .....:	Not directly connected to the mains	N/A
4	**General test conditions**		P
4.1.4	Ventilation instructions require the use of the test box		P
5	**Marking and instructions**		P
	Comprehensible and easily discernible	The rating label is 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 not possible to remove marking plate and no curling observed after the test	P
5.1	a) Identification, maker .....:	Identification mark: DENON	P
	b) Model number or type reference .....:	HEOS 7, HEOS 7 HS2	P
	c) Class II symbol if applicable .....:	Not directly connected to the mains	N/A
	d) Nature of supply.....:	DC symbol used on rating label	P
	e) Rated supply voltage .....:	24Vdc	P
	f) Mains frequency if safety dependant .....:	Not directly connected to the mains	N/A
	g) Rated current or power consumption for apparatus supplied by supply apparatus for general use .....:	3.75A is marked on rating label, however not required	N/A
	Measured current or power consumption .....:		N/A
	Deviation % (max 10%) .....:		N/A
	h) Rated current or power consumption for apparat-us intended for connection to an a.c. mains supply.:	The apparatus is not intended for connection to an a.c. mains supply	N/A
	Measured current or power consumption .....:		N/A
	Measured current or power consumption for Television set .....:		N/A
	Deviation % (max 10%) .....:		N/A
5.2	a) Earth terminal	No such terminals	N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	b) Hazardous live terminals		N/A
	c) Markings on supply output terminals	5V, 1A marked near USB port	P
5.3	a) Use of triangle with exclamation mark		N/A
	b) marking on loudspeaker grille, IEC 60417-5036	No such grille	N/A
5.4	Instructions for use	English version was checked (Version in other language will be provided when submitted for national approval)	P
5.4.1	a) Mains powered equipment not exposed to dripping or splashing. Warning concerning objects filled with liquid, etc.	Indoor use only and the related warning mentioned in user manual	P
	b) Hazardous live terminals, instructions for wiring	No such terminals.	N/A
	c) Instructions for replacing lithium battery	No battery used	N/A
	d) Class I earth connection warning		N/A
	e) Instructions for multimedia system connection	Mentioned in user manual	P
	f) Special stability warning for attachment of the apparatus to the floor/wall		N/A
	g) Warning: battery exposure to heat	No battery used	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	Not directly connected to the mains	N/A
	c) Instructions for permanently connected equipment	No such equipment	N/A
	Marking, signal lamps or similar for completely disconnection from the mains		N/A

6	**Hazardous radiation**		**N/A**
6.1	Ionizing radiation < 36 pA/kg (0,5 mR/h)	No hazardous radiation exist inside the equipment	N/A
	Ionizing radiation under fault condition		N/A
6.2	Laser radiation, emission limits to IEC 60825-1:2007 .....:		N/A
	Emission limits under fault conditions .....:		N/A

7	**Heating under normal operating conditions**		P
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

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
7.1.3	Temperature rise of parts acting as a support or as a mechanical barrier	No such mechanical barrier	N/A
7.1.4	Temperature rise of windings	no such winding used	N/A
7.1.5	Parts not subject to a limit under 7.1.1 to 7.1.4		N/A
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
8	**Constructional requirements with regard to the protection against electric shock** *No hazardous live part exist in the equipment*		**N/A**
8.1	Conductive parts covered by lacquer, paper, untreated textile oxide films and beads etc. considered to be bare	No such material	N/A
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		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		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		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)		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	Double or reinforced insulation being bridged with a single capacitor complying with 14.2.1 b)		N/A
8.7	This clause is void		N/A
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		N/A
	No undue reduction of creepages or clearance distances if wires become detached		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		N/A
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
8.19	Disconnection from the mains		N/A
8.19.1	Disconnect device		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	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	No such components used	N/A
8.22	Non-separable thin sheet material		N/A
9	**Electric shock hazard under normal operating conditions** *No electric shock hazards exist in the equipment*		**P**
9.1	Testing on the outside *Internal voltages<20Vdc*		P
9.1.1	For voltages >1000 V ac or >1500 V dc complies with clause 13.3.1 for basic insulation		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 µC		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		N/A
9.1.6	No shock hazard due to stored charge on withdrawal of the mains plug; voltage (V) after 2 s .....:		N/A
	If C is not greater than 0,1 µF 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
9.2	No hazard after removing a cover by hand		N/A
10	**Insulation requirements** *No electric shock hazards exist in the equipment*		**N/A**
10.1	Insulation resistance (MΩ) at least 2 MΩ min. after surge test for basic and 4 MΩ min. for reinforced insulation .....:		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
10.2	Humidity treatment 48 h or 120 h .....:		N/A
10.3	Insulation resistance and dielectric strength between mains terminals		N/A
	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
11	**Fault conditions**		**P**
11.1	No shock hazard under fault condition	No electric shock hazards exist in the equipment	N/A
11.2	Heating under fault condition		P
	Flames extinguish within 10 seconds	No flames	N/A
	No hazard from softening solder	No softening solder	N/A
	Soldered terminations not used as protective mechanism		N/A
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		P
11.2.5	Temperature rise of windings	No windings used	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):	No PCB exceeded the limit	N/A
	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 cm² .....:		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 cm² 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".		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
12	**Mechanical strength** *No hazardous live or moving part exist in the equipment*		**P**
12.1.1	Bump test where mass >7 kg	<7kg	N/A
12.1.2	Vibration test		N/A
12.1.3	Impact hammer test		N/A
	Steel ball test		N/A
12.1.4	Drop test for portable apparatus where mass ≤ 7 kg		N/A
12.1.5	Thermoplastic enclosures stress relief test		N/A
12.2	Fixing of knobs, push buttons, keys and levers		N/A
12.3	Remote controls with hazardous live parts		N/A
12.4	Drawers (pull test 50 N, 10 s)		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
13	**Clearances and creepage distances** *No hazardous live part exist in the equipment and only function insulation used*		**N/A**
13.1	Clearances in accordance with 13.3		N/A
	Creepage distances in accordance with 13.4		N/A
13.2	Determination of working voltage		N/A
13.3	Clearances		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		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)		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
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

14	**Components**		**P**
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	See only 14.2.5	P
	Capacitors separately approved :		N/A
14.2.1	Y capacitors tested to IEC 60384-14:2005 .....:		N/A
14.2.2	X capacitors tested to IEC 60384-14:2005 .....:		N/A
14.2.3	Capacitors operating at mains frequency but not connected to the mains: tests for X2 .....:	No such capacitors	N/A
14.2.5	Capacitors with volume exceeding 1750 mm³, where short-circuit current exceeds 0,2 A: compliance with IEC 60384-1, 4.38 category B or better .....:		N/A
	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/A
	Shielded by a barrier acc. to 20.1.4/ table 21 or metal .....:	Metal-cased capacitors used	P
14.3	Inductors and windings	No such inductors or windings	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 .....:		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
14.3.4	Separation between windings		N/A
14.3.4.1	Class II transformers have adequate separation between hazardous live parts and accessible parts (double or reinforced insulation).....:		N/A
	Coil formers and partition walls > 0,4 mm		N/A
14.3.4.2	Class I transformers, with basic insulation and protective screening only if all 7 conditions of 14.3.4.2 are met		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	No such 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	No such devices	N/A
	Protective devices used within their ratings		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	External clearances and creepage distances meet requirement of clause 13 for the voltage across the device when opened		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
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		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 .....:		N/A
14.5.3	PTC thermistors comply with IEC 60730-1:2007		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	Only secondary function switch used, controlling current <0.2A and voltage <24Vdc	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

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
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
	Socket outlet current marking correct		N/A
14.7	Safety interlocks	No safety interlock	N/A
	Safety interlocks to 2.8 of IEC 60950-1		N/A
14.8	Voltage setting devices and the like		N/A
	Voltage setting device not likely to be changed accidentally		N/A
14.9	Motors	No motor used	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	No battery used	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	No such 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	No such varistors	N/A
	Comply with IEC 61051-2		N/A

IEC 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

15	**Terminals**		**P**
15.1.1	Mains plug, appliance inlet, interconnection couplers and mains socket-outlet meet the appropriate standard	Not directly connected to the mains	N/A
	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	The construction of the terminals make it unlikely to insert into mains socket-outlet	P
	No risk of insertion into audio- or video- outlets marked with the symbol of 5.2	No such outlets	N/A
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		N/A
	Protective earth terminal resistant to corrosion		N/A
	Earth resistance test: < 0,1 Ω at 25 A .....:		N/A
15.3	Terminals for external flexible cords and for permanent connection to the mains supply	No such terminals	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

IEC 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	No such terminals	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		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

16	**External flexible cords**		**P**
16.1	Mains cords sheathed type, complying with IEC 60227 for PVC or IEC 60245 for synthetic rubber cords .....:	Not directly connected to the mains	N/A
	Non-detachable cords for Class I have green/yellow core for protective earth		N/A
16.2	Mains cords conductors have adequate cross-sectional area for rated current consumption of the equipment		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
16.3	a) Flexible cords not complying with 16.1, used for interconnections between separate units of equipment used in combination and carrying hazardous live voltages, have adequate dielectric strength		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	Not directly connected to the mains	N/A
	Not possible to push cord back into equipment		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	No such equipment	N/A
	Transportable musical instruments and amplifiers fitted with detachable cord sets or with means of stowage to protect the cord		N/A

17	**Electrical connections and mechanical fixings** *No hazardous live part exist in the equipment*		**N/A**
17.1	Torque test to table 20		N/A
	- screws into metal: 5 times		N/A
	- screws into non-metallic material: 10 times		N/A
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
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		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
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		N/A
17.9	Internal pluggable connections, affecting safety, unlikely to become disconnected		N/A

18	**Mechanical strength of picture tubes and protection against the effects of implosion**		**N/A**
18.1	Picture tube separately approved to IEC 61965 ....:	No picture tube used	N/A
	Picture tube separately approved to 18.2 .....:		N/A
18.2	Non-intrinsically protected tubes tested to 18.2		N/A

19	**Stability and mechanical hazards**		**P**
	Mass of the equipment exceeding 7 kg .....:	Mass of speaker less than 7kg	N/A
	Apparatus intended to be fastened in place – suitable instructions .....:	No such apparatus	N/A
19.1	Test on a plane, inclined at 10° to the horizontal		N/A
19.2	100 N force applied vertically downwards		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	The edges and corners of the equipment are smooth	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/A
19.6	Wall or ceiling mountings adequate		N/A

20	**Resistance to fire** *No potential ignition source exist in the equipment*		**P**
20.1	Electrical components and mechanical parts		P
	a) Exemption for components contained in an enclosure of material V-0 to IEC 60695-11-10 with openings not exceeding 1 mm in width		N/A
	b) Exemption for small components as defined in 20.1		P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
20.1.1	Electrical components meet the requirements of Clause 14 or 20.1.4	No such components, see also below	N/A
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 working voltages > 4 kV	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	No such PCBs	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		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	No potential ignition source in the equipment	N/A
	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/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		N/A
20.2	Fire enclosure		N/A
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 such potential ignition sources	N/A
20.2.2	Internal fire enclosures with openings not exceeding 1 mm in width and with openings for wires completely filled		N/A
20.2.3	Requirements of 20.2.1 and 20.2.2 met by an internal fire enclosure		N/A

A	**Annex A, Additional requirements for apparatus with protection against splashing water**		**N/A**
A.5	Marking and instructions	IP20, not applied for	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

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
A.10.2.2	Humidity treatment carried out for 7 days		N/A
B	**Annex B, Apparatus to be connected to the TELECOMMUNICATION NETWORKS**		**N/A**
	Complies with IEC 62151 clause 1	EUT not intended for connection to telecommunication networks	N/A
	Complies with IEC 62151 clause 2		N/A
	Complies with IEC 62151 clause 3 but with 3.5.4 modified to 2.4.10 of this standard		N/A
	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/A
	Complies with IEC 62151 cause 5 but with 5.3.1 modified in accordance with annex B of this standard		N/A
	Complies with IEC 62151 clause 6		N/A
	Complies with IEC 62151 clause 7		N/A
	Complies with IEC 62151 annex A, B and C		N/A
L	**ANNEX L, Additional requirements for electronic flash apparatus for photographic purposes**		**N/A**
L. 5	Marking and instructions	No such apparatus	N/A
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/A
	Instructions for flash apparatus indicating type or model number of battery chargers or Supply apparatus with which it is to be used		N/A
L. 7	Heating under normal operating conditions		N/A
L7.1.5 & L11.2.7	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/A
L. 9	Electric shock hazard under normal operating conditions		N/A
L. 9.1.1	Terminals to connection to synchroniser not HAZARDOUS LIVE		N/A
L.10	Insulation requirements		N/A
L. 10.3.2	High frequency puls ignition		N/A
L. 12	Mechanical strength		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
L. 12.1.3	Windows for flash tubes are excluded from steel ball impact test		N/A
L. 14	Components		N/A
L14.6.6	Mains switch characteristics appropriate to its function under normal conditions		N/A
L. 20	Resistance to fire		N/A
L. 20.1 c)	Trigger coil for discharge purpose is not considered to be a POTENTIAL IGNITION SOURCE		N/A

7.1	TABLE: temperature rise measurements		P
	Power consumption in the OFF/Stand-by	--	--
	Position of the functional switch (W) .....:	--	--

For model HEOS 7

Un (Vdc)	Hz	In (A)	Pn (W)	Pout (W)	Remark
90	50	0.29	26.13	S: 4.03, T1: 2.10, T2: 0.013	**AUX mode:** 1/8 of 100% max. non-clipped output power Adapter output: 23.8V, 0.95A USB load: 5V, 1A
90	60	0.29	26.48		
100	50	0.26	26.34		
100	60	0.26	26.57		
240	50	0.14	27.08		
240	60	0.14	27.13		
264	50	0.13	27.09		
264	60	0.13	27.15		

For model HEOS 7 HS2

Un (Vdc)	Hz	In (A)	Pn (W)	Pout (W)	Remark
90	50	0.283	25.2	S: 4.03, T1: 2.10, T2: 0.013	**AUX mode:** 1/8 of 100% max. non-clipped output power Adapter output: 24V, 0.937A USB load: 5V, 1A
90	60	0.283	25.2		
100	50	0.259	25.2		
100	60	0.259	25.2		
240	50	0.135	27.0		
240	60	0.136	27.0		
264	50	0.127	26.8		
264	60	0.128	26.9		

Note: S= Subwoofer, T1=Tweeter speaker, T2= Super tweeter speaker.
Unit supplied by external adapter when performed above input test

	Loudspeaker impedance (Ω) .....:	6Ω, 8Ω, 4Ω	--
	Several loudspeaker systems	S: 4 Ω, T1: 6Ω x 2, T2: 8Ω x 2	--
	Marking of loudspeaker terminals	--	--

Monitored point:	dT (K)		Limit dT (K)
Test voltage and test frequency :	**90/60Hz**	**264V/60Hz**	--
For model HEOS 7 external adapter part:			
Line filter winding (NF1)	20.7	26.6	85
Varistor body (ZR1)	17.1	20.9	40
X-Cap. (XC1）	19.6	25.2	55
Line filter winding (NF2)	18.2	22.6	85
PCB under BD1	17.8	20.0	85
Line filter winding (NF3)	21.6	25.1	85
Line filter winding (T1)	22.8	27.0	85
PCB under Q1	23.7	39.2	85

PCB under Q2	24.1	35.7	85
E-Cap. (C1)	23.7	28.3	60
Y-Cap. (YC1)	23.9	33.5	80
Transformer winding (T2)	25.7	32.1	65
Transformer core (T2)	23.7	28.9	--
Opto-coupler body (PC2)	23.8	27.5	65
PCB under Q3 and Q4	24.0	31.9	130
Output wire	16.9	21.1	35
Enclosure inside near transformer T2	17.2	21.2	35
Enclosure outside near transformer T2	12.9	16.3	50
For model HEOS 7 main unit:			
Line filter winding (L38)	18.8	19.0	85
E-Cap. (C225)	22.5	22.5	60
PCB under D5	32.8	32.3	85
PCB under U100	32.3	32.2	85
PCB under U300	28.3	28.6	85
Line filter winding (L23)	40.8	40.9	85
E-Cap. (C130)	36.0	36.2	85
Enclosure inside near U100	7.2	6.9	--
Enclosure outside near U100	4.5	4.7	50
Test voltage and test frequency :	24Vdc*		--
For model HEOS 7 HS2			
DC jack	14.8		60-10=50
PCB near U4	37.3		130-45=85
PCB near U8	38.5		130-45=85
PCB near U6	38.6		130-45=85
PCB near U4	30.9		130-45=85
C218 body	33.9		105-45=60
Button	3.0		50-10=40
Enclosure outside near heatsink of amplifier	15.3		For reference
Enclosure inside near heatsink of amplifier	17.6		60-10=50
Ambient	28.5°C		--

Notes:

* DC source used when perform above normal heating.

- With specified max. ambient temperature 45°C, limits applied as specified for components or materials.

	Winding temperature rise measurements		--
	Ambient temperature t1 (°C)	--	--
	Ambient temperature t2 (°C)	--	--

Temperature rise Dt of winding:	R_1 (Ω)	R_2 (Ω)	Dt (K)	Limit Dt (K)	Insulation class
--					

11.2	**TABLE: summary of fault condition tests**		**P**
	Voltage (V) 0,9 or 1,1 times rated voltage .....:	--	—
	Ambient temperature (°C) .....:	--	—

No.	Component no.	Fault	Test voltage (V)	Test time	Fuse no.	Fuse current (A)	Result
For model HEOS 7							
1.	100% of max. non-clipped output power	--	264V/ 60Hz	2hrs 55mins	--	--	Unit operated normally, no damage, no hazards. Adapter input current: 0.35A. Adapter output current: 3.0A. Measured of max. temperature rise: External adaptor: PCB under BD1 dT= 28.5K PCB under Q1 dT= 47.6K PCB under Q2 dT= 45.8K Transformer winding (T2) dT= 47.7K Transformer core (T2) dT= 41.1K PCB under Q3 and Q4 dT= 44.0K Output wire dT= 29.4K Enclosure inside near Transformer T2 dT= 29.2K Enclosure outside near Transformer T2 dT= 20.4K Main unit: PCB under D5 dT= 38.7K PCB under U100 dT= 37.9K PCB under U300 dT= 34.7K Enclosure inside near U100 dT= 20.2K Enclosure outside near U100 dT=16.0 K

2.	USB	o-l	264V/ 60Hz	5hrs 30mins	--	--	Unit operated normally, USB shut down when USB output load to 2.2A. Adapter input current: 0.16A. Adapter output current: 1.16A. Measured of max. temperature rise: External adaptor: PCB under BD1 dT= 22.9K PCB under Q1 dT= 42.7K PCB under Q2 dT= 39.7K Transformer winding (T2) dT= 36.6K Transformer core (T2) dT= 32.8K PCB under Q3 and Q4 dT= 36.3K Output wire dT= 23.8K Enclosure inside near Transformer T2 dT= 24.0K Enclosure outside near Transformer T2 dT= 18.2K Main unit: PCB under D5 dT= 39.8K PCB under U100 dT= 35.2K PCB under U300 dT= 41.2K Enclosure inside near U100 dT= 7.9K Enclosure outside near U100 dT= 7.3K
3.	USB	s-c	264V/ 60Hz	2hrs 30mins	--	--	Unit shut down immediately, recoverable when fault removed, no damage, no hazards. Adapter input current: 0.14A→0.02A. Adapter output current: 0.95A→0.06A Measured of max. temperature rise: External adaptor: PCB under BD1 dT= 11.3K PCB under Q1 dT= 16.9K PCB under Q2 dT= 18.2K Transformer winding (T2) dT= 19.2K Transformer core (T2) dT= 17.6K PCB under Q3 and Q4 dT= 16.7K Output wire dT= 10.4K Enclosure inside near Transformer T2 dT= 11.8K Enclosure outside near Transformer T2 dT= 9.4K Main unit: PCB under D5 dT= 28.5K PCB under U100 dT= 27.4K PCB under U300 dT= 24.7K Enclosure inside near U100 dT= 7.3K Enclosure outside near U100 dT= 6.8K

4.	Subwoofer	s-c	264V/ 60Hz	2hrs 25mins	--	--	Subwoofer has no output, no hazards. Adapter input current: 0.16A. Adapter output current: 0.81A. Measured of max. temperature rise: External adaptor: PCB under BD1 dT= 10.3K PCB under Q1 dT= 16.5K PCB under Q2 dT= 17.7K Transformer winding (T2) dT= 18.4K Transformer core (T2) dT= 15.8K PCB under Q3 and Q4 dT= 18.6K Output wire dT= 11.1K Enclosure inside near Transformer T2 dT= 11.3K Enclosure outside near Transformer T2 dT= 7.9K Main unit: PCB under D5 dT= 31.6K PCB under U100 dT= 29.0K PCB under U300 dT= 25.4K Enclosure inside near U100 dT= 8.1K Enclosure outside near U100 dT= 4.8K
5.	One tweeter speaker	s-c	264V/ 60Hz	2hrs 50mins	--	--	Tweeter speaker has no output, no hazards. Adapter input current: 0.18A. Adapter output current: 1.02A. Measured of max. temperature rise: External adaptor: PCB under BD1 dT= 16.2K PCB under Q1 dT= 25.1K PCB under Q2 dT= 25.4K Transformer winding (T2) dT= 25.8K Transformer core (T2) dT= 23.1K PCB under Q3 and Q4 dT= 26.0K Output wire dT= 16.8K Enclosure inside near Transformer T2 dT= 17.0K Enclosure outside near Transformer T2 dT= 13.4K Main unit: PCB under D5 dT= 34.1K PCB under U100 dT= 35.0K PCB under U300 dT= 32.2K Enclosure inside near U100 dT= 9.5K Enclosure outside near U100 dT= 4.1K

6.	One super tweeter speaker	s-c	264V/ 60Hz	2hrs 43mins	--	--	Super tweeter speaker has no output, no hazards. Adapter input current: 0.14A. Adapter output current: 1.05A. Measured of max. temperature rise: External adaptor: PCB under BD1 dT= 20.5K PCB under Q1 dT= 39.6K PCB under Q2 dT= 36.4K Transformer winding (T2) dT=32.9 K Transformer core (T2) dT= 29.6K PCB under Q3 and Q4 dT= 32.8K Output wire dT= 21.5K Enclosure inside near Transformer T2 dT= 21.5K Enclosure outside near Transformer T2 dT= 16.1K Main unit: PCB under D5 dT= 33.6K PCB under U100 dT= 34.1K PCB under U300 dT= 31.0K Enclosure inside near U100 dT= 6.9K Enclosure outside near U100 dT= 5.3K
For model HEOS 7 HS2							
7.	Super tweeter speaker	s-c	24Vdc*	10mins	--	--	Super tweeter speaker has no audio output, input current dropped from 0.937A to 0.913A, no damage, recoverable when fault removed, no hazards.
8.	Tweeter speaker	s-c	24Vdc*	10mins	--	--	Tweeter speaker has no audio output, input current dropped from 0.937A to 0.567A, no damage, recoverable when fault removed, no hazards.
9.	Subwoofer	s-c	24Vdc*	10mins	--	--	Unit has no audio output, input current dropped from 0.937A to 0.179A, no damage, recoverable when fault removed, no hazards.
10.	USB	s-c	24Vdc*	10mins	--	--	USB port shut down, other part of unit operated normally, input current dropped from 0.937A to 0.71A, no damage, recoverable when fault removed, no hazards.

11.	100% of max. non-clipped output power	--	24Vdc*	4hrs	--	--	Unit operated normally, no damage, no hazards. Input current: 3.2A Measured max. temperature rise: PCB near U4: 44.6K PCB near U6: 48.2K Enclosure outside near heatsink of amplifier board: 20.2K Ambient: 28.7ºC
12.	USB	o-l	24Vdc*	5hrs	--	--	Unit operated normally, USB port shut down when load to 2.4A, no hazards. Input current: 0.937A to 1.33A to 0.71A Measured max. temperature rise: PCB near U4: 40.6K PCB near U6: 41.7K Enclosure outside near heatsink of amplifier board: 17.7K Ambient: 28.9ºC
13.	U5 pin2,3 to pin3,9	s-c	24Vdc*	10mins	--	--	Unit has no audio output, input current dropped from 0.937A to 0.175A, no damage, recoverable when fault removed, no hazards.
14.	U5 pin2,3 to pin4,6	s-c	24Vdc*	10mins	--	--	Unit has no audio output, input current dropped from 0.937A to 0.175A, no damage, recoverable when fault removed, no hazards.

Notes:

* DC source used to simulated external source of USB supply for all test of condition 2.

- Supplementary information: s-c=short circuit; o-l=over load

14	TABLE: list of critical components and materials				P
Component	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity[1)]
Plastic enclosure	SAMSUNG SDI CO LTD	NH-1017(p)	PC/ABS, V-0, 85°C, min. thickness 2.0mm	UL 94	UL E115797
PCB	Interchangeable	Interchangeable	Min. V-1, 130°C	UL 796	UL
Cotton fibre felt	Asia Lanneret Science & Technology Co Ltd	2630#reticulated Foam (a)	HF-1, 50°C	UL 94	UL E248065
(Alternative)	Interchangeable	Interchangeable	HF-1, 50°C	UL 94	UL
External adapter	Dongguan Dongsong Electronic Co., Ltd.	DYS902-240375W	Input: 100-240V~, 50/60Hz, 1.5A MAX; Output: 24Vdc, 3.75A, Class II	IEC 60065:2001 + A1+ A2, EN 60065: 2002 + A1 + A11 +A2 + A12, UL 60065, 7th edition, Rev. 12, CAN/CSA NO. 60065:2003 + A1+A2	SGS CB certificate No.: FI-14655, SGS GS certificate No.: GS/13/HEL/00689, Intertek ETL certificate no: 4002961

Note:
[1)] Provided evidence ensures the agreed level of compliance. See OD-CB2039.

IEC60065 - ATTACHMENT			
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
Attachment Originator..... :	Intertek Semko AB
Master Attachment ..... :	Date (2011-09)

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	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** (nominative) Special national conditions **Annex ZC** (informative) A-deviations		—
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.		—
2.2 (A12:2011)	In EN 60065:2002/A11:2008 Delete the definition 2.2.Z1		N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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: 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/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): 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; b) for components in series or parallel with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for equipment supplied via an industrial mains plug or for PERMANENTLY CONNECTED APPARATUS, to rely on dedicated over current and short-circuit protection in the building 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 as providing protection in accordance with the rating of the wall socket outlet.	Not directly connected to the mains	N/A
4.1.1	**Replace** the text of the note by: NOTE For ROUTINE TEST reference is made to EN 50514.		—

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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.	Not such equipment.	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 excisting standard and amendments	Not such equipment.	N/A
	Zx Protection against excessive sound pressure from personal music players		N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	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: 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. 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 music or video mode only. 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. 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.	Not such equipment	N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Cont.	**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 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 equivalent 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 ncreased 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.		N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Cont.	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. 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.		N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Cont.	**Zx.4 Requirements for listening devices (headphones and earphones)**		N/A
	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.	Not such equipment.	N/A
	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.	Not such equipment.	N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
.	**Zx.4.3 Wireless listening devices** 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 $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA. NOTE An example of a wireless listening device is a Bluetooth headphone.	Not such equipment.	N/A
	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/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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 cm², 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/Euratom 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/m² with locked blank 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.*	No ionizing radiation.	N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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 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. 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.	Not television set.	N/A
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)		—

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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.		—
Bibliography	Additional EN standards.		—

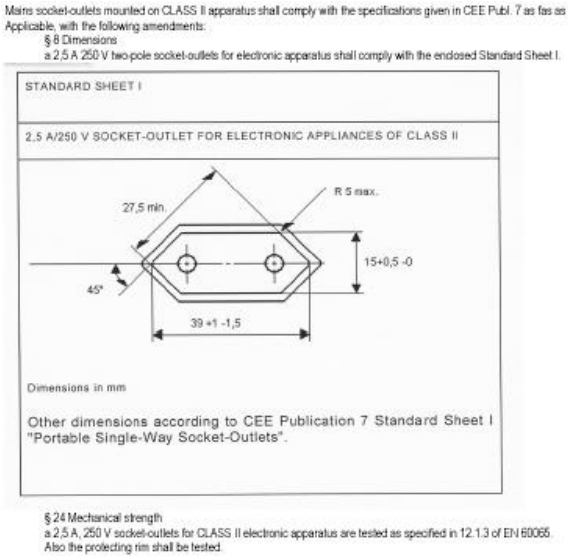
ZA	**Normative references to international publications with their corresponding European publications**	P

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.	Not directly connected to the mains	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.	Not directly connected to the mains	N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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 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”	Not directly connected to the mains	N/A
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 or an appliance coupler, or both and in addition is intended for connection to other apparatus or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network TERMINALS and ACCESSIBLE parts, have a marking stating that the apparatus must be connected to an MAINS socket-outlet with protective earth. The marking text in the applicable countries shall be as follows: In Finland: “Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan” In Norway: “Apparatet må tilkoples jordet stikkontakt” In Sweden: "Apparaten skall anslutas till jordat uttag"	Not directly connected to the mains	N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.1 (A11:2008)	**Norway and Sweden** To the end of 5.4.1 (after the compliance statement) the following is **added**: The screen of the cable distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a cable distribution system. 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 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.”	No cable distribution system	N/A

IEC60065 - ATTACHMENT			
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.	Not directly connected to the mains	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	No socket outlet.	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	Not directly connected to the mains	N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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 enclosed Standard Sheet I.  § 24 Mechanical strength A 2,5 A 250 V socket-outlets for CLASS II electronic apparatus are tested as specified in 12.1.3 of EN 60065. Also the protecting rim shall be tested *Justification:* Act of 24 May 1929 relating to supervision of electrical installation (TEA 1929/FEL 1998).	Not directly connected to the mains	N/A
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: The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those Regulations. NOTE ”Standard plug” is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug. *Justification*: SI 1768: 1994		N/A

IEC60065 - ATTACHMENT			
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

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/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: http://www.ptb.de	No cathode ray tube used.	N/A
14	SE: Switches containing mercury such as thermostats, relays and level controllers are not allowed. *Justification*: Ordinance (1990:944) on Prohibition in Connection with handling. Importation and exportation of Chemical Products (Certain Cases)	No such switch used.	N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
APPENDIX	Australia National Differences according to CB Bulletin 2014-03-26 (IEC Publication 60065 7th edition, 2001+ A1:2005 +A2:2010)		P
EXPLANATION FOR ABBREVIATIONS P=Pass, F=Fail, N/A=Not applicable. Placed in the column to the right.			
ZZ.1	Introduction This Annex sets out variations between this Standard and IEC 60065:2001. These variations indicate national variations for purposes of the IECEE CB Scheme and will be published in the IECEE CB Bulletin. These variations are indicated within the body of the Standard by shading and strikethrough.	Considered	P
ZZ.2	Variations The variations are as follows:		P
7.1.5	In table 3, under item c) *add* an [201)] in both columns against "thermoplastic materials' and *add* the following new footnote: [201)] As an alternative to the method described in footnote f) the following variation may be used where there is any doubt about the suitability of the material: The ball-pressure test described in AS/NZS 60695.10.2 may be carried out. To assess compliance under normal operating conditions the test is made in a heating cabinet at a temperature of 40°C ±2°C plus the maximum temperature rise determined under normal operating conditions but, it shall be at least - for external parts.....75°C±2°C - for materials supporting parts CONDUCTIVELY CONNECTED TO THE MAINS.....125°C±2°C		P
7.2	After the second paragraph, add the following: The alternative method described in footnote [201)] of Table 3 may be used.		P
15.1.1	After the second paragraph, add the following: Plugs for the connection of apparatus to mains-powered socket-outlets shall comply with AS/NZS 3112 or AS/NZS 3123. Apparatus with a plug portion, suitable for insertion into a 10A 3 pin flat-pin flat-pin socket-outlet complying with AS/NZS 3112, shall comply with the requirements of AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets.	Not directly connected to the mains	N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
15.3.5	In Table 15, in the second and third rows of the first column replace “6” with “7.5”.		N/A
16.2	In Table 18, in the second and third rows of the first column replace “6” with “7.5”.		N/A
16.3	In item (b) *add* the following: A flexible cord complying with AS/NZS 3191 need not undergo this test.		N/A
19.201	Add the following after Clause 19.6: **19.201 Additional stability requirements for television receivers** Television receivers and display devices that may be used for television purposes, with a mass of 7kg or more, shall have additional stability requirements. Compliance is checked by inspection and by the tests of 19.201.2.2 and 19.201.3 as applicable. Apparatus designed for only fixing to a wall, ceiling or equipment rack are not required to be subjected to these additional requirements if the marking of 5.4.1 f) is provided on or with the apparatus.		N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	19.201.1 Warning notice Television receivers and display devices that may be used for television purposes, shall be provided with information in the instructions for installation for use, containing the following information or similar: **IMPORTANT INFORMATION** If a television is not positioned in a sufficiently stable location, it can be potentially hazardous due to falling. Many injuries, particularly to children, can be avoided by taking simple precautions such as: • Using cabinets or stands recommended by the manufacturer of the television. • Only using furniture that can safely support the television. • Ensuring the television is not overhanging the edge of the supporting furniture. • Not placing the television on tall furniture (for example, cupboards or bookcases) without anchoring both the furniture and the television to a suitable support. • Not standing the televisions on cloth or other materials placed between the television and supporting furniture. • Educating children about the dangers of climbing on furniture to reach the television or its controls. Such information should also be provided as a label on the apparatus. **19.201.2 Restraining device** **19.201.2.1** Television receivers should be provided with a restraining device such as a fixing point to facilitate restraining the television from toppling forward. **19.201.2.2** Where a restraining device is provided in accordance with 19.201.2.1 information shall be provided in the instructions for installation or use, to ensure correct and safe installation. Such information should also be provided as a label on the television receiver. Any such restraining device shall be capable of withstanding a pull of 100 N in all directions without damage. **19.201.3 Glass slide test‡** Television receivers and display devices that may be used for television purposes, with a mass of 18 kg or more, are placed on a clean, dry, glass covered horizontal surface such that only the supporting feet are in contact with the glass. The glass-covered surface is then tilted in the most unfavourable direction through an angle of 10°. During the tests, the equipment shall not slide.		N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Clause 20	Delete the following paragraph: "The requirements are considered to be fulfilled…" and replace with: "The requirements are considered to be fulfilled… Alternatively the requirements are considered to be fulfilled if the apparatus complies with the requirements of Clause 20.201"		N/A
20.1.4	In Table 21, in the third and fourth columns *change* both "HB75" and "No requirement" to "V-1".	Changed	N/A
20.201	**Resistance to fire - Alternative tests** **20.201.1 General** Parts of non-metallic material shall be resistant to ignition and the spread of fire. This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames originating from inside the apparatus, or the following: (a) Components that are contained in an enclosure having a flammability category of V-0 according to AS/NZS 60695.11.10 and having openings only for the connecting wires filling the openings completely, and for ventilation not exceeding 1 mm in width regardless of length. (b) The following parts which would contribute negligible fuel to a fire: - small mechanical parts, the mass of which does not exceed 4g, such as mounting parts, gears, cams, belts and bearings; - small electrical components, such as capacitors with a volume not exceeding 1750mm^3, integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category V-1 or better according to AS/NZS 60695.11.10	Not applied	N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	NOTE – In considering how to minimize propagation of fire and what “small parts” are, account should be taken of the cumulative effect of small parts adjacent to each other for the possible effect of propagating fire from one part to another. Compliance shall be checked by tests of 20.201.2.1, 20.201.2.2 and 20.201.2.3 For the base material of PRINTED BOARDS, compliance is checked by the test of 20.201.2.4. The test shall be carried out on parts of non-metallic material which have been removed from the apparatus. When the glow-wire test is carried out, they are placed in the same orientation as they would be in normal use. These tests are not carried out on internal wiring. **20.201.2 Test** **20.201.2.1 Testing of non-metallic parts** Parts of non-metallic material are subjected to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 550°C. Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall not be carried out on parts of material classified at least FH-3 according to ISO 9772 provided that the sample tested was not thicker than the relevant part. **20.201.2.2 Testing of insulated parts** Part of insulating material supporting POTENTIAL IGNITION SOURCES shall be subject to the glow-wire test of AS/NZS 64695.2.11 which shall be carried out at 750°C The test shall be also carried out on other parts of insulating material which are within a distance of 3 mm of the connection. NOTE-Contacts in components such as switch contacts are considered to be connections.		N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	For parts which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm are subjected to the needle-flame test. However, parts shielded by a barrier which meets the needle-flame test need not be tested. The needle-flame test shall be made in accordance with AS/NZS 4695.2.2 with the following modifications:		N/A

Clause of AS/NZS 4695.2.2	Change
5 Severities	Replace with: The duration of application of the test flame is 30 s ± 1 s.
8 Test procedure 8.2	Replace the first sentence with: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1.
8.4	The first paragraph does not apply. Addition: If possible, the flame shall be applied at least 10 mm from a corner.
8.5	Replace with: The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further specimens, both of which shall then withstand the test.
10 Evaluation of test results	Replace with: The duration of burning (t_b) shall not exceed 30 s. However, for PRINTED BOARDS, it shall not exceed 15 s.

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to IEC 60695-11-10 provided that the sample tested was not thicker than the relevant part. **20.201.2.3 Testing by needle-flame test** If parts, other than enclosures, do not withstand the glow wire tests of 20.201.2.2, by failure to extinguish within 30 s after the removal of the glow-wire tip, the needle-flame test detailed in 20.201.2.2 shall be made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by flame during the tests of 20.201.2.2. Parts shielded by a separate barrier which meets the needle-flame test shall not be tested. NOTE 1– If the enclosure does not withstand the glow-wire test the appliance is considered to have failed to meet the requirement of Clause 21.201 without the need for consequential testing. NOTE 2– If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the apparatus, the apparatus is considered to have failed to meet the requirement of Clause 21.201 without the need for consequential testing. NOTE 3– Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting in contact with or in close proximity to connections. **20.201.2.4 Testing of printed boards** The base material of PRINTED BOARDS shall be subjected to the needle-flame test of Clause 21.201.2.3. The flame shall be applied to the edge of the board where the heatsink effect is lowest when the board is positioned as in normal use. The flame shall not be applied to an edge consisting of broken perforations, unless the edge is less than 3 mm from a POTENTIAL IGNITION SOURCE.		N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	The test is not carried out if the — - printed board does not carry any potential ignition source; - base material of printed boards, on which the available power at a connection exceeds 15VA operating at a voltage exceeding 50V and equal or less than 400V (peak) a.c. or d.c. under normal operating conditions, is of flammability category V-1 or better according to AS/NZS 60695.11.10, or the printed boards are protected by an enclosure meeting the flammability category V-0 according to AS/NZS 60695.11.10, or made of metal, having openings only for connecting wires which fill the openings completely; or - Base material of printed boards, on which the available power at a connection exceeds 15VA operating at a voltage exceeding 400V (peak) a.c. or d.c. under normal operating conditions, and base material of printed boards supporting spark gaps which provides protection against overvoltages, is of flammability category V-0 according to AS/NZS 60695.11.10 or the printed boards are contained in a metal enclosure, having openings only for connecting wires which fill the openings completely. Compliance shall be determined using the smallest thickness of the material. NOTE – Available power is the maximum power which can be drawn from the supplying circuit through a resistive load whose value is chose to maximize the power for more than 2 min when the circuit supplied is disconnected. **21.201.3 For open circuit voltages greater than 4 kV** POTENTIAL IGNITION SOURCES with open circuit voltages exceeding 4kV (peak) a.c. or d.c. under normal operating conditions shall be contained in a fire enclosure which shall comply with flammability category V-1 or better according to AS/NZS 60695.11.10.		N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex B	After the heading add: For Australia only, this Annex is replaced by the requirements of the Telecommunications Labelling Notice issued under the Telecommunications Act. Note – The Telecommunications Act is administered by the Australian Communications Authority.		N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
APPENDIX	Canadian National Differences according to CB Bulletin (CAN/CSA C22.2 No. 60065: 03 + A1: 2006 + A2: 2012)		P
EXPLANATION FOR ABBREVIATIONS P=Pass, F=Fail, N/A=Not applicable. Placed in the column to the right.			
1.1.1	Add the following paragraph and note: This Standard applies to the safety of such equipment designed to be installed and used in accordance with the rules of the Canadian Electrical Code (CEC), Part I. Note 4A: Manufacturers designing products for use in Canada may find a helpful summary of the equipment-related requirement of the CEC, Part I, in CSA SPE-2000.		P
1.2	Normative references Where reference is made to CSA Publications, such reference shall be considered to refer to the latest edition and all amendments published to that edition. This Standard refers to the following Standards, and the years shown indicate the latest editions available at the time of printing. ANSI/IEEE Standard C62.1-1984, Surge Arresters for Alternating-Current Power Circuits CSA Standards C22.1-02, Canadian Electrical Code, Part 1 CAN/CSA-C22.2 No. 0-M91 (R2001), General Requirements - Canadian Electrical Code, Part II C22.2 No. 0.4-M1982 (R1999), Bonding and Grounding of Electrical Equipment (Protective Grounding) C22.2 No. 0.15-01, Adhesive Labels CAN/CSA-C22.2 No. 1-98, Audio, Video and Similar Electronic Equipment CAN/CSA-C22.2 No. 21-95 (R1999), Cord Sets and Power Supply Cords C22.2 No. 39-M1987 (R1999), Fuseholder Assemblies C22.2 No. 42-99, General Use Receptacles, Attachment Plugs, and Similar Wiring Devices		P

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	CAN/CSA-C22.2 No. 49-98, Flexible Cords and Cables CAN/CSA-C22.2 No. 94-M91 (R2001), Special Purpose Enclosures C22.2 No. 127-99, Equipment and Lead Wires C22.2 No. 209-M1985 (R1999), Thermal Cut-Offs CAN/CSA-C22.2 No. 210.2-M90 (R2001), Appliance Wiring Material Products CAN/CSA-C22.2 No. 223-M91 (1999), Power Supplies with Extra-Low-Voltage Class 2 Outputs CAN/CSA-C22.2 No. 228-92 (1999), Cathode Ray Tubes CAN/CSA-C22.2 No. 248.14-00, Low Voltage Fuses - Part 14 Spe-2000-94, Guide for Electrical Equipment for Installation and Use in Canada IEC Standards 60038:2002, IEC standard voltages 60083:1975, Plug and socket-outlets for domestic and similar general use. 60173:1964, Colours of the cores of flexible cables and cords. 60320 (all parts), Appliance couplers for household and similar general purposes. 60707:1981, Methods of test for the determination of the flammability of solid electrical insulating materials. 60884 (all parts), Plugs and socket-outlets for household and similar purposes. 60906-1:1986, IEC System of plugs and socket-outlets for household and similar purposes - Part 1: Plugs and socket-outlets 16A 250V ac. 60906-2:1997, IEC System of plugs and socket-outlets for household and similar purposes - Part 2: Plugs and socket-outlets 15A 125V ac. 60906-3:1994, IEC System of plugs and socket-outlets for household and similar purposes - Part 3: SELV plugs and socket-outlets 16A 6V, 12V, 24V, 48V ac and dc.		
3.2A	*Add the following clause* A component power supply complying with CAN/CSA – C22.2 No. 60950 is considered to comply with this construction and fault conditions of this Standard after taking into account any relevant conditions of acceptability.	No such power supply.	N/A

Canadian National differences acc. to IEC 60065:2001 + A1

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.2	Normal operating conditions		P
4.2.1	*Add the following after the fifth paragraph* For apparatus intended for use at nominal 120Vac the apparatus shall comply with this Standard at supply voltages between 108V and 125V. For apparatus intended for use at nominal 240Vac, the apparatus shall comply with this Standard at supply voltages between 216V and 250V.	Not directly connected to the mains	N/A
4.2.10	*Add the following after the second paragraph* As an alternative, a supply apparatus for general use complying with CAN/CSA – C22.2 No. 223 or CAN/CSA – C22.2 No. 60950 shall be acceptable.	No such apparatus.	N/A
5	Marking and instructions *Add the following paragraph* Adhesive nameplates on commercial products shall comply with CSA Standard C22.2 No. 0.15.	Not commercial products.	N/A
5.1	Identification and supply ratings *Add the following item* hA) date of manufacture: a date or code identifying the period of manufacture shall be marked on the apparatus;	Marked on outer enclosure.	P
5.3A	*Add the following clause* Where a loudspeakeer grille, removable from the outside, is relied on as part of the enclosure (see Clause 9.2), the following marking or equivalent shall be visible on the enclosure after removal of the grille: “Caution – To prevent electric shock hazard, replace grille.” Alternatively, the symbol in Clause 5.2 b) shall be visible after removal of the grille, and tha caution wording above shall appear in the user instructions, accompanied by the symbol. Compliance is checked by inspection.		N/A
8	Constructional requirements with regard to protection against shock	Not directly connected to the mains	P
8.9	*Add the following title to this clause* Mains wiring *Add the following paragraph* Wiring in circuits with voltages higher than 42 V peak shall comply with CSA C22.2 No. 127 or CAN/CSA – C22.2 No. 210.2.		N/A
9.1	Testing on the outside	Not directly connected to the mains	N/A

Canadian National differences acc. to IEC 60065:2001 + A1

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
9.1.1A	Class I apparatus leakage *Add the following clause* For cord – connected Class I apparatus, the leakage current through the safety earthing conductor, expressed as voltages U_1 and U_2, shall not exceed U_1 = 105 V (peak) and U_2 = 1.05 V (peak) (1.5mA). Apparatus having a leakage current between 0.75 mA and 1.5 mA shall be provided with a caution label on the mains cord with the following, or equivalent: "CAUTION – TO REDUCE THE RISK OF ELECTRIC SHOCK, GROUNDING OF THE CENTRE PIN OF THIS PLUG MUST BE MAINTAINED".		N/A
9.1.1.2	Determination of accessible parts *Add the following after the fourth paragraph* Moving parts of loudspeaker systems, such as dust caps, cones of drivers, or passive radiators, are not regarded as preventing accessibility		N/A
Note 1A:	See also Clause 13.3.1		N/A
9.2	Removal of protective covers *Add the following after the second paragraph* This requirement applies also to internal parts of louderspeaker systems that become accessible by removal of a louderspeaker grille from the outside either by hand or with the use of a tool, coin, or other object. In such cases, the apparatus shall be marked according to Clause 5.3A. *Replace the third paragraph with the following* Compliance is checked by inspections and by application of the tests of Clause 9.1.1, except that the measurements are made 2 s after removal of the cover or grille.		N/A
10	Insulation requirements		N/A
10.2A	Enclosure type designation and use *Add the following paragraph* If equipment is installed in environments where the enclosure is required to prevent ingress of water or dust, the enclosure shall be classified as a type recognized by the *Canadian Electrical Code, Part I*, and shall comply with the requirements of CAN/CSA – C22.2 No. 94.	Not such equipment.	N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
11.2	Heating *Add the following paragraph* Flammable gases shall not be emitted from a component for more than 10 s.	No flammable gases.	P
12	Mechanical strength		P
12.3A	Television Impacts *Add the following clause*	Not television.	N/A
12.3A.1	For television sets and similar apparatus using a cathode ray tube larger than 160 mm diagonally, the top, sides, front, and rear of the enclosure, including the safety screen where provided, shall be capable of withstanding a single impact of 7 J in accordance with Clause 12.3A.2 without developing any opening larger than 130 mm in the enclosure of the cathode ray tube, unless the minor dimension of 2 any opening is not more than 7 mm. When applied to a safety screen, the impact shall not result in damage to its mounting to the extent that it is mechanically unsuitable for reuse, nor shall tempered glass, if used, be cracked. When applied to the face of a directly viewed cathode ray tube, the impact shall not cause any opening in the face of the tube. Scaling and cracking of the glass shall be permissible. A cathode ray tube that has been shown to comply with CAN/CSA – C22.2 No. 228 or CAN/CSA – E 61965 shall be considered acceptable with no further tests.	Not TV.	N/A
12.3A.2	The impact specified in clause 12.3A.1 shall be caused by following a solid, smooth, steel sphere 51mm in diameter and weighing approximately 0.5kg to strike the enclosure with the specified impact in a direction perpendicular to the enclosure surface. If deemed necessary, the enclosure shall be tested with the proper cathode ray tube mounted.	No cathode ray tube was used.	N/A
13.3	Clearances		N/A
13.3.1	General *Add the following after the third paragraph* Clearances between a loudspeaker voice coil and adjacent conductive parts shall be disregarded.		N/A
14.2	Capacitors and RC - units		N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
14.2.1	*Add the following paragraph* As an alternative, an isolating capacitor complying with applicable requirements of CSA C22.2 No. 1 shall be acceptable for bridging basic or supplementary insulation.		N/A
14.2.2	*Add the following paragraph* As an alternative, a cross-line capacitor complying with applicable requirements of CSA C22.2 No. 1 shall be acceptable.		N/A
14.5.1	Thermal releases	No such components provided.	N/A
14.5.1.2	*Add the following paragraph* As an alternative, a thermal link complying with CSA C22.2 No. 209 shall be acceptable.		N/A
14.5.2	Fuse – links and fuse holders	No such components provided.	N/A
14.5.2.1	*Add the following paragraph* As an alternative, a fuse-link complying with CSA C22.2 No. 284.14 shall be acceptable.		N/A
14.5.2.4	*Add the following paragraph* As an alternative, a fuseholder assembly complying with CSA Standard C22.2 No. 39 shall be acceptable.		N/A
14.6	Switches	No such components provided.	N/A
14.6.1 to 14.6.5	*Add the following paragraph* As an alternative, a TV-rated switch complying with CSA C22.2 No. 1, Clause 9 shall be acceptable.		N/A
14.11	Optocouplers *Add the following paragraph* As an alternative, an optocoupler complying with CSA C22.2 No. 1 shall be acceptable.	No optocouplers provided.	N/A
14.12	Surge supperssion varistors *Add the following paragraph* As an alternative, an varistor complying with CSA C22.2 No. 1 shall be acceptable.	No Surge supperssion varistors provided.	N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
14.12A	Gas discharge tubes *Add the following clause* Gas discharge tubes complying with following tests may be connected to bridge basic or reinforced insulation. Ten samples of gas discharge tubes isolating the ac supply from exposed parts shall be subjected to the varistor pulse tests of Clause 14.12. Following the pulses, the device shall be allowed to return to room temperature. The dielectric breakdown voltage of the fas tube shall not decrease by more than 50%, and the gas discharge tube shall comply with the dielectric strength test of Clause 10.3, with the test voltage reduced to twice the mains voltage.	No gas discharge tubes.	N/A
15.1	Plugs and sockets		N/A
15.1.1	*Add the following paragraph* A receptacle provided for general purpose mains output shall comply with the requirements of CSA Standard C22.2 No. 42 (dimensional requirements are also specified in IEC 60906-2). The attachment plug cap shall be polarized type when the apparatus is provided with a manually operated, MAINS connected single pole switch for apparatus on-off operation, a socket screw shell lampholder, or a 15 or 20 ampere socket outlet.		N/A
15.1.2	*Add the following paragraph* Banana plugs shall be acceptable.	No such plug.	N/A
15.1.3	*Add the following title* Adapter output connectors *Replace the first paragraph with the following* Terminals and connectors used in output circuits of supply apparatus, whose output voltage is not a standard nominal mains voltage according to IEC 60038 (1), IEC 60320, IEC 60884, IEC 60906 (parts 1, 2, and 3), and CSA C22.2 No. 42.		N/A
15.2	Provisions for protective earthing *Replace the first paragraph with the following* Earthing connections shall comply with the test requirements of CSA C22.2 No. 0.4.	Not directly connected to the mains	N/A
15.3	Terminals for external flexible cords and for permanent connection to the mains supply	Not directly connected to the mains	N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
15.3.1A	*Add the following clause* Equipment intended for permanent connection to the mains shall have provisions for connection to the wiring system in accordance with the Canadian Electrical Code, Part I. The terminal parts and all other provisions for permanent connection to fixed wiring shall comply CSA Standard CAN/CSA-C22.2 No. 0.	Not intended for permanent connection to the mains.	N/A
15.4	Devices forming a part of the mains plug		N/A
15.4.2	*Add the following paragraphs* Mains plugs of non-permanently installed equipment shall comply with a) CSA C22.2 No. 21 for moulded-on type attachment plugs; and b) CSA C22.2 No. 42 for disassembly type attachment plugs (dimensional requirements are also specified in IEC 60906-2). Class II equipment provided with a general purpose mains outlet, or lampholder, shall be provided with a polarized-type plug. If the plug is a polarized type, single pole switches or over current protectors shall not be connected in the identified conductor.		N/A
16	External flexible cords	Not directly connected to the mains	N/A
16.1	*Replace this clause with the following* Flexible cord used for mains supply shall comply with the requirements of CSA C22.2 No. 49. The cord type shall be in accordance with Table 4 of CSA C22.2 No. 1. The attachment plug shall be rated not less than 125% of the apparatus rated current. Cord sets shall comply with the requirements of CSA C22.2 No. 21.		N/A
	Non-detachable flexible cables and cords of Class I apparatus shall be provided with a green/yellow core connected to the protective earthing terminal of the apparatus and, if a plug is provided, to the protective earthing contact of the plug. Compliance is checked by inspection. Note: The colour for cores of flexible mains cords is contained in IEC 60173 (4).		N/A
17	Electrical connections and mechanical fixings		N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
17.9A	Adhesive securement and conductive coatings *Add the following clause*	No such adhesive.	N/A
17.9A.1	Adhesive securement The following parts, the displacement of which may result in a fire or shock hazard, shall not be secured solely by adhesive, unless the adhesive system complies with the resistance to external forces test fo Clause 9.1.7, the bump test of Clause 12.1.1, and the impact test of Clause 12.1.3, after conditioning in accordance with Clause 17.9A.2: a) internal metal parts/conductive coatings; b) barriers; and c) required enclosure parts. Note: Cathode ray tubes are excluded from this test.		N/A
17.9A.2	Adhesive and conductive coating securement conditioning	No such adhesive or conductive coating.	N/A
17.9A.2.1	General Where required by Clause 17.9A.1, one sample of the apparatus or enclosure section shall be conditioned in accordance with the requirements of Clause 17.9A.2.2. Equivalent ageing test data supplied by the manufacturer will be considered in lieu of ageing.		N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
17.9A.2.2	Ageing Day 1: Place in oven at 100±1°C for 1 week, or 82± 1°C for 8 weeks at the manufacturer's option. **Day 8 or Day 57:** 1. Remove from oven and leave at room temperature for 1h. 2. Place in freezer at –35°C for 2h. 3. Remove from freezer and allow to reach room temperature overnight. **Day 9 or Day 58:** 1. Place in a compartment at 96% relative humidity for 3h. 2. Remove and leave at room temperature and humidity for 1h. 3. Place in oven at a temperature selected in the first cycle for 3h. 4. Remove and allow to come to room temperature overnight. **Day 10 or Day 59:** 1. Place in Freezer at –35°C for 2h. 2. Remove and leave at room temperature for 1h. 3. Place in humidity chamber at 96% relative humidity for 3h. 4. Remove and allow to come to room temperature overnight. **Day 11 or Day 60:** 1. Place in oven at a temperature selected in the first cycle for 3h. 2. Remove for 1h. 3. Place in Freezer at –35°C for 2h. 4. Remove and allow to come to room temperature overnight. **Day 12 or Day 61:** 1. Place in humidity chamber at 96% relative humidity for 3h. 2. Remove and perform mechanical tests as required by Clause 17.10.1 or 17.10.2 as applicable.		N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
18	Mechanical strength of picture tubes and protection against the effects of implosion	No picture tube.	N/A
18.1A	*Add the following clause* A picture tube with a maximum face dimension exceeding 75mm either shall be intrinsically protected with respect to effects of implosion and to mechanical impact in accordance with CAN/CSA - C22.2 No. 228 or CAN/CSA – E61965, or the enclosure of the apparatus shall provide adequate protection against the effects of an implosion of the tube (see Clause 12)		N/A
19	Stability and mechanical hazards *Add the following after the second paragraph* The test of Clause 19.3 is only required for a) apparatus with a mass of 25kg or more b) apparatus, excluding loudspeaker systems, with a height of 1m or more, or c) apparatus, including loudspeaker systems, in combination with a supplied or recommended cart of stand with a total height of 1m or more. *Add the following paragraph* Apparatus not tested because it is intended to be fastened in place shall be provided with the following warning: "WARNING: This apparatus must be securely attached to the floor/wall per installation instruction. Tipping, shaking or rocking the machine may cause injury/death."		N/A
20.2 20.2.1A	Fire enclosure *Add the following clause* Enclosures of apparatus containing high voltage or projection lamps shall have a minimum flammability rating of category FV1 according to IEC 60707 at the minimum thickness used.	No such high voltage or projection lamp.	N/A
Annex B (normative)	Apparatus to be connected to the telecommunication networks *Replace this annex with the following* Apparatus intended for direct connection to a telecommunication network shall comply with a) Clause 19 of CSA C22.2 No.1; or b) CAN/CSA – C22.2 No. 60950.	No TNV.	N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
APPENDIX	China National Differences according to CB Bulletin (GB 8898-2011)		P
EXPLANATION FOR ABBREVIATIONS P=Pass, F=Fail, N/A=Not applicable. Placed in the column to the right.			
1.1.3	Amended the first paragraph: This standard applies to apparatus intended to be used basically at altitudes not exceeding 5 000 m, dry climate at warm temperate zone or tropical climates.		P
	The fourth paragraph replaced by following: For apparatus intended to be used in vehicles, ships or aircraft, or at altitudes exceeding 5 000m, additional requirements may be necessary.		N/A
5	At the end of the first paragraph ,added following: For apparatus intended to be used at altitude not exceeding 2000m, a warning label containing the following or a similar appropriate wording or a symbol as in annex R(see following) shall fixed to the equipment at readily visible place. "Only used at altitude not exceeding 2000m. If only symbol used, the explanation of the symbol shall be contained in the instruction manual. For apparatus intended to be used in not-tropical climate regions, a warning label containing the following or a similar appropriate wording or a symbol as in annex R shall fixed to the equipment at readily visible place. "Only used in not-tropical climate regions." If only symbol used, the explanation of the symbol shall be contained in the instruction manual. The statements above shall be given in a language acceptable to the regions where the apparatus is intended to be used.	Should be considered during the national approval.	N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.1 e)	After the last paragraph, added: For single rated voltage, “220 V” or three-phase “380V” shall be marked only. For a rating range, 220 V or three-phase 380V shall be covered. For multiple rated voltages, one of them shall be 220 V or three-phase 380V and which default setting from manufacture shall be 220 V or three-phase 380V as well.	Added.	P
5.1 f）	After the first sentence, Added: for Rated MAINS frequency or frequency range shall be 50Hz or covered 50Hz.	Not directly connected to the mains	N/A
5.4	Replaced the second sentence of the first paragraph： This information shall be given in normative Chinese.	Should be considered during the national approval.	N/A
5.4.1i)	Added new paragraph i),after the h) paragraph: i) For apparatus incorporating antenna coaxial sockets witch is non-separated with CATV network, a warning wording or a similar shall be given in the instructions manual: “The CATV network connecting to this apparatus shall separate from protective earth, otherwise it may cause fire or other hazard.”	No such construction.	N/A
7 ,Table3	Note a) of table 3 replaced: This standard applies to apparatus intended to be used in tropical climates, permissible temperature rises are 10 K less than those specified in the table. For apparatus intended to be used in non-tropical climates the limits in Table 3 are satisfactory.	Not directly connected to the mains	N/A
7.1	Added Note 3: For apparatus intended to be operated at altitudes between 2 000m and 5 000m, temperature measuring conditions and maximum temperature limits are under consideration.		N/A
9.1.1.1	Delete the note 3 and renumber the existing note 4 as 3.		N/A
9.1.1.1	After the paragraph of d), added a paragraph: For apparatus intended to be used in tropical climates, the limits should be halved than the values given in a) and b) above.		N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10	Added a paragraph after the second paragraph : The Insulation resistance between CATV antenna coaxial sockets and protective earth of apparatus shall comply with BASIC INSULATION. If it's possible that CLASS II apparatus with CATV antenna coaxial sockets connect with protective earth of another CLASS I apparatus by other terminals, the insulation resistance between them shall comply with BASIC INSULATION as well. Added Note: if antenna cable separated from the protective earth before connection to the apparatus, there is no requirements of Insulation resistance between them but 5.4.1i) requirements shall be meet.		N/A
10.1	Delete "on CLASS II apparatus" in the first paragraph.	Delete.	N/A
10.2	Replaced the fifth to seventh paragraphs by the following: The humidity treatment is carried out in a chamber containing air with a relative humidity of 93%±3 %. For apparatus, temperature of 40℃±2℃ and a relative humidity of 93%±3% shall be subjected. Apparatus intended to be used in non-tropical climates are subjected to a relative humidity of 93%±3%. The temperature in the chamber, at all places where samples located, shall be maintained within 2℃of any convenient value between 20℃ and 30℃, as long as no condensation occur.	Replaced	N/A
	Added Note 4: For apparatus intended to be operated at altitudes between 2 000m and 5 000m, the requirements for treatment of the insulating material are under consideration.	Added.	N/A
11.1	Delete note 2.	Deleted.	N/A
11.1	After the ninth paragraph added a paragraph: For apparatus intended to be used in tropical climates, halve the values given above.	Not directly connected to the mains	N/A
12.5	Amended the first paragraph : Antenna coaxial sockets to be mounted on the apparatus shall subject to mechanical stress caused in use, and the sockets incorporate with parts or components which isolated HAZARDOUS LIVE parts from ACCESSIBLE parts or protective earth from other terminals.	No such construction.	N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
13.3.2 Table 8 Table9 Table 10	After the first paragraph, added a paragraph: The requirements apply to apparatus intended to be used at altitude not exceeding 2 000 m . For apparatus intended to be operated at altitudes between 2 000m and 5 000m , Minimum CLEARANCE limits shall multiply with multiplication factor 1.48 in table A.2 of GB/T 16935.1. For apparatus intended to be operated at altitude more than 5 000m , Minimum CLEARANCES limit shall multiply with relevant multiplication factor in table A.2 of GB/T 16935.1.	Not directly connected to the mains	N/A
	Bellow the headings of Table 8 Table 9 and Table 10 ,added : “（Applicable for altitude up to 2000m）” .		N/A
	Amended Table 9 Note 2: For operating voltage values exceeding of table 8, extrapolation is permitted.		N/A
13.3.3	After the first paragraph, added a paragraph: The requirements in table 10 apply to apparatus intended to be used at altitude not exceeding 2 000 m. For apparatus intended to be operated at altitudes between 2 000m and 5 000m , Minimum CLEARANCE limits shall multiply with multiplication factor 1.48 in table A.2 of GB/T 16935.1. For apparatus intended to be operated at altitude more than 5 000m , Minimum CLEARANCES limit shall multiply with corresponding multiplication factor in table A.2 of GB/T 16935.1.		N/A
15.1.1	After the first paragraph, added a paragraph: Plugs connected to the MAINS in apparatus shall comply with GB 1002 or GB 1003.	Should be considered during the national approval.	N/A
18	Delete the first paragraph except the first sentence.	Deleted.	
18.1	Replaced contents of two dashes in the fourth paragraph: ——for intrinsically protected tubes, including those having integral protective screens, compliance is checked according to GB27701. ——for tubes non-intrinsically protected checked by 18.2.	No such components.	N/A
18.2	Delete clause 18.2 and renumber the existing clause 18.3 as 18.2.		N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex J.6	After the first paragraph, added a paragraph: For apparatus intended to be operated at altitudes between 2 000m and 5 000m, the Minimum CLEARANCES in table J.2 shall multiply with multiplication factor 1.48 in table A.2 of GB/T 16935.1. For apparatus intended to be operated at altitude more than 5 000m, Minimum CLEARANCES shall multiply with corresponding multiplication factor in table A.2 of GB/T 16935.1.	<2000m.	N/A
	Delete note 3 of table J.6.		N/A
Annex R (normative)	Added annex R: Instructions for the new safety warning labels. R.1 Altitude warning label Meaning of the label: Evaluation for apparatus only based on altitude not exceeding 2000m, therefor it's the only operating condition applied for the equipment .There may be some potential safety hazard if the equipment is used at altitude above 2000m . R.2 Climate warning label Meaning of the label: Evaluation for apparatus only based on temperate climate condition, therefor it's the only operating condition applied for the equipment .There may be some potential safety hazard if the equipment is used in tropical climate region.	Should be considered during the national approval.	N/A
Annex S (informative)	Added annex S: Illustration relative to safety explanation in normative Chinese、Tibetan、Mongolian、Zhuang Language and Uighur.	Should be considered during the national approval.	N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
APPENDIX	Japanese National Differences according to CB Bulletin (J60065 (H23))		**P**
EXPLANATION FOR ABBREVIATIONS P=Pass, F=Fail, N/A=Not applicable. Placed in the column to the right.			
1.1.3	**Addition:** Add the following as a NOTE after the first sentence. NOTE 1 In Japan, the requirements for regions with moderate apply.	Added.	**P**
2.4.9	**Replacement:** In NOTE 1, replace “see 4.2.2 of IEC 62151” by “see 4.2.2 of IEC 62151 [27]”.	Replace.	**P**
2.6.2A	**Addition:** Add this sub clause. CLASS 0I EQUIPMENT: Equipment which has, as for protection against electric shock, - at least using BASIC INSULATION, and - providing a means of connecting to the protective earthing conductor in the building wiring those conductive parts that are otherwise capable of assuming HAZARDOUS VOLTAGES if the BASIC INSULATION fails, and - using a supply cord without earthing conductor or a plug without earthing pin. Apparatus provided with a cord set having a two-pin type plug with a lead wire for earthing or having three pin - tow pin adaptor is also regarded as Class 0I. NOTE Class 0I equipment may have a part constructed with Double Insulation or Reinforced Insulation.	Not CLASS 0I EQUIPMENT.	N/A
2.6.2A	**Addition:** Add this sub clause. CLASS 0I EQUIPMENT: Equipment which has, as for protection against electric shock, - at least using BASIC INSULATION, and	Not CLASS 0I EQUIPMENT.	N/A
3.2	**Addition:** Add the “Class 0I equipment” in the first sentence of this sub-clause.	Not CLASS 0I EQUIPMENT.	N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
3.2	**Addition:** Add the following after the first sentence of this sub-clause. NOTE Equipment often transported and used should not be Class I equipment nor Class 0I equipment.	Not transportable equipment.	N/A
4.2.8	**Deletion:** Delete this clause.	Deleted.	**P**
4.3.4, b)	Replacement: Replace IEC 60730-1 by JIS C 9730-1 (corresponding to IEC 60730-1).	Replaced.	**P**
4.3.12	Deletion: Delete this clause.	Deleted.	P
4.3.13	**Replacement:** Replace “250 V a.c.” by “the maximum of the variable range”.	Replaced.	**P**
5.4.2A	**Addition:** For CLASS 0I EQUIPMENT, the following instruction shall be indicated where readily visible on the mains plug or the product: “WARNING: Provide an earthing connection” *Example in Japanese:* 警告 必ず接地接続を行ってください。 Moreover, for CLASS 0I EQUIPMENT, the following instruction shall be indicated where readily visible on the product or written in the operating instructions: “WARNING: Provide an earthing connection before the mains plug is connected to the mains. And, when disconnecting the earthing connection, be sure to disconnect after pulling out the mains plug from the mains.” *Example in Japanese:* 警告 接地接続は必ず、主電源プラグを主電源につなぐ前に行って下さい。また、接地接続を外す場合は、必ず主電源プラグを主電源から切り離してから行って下さい。	Not CLASS 0I EQUIPMENT.	N/A
6.2	**Replacement:** In NOTE 1, replace IEC 61040 [10] by JIS C 6181:1995 [10].	Replaced.	P

Japanese National differences and Special national conditions according to to IEC 60065:2001 + A1

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
7.1.5	**Addition:** Add the words, “without dimensions restrictions” after the figure, “65 K” in the first sentence of Condition “b” in Table 3 as follows. For parts not likely to be touched during intended use, temperature rises up to 65 K without dimensions restrictions are allowed under normal operating conditions.	Added.	P
	Addition: Add the following paragraph as 2nd paragraph of Condition “d “in Table 3. For materials which are not listed in Table 3, temperature rises in the normal operating conditions are considered satisfactory if these materials comply with item 3 of detailed regulations, 1.(1),b, Appendix 4 in the Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance and Material. Permissible temperature rise of “Supply cords and wiring insulation” is applicable only to the materials used in supply cords complying with JIS C 3662 (corresponding to IEC 60227) or JIS C 3663 (corresponding to IEC 60245). Materials used in other wiring shall comply with item 3 of detailed regulations, 1.(1).b, Appendix 4 in the Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance and Material.	Added.	P
	Addition: In the first paragraph of Condition “f” of Table 3, add ”JIS K 7206:1999 or” before the reference, ISO 306.	Added.	P
	Addition: In Condition “f,” 1) of Table 3, add ”JIS K 7206:1999 or” before the reference, ISO 306.	Added.	P
7.2	**Addition:** In NOTE 2, add ”or JIS standard (identical to or modified IEC)” after the word, IEC standard.	Added.	P
8.5	**Addition:** In the first paragraph, add “and Class 0I Equipment” after the words, Class I Equipment.	Added.	P

<table>
<tr><th colspan="4">IEC60065 - ATTACHMENT</th></tr>
<tr><th>Clause</th><th>Requirement + Test</th><th>Result - Remark</th><th>Verdict</th></tr>
<tr><td>8.5</td><td>Addition:
In the six paragraph (before NOTE 3), add the following to the end of the first sentence.
CLASS 0I EQUIPMENT shall be provided with a protective earthing terminal at any point outside the apparatus where easily visible or a protective external earth wire from mains plug.</td><td>Not CLASS 0I EQUIPMENT.</td><td>N/A</td></tr>
<tr><td>8.11</td><td>Addition:
In NOTE 2, c), add “or JIS C 2107, JIS C 2336, JIS C 2338” after the reference, IEC 60454.</td><td>Added.</td><td>P</td></tr>
<tr><td>9.1.1.1</td><td>Addition:
In the last paragraph, add the following sentence after the first sentence.
For CLASS 0I EQUIPMENT, the r.m.s. TOUCH-CURRENT to earth shall not be more than 1.0 mA.</td><td>Not CLASS 0I EQUIPMENT.</td><td>N/A</td></tr>
<tr><td>10</td><td>Replacement:
In NOTE, replace “IEC 60664-1 and IEC 60664-4 [9]” by “JIS C 0664:2003 and IEC/TR3 60664-4 [8]”</td><td>Replaced.</td><td>P</td></tr>
<tr><td>10.1</td><td>Addition:
Add “CLASS 0I EQUIPMENT and” to the head of the first paragraph.</td><td>Added.</td><td>P</td></tr>
<tr><td>10.3.2</td><td>Addition:
In Table 5, add the following values to the sub-table of NOTE.
<table>
<tr><td rowspan="2">Operating Voltage U (peak)</td><td colspan="2">Test voltage (peak)</td></tr>
<tr><td>Curve A</td><td>Curve B</td></tr>
<tr><td>142 V</td><td>1 414 V</td><td>2 828 V</td></tr>
</table></td><td>Added.</td><td>N/A</td></tr>
<tr><td>11.2.1</td><td>Addition:
Add the following after the original NOTE.
NOTE 2 Fuses except for the ones according to IEC 60127 shall be tested in consideration of the characteristic.</td><td>Added.</td><td>P</td></tr>
<tr><td>11.2.3</td><td>Addition:
Add “and CLASS 0I” after the words, CLASS I.</td><td>Added.</td><td>P</td></tr>
<tr><td>13.4</td><td>Replacement:
In NOTE 2 of Table 11, replace “IEC 60664-1” by “JIS C 0664:2003” (corresponding to IEC 60664-1).</td><td>Replaced.</td><td>P</td></tr>
</table>

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
14.3.3.2	**Addition:** In the second sentence of the first paragraph, add “or JIS C 2107, JIS C 2336 and JIS C 2338” after the reference, IEC 60454.	Added.	P
14.5.1.1	**Addition:** In item a), add “JIS C 9730 series or” before the reference, IEC 60730 series.	Added.	P
14.5.1.2	**Replacement:** In the first sentence of item a), replace “IEC 60691” by “IEC 60691, JIS C 6691:2003 or Appendix 3 of the Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance and Material”.	Replaced.	P
14.5.2.1	**Replacement:** Replace the first and the second sentence as follows: Fuse-links, DIRECTLY CONNECTED TO THE MAINS, used in order to prevent the apparatus from becoming unsafe within the sense of this standard shall comply with - the relevant part of IEC 60127 or JIS C 6575, unless they have a rated current outside the range specified in that standard. In the latter case, they shall comply with the relevant part of IEC 60127 or JIS C 6575 as far as applicable, or - Appendix 3 of the Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance and Material (limited to Fuses with the rated current of 1 A or more).	Replaced.	P
14.5.2.2	**Addition:** Add the following sentence before the last paragraph. For fuses according to Appendix 3 of the Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance and Material, all that needs to be marked is the rated current.	Replaced.	P
14.5.3	**Replacement:** Replace “IEC 60730-1” by “JIS C 9730-1” (corresponding to IEC 60730-1).	Replaced.	P
14.5.4	**Replacement:** Replace “IEC 60127” by “IEC 60127 or JIS C 6575 ”.	Replaced.	P

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Clause	Requirement + Test	Result - Remark	Verdict
14.6.1	**Addition:** Add the following paragraph after NOTE. The following manually operated mechanical switches shall meet the requirements specified in item a) or b) below. - the controlling current exceeds 0.2 A r.m.s a.c. or d.c. - the voltage across the open switch contacts exceeds 35 Vpeak ac or 24 Vdc.	Added.	P
14.6.1	**Replacement:** In item a), replace “IEC 61058-1” by “IEC 61058-1 or JIS C 4526-1:1999”.	Replaced.	P
14.6.2	**Replacement:** Replace “IEC 61058-1” by “IEC 61058-1 or JIS C 4526-1:1999”.	Replaced.	P
14.6.3	**Replacement:** Replace “IEC 61058-1” by “ IEC 61058-1 or JIS C 4526-1:1999”.	Replaced.	P
14.6.5	**Replacement:** Replace “IEC 61058-1” by “ IEC 61058-1 or JIS C 4526-1:1999”.	Replaced.	P
14.7	**Replacement:** Replace “IEC 60950” by “JIS C 6950:2006”.	Replaced.	P

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
15.1.1	**Replacement:** Replace the first and second paragraph by the following. Plugs and appliance couplers for the connection of the apparatus to the MAINS and socket-outlets and interconnection couplers for providing MAINS power to other apparatus shall comply with the relevant JIS standards for plugs, socket-outlets, appliance couplers or interconnection couplers. If there is no appropriate JIS standard, they shall comply with the relevant IEC standards. Appliance connectors, interconnection outlets and interconnection plug-connectors compiled with Appendix 3 of the Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance and Material are accepted. In that case, if due to the shape the contact parts are connectable to those specified in standard sheets of IEC 60320-1, they shall comply with dimensions and ratings specified in the relevant standard sheets of IEC 60320-1. Examples of relevant specifications and standards: - Plugs / Socket-outlets: Appendix 4 of Article 1 of the Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance. Article 2 (corresponding to IEC 60884) of the Ordinance. - Appliance couplers: Appendix 4 of Article 1 of the Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance. Article 2 (corresponding to IEC 60320-1) of the Ordinance. - Appliance inlets: IEC 60320-1 - Appliance outlets: Appendix 4 of Article 1 of the Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance. IEC 60320-2-2. - Plug connectors: Appendix 4 of Article 1 of the Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance. Delete NOTE 1 and NOTE 2.	Not directly connected to the mains.	N/A
15.1.1	**Replacement:** Replace the paragraph after NOTE 2 by the following. MAINS socket-outlets and interconnection couplers mounted on CLASS 0I and CLASS II apparatus shall not permit connection of CLASS I apparatus.	Not directly connected to the mains.	N/A

Japanese National differences and Special national conditions according to to IEC 60065:2001 + A1

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
15.1.1	**Replacement:** Replace the paragraph before NOTE 3 by the following. MAINS socket-outlets and interconnection couplers mounted on CLASS I apparatus shall be provided with protective earthing contacts which are reliably connected to the PROTECTIVE EARTHING TERMINAL or contact of the apparatus. If not, it shall not permit connection of CLASS I apparatus.	Replaced.	N/A
	Replacement: Replace NOTE 4 by the following. NOTE 4 Socket-outlets not allowing the connection of CLASS I apparatus can be designed, for instance, similar to IEC 60906-1, standard sheets 3-1 or 3-2, or according to IEC 60320-2-2, standard sheets D or H.	Replaced.	N/A
15.1.2	**Deletion:** Delete the following sentence in NOTE. An example of a connector not meeting the requirements of this sub clause is the so-called "banana" plug.	Delete.	N/A
15.1.3	**Replacement:** Replace the references, “IEC 60083 [1], IEC 60320, IEC 60884, IEC 60906” by “JIS C 8282 (corresponding to IEC 60884), JIS C 8303, IEC 60320 and IEC 60906”.	Replaced.	N/A
15.2	**Addition:** Add “and CLASS 0I EQUIPMENT” after the words, “CLASS I EQUIPMENT”	Added.	N/A
15.2	**Addition:** Add the following paragraphs after the first paragraph. The external earth wire of plug with an external earth wire shall not be earthed by a clip. Rated voltage of plug with an protective external earth wire shall be less 150 Vac.	Added.	N/A
	Deletion: Delete the following paragraph. In SUPPLY APPARATUS of CLASS I with non-HAZARDOUS LIVE output voltage, output circuits shall not be connected to the protective earthing conductor.	Delete.	N/A
15.3.1	**Replacement:** In the first paragraph, replace “IEC 60998-2-2” by “ IEC 60998-2-2 or JIS C 2814-2-2:2001”.	Replaced.	N/A

Japanese National differences and Special national conditions according to to IEC 60065:2001 + A1

<table>
<tr><th colspan="4">IEC60065 - ATTACHMENT</th></tr>
<tr><th>Clause</th><th>Requirement + Test</th><th>Result - Remark</th><th>Verdict</th></tr>
<tr><td></td><td>Replacement:
In the first paragraph, replace “IEC 60999” by “IEC 60999-1”.</td><td>Replaced.</td><td>N/A</td></tr>
<tr><td></td><td>Replacement:
In the third paragraph, replace “IEC 60335-1” by “JIS C 9335-1:2003 (corresponding to IEC 60335-1)”.</td><td>Replaced.</td><td>N/A</td></tr>
<tr><td>15.3.3</td><td>Replacement:
Replace “ISO 261 or ISO 262” by “JIS B 0205-2:2001 or JIS B 0205-3:2001”.</td><td>Replaced.</td><td>N/A</td></tr>
<tr><td>15.3.5</td><td>Replacement:
In the second paragraph, replace “IEC 60950” by “JIS C 6950:2006”.</td><td>Replaced.</td><td>N/A</td></tr>
<tr><td>15.3.5</td><td>Replacement:
Replace Table 15 by the following.
<table>
<tr><th>RATED CURRENT CONSUMPTION of the apparatus [a]
A</th><th>Nominal cross-sectional area
mm^2</th></tr>
<tr><td>Up to and including 6</td><td>0.75 to 1</td></tr>
<tr><td>Over 6 up to and including 10</td><td>1 to 1.5</td></tr>
<tr><td>Over 10 up to and including 16</td><td>1.5 to 2.5</td></tr>
<tr><td colspan="2">[a] The RATED CURRENT CONSUMPTION includes currents which can be drawn from socket-outlets providing MAINS power for other apparatus.</td></tr>
</table></td><td>Replaced.</td><td>N/A</td></tr>
<tr><td>15.3.9</td><td>Addition:
Add the following to the last of the first paragraph.
This does not apply to CLASS 0I EQUIPMENT with a protective earthing terminal separately.</td><td>Not CLASS 0I EQUIPMENT.</td><td>N/A</td></tr>
<tr><td>15.4.1</td><td>Replacement:
In NOTE 1, replace “IEC 60884-1” by “JIS C 8282 (corresponding to IEC 60884-1)”.</td><td>Replaced.</td><td>N/A</td></tr>
<tr><td></td><td>Replacement:
In NOTE 2, replace “IEC 60083 [1]” by “JIS C 8303”.</td><td>Replaced.</td><td>N/A</td></tr>
<tr><td>15.4.2</td><td>Replacement:
In NOTE, replace “IEC 60083 [1]” by “JIS C 8303:1993 [1]”.</td><td>Replaced.</td><td>N/A</td></tr>
</table>

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
15.4.3	**Addition:** Add the following NOTE to Table 17. NOTE If mains plug is parallel blade, a pull force as given in "Over 10 A up to and including 16 A, 130/250 V" of Table 17 is applied.	Added.	N/A
16.1	**Addition:** Add the following to the last of first paragraph. Or mains cords shall be of the sheathed type complying with Appendix 1 of Article 1 of the Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance.. **Replacement:** Replace the second paragraph by the following. Compliance is checked by testing MAINS supply flexible cords in accordance with JIS C 3662 (corresponding to IEC60227) or JIS C 3663 (corresponding to IEC 60245), or Appendix 1 of Article 1 of the Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance.	Not directly connected to the mains.	N/A
	Replacement: In this sub-clause, replace "IEC 60227" by "JIS C 3662 (corresponding to IEC 60227)". In this sub-clause, replace "IEC 60245" by "JIS C 3663 (corresponding to IEC 60245)".		N/A
	Addition: Add the following paragraph after the third paragraph. An external earth wire of Class 0I equipment shall be green/yellow, and the length of external earth wire of plug with an external earth wire shall be equal or more than 10 cm from the plug.	Not CLASS 0I EQUIPMENT.	N/A
16.2	**Replacement:** Replace the first paragraph by the following. Power supply cord conductors complied with JIS C 3662 (corresponding to IEC 60227) or JIS C 3663 (corresponding to IEC 60245) shall have a nominal cross-sectional area not less than those shown in table 18. If power supply cord conductors comply with other standards, it shall comply with relevant wiring requirements.	Not directly connected to the mains..	N/A

<table>
<tr><th colspan="4">IEC60065 - ATTACHMENT</th></tr>
<tr><th>Clause</th><th>Requirement + Test</th><th>Result - Remark</th><th>Verdict</th></tr>
<tr><td>16.2</td><td>Replacement:
Replace Table 18 by the following.
<table><tr><td>RATED CURRENT CONSUMPTION of the apparatus [a]
A</td><td>Nominal cross-sectional area

mm^2</td></tr><tr><td>up to and including 6
Over 6 up to and including 10
Over 10 up to and including 16</td><td>0,75
1
1,5</td></tr><tr><td colspan="2">[a] The RATED CURRENT CONSUMPTION includes currents which can be drawn from the socket-outlets providing MAINS power for other apparatus.</td></tr></table></td><td>Replaced.</td><td>N/A</td></tr>
<tr><td rowspan="2">16.3</td><td>Replacement:
In item a), replace “IEC 60885-1” by “JIS C 3661-1:1998”.</td><td>Replaced.</td><td>P</td></tr>
<tr><td>Replacement:
In item b), replace “IEC 60227-2” by “JIS C 3662-2 (corresponding to IEC 60227-2)”.</td><td>Replaced.</td><td>P</td></tr>
<tr><td>16.5</td><td>Addition:
Add “or CLASS 0I EQUIPMENT used a plug with an external earth wire” after the words, CLASS I EQUIPMENT.</td><td>Added.</td><td>P</td></tr>
<tr><td>Annex B</td><td>Replacement:
Replace normative by Informative.</td><td>Replaced.</td><td>P</td></tr>
<tr><td>Annex G</td><td>Replacement:
Replace IEC 60707 by JIS C 0066:2001
Replace IEC 60695-2-2 by JIS C 60695-2-2:2000.
Replace IEC 60695-11-10 by JIS Z 2391:1999.</td><td>Replaced.</td><td>P</td></tr>
<tr><td>Annex N</td><td>Addition:
Add “- protective earthing lead wire, protective earthing contact of appliance inlet or external protective earthing terminal in case of Class 0I apparatus.” after the second dash of N.1.3.</td><td>Not CLASS 0I EQUIPMENT.</td><td>N/A</td></tr>
</table>

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Replacement: Replace the first sentence and two dashes of N.2.2, as follows: The continuity of the protective earthing conecction between - the ACCESSIBLE conductive parts, including TERMINALS regarded as ACCESSIBLE (see 8.4), which should be connected to the PROTECTIVE EARTHING TERMINAL, and - the protective earthing contact of socket-outlets respectively, if provided to deliver power to other apparatus should be checked between - the protective earthing contact of the MAINS plug or appliance inlet, or the PROTECTIVE EARTHING TERMINAL in case of a PERMANENTLY CONNECTED APPARATUS, for CLASS I apparatus, and - the protective earthing lead wire, the protective earthing contact of appliance inlet, or external protective earthing terminal, for CLASS 0I apparatus.		
14.6.1	**Replacement:** In item a), replace IEC 61058-1 by “IEC 61058-1 or JIS C 4526-1:2005”.	Replaced.	P
14.6.2	**Replacement:** In item a), replace IEC 61058-1 by “IEC 61058-1 or JIS C 4526-1:2005”.	Replaced.	P
14.6.3	**Replacement:** In item a), replace IEC 61058-1 by “IEC 61058-1 or JIS C 4526-1:2005”.	Replaced.	P
14.6.5	**Replacement:** In item a), replace IEC 61058-1 by “IEC 61058-1 or JIS C 4526-1:2005”.	Replaced.	P
20.1	**Replacement:** In Note 3, replace each IEC 60065 and IEC 60707 by “JIS C 6065” and “JIS C 0066:2001 (IEC 60707).	Replaced.	P

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

APPENDIX	Republic of Korea National Differences according to CB Bulletin (K 60065)		**P**
EXPLANATION FOR ABBREVIATIONS P=Pass, F=Fail, N/A=Not applicable. Placed in the column to the right.			
5.101	Other Marking: Wording 고압주의 or an information regulated in IEC Publication 417 giving high voltage warning to layman shall be marked, if an apparatus contains a part more than 600 volts.	No such high voltage.	N/A
15.1.1	Plugs for the connection of the apparatus to the supply mains and socket outlets for providing mains power to other apparatus shall comply with the Korean requirement (KSC8300 and 8305)	Should be considered during the national approval..	N/A
31.	Radio frequency interference The apparatus shall comply with the relevant CISPR requirements (EMC=EMI+EMS)	Should be considered during the national approval..	N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
APPENDIX	US National Differences according to CB Bulletin (UL 60065) (IEC Publication 60065 7th edition, 2001+A1: 2005+A2: 2010)		P
EXPLANATION FOR ABBREVIATIONS P=Pass, F=Fail, N/A=Not applicable. Placed in the column to the right.			
1.1.1	Delete reference to Annex L: Electronic flash apparatus for photographic purposes. Replace this with reference to UL 122.	No such apparatus	N/A
1.1.1	Mains connected apparatus intended for field installation complies with the National Electrical Code, ANSI, NFPA 70.	Not directly connected to the mains	N/A
1.1.3	Requirements of apparatus intended for outdoor use comply with applicable clause of Annex A	Indoor use only.	N/A
1.1.5	Some apparatus covered by these requirements may also be required to comply with applicable requirements in other appropriate standards :		N/A
1.1.6	Apparatus with nonmetallic enclosures intended to be installed in air-handling spaces shall additionally comply with UL 2043		N/A
4.2.1	The rated supply voltage for single phase apparatus is assumed to be 120V or 120/240V	Not directly connected to the mains.	N/A
4.2.4	a) Minimum audio output is not less than 0.5 W per channel unless the maximum audio output is less than 0.5 W per channel	Considered	P
4.2.4.1	An apparatus with multiple modes of operation, multiple signal input sources, or both, is operated according to the manufacturer's instructions to produce the maximum power input	No multiple modes of operation.	N/A
4.2.11	Table 2 - External supply sources are assumed to be capable of delivering 30 A, unless otherwise specified (UL 60065 no-load voltage and internal resistance values)		N/A
4.3.4	As an alternative, PTC thermistors may also comply with UL 1434.	No such component provided.	N/A
5	Test for conductive labels secured in place by adhesive.		P
5.1	Component power supplies and adapters complying with UL 1310, UL 1950, UL 60950, or UL 60950-1 are considered to fulfill items "a" through "i" of this clause.	Considered	P
5.1f	Rated mains frequency marking on apparatus	Not directly connected to the mains.	P
5.1j	Date of Manufacture marking	See the label.	P

US National differences and Special national conditions according to to IEC 60065:2001 + A1 + A2

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.1k	Factory origin identification marking	Only one factory.	N/A
5.1l	Combination of two graphical symbols and supplementary marking and/or single graphical symbol marking	See the label	P
5.1m	Equipment rack marking for audio/video systems	No rack.	N/A
5.1n	Class I apparatus having touch current levels greater than 0.75 MIU and equal to or less than 3.5 MIU must be marked with a high touch current marking.	Not directly connected to the mains.	N/A
5.1o	Marking on apparatus having grille/ventilation areas of the top surface that are permitted to have higher temperature rises according to Note b of Table 3		N/A
5.1p	Marking for apparatus intended to be installed in air-handling spaces	Not such apparatus.	N/A
5.2c	Output terminals are marked with voltage, frequency and current or power; output terminals installed or interconnected in the field must be marked with the class of wiring	See the label.	P
5.2d	Speaker terminals are marked "Class 1 Wiring", "Class 2 Wiring" or "Class 3 Wiring".	No such terminals provided.	N/A
5.2d	Operation manual explains risks and proper connecting and insulating techniques when connecting a speaker		N/A
5.3c	An explanation and illustration of safety related graphical symbols used on the apparatus are included in the user instructions preceding any operating instructions		N/A
5.4	Important safety instructions are packed with each apparatus	Not directly connected to the mains.	N/A
5.4.1	Outdoor use marking for apparatus having no protection against exposure to water	Indoor use only.	N/A
5.4.1e	Deleted.		N/A
5.4.1h	Reference to IEC 61695 is replaced by UL 61965	Replaced.	N/A
5.4.3	When user operation and installation instructions contains instructions for use by skilled persons, the instructions are separate informat and preceded by a precautionary warning statement		N/A
6.1	Compliance is checked in accordance with the requirements in the U.S. Code of Federal Regulations, Title 21, Chapter 1, Subchapter J, Sections 1010.2, 1010.3, and 1020.10 by measuring the radiation produced by the apparatus employing a production chassis	No such component used.	N/A

US National differences and Special national conditions according to to IEC 60065:2001 + A1 + A2

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
6.2	References to IEC 60825-1 are deleted	Deleted.	N/A
6.2	Apparatus is classified and labeled according to the Code of Federal Regulations, Title 21, Chapter 1, Subchapter J, Sections 1010.2, 1010.3, 1040.10 and 1040.11.		N/A
6.2.2	Deleted.		N/A
7	Table 3: Delete reference to conditions h and i under Table item e for lithium batteries		N/A
7	Table 3: Temperature limits for various classes of insulation systems according to UL 60065		N/A
7	Table 3, Note a: Materials rated in accordance with UL 746B may be used within their rated temperature		N/A
7	Table 3, Note b: For grille/ventilation areas in the top surface directly above internal heatsinks, a temperature rise up to 65 K is allowed.		N/A
7.2	Applies to thermoplastic materials only. A material temperature rating can be accepted in lieu of the softening temperature		N/A
7.2	The softening test need not be performed on materials used in UL Listed or Recognized components	UL approved materials used.	P
8.1	Metal parts are corrosion resistant.		P
8.9.1	Sleeving, tape, tubing, and wire insulation comply with UL 224, UL 510, or UL 1441	(see appended table)	P
8.10	Component power supplies and their internal insulation complying with UL 1310, UL 1950 Third Edition, UL 60950, or UL 60950-1 are considered to fulfill the clause		P
8.17	As an option, winding wire insulation complies with the requirements in UL 2353.		P
8.19.1	An all-pole switch or circuit breaker is not required to have contact separation of 3 mm	No such component used.	N/A
8.23	Printed wiring boards involved with the risk of electric shock comply with the requirements in UL 796.	(see appended table)	P
9.1.1.1a	For audio signals of professional and commercial apparatus, 120 V r.m.s.	Not directly connected to the mains.	N/A
9.1.1.1a	For audio signals other than professional and commercial apparatus, 71 V r.m.s.		N/A
9.1.1.1b	Touch current carried out in accordance with UL 101 with the measuring instrument described in Annex D shall not exceed 0.5 MIU. Delete Note 2.		N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
9.1.1.2	UL articulated finger (figure 18) used instead of the test probe B (IEC 61032).		N/A
9.1.1.2	Reference to test probes 18 and 19 of IEC 61032 are deleted.		N/A
10	Table 5, Note 1: With respect to mains voltages in the range of 105-130 V (r.m.s.), the test voltages are considered to be 1414 Vpeak for basic and supplementary insulation and 2828 V peak for reinforced insulation.	Not directly connected to the mains.	N/A
11	Component power supplies and their power transformers complying with UL 1310, UL 1950 Third Edition, UL 60950, or UL 60950-1are considered to fulfill the clause.	Considered	P
11.1	The permissible touch current for terminal contacts has been increased to twice the value given in 9.1.1.1.	Considered	P
11.2.1	Additional fuse testing is not required if the temperature is limited by fuses.		N/A
12	Component power supply adaptors and their enclosures complying with UL 1310, UL 1950 Third Edition, UL 60950, or UL 60950-1 are considered to fulfill the clause.	Considered	P
12.1.3	Impact test uses the 50 mm steel sphere only.		P
12.1.3	Table 6 - Impact test criteria detailing impact location, impact energy and additional pass/fail results applied according to UL 60065.		P
12.1.4	As an alternative, any number from one to three samples are permitted to be used in any combination that results in a total of three drops.		P
12.1.6	Handle strength test. When polymeric materials are involved, testing is to be conducted before and after the sub-clause 12.1.5 stress relief test.	No handle used.	N/A
12.8	Test for enclosures, barriers, components and leads that rely on adhesive	No adhesive.	N/A
13	Component power supplies and their power transformers complying with UL 1310, UL 1950 Third Edition, UL 60950, or UL 60950-1 are considered to fulfill the clause.	Considered	P
13.4	The material group is verified according to UL 746A		P
13.4	Reference to the IEC 60112 PTI test is deleted		N/A
13.5.1	Reference to IEC 60249-2 is replaced by UL 796	All PCBs were approved under UL 796.	P
13.5.2	Coated printed wiring boards comply with UL 746C		N/A
13.5.3	Multilayer printed boards comply with relevant requirements in UL 60950-1.		P

US National differences and Special national conditions according to to IEC 60065:2001 + A1 + A2

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
14	Annex Y and additional component requirements applied according to UL 60065		P
14.1	Component power supplies and their resistors complying with UL 1310, UL 1950 Third Edition, UL 60950, or UL 60950-1 are considered to fulfill the clause.		P
14.2	Component power supplies and their capacitors complying with UL 1310, UL 1950 Third Edition, UL 60950, or UL 60950-1 are considered to fulfill the clause.		P
14.2.1	As an alternative, a component such as a capacitor, a combination capacitor and resistor, or a suppressor may comply with UL 1414.	No such components used.	N/A
14.2.2	As an alternative, a capacitor, a combination capacitor and resistor, or a varistor, or a suppressor may comply with UL 1414.	No such components used.	N/A
14.2.4	Components subjected to the requirements in 14.2.1 and 14.2.2 also comply with UL 1414 enclosure requirements.	No such components used.	N/A
14.3	Component power supplies and their inductors and windings complying with UL 1310, UL 1950 Third Edition, UL 60950, or UL 60950-1 are considered to fulfill the clause.	No such power supplies.	N/A
14.3.2	Planar transformers comply with the requirements for multilayer printed boards.		N/A
14.4	High voltage materials are rated V-2 minimum.		N/A
14.4.1	High voltage arcing test replaces the High voltage transformers and multipliers test.		N/A
14.4.2	Deleted.		N/A
14.4.3	High voltage component part flame test.		N/A
14.5.1.1	Thermal cut-outs comply with UL 873 or UL 60730-2-9.	No such components used..	N/A
14.5.1.2	Thermal links comply with UL 60691.	No such components used.	N/A
14.5.1.3	Deleted.		N/A
14.5.2.1	Fuse links comply with UL 248-14.	No such components used.	N/A
14.5.2.2	Reference to IEC 60127 is deleted.		N/A
14.5.2.2	Pre-arcing time/current characteristic and breaking capacity marking requirements are deleted.		N/A
14.5.3	As an alternative, a PTC thermistor may comply with requirements of UL 1434	No such components.	N/A
14.5.4	Reference to fuse-links is deleted		N/A

US National differences and Special national conditions according to to IEC 60065:2001 + A1 + A2

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
14.5.3A	Other protective devices directly connected to the mains have adequate breaking capacity and comply with UL 873, UL 1416, UL1417 or UL 2111		N/A
14.6.1	Switches and relays comply with UL 1054, UL 61058-1 or UL 508	No such components used.	N/A
14.6.1	Mains switch or relay are rated for the total rated current consumption of the apparatus.		N/A
14.6.1	Rating of a mains switch or relay in audio apparatus intended for commercial use.		N/A
14.6.2 - 4	Deleted.		N/A
14.6.5	A switch or relay that controls a mains socket-outlet have a rating equal to the rated current consumption of the apparatus plus the current rating of the socket-outlet.		N/A
14.6.6	Mains switches comply with (a), (b) or (c). The contacts of a mains relay complies with (a), (b) or (d). A switch that controls a mains receptacle complies with (b) and a relay that controls a mains receptacle complies with (b) or (d).		N/A
14.6.6a	Switch or relay contacts have an rms current rating equal to or greater than the peak inrush current of the apparatus divided by 1.414.		N/A
14.6.6a	Switch or relay contacts have an rms current rating equal to or greater than the peak inrush current of the apparatus divided by 10, when: - the rms current during normal operation controlled by the switch is less than or equal to ½ the rms rating of the switch, and - the switch has double or multiple poles controlling the mains current, either in series or switching each mains line.		N/A
14.6.6b	Switch or relay is TV rated.		N/A
14.6.6c	Switch is located on the back of apparatus and is not operable from a remote control.		N/A
14.6.6d	Relay is to be subjected to the Relay endurance test.		N/A
14.6.6.1	Peak inrush current test.		N/A
14.6.6.2	Relay endurance test.		N/A
14.6.7	Double pole switch controlling a.c. and d.c. circuits.		N/A
14.7	The jointed test finger (figure 18) is used to determine accessibility and operation of the interlock.	No interlock used.	N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
14.10.1	Internal rechargeable and non-rechargeable batteries that are replaceable by the user or skilled persons shall additionally comply with 14.10.2 – 14.10.5.	Build[-in batteries used.	P
14.10.1	Test requirements from UL 2054 are added for special battery packs that are removable by the user from the apparatus and may be carried separately from the apparatus – Short circuit test, Abnormal charging test, Forced-discharge test, and 250-N steady force test.	UL 1642 approved cell used	P
14.10.1	Note: Consumer grade, non-rechargeable carbon-zinc or alkaline batteries are not subjected to the tests specified in 14.10.2 –14.10.5.		N/A
14.10.5	As an alternative, one sample may be subjected to three drops.		N/A
14.10.6	Location of overcurrent protective device		N/A
14.10.6	As an alternative, the overcurrent protective device in the apparatus battery-supply circuit is not required if the apparatus is intended to be connected to a vehicle power outlet using a UL 2089 vehicle battery adapter.		N/A
14.11	Component power supplies and their optocouplers complying with UL 1310, UL 1950 Third Edition, UL 60950, or UL 60950-1 are considered to fulfill the clause.	No such components used.	N/A
14.11	Optocouplers comply with UL 1577.		N/A
14.11	Optocouplers bridging reinforced insulation comply with requirements for double protection as specified in UL 1577		N/A
14.11	External clearances and creepage distances of optocouplers comply with 13.1		N/A
14.12	Reference to IEC 61051-2 replaced by UL 1449.		N/A
14.12	Reference to IEC 60695-11-10 replaced by UL 94.		N/A
14.12	All references to IEC 60151 are deleted.		N/A
15.1.1	Attachment plug current rating (no less than 125% of the current drawn under normal operating conditions) and voltage rating.		N/A
15.1.1	Configuration and electrical rating of an attachment plug for apparatus designed to be used on more than one supply voltage by means of a voltage selector.	No such construction.	N/A
15.1.1	Polarized attachment plug.	Not directly connected to the mains.	N/A
15.1.1	Wire gauge of conductors and internal wiring connecting mains socket-outlets		N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
15.1.3.1	Means of output connections on an audio amplifier having an open-circuit audio output voltage not limited to 120 V that is permanently connected to the mains.		N/A
15.1.3.1	Quick Connect Terminals: a) Male tabs firmly mounted in place; b) Mating female connectors provided with the apparatus; c) Strain Relief Test of Clause 16.5; d) Installation instructions provided for assembly of terminal to a conductor and strain relief e) Terminals are appropriate for use with the size and type of wire specified.		P
15.1.3.2	Audio amplifiers having an audio output not limited to 120 V that are connected to the mains by a flexible cord.		N/A
15.2	Protective earthing conductor termination construction.	Not directly connected to the mains.	N/A
15.2	Cross-sectional area of the earthing conductor in a supply cord or in an interconnecting cable.		N/A
15.2	Earthing conductors may have green or green/yellow insulation		N/A
15.3.5	Reference to IEC 60950 is replaced by Article 310 of the National Electrical Code, ANSI/NFPA 70.		N/A
15.3.5	Table 15 - "AWG" replace mm2 values.		N/A
15.4	Component power supply adaptors complying with UL 1310, UL 1950 Third Edition, UL 60950, or UL 60950-1 fulfill the clause.	Not direct plug-in apparatus.	N/A
15.4.2	NOTE – include references to UL 498 and ANSI/NEMA WD6 for mains plug dimensions.		N/A
15.4.2.1	Construction of the mains plug blade assembly complies with UL 1310.		N/A
15.4.2.1	Direct plug-in units designed for use by travelers comply with UL 1310.		N/A
16.1	Reference in the first paragraph to “sheathed” flexible cords is deleted.	Not directly connected to the mains.	N/A
16.1	References to IEC 60227 and IEC 60245 are deleted.		N/A
16.1	Ampacity and VW-1 marking of mains supply flexible cords.		N/A
16.1	Table 17A - Cords for apparatus.		N/A
16.1	Table 17A: Certain supply apparatus may be provided with a supply cord having 0.5 m minimum length.		N/A

US National differences and Special national conditions according to to IEC 60065:2001 + A1 + A2

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
16.2	Power supply cord earthing conductor size.	Not directly connected to the mains.	N/A
16.2	Reference to IEC 60950, Table 3B is replaced by Article 400 of the National Electrical Code		N/A
16.2	Table 18 - Upper current limit in column 1 increased from 16 to 30 A and "AWG" wire sizes used.		N/A
16.3	c) Flexible cords not complying with 16.1, used as connection between the apparatus and other apparatus are marked VW-1.		N/A
16.5	When polymeric materials are involved, strain and twist testing is to be conducted before and after the sub-clause 12.1.5 stress relief test.		N/A
17.8	Expanded to include all cart/stand parts supplied by the manufacturer, such as casters and brackets. Suitable assembly instructions are required.	No cart/stand parts used.	N/A
17.8	Relevant fixing means are not required when installation is to be done by a skilled person.		N/A
17.10	Termination of aluminum conductors used as internal wiring.	No aluminum conductors.	N/A
17.11	An accessory was investigated to determine that: a) The accessory, and the combination of the accessory and the apparatus presents no hazard in the sense of this standard, and b) The accessory is provided with installation instructions.		N/A
17.11.1	Installation of an accessory by a skilled person: a) The mechanical positioning is accomplished by means of tools normally available or by means of special tools provided as part of the installation kit, b) The electrical connections are made by using existing terminals and connections in the apparatus or the building wiring		N/A
18	Non-intrinsically protected picture tubes shall comply with 18.1, 18.2.2 and 18.3. Intrinsically protected picture tubes with a maximum face dimension exceeding 7.5 cm shall comply with UL 61965.	No picture tubes.	N/A
18	A bulb of a picture tube having a face diameter of 7.5 cm or more shall be mounted in an enclosure.		N/A
18	Enclosure opening dimensions.		N/A
18.1	All tubes are mounted such that the enclosure of the apparatus protects the tube against the effects of implosion.		N/A
18.1	Reference to IEC 61965 replaced by UL 61965.		N/A

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
19	The tests in 19.1, 19.2 and 19.3 do not cause the apparatus to overturn.		N/A
19	The test in 19.2.1 does not cause the apparatus to slide		N/A
19	When polymeric materials are involved, testing is to be conducted before and after the sub-clause 12.1.5 stress relief test.		N/A
19.1	References to an apparatus in combination with a supplied cart or recommended stand are deleted.		N/A
19.2	References to an apparatus in combination with a supplied cart or recommended stand are deleted.		N/A
19.2.1	Glass Slide test.		N/A
19.3	Horizontal force stability test using Table 20A values from UL 60065.		N/A
19.5	Reference to the impact hammer in the first compliance paragraph is deleted.		N/A
19.6	Includes Equipment rack mounting test.	No racking used.	N/A
20.1a	Delete.		N/A
20.1b	Exception for parts such as protection TV lenses, loudspeaker parts, external accessories, and fibrous materials.		N/A
20.1b	Reference to IEC 60695-11-10 is replaced by UL 94		N/A
20.1.2	Sleeving, extruded tubing and insulation on wiring are rated VW-1: a) wiring located in a circuit that is considered a potential ignition source, or b) wiring not located in a circuit that is a potential ignition source but is in contact with wiring located in a circuit that is a potential ignition source.	(see appended table)	P
20.1.2	Tape in contact with parts of circuits that are potential ignition sources is flame retardant		P
20.1.3	Printed wiring boards, on which the available power as the connection exceeds 15 W or the operating voltage exceeds 50 V a.c. or d.c under normal operating conditions, is of flammability category V-1 or better.	(see appended table)	P
20.1.3	Reference to IEC 60695-11-10 replaced by UL 94.		P
20.1.3	Exception for printed boards housed in metal enclosures is deleted.		P
20.1.3	Option to use Clause G.1 of Annex G is deleted.		P
20.1.4	Components and parts comply with the relevant flammability category according to UL 94 as specified in table 21.	(see appended table)	P
20.1.4	Component power supplies complying with UL 1310, UL 1950 Third Edition, UL 60950, or UL 60950-1 fulfill the clause.	No such power supplies.	N/A

US National differences and Special national conditions according to to IEC 60065:2001 + A1 + A2

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
20.1.4	Table 21 - Flammability categories for components and parts.		P
20.2.1	Fire enclosure required: 1) circuits and components where the available power exceeds 15 W, 2) inductors and windings conductively connected to the mains, and 3) high-voltage products.		P
20.2.1	The fire enclosure complies with the flammability requirements of Table 22 according to UL 94 and 746C.	Plastic enclosure rated V-1	P
20.2.1	Reference to IEC 60695-11-10 or clause G.1 of annex G replaced by UL 94 or UL 746C.		P
20.2.1	Table 22 - Flammability categories for fire enclosures.		P
20.2.2	Internal fire enclosures openings and material requirements	No internal fire enclosure.	N/A
20.2.2	Compliance is checked by inspection and measurement and using the articulated finger probe, figure 18.		N/A
20.2.3	Outer enclosures have a minimum flammability rating of HB when an internal fire enclosure is provided.		N/A
Annex A	Apparatus intended for outdoor use or for wet locations has any of the following attributes: a) provided with a means to be transportable, b) has a mass less than 35 kg, c) can be battery operated, or d) associated literature states or implies such use.	Indoor used only.	N/A
Annex A	An apparatus as described in a), b), or c) above that is marked as specified in 5.4.1 a) is not intended for outdoor or wet location use		N/A
Annex A	Apparatus permanently installed outdoors is considered to be for permanent outdoor use.		N/A
A.5	Clauses A.5, A.5.1 and A.5.4.1 are deleted.		N/A
A.9.1.1	Touch current test after the water spray test described in A.11.1.1.		N/A
A.10	Clauses A.10, A.10.2 and A.10.2.1-2 are deleted.		N/A
A.11.1.1	Apparatus subjected to the water spray test specified in UL 1598.		N/A
A.16.1	Flexible cords are suitable for outdoor use.		N/A
A.20.2.1	Enclosures for an apparatus intended for permanent outdoor location comply with requirements for Type 3 enclosures in UL 50.		N/A
Annex B	IEC 62151 Clause 4 applies except for 4.1.2, 4.1.3, 4.2.1.1 and 4.2.1.2	No TNV circuit.	N/A

US National differences and Special national conditions according to to IEC 60065:2001 + A1 + A2

IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex B	The requirements of 4.2.1.1 are replaced by the requirements or 2.3.1 of UL 60950, Third Edition or UL 60950-1		N/A
Annex B	Voltages on the TNV-0 circuits, TNV-1 circuits and accessible conductive parts in the event of a single insulation fault		N/A
Annex B	Apparatus intended to be connected to telecommunication networks and having ringing voltages applied to the apparatus is subjected to touch current limits in accordance with clause 5.1.8.1.1 of UL 60950, Third Edition or 5.1.8.3 of UL 60950-1		N/A
Annex B	Telecommunication network that uses outside cable complies with the requirements for protection against overvoltage from power line crosses per 6.4 of UL 60950, Third Edition or UL 60950-1.		N/A
Annex B	UL 60950, Third Edition or UL 60950-1 Acoustic tests for apparatus containing an earphone held against the ear.		N/A
Annex B	Apparatus provided with appropriate markings and instructions as described in Annex NAA of UL 60950, 3rd Edition or UL 60950-1.		N/A
Annex D	Reference to IEC 60990 replaced by UL 101.		P
Annex D	Add touch current value in MIU where MIU = U2 x 2 (r.m.s. value).		P
Annex G	Annex G is deleted.		N/A
Annex I	Safety requirements for coin/button cell batteries.	No such batteries used.	N/A
Annex L	Annex L is deleted.		N/A
Annex Q	Safety requirements for video apparatus for use in health care facilities.		N/A
Annex R	Safety requirements for under-cabinet apparatus.	Not such apparatus.	N/A
Annex S	Safety requirements for in-wall mounted apparatus.	Not such apparatus.	N/A
Annex T	Safety requirements for apparatus with projection lamps.	No projection lamps used.	N/A
Annex U	Safety requirements for permanently connected apparatus.	Not such apparatus.	N/A
Annex V	Safety requirements for carts, stands, and similar apparatus for use with specific apparatus covered by this standard.	Not such apparatus.	N/A
Annex W	Construction details for a 0.02-ohm shunt for use in the peak inrush-current measurement.		N/A

US National differences and Special national conditions according to to IEC 60065:2001 + A1 + A2

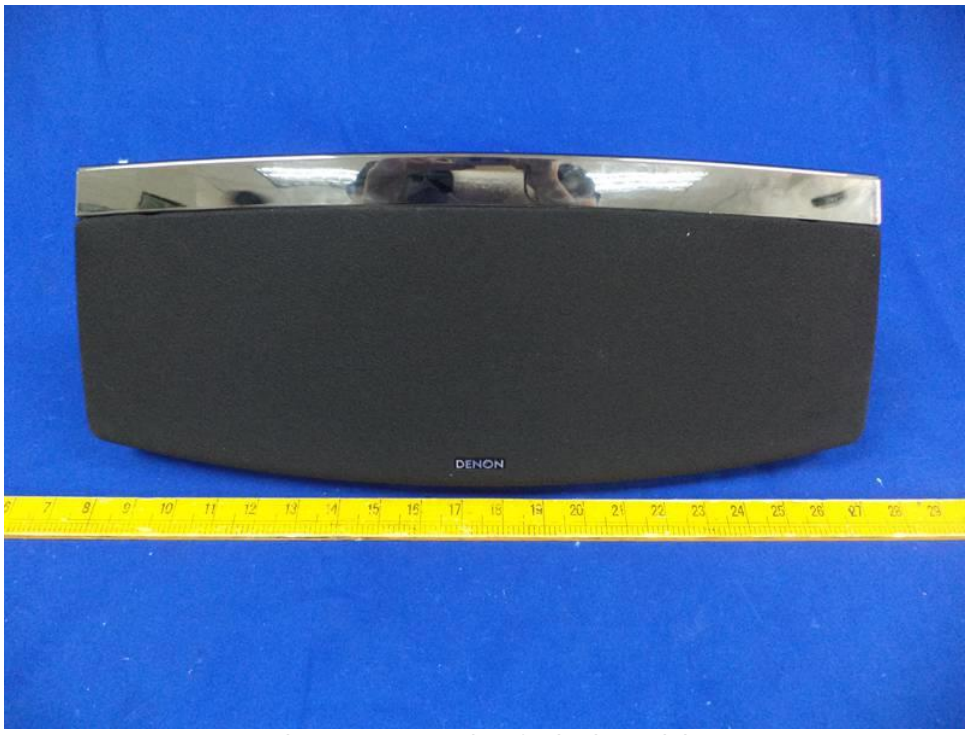
IEC60065 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

Annex X	Manufacturing and production-line tests and verification.		N/A
Annex Y	Standards for components		P

Product: Wireless Speaker

Type Designation: HEOS 7, HEOS 7 HS2

Picture 1. Overall view for both models

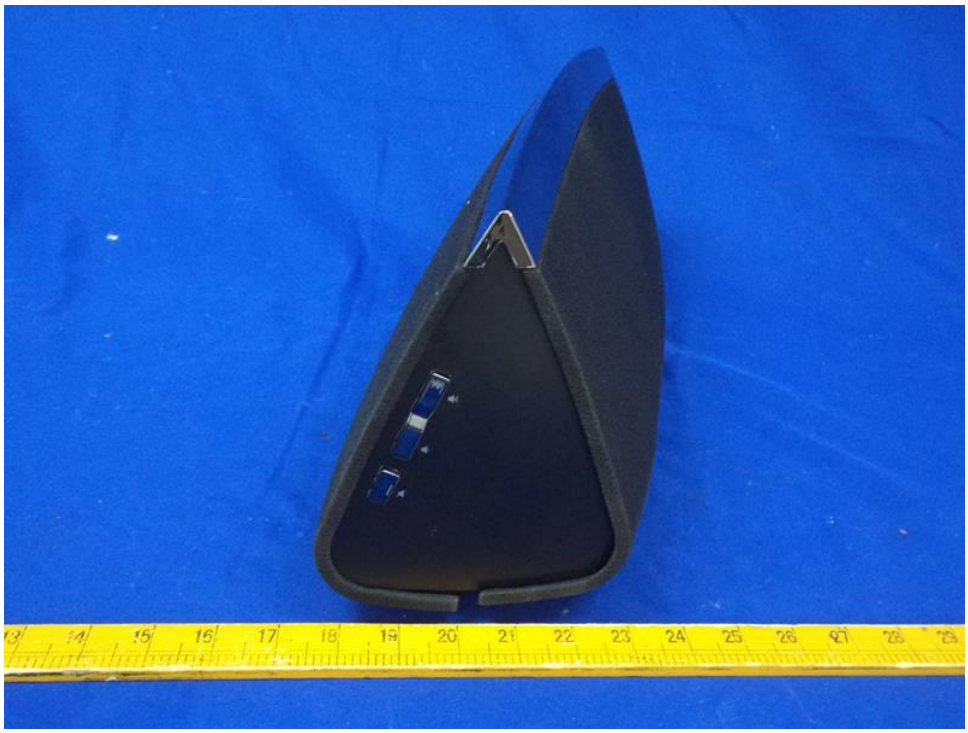


Picture 2. Front view for both models

Product: Wireless Speaker

Type Designation: HEOS 7, HEOS 7 HS2

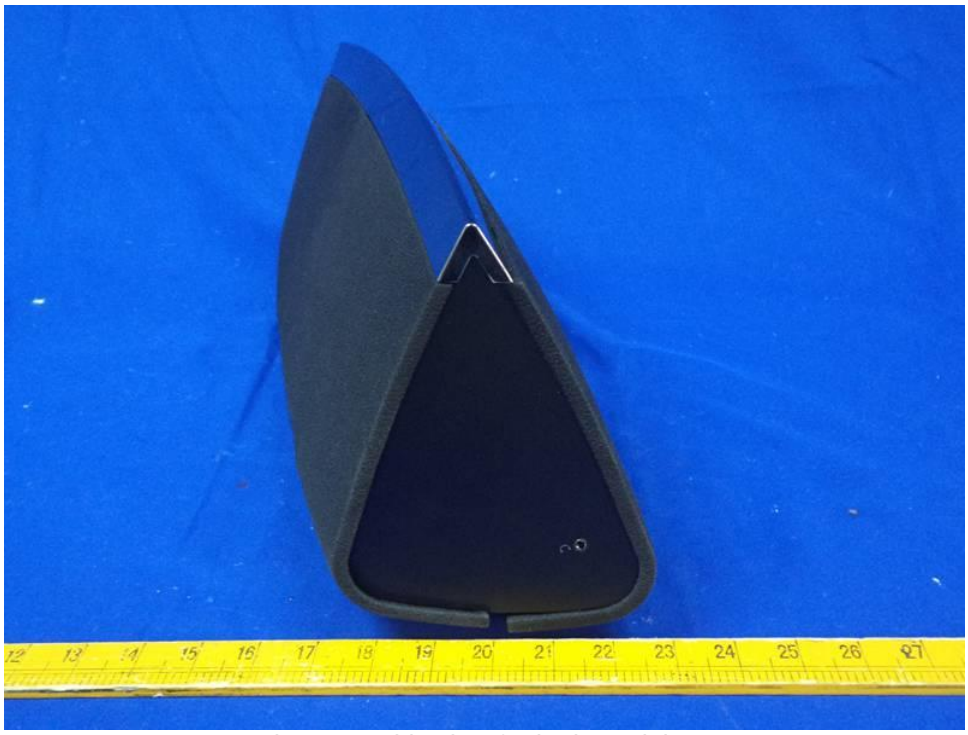
Picture 3. Rear and bottom view for both models



Picture 4. Side view for both models -1

Product: Wireless Speaker

Type Designation: HEOS 7, HEOS 7 HS2



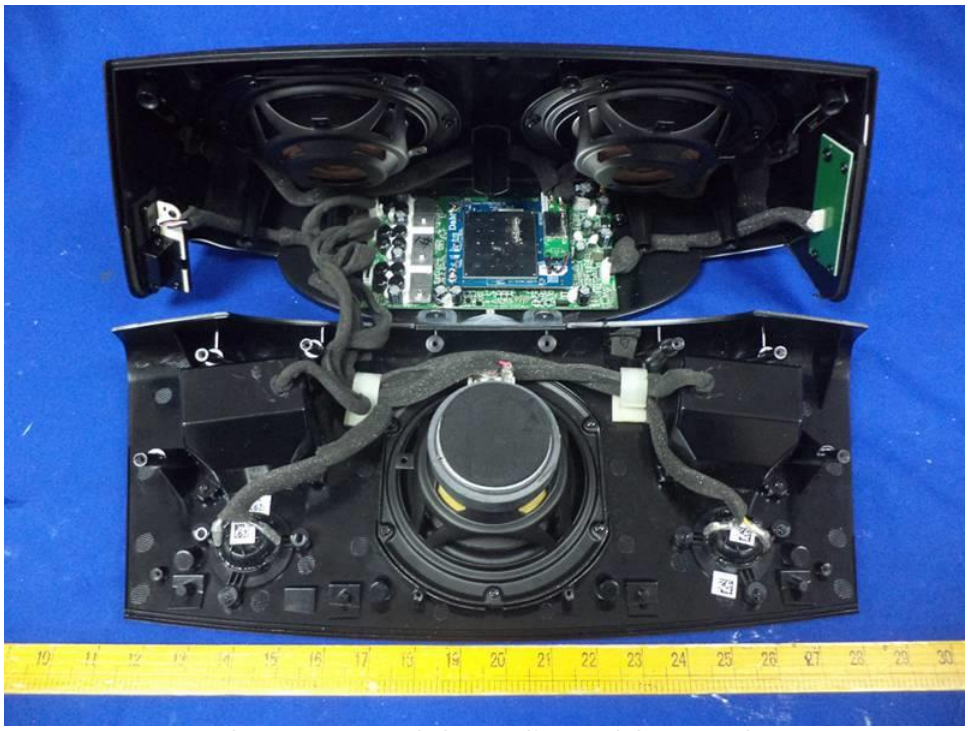
Picture 5. Side view for both models -2

Picture 6. Terminals view for both models

Product: Wireless Speaker

Type Designation: HEOS 7, HEOS 7 HS2

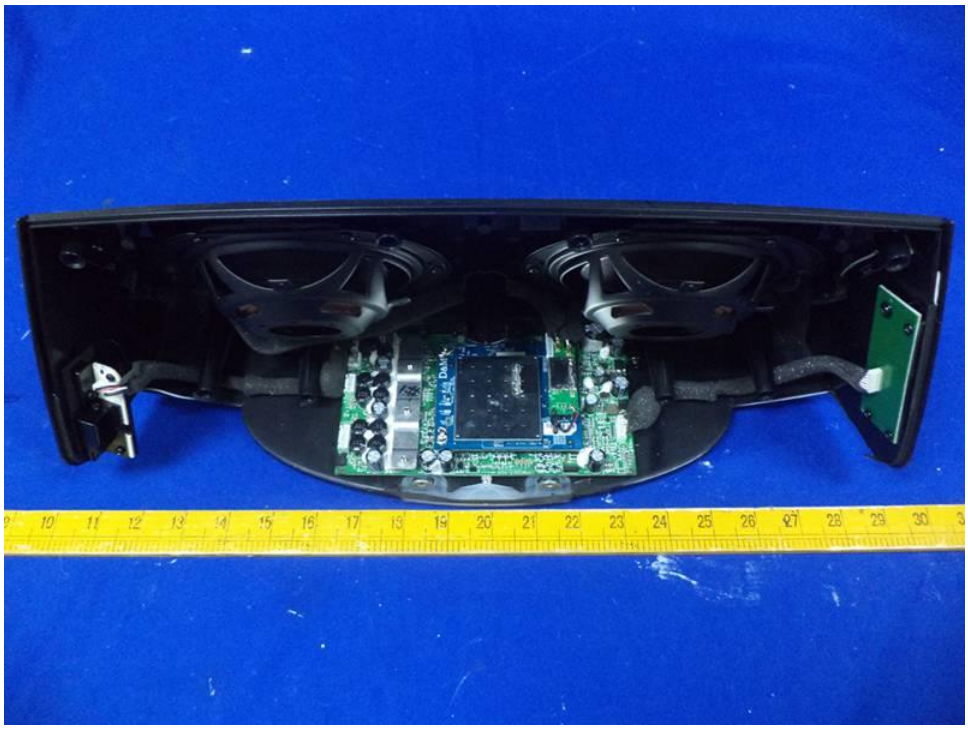
Picture 7. Internal view (for both models)



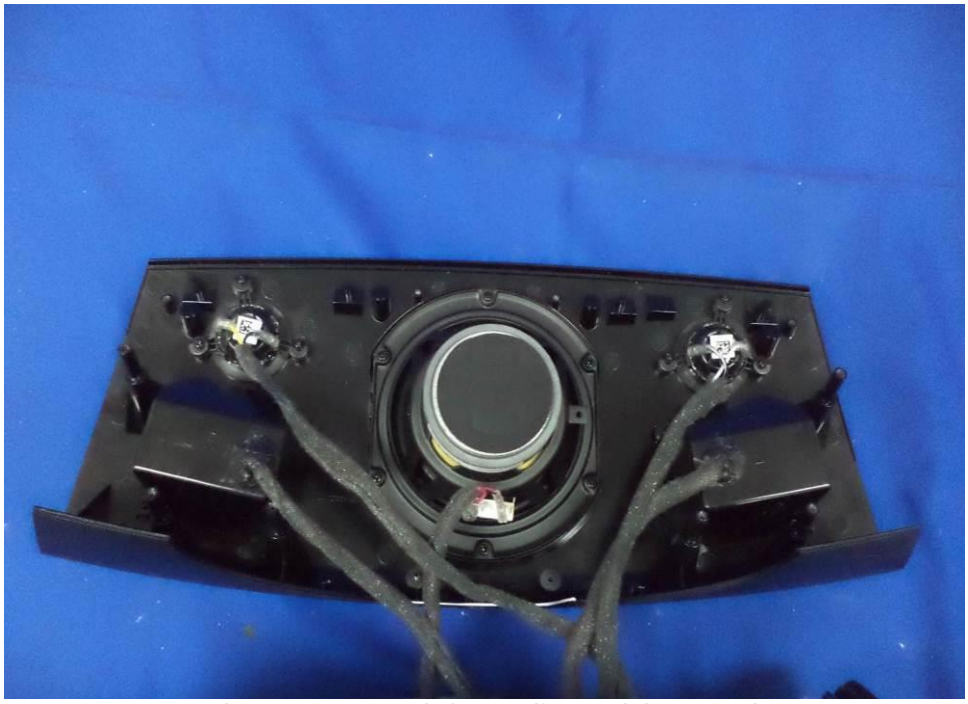
Picture 8. Internal view -1 (for model HEOS 7)

Product: Wireless Speaker

Type Designation: HEOS 7, HEOS 7 HS2



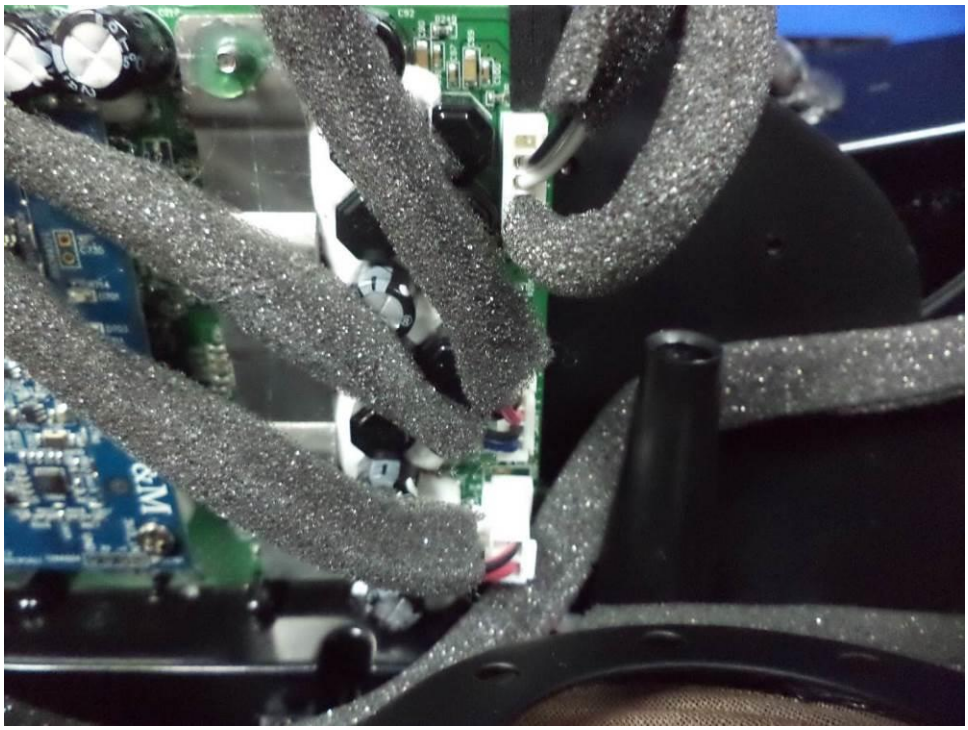
Picture 9. Internal view -2 (for model HEOS 7)



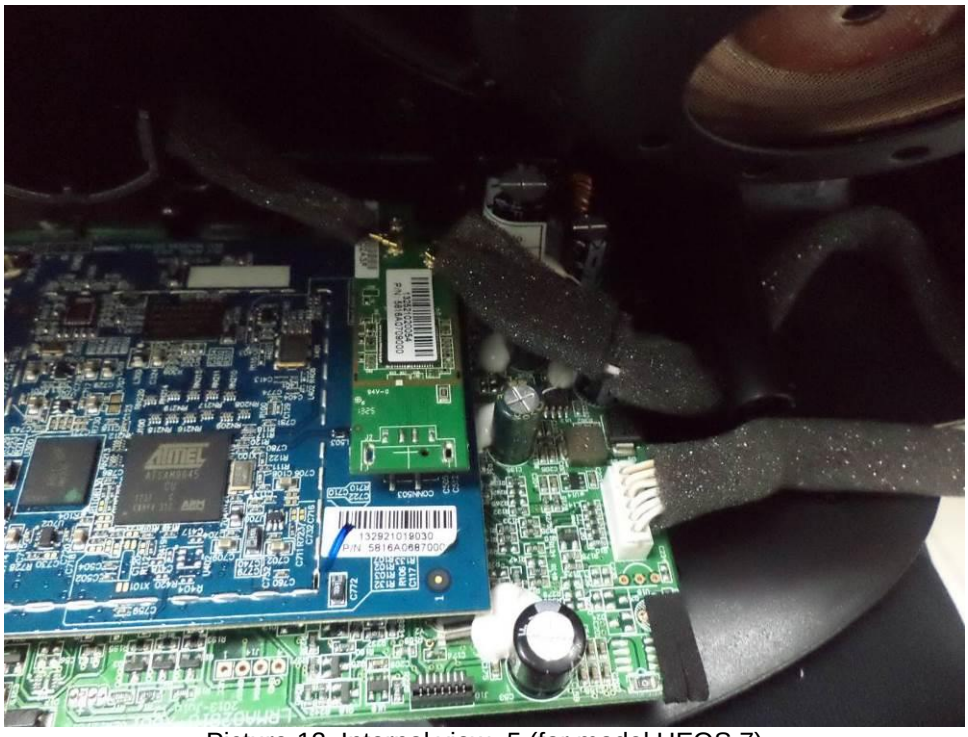
Picture 10. Internal view -3 (for model HEOS 7)

Product: Wireless Speaker

Type Designation: HEOS 7, HEOS 7 HS2



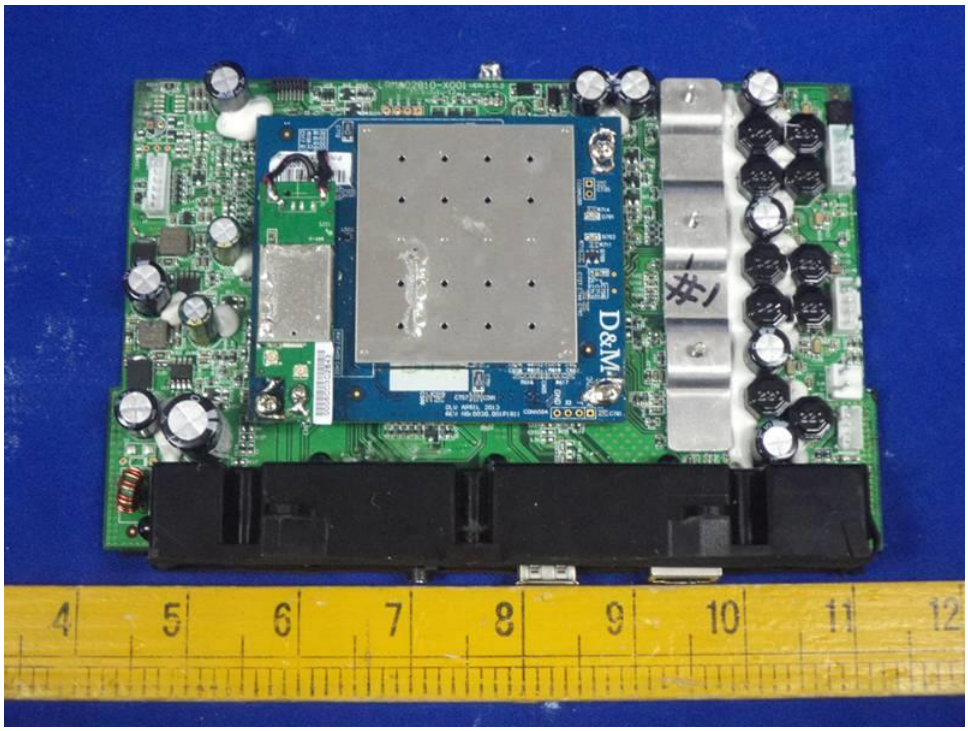
Picture 11. Internal view -4 (for model HEOS 7)



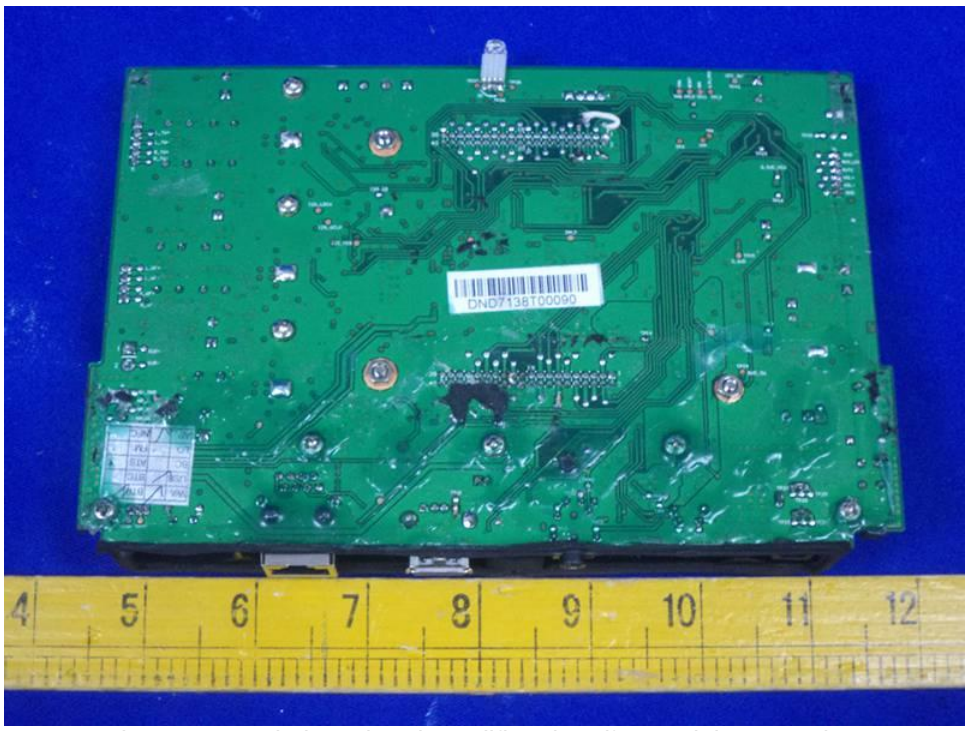
Picture 12. Internal view -5 (for model HEOS 7)

Product: Wireless Speaker

Type Designation: HEOS 7, HEOS 7 HS2



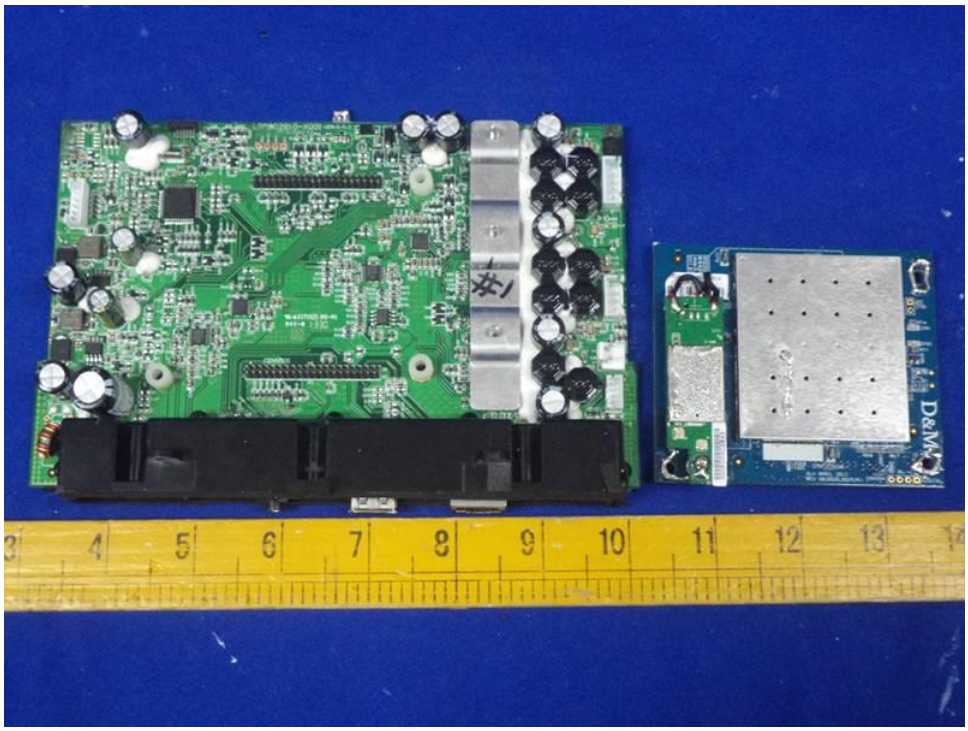
Picture 13. Main board and amplifier view (for model HEOS 7) -1



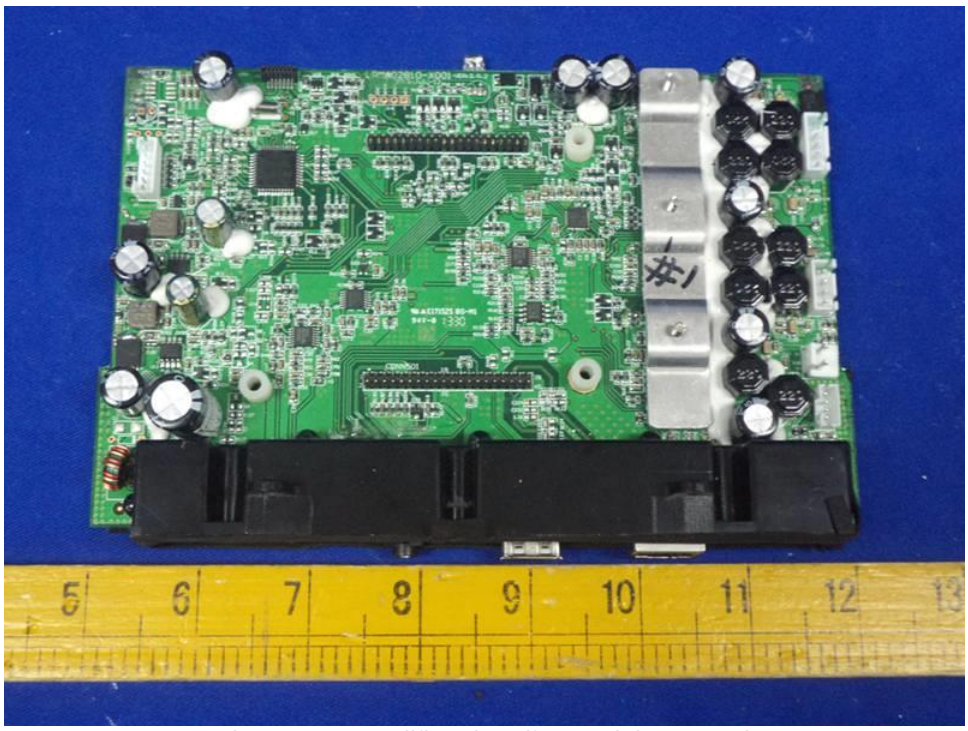
Picture 14. Main board and amplifier view (for model HEOS 7) -2

Product: Wireless Speaker

Type Designation: HEOS 7, HEOS 7 HS2



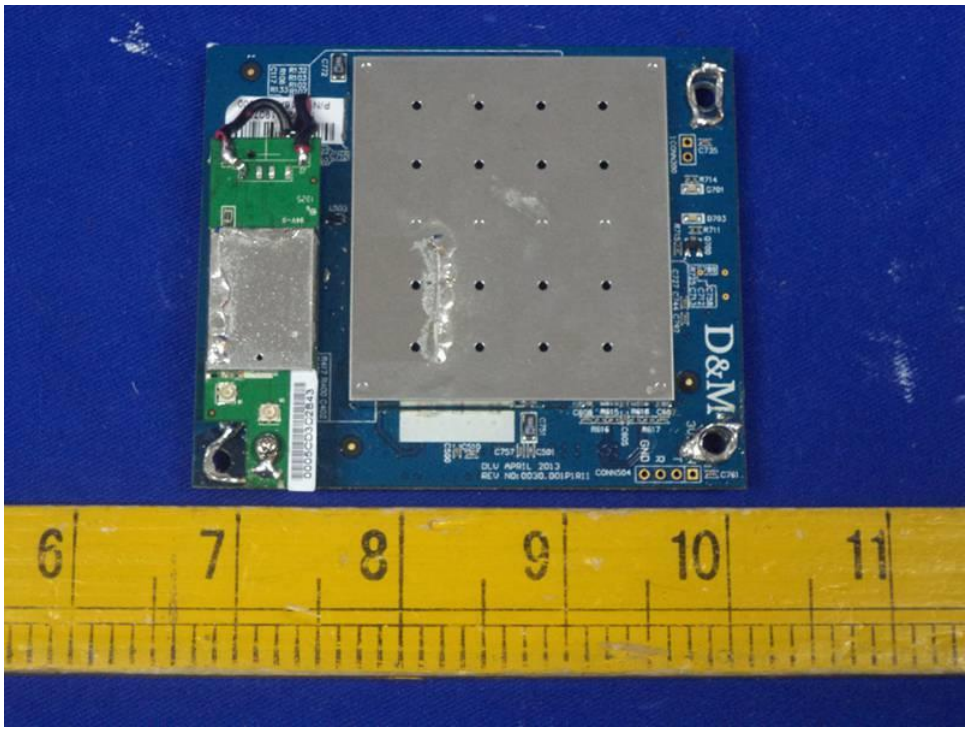
Picture 15. Main board and amplifier view (for model HEOS 7) -3



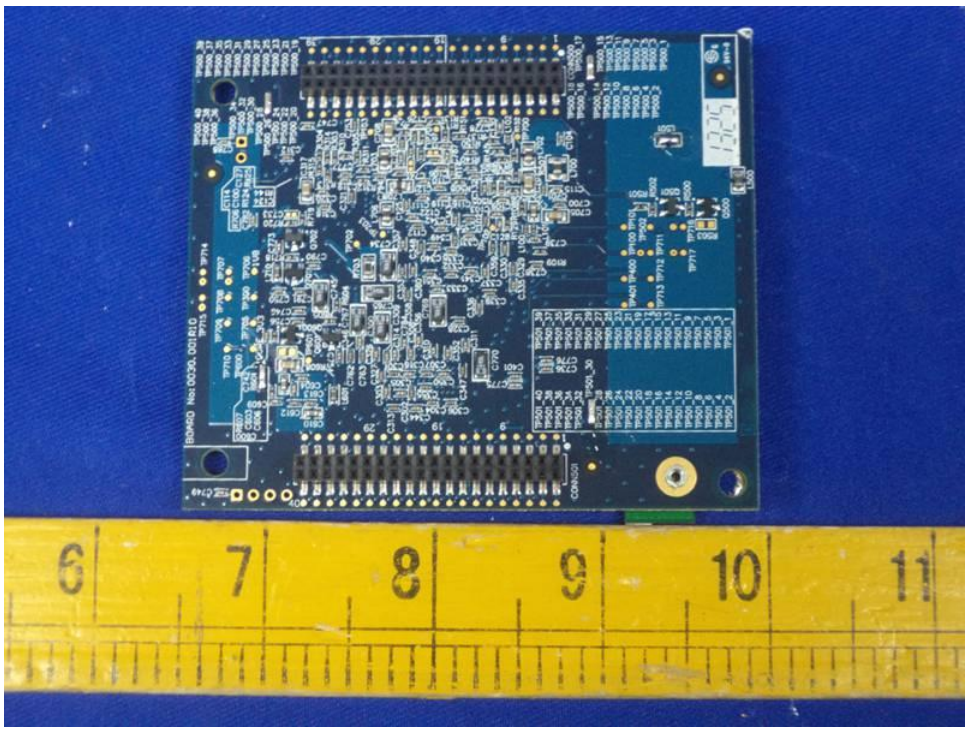
Picture 16. Amplifier view (for model HEOS 7)

Product: Wireless Speaker

Type Designation: HEOS 7, HEOS 7 HS2



Picture 17. Main board view 1 (for model HEOS 7)



Picture 18. Main board view 2 (for model HEOS 7)

Product: Wireless Speaker

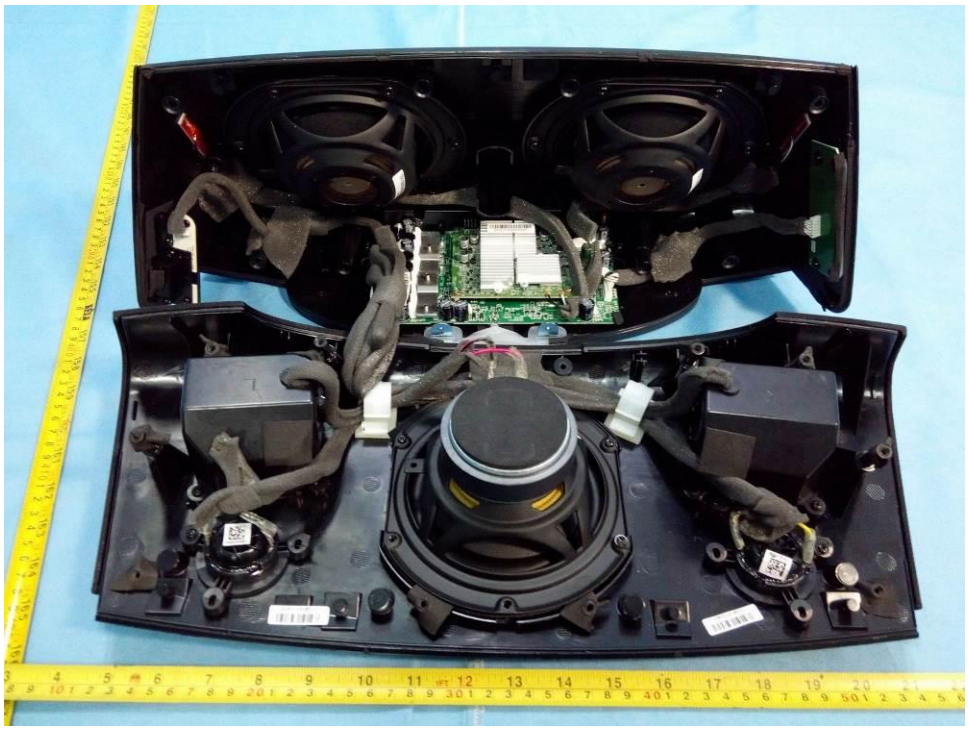
Type Designation: HEOS 7, HEOS 7 HS2

Picture 19. Adapter view -1

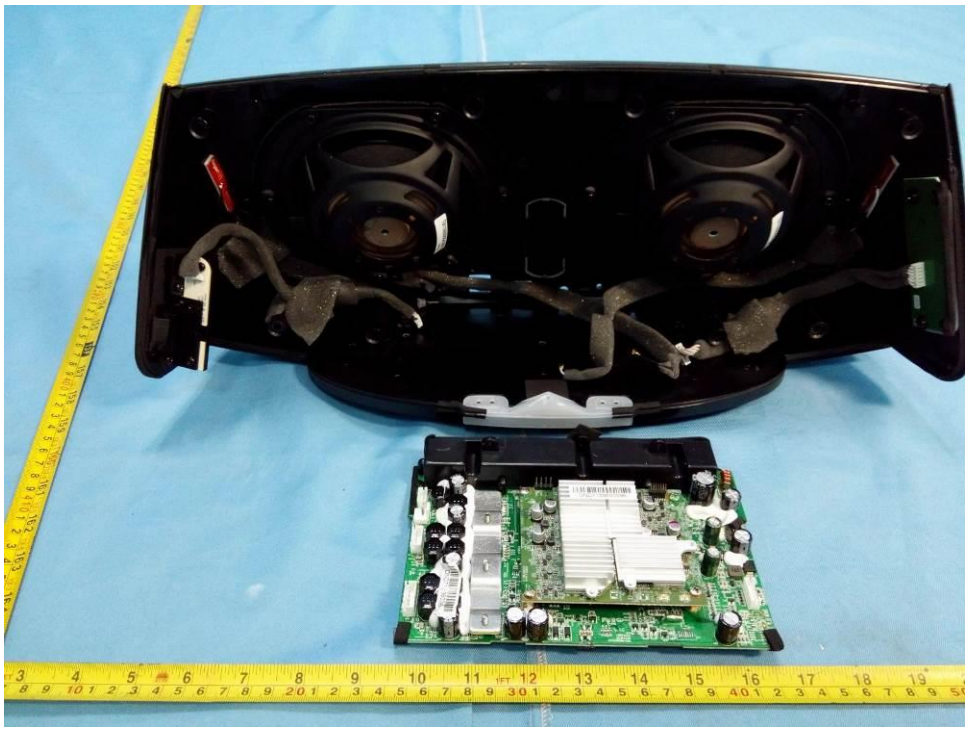
Picture 20. Adapter view -2

Product: Wireless Speaker

Type Designation: HEOS 7, HEOS 7 HS2



Picture 21. Internal view 1 (for model HEOS 7 HS2)

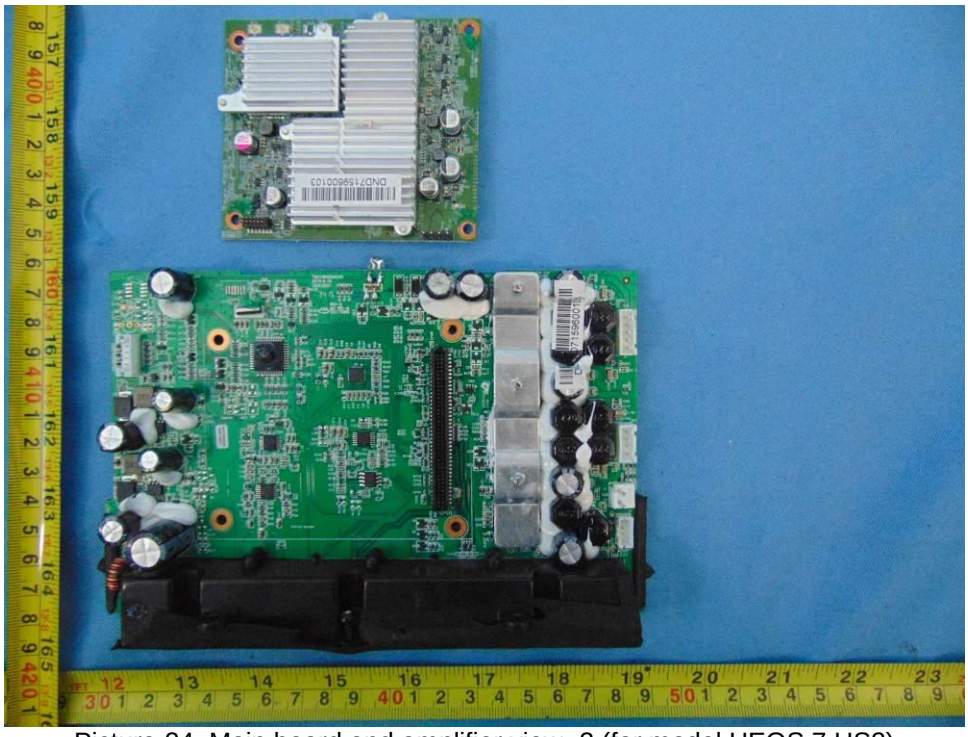


Picture 22. Internal view 2 (for model HEOS 7 HS2)

Product: Wireless Speaker

Type Designation: HEOS 7, HEOS 7 HS2

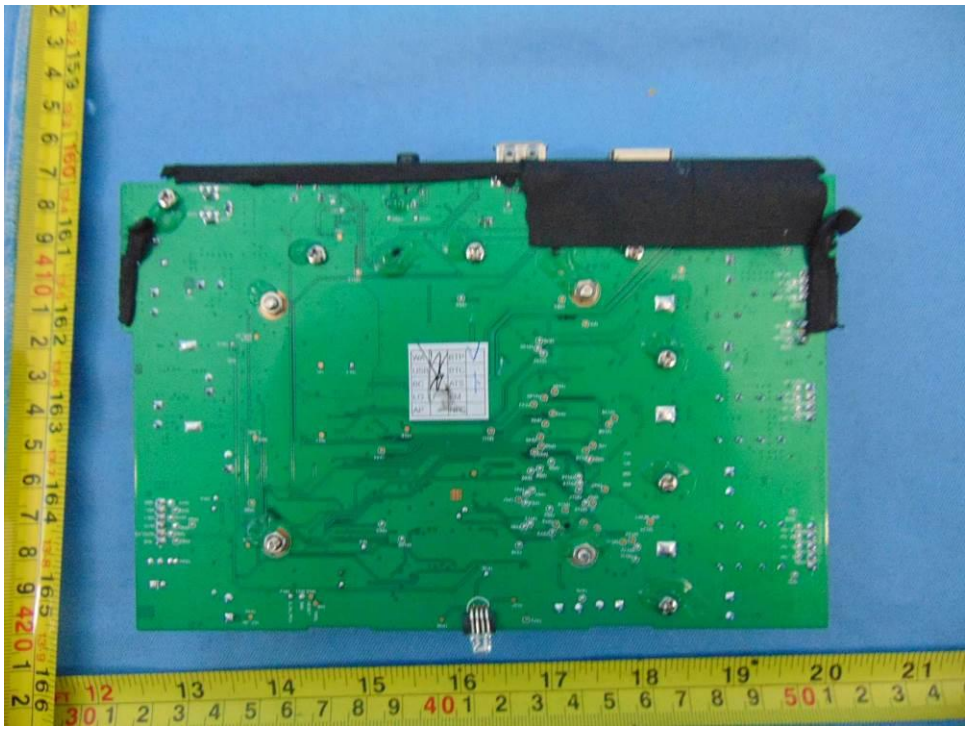
Picture 23. Main board and amplifier view -1 (for model HEOS 7 HS2)



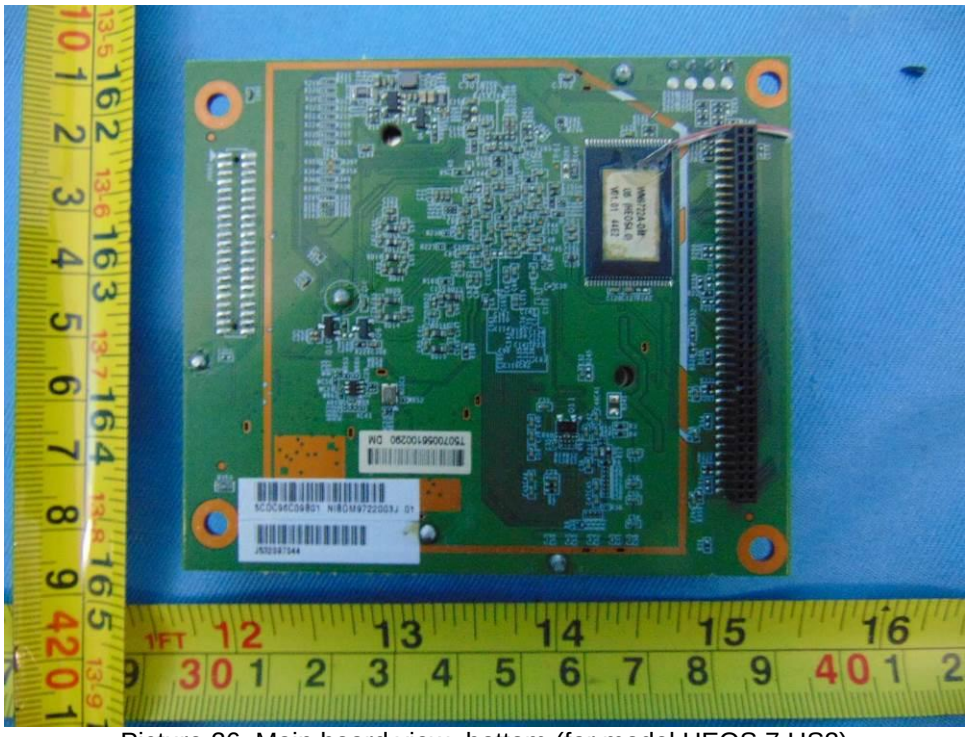
Picture 24. Main board and amplifier view -2 (for model HEOS 7 HS2)

Product: Wireless Speaker

Type Designation: HEOS 7, HEOS 7 HS2



Picture 25. Amplifier view -bottom (for model HEOS 7 HS2)



Picture 26. Main board view- bottom (for model HEOS 7 HS2)

Certificado Certificado شهادة Zertifikat сертификат

CERTIFICATE OF COMPLIANCE

This is to certify that the product listed in follows was (were) tested in the BTL EMC Laboratory to comply with the required criteria levels of the follow-mentioned Generic Standards or Product Family Standard(s) and/or Basic Standard(s) based-on the essential conformity requirements of EMC Directive of 2004/108/EC.

Equipment	**Wireless Speaker**
Model Name	**HEOS 7 HS2**
Brand Name	**DENON**
Applicant	**Tymphany HK Limited**
Address	**Room 1307-8, Dominion Centre, 43-59 Queen's Road East, WanChai, Hong Kong**
Standard(s)	**EN 55032:2012+AC:2013**
Report(s)	**BTL-EMC-1-1509C011**

The test data, data evaluation, and equipment configuration contained in our test report(s)above was(were) obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s). The test data contained in the referenced test report relate only to the EUT sample and item(s) tested.

Steven Lu
Authorized Signatory

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TEL:+86-769-8318-3000
FAX:+86-769-8319-6000

Testing Laboratory
2640

EMC Test Report

Project No.	:	1509C011
Equipment	:	Wireless Speaker
Model Name	:	HEOS 7 HS2
Applicant	:	Tymphany HK Limited
Address	:	Room 1307-8, Dominion Centre, 43-59 Queen's Road East, WanChai, Hong Kong

Date of Receipt	:	Sep. 02, 2015
Date of Test	:	Sep. 02, 2015 ~ Oct. 12, 2015
Issued Date	:	Oct. 13, 2015
Tested by	:	BTL Inc.

Testing Engineer : _____
(Bill Zhang)

Technical Manager : _____
(James Chiu)

Authorized Signatory : _____
(Steven Lu)

BTL INC.

No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.

TEL: +86-769-8318-3000 FAX: +86-769-8319-6000

Testing Laboratory 2640

Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C.**, or National Institute of Standards and Technology (**NIST**) of **U.S.A.**

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

BTL's report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

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BTL's laboratory quality assurance procedures are in compliance with the **ISO Guide 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

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REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
BTL-EMC-1-1509C011	Original Issue.	Oct. 13, 2015

1. CERTIFICATION

Equipment	: Wireless Speaker
Brand Name	: DENON
Model Name	: HEOS 7 HS2
Applicant	: Tymphany HK Limited
Manufacturer	: D&M Holdings Inc.
Address	: 2-1 Nisshin-cho, Kawasaki-ku, Kawasaki-shi, Kanagawa, 210-8569 Japan
Factory	: Premium Loudspeakers (HuiZhou) Co. Ltd
Address	: Tymphany Industrial Area, Xin Lian Village, Xin Xu Town, Hui Yang District, Hui Zhou City,Guangdong, China
Date of Test	: Sep. 02, 2015 ~ Oct. 12, 2015
Test Sample	: Engineering Sample
Standard(s)	: EN 55032:2012+AC:2013

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.
The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-EMC-1-1509C011) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

EMC Emission					
Standard(s)	Test Item		Limit	Judgment	Remark
EN 55032:2012+AC:2013	Radiated emissions up to 1 GHz		Class B	PASS	------
	Radiated emissions above 1 GHz		Class B	PASS	NOTE(1)
	Radiated emissions from FM receivers		------	N/A	NOTE(2)
	Conducted emissions AC mains power port		Class B	PASS	NOTE(3)
	Asymmetric mode conducted emissions	AAN	------	PASS	NOTE(4)
		Current Probe	------	N/A	
		CVP	------	N/A	
	Conducted differential voltage emissions		------	N/A	NOTE(5)

NOTE:

(1) If the EUT's max operating frequency does exceed 108 MHz the test will be performed. The EUT' s maximum operating frequency is 5.8GHz.

(2) If the EUT has FM function the test will be performed.

(3) If the EUT has AC power mains port the test will be performed.

(4)

Cable Type	Number of pairs	Measurement type	Procedures
Balanced Unscreened	1 (2 wire) ;2 (4 wire); 3 (6 wire) ;4 (8 wire)	Voltage	AAN
Balanced Unscreened	See a)	Voltage and Current	CP+CVP
Screened or Coaxial	n/a	Voltage	AAN
Screened or Coaxial	n/a	Voltage or Current	CP or CVP
Unbalanced cables	n/a	Voltage and Current	CP+CVP

a) Ports connected to cables with more than 4 balanced pairs or where the port is unable to function correctly when connected through an AAN.

(5) If the EUT has tuner port the test will be performed.

(6) The requirement followed by the client's specification.

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is at No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.

2.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. The BTL measurement uncertainty is less than the CISPR 16-4-2 U_{cispr} requirement.

The reported uncertainty of measurement **y ± U**, where expanded uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**, providing a level of confidence of approximately **95** %.

A. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)
DG-CB08 (10m)	CISPR	30MHz ~ 200MHz	V	4.66
		30MHz ~ 200MHz	H	4.64
		200MHz ~ 1,000MHz	V	4.88
		200MHz ~ 1,000MHz	H	4.86

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-CB08 (3m)	CISPR	1 ~ 6 GHz	4.26
		6 ~18 GHz	5.30

B. Asymmetric mode conducted emissions test:

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-C01	CISPR	AAN 50…40dB	3.76
		AAN 65…50dB	3.76
		AAN 75…60dB	3.76
		Capacitive Voltage Probe	3.04
		RF Current Probe	2.58

C. Conducted emissions AC mains power port test:

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-C01	CISPR	150 kHz ~ 30MHz	3.16

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	Wireless Speaker
Brand Name	DENON
Model Name	HEOS 7 HS2
Model Difference	N/A
Power Source	DC Voltage supplied from AC/DC adapter. Manufacturer: Dongguan Dongsong Electronic Co.,Ltd Model: DYS902-240375W
Power Rating	I/P:100-240V ~ 50/60Hz, 1.5A MAX O/P:24.0V 3.75A
Connecting I/O Port(s)	1*AUX IN Port 1*USB Port 1*DC IN Port 1*NETWORK Port 1* Earphone Port

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

3.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	AUX IN(LAN)
Mode 2	AUX IN(WIFI)
Mode 3	USB PLAY(LAN)
Mode 4	USB PLAY(WIFI)
Mode 5	App phone music play(LAN)
Mode 6	App phone music play(WIFI)

The EUT system operated these modes were found to be the worst case during the pre-scanning test as following:

For Radiated emissions test	
Final Test Mode	Description
Mode 1	AUX IN(LAN)
Mode 2	AUX IN(WIFI)
Mode 3	USB PLAY(LAN)
Mode 4	USB PLAY(WIFI)
Mode 5	App phone music play(LAN)
Mode 6	App phone music play(WIFI)

For conducted emissions AC mains power port test	
Mode 1	AUX IN(LAN)
Mode 2	AUX IN(WIFI)
Mode 3	USB PLAY(LAN)
Mode 4	USB PLAY(WIFI)
Mode 5	App phone music play(LAN)
Mode 6	App phone music play(WIFI)

For asymmetric mode conducted emissions test	
Final Test Mode	Description
Mode 1	AUX IN(LAN)
Mode 3	USB PLAY(LAN)
Mode 5	App phone music play(LAN)

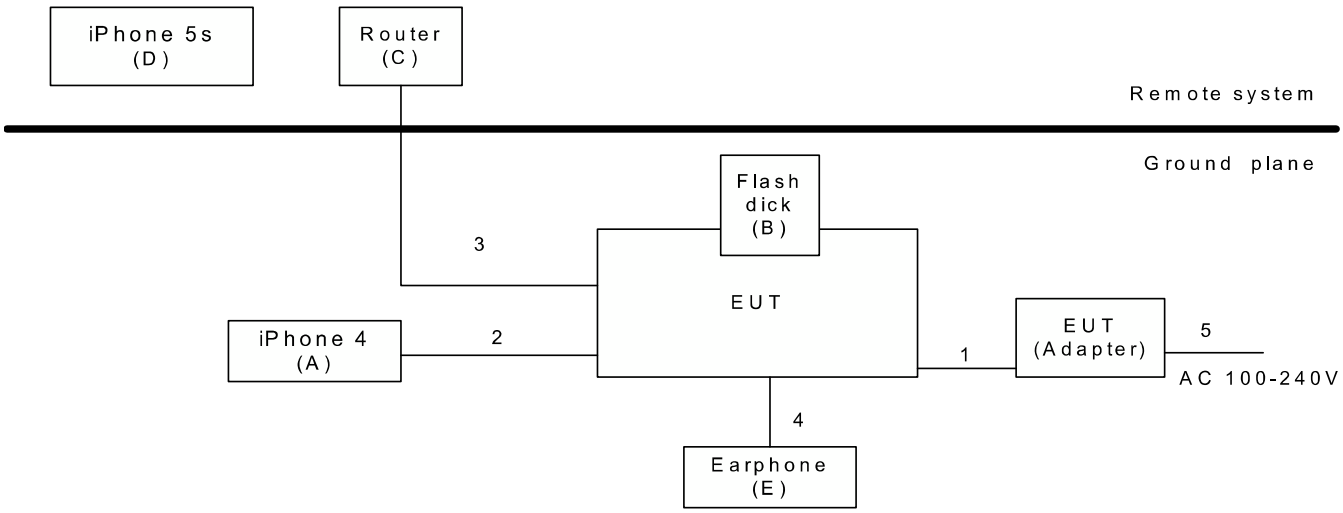
3.3 EUT OPERATING CONDITIONS

The EUT exercise program used during radiated and/or conducted emission measurement was designed to exercise the various system components in a manner similar to a typical use. The standard test signals and output signal as following:

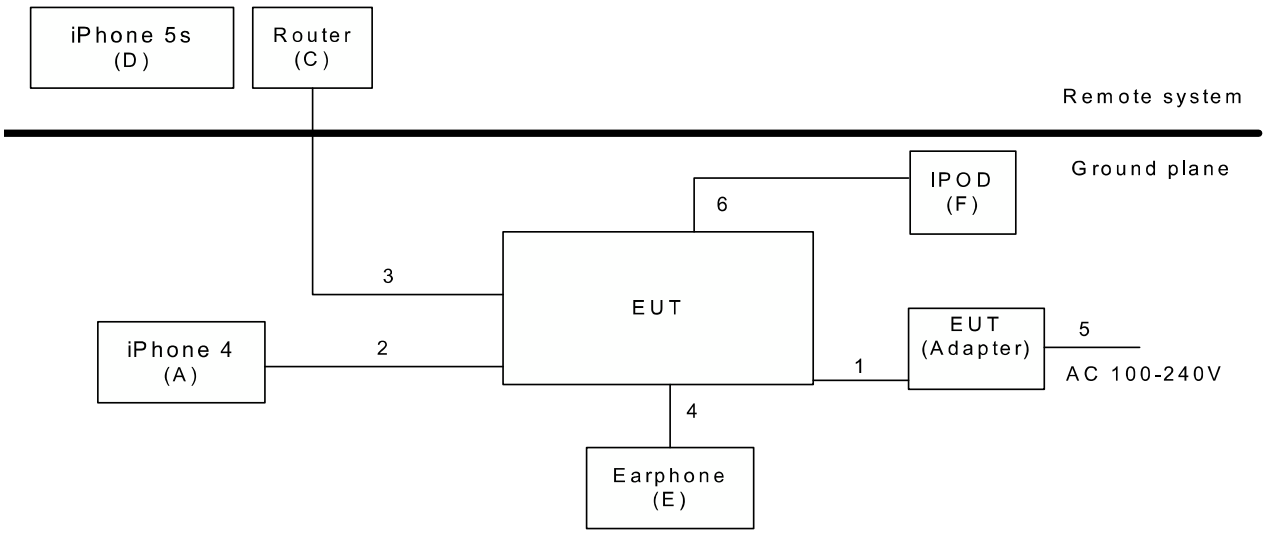
1. DC Input: Adapter
2. USB: EUT read data from USB storage or Connected to USB storage.
3. USB: Connected to iPod.
4. AUX IN: Connected to iPhone 4.

3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

USB PLAY



AUX IN+ App phone music play



3.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.
A	iPhone 4	Apple	A1332	BCG-E2380A	N/A
B	USB flash disk	Kingston	N/A	DOC	N/A
C	Wireless router	TP-LINK	TL-WR1041N	DOC	1142123O01143
D	iPhone 5s	Apple	A1429	BCG-E2599A	N/A
E	Earphone	Apple	N/A	N/A	N/A
F	IPod nano	Apple	A1446	BCG-A1446A	DCYJGOPCFOGV

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	1.5m	DC Cable
2	NO	NO	1.5m	Audio Cable
3	NO	NO	10m	RJ45 Cable
4	NO	NO	1.8m	Audio Cable
5	NO	NO	1.8m	AC Cable
6	YES	NO	1m	USB Charge Cable

Note:

(1) The support equipment was authorized by Declaration of Conformity.
(2) For detachable type I/O cable should be specified the length in m in 『Length』 column.

4. EMC EMISSION TEST

4.1 RADIATED EMISSION

4.1.1 LIMITS

Class A equipment up to 1000MHz

Table clause	Frequency MHz	Measurement		Class A limit dB(uV/m)
		Distance m	Detector type/bandwidth	OATS/SAC
A2.1	30-230	10	Quasi peak / 120 kHz	40
	230-1000			47
A2.2	30-230	3		50
	230-1000			57

Class A equipment above 1000MHz

Table clause	Frequency MHz	Measurement		Class A limit dB(uV/m)
		Distance m	Detector type/bandwidth	FSOATS
A3.1	1000-3000	3	Average / 1 MHz	56
	3000-6000			60
A3.2	1000-3000		Peak / 1 MHz	76
	3000-6000			80

Class B equipment up to 1000MHz

Table clause	Frequency MHz	Measurement		Class B limit dB(uV/m)
		Distance m	Detector type/bandwidth	OATS/SAC
A4.1	30-230	10	Quasi peak / 120 kHz	30
	230-1000			37
A4.2	30-230	3		40
	230-1000			47

Class B equipment above 1000MHz

Table clause	Frequency MHz	Measurement		Class B limit dB(uV/m)
		Distance m	Detector type/bandwidth	FSOATS
A5.1	1000-3000	3	Average / 1 MHz	50
	3000-6000			54
A5.2	1000-3000		Peak / 1 MHz	70
	3000-6000			74

Notes:

(1) The limit for radiated test was performed according to as following: EN 55032

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

(4) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)
Margin Level = Measurement Value - Limit Value

Required highest frequency for radiated measurement

Highest internal frequency (F_x) MHz	Highest measured frequency MHz
F_x ≦108	1000
108＜F_x ≦500	2000
500＜ F_x ≦1000	5000
F_x ＞1000	5^{th} up to a maximum 6 GHz,

Note for FM and TV broadcast receiver, F_x is determined from the highest frequency generated or used excluding the local oscillator and tuned frequencies.

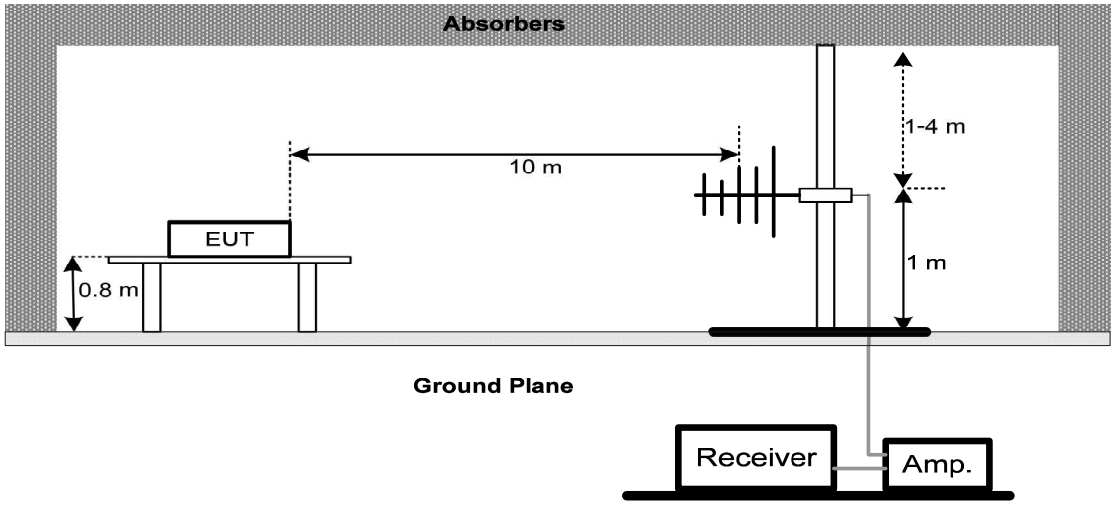
4.1.2 TEST PROCEDURE

a. The measuring distance of 10 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
b. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
c. The height of the equipment or of the substitution antenna shall be 0.8 m, the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
e. The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1GHz.
f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn‘t perform. (below 1GHz)
h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn‘t perform. (above 1GHz)
i. For the actual test configuration, please refer to the related Item –EUT Test Photos.

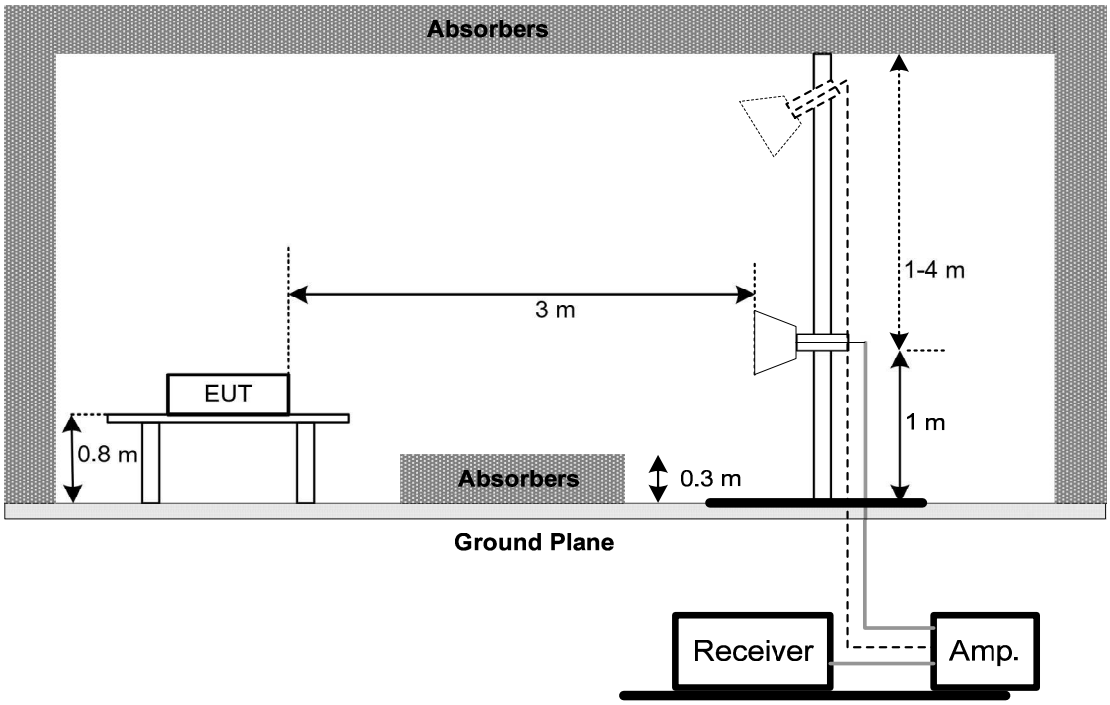
4.1.3 DEVIATION FROM TEST STANDARD

No deviation

4.1.4 TEST SETUP (UP TO 1 GHZ)

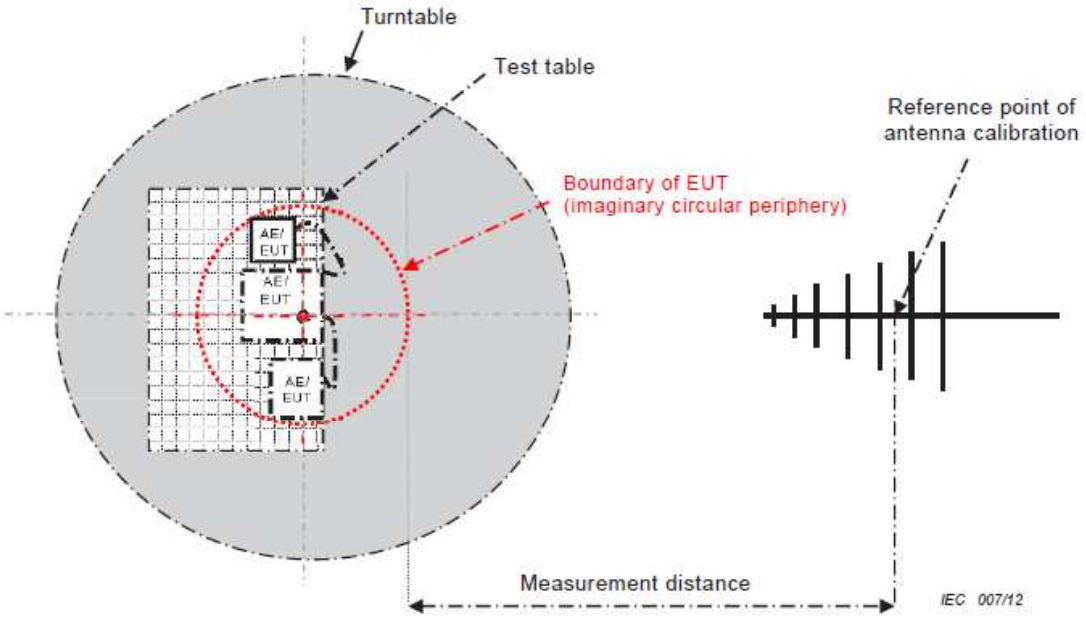


4.1.5 TEST SETUP (ABOVE 1 GHZ)



Note: The antenna can be moved between 1 to 4 meters above the ground.

4.1.6 MEASUREMENT DISTANCE



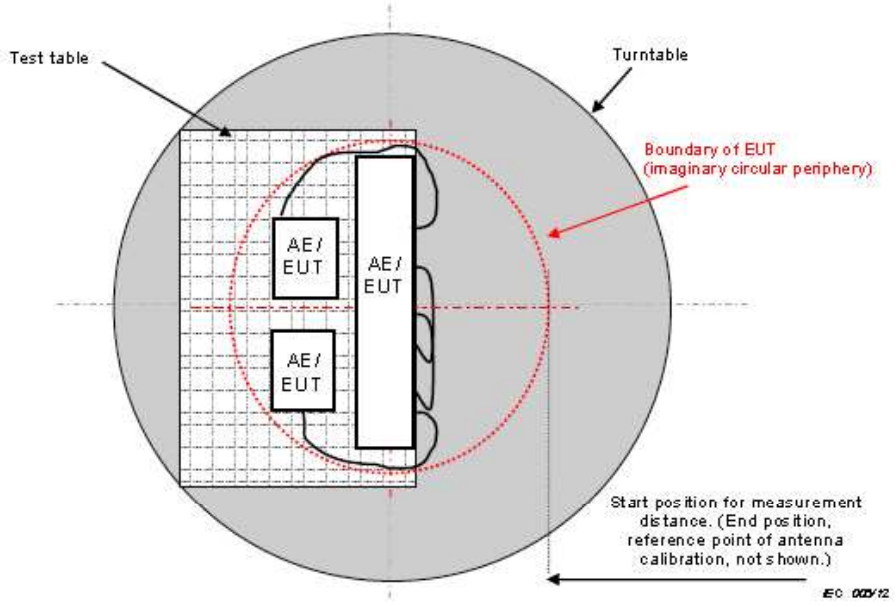


Figure C.2 – Boundary of EUT, Local AE and associated cabling

4.1.7 TEST RESULTS (UP TO 1 GHZ)

Please refer to the Attachment A.

Temperature: 25°C Relative Humidity: 60%

Remark:

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.

(2) If the peak scan value lower limit more than 10dB, then this signal data does not show in table.

4.1.8 TEST RESULTS (ABOVE 1 GHZ)

Please refer to the Attachment B.

Temperature: 25°C Relative Humidity: 60%

Remark:

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading Compliance with the QP Limits and then QP Mode measurement didn't perform.

(2) For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also Complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

4.2 RADIATED EMISSIONS FROM FM RECEIVERS MEASUREMENT

4.2.1 LIMITS

Table clause	Frequency MHz	Measurement		Class B limit dB(uV/m)	
		Distance m	Detector type/bandwidth	Fundamental OATS/SAC	Harmonics OATS/SAC
A6.1	30-230	10	Quasi peak / 120 kHz	50	42
	230-300				42
	300-1000				46
A6.2	30-230	3		60	52
	230-300				52
	300-1000				56

NOTE:

(1) Emission level (dBuV/m) = 20log Emission level (uV/m).

(2) The test result calculated as following:

Measurement Value = Reading Level + Correct Factor

Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)

Margin Level = Measurement Value - Limit Value

4.2.2 TEST PROCEDURE

a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz.

b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. The initial step in collecting conducted emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.

f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

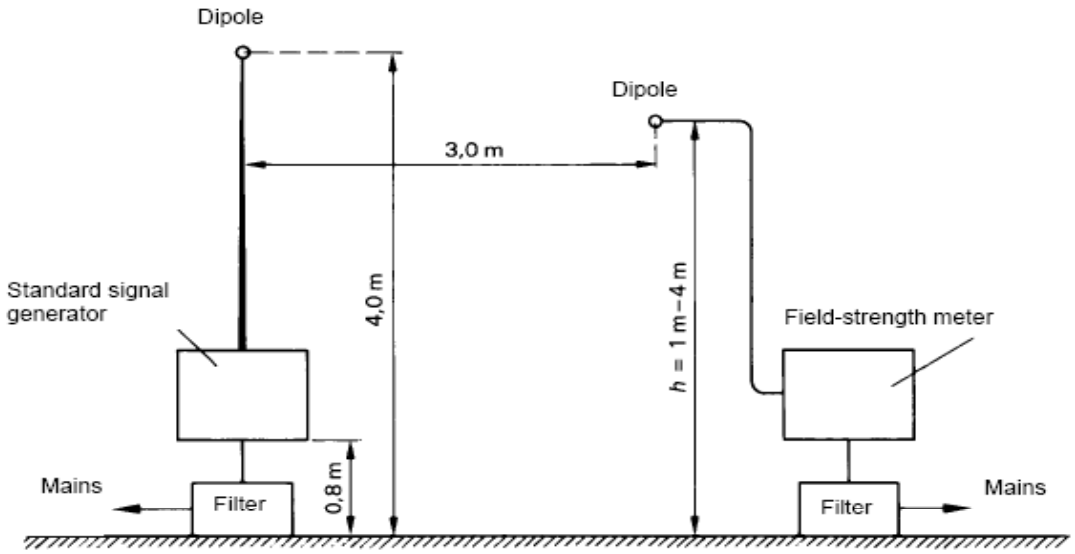
Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.

4.2.3 DEVIATION FROM TEST STANDARD

No deviation

4.2.4 TEST SETUP



4.2.5 TEST RESULTS

Please refer to the Attachment C.
Temperature: 24°C Relative Humidity: 52%

Remark:

(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz,SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz.

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.

(3) If the peak scan value lower limit more than 20dB, then this signal data does not show in table.

4.3 CONDUCTED EMISSION MEASUREMENT AT AC MANIS POWER PORTS

4.3.1 LIMITS

Requirements for conducted emissions from AC mains power ports of Class A equipment

Table clause	Frequency Range MHz	Coupling Device	Detector Type / bandwidth	Class A Limits (dB(μV))
A8.1	0.15 - 0.5	AMN	Quasi Peak / 9 kHz	79
	0.5 - 30			73
A8.2	0.15 - 0.5	AMN	Average / 9 kHz	66
	0.5 - 30			60

Requirements for conducted emissions from AC mains power ports of Class B equipment

Table clause	Frequency Range MHz	Coupling Device	Detector Type / bandwidth	Class B Limits (dB(μV))
A9.1	0.15 - 0.5	AMN	Quasi Peak / 9 kHz	66-56
	0.5 - 5			56
	5 - 30			60
A9.2	0.15 - 0.5	AMN	Average / 9 kHz	56-46
	0.5 - 5			46
	5 - 30			50

NOTE:

(1) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor(if use)
Margin Level = Measurement Value – Limit Value

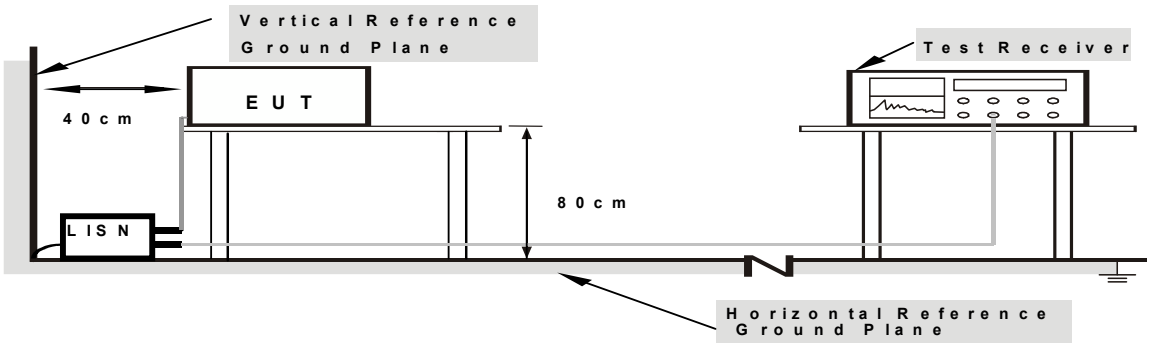
4.3.2 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.3.3 DEVIATION FROM TEST STANDARD

No deviation

4.3.4 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

4.3.5 TEST RESULTS

Please refer to the Attachment D.
Temperature: 25°C Relative Humidity: 53%

Remark

(1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz,SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.3 sec./MHz. Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=10KHz,VBW=10KHz, Swp. Time =0.3 sec./MHz.

(2) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform. In this case, a " * " marked in AVG Mode column of Interference Voltage Measured.

4.4 ASYMMETRIC MODE CONDUCTED EMISSIONS TEST

4.4.1 LIMITS

Requirements for asymmetric mode conducted emissions from Class A equipment

Table clause	Frequency range MHz	Coupling device	Detector type / Bandwidth	Class A voltage limits dB(μV)	Class A current limits dB(μV)
A10.1	0.15 – 0.5	AAN	Quasi Peak / 9 kHz	97 – 87	n/a
	0.5 – 30			87	
	0.15 – 0.5	AAN	Average / 9 kHz	84 – 74	
	0.5 – 30			74	
A10.2	0.15 – 0.5	CVP and current probe	Quasi Peak / 9 kHz	97 – 87	53 – 43
	0.5 – 30			87	43
	0.15 – 0.5	CVP and current probe	Average / 9 kHz	84 – 74	40 – 30
	0.5 – 30			74	30
A10.3	0.15 – 0.5	Current probe	Quasi Peak / 9 kHz	n/a	53 – 43
	0.5 – 30				43
	0.15 – 0.5	Current probe	Average / 9 kHz		40 – 30
	0.5 – 30				30

Requirements for asymmetric mode conducted emissions from Class B equipment

Table clause	Frequency range MHz	Coupling device	Detector type / Bandwidth	Class B voltage limits dB(μV)	Class B current limits dB(μV)
A11.1	0.15 – 0.5	AAN	Quasi Peak / 9 kHz	84 – 74	n/a
	0.5 – 30			74	
	0.15 – 0.5	AAN	Average / 9 kHz	74 – 64	
	0.5 – 30			64	
A11.2	0.15 – 0.5	CVP and current probe	Quasi Peak / 9 kHz	84 – 74	40 – 30
	0.5 – 30			74	30
	0.15 – 0.5	CVP and current probe	Average / 9 kHz	74 – 64	30 – 20
	0.5 – 30			64	20
A11.3	0.15 – 0.5	Current probe	Quasi Peak / 9 kHz	n/a	40 – 30
	0.5 – 30				30
	0.15 – 0.5	Current probe	Average / 9 kHz		30 – 20
	0.5 – 30				20

NOTE:

(1) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor(if use)
Margin Level = Measurement Value – Limit Value

4.4.2 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

d. For the actual test configuration, please refer to the related Item –EUT Test Photos.

e. **AAN, CP or CVP** at least 80 cm from nearest part of EUT chassis.

NOTE:

f. The communication function of EUT was executed and AAN was connected between EUT and associated equipment and the AAN was connected directly to reference ground plane.
Measure the voltage at the measurement port of the AAN
Correct the measured voltage by adding the AAN voltage division factor
Compare the corrected voltage with the limit**(For AAN)**

g Measure the current with a current probe and compare to the current limit**(For CP)**

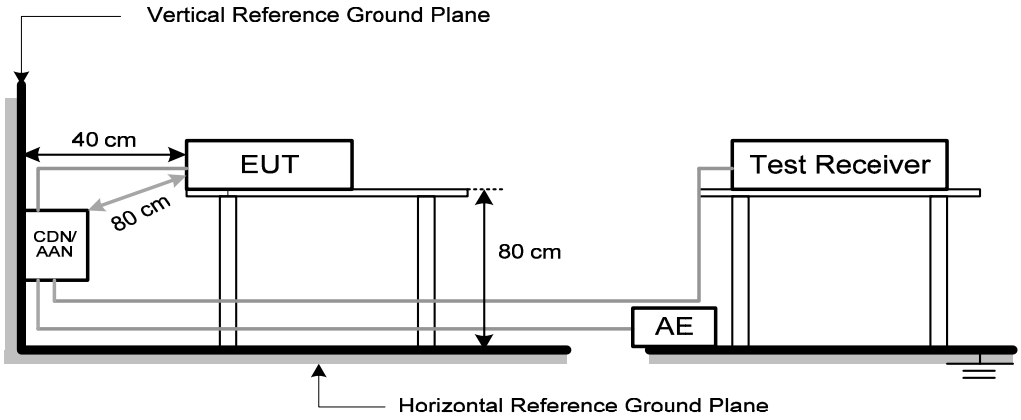
h The current shall be measured with the current probe and the results compared with the current limits.
The voltage measured shall be corrected at each frequency of interest as follows:
- if the current margin with respect to the current limit is ≤6 dB, the actual current margin shall be subtracted from the measured voltage;
-if the current margin with respect to the current limit is >6 dB, 6 dB shall be subtracted from the measured voltage.
The adjusted voltage shall be compared with the applicable voltage limit.
Both the measured current and the corrected voltage shall be below the applicable current and voltage limits at all frequencies for the EUT to be deemed compliant with this publication.**(For CVP)**

4.4.3 DEVIATION FROM TEST STANDARD

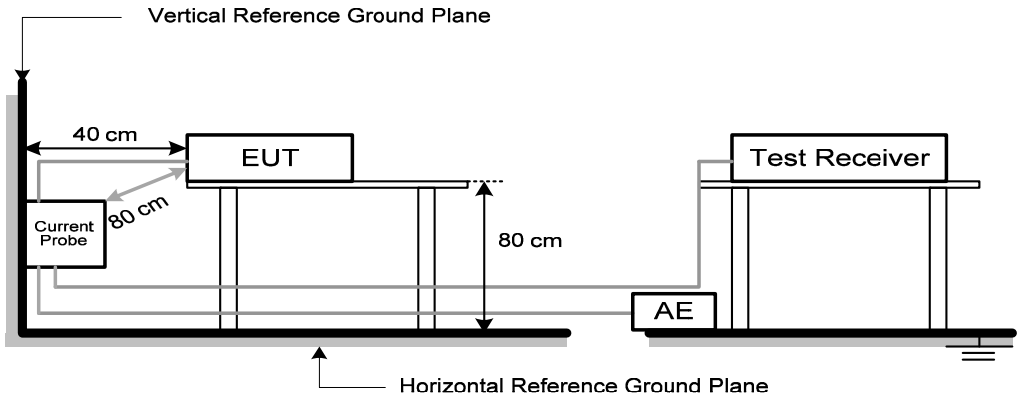
No deviation

4.4.4 TEST SETUP

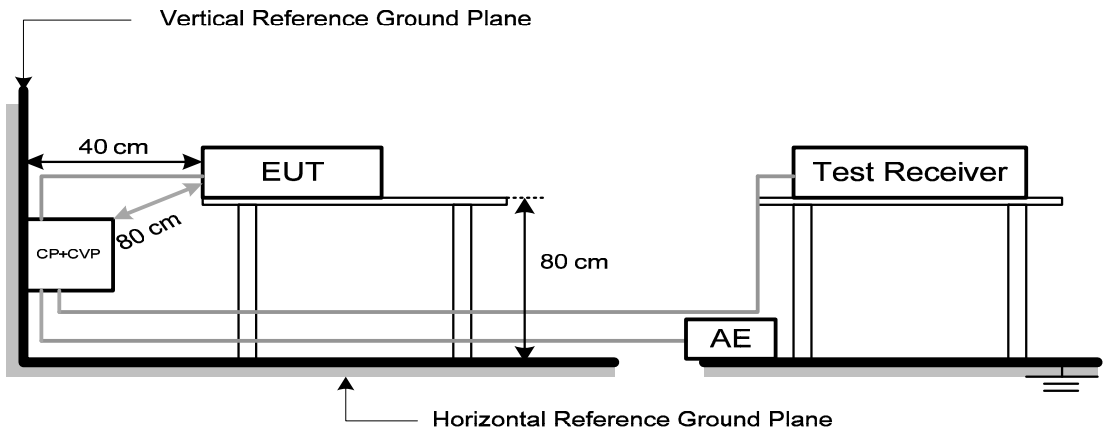
a) Cable Type: Balanced Unscreened, Screened or Coaxial



b) Cable Type: Screened or Coaxial



c) Cable Type: Balanced Unscreened, Unbalanced



4.4.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 4.1.7 unless otherwise a special operating condition is specified in the follows during the testing.

4.4.6 TEST RESULTS

Please refer to the Attachment E.

Temperature: 25°C Relative Humidity: 53%

Remark

(1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz,SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.3 sec./MHz. Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=10KHz,VBW=10KHz, Swp. Time =0.3 sec./MHz.

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading is under 3dB of QP Limits and then QP Mode measurement didn't perform. Or else, QP should be performed

4.5 CONDUCTED DIFFERENTIAL VOLTAGE EMISSIONS FROM CLASS B EQUIPMENT

4.5.1 LIMITS

Table clause	Frequency range MHz	Detector type / bandwidth	Class B limits dB(μV) 75 Ω			Applicability
			Other	Local Oscillator Fundamental	Local Oscillator Harmonics	
A12.1	30-950	For frequencies ≤1 GHz Quasi Peak / 120 kHz	46	46	46	See a)
	950-2150		46	54	54	
A12.2	950-2150		46	54	54	See b)
A12.3	30-300		46	54	50	See c)
	300-1000				52	
A12.4	30-300	For frequencies ≥1 GHz Peak /1 MHz	46	66	59	See d)
	300-1000				52	
A12.5	30-950		46	76	46	See e)
	950-2150			n/a	54	

a) Television receivers (analogue or digital), video recorders and PC TV broadcast receiver tuner cards working in channels between 30 MHz and 1 GHz, and digital audio receivers.
b) Tuner units (not the LNB) for satellite signal reception.
c) Frequency modulation audio receivers and PC tuner cards.
d) Frequency modulation car radios.
e) Applicable to EUTs with RF modulator output ports (for example DVD equipment, video recorders, camcorders and decoders etc.) designed to connect to TV broadcast receiver tuner ports.

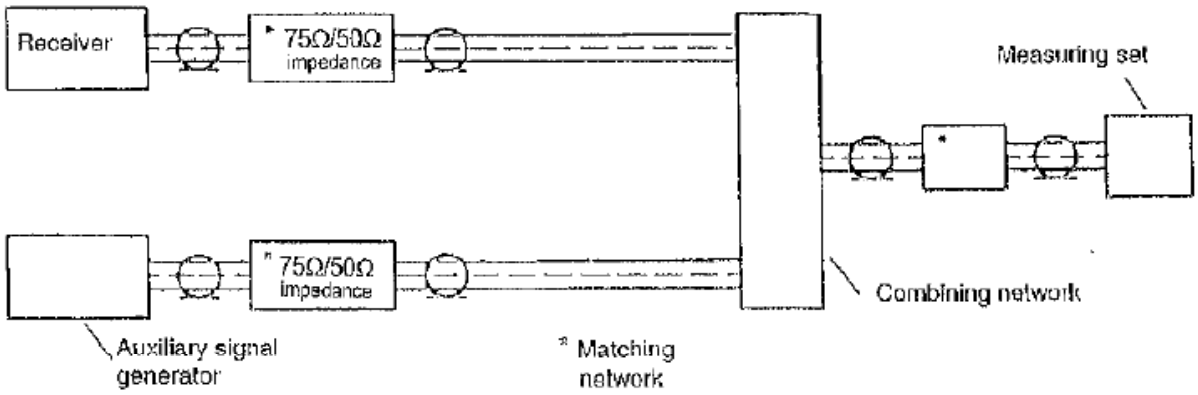
4.5.2 TEST PROCEDURE

a. The antenna terminals of the EUT and the auxiliary signal generator are connected to the measuring receiver by means of coaxial cables and a resistive combining network having a minimum attenuation of 6dB.
b. The output level of the auxiliary signal generator would be set to give 70dB (V) at the antenna input of the EUT on 75 impedance. The signal would be an unmodulated carrier.
c. The measuring receiver is tuned to the test frequency and the disturbance level is measured, taking into account the attenuation between the receiver antenna terminal and the measuring receiver input.
d. The test shall then be repeated with EUT switched off, to check that the measured disturbance voltage is not due to the auxiliary generator.
e. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to EN 55032 on conducted differential voltage emissions measurement.
f. Conducted emissions were invested over the frequency range from 30MHz to2150MHz using a receiver bandwidth of 120kHz.

4.5.3 DEVIATION FROM TEST STANDARD

No deviation

4.5.4 TEST SETUP



4.5.5 TEST RESULTS

Please refer to the Attachment F.

Temperature: 25°C Relative Humidity: 53%

5. MEASUREMENT INSTRUMENTS LIST

Radiated emissions up to 1 GHz test					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	EMCO	3142C	00066462	Mar. 28, 2016
2	Antenna	EMCO	3142C	00066464	Mar. 28, 2016
3	Amplifier	Agilent	8447D	2944A11203	Oct. 11, 2016
4	Amplifier	Agilent	8447D	2944A11204	Oct. 11, 2016
5	Spectrum Analyzer	Agilent	E4443A	MY48250370	Oct. 11, 2016
6	RF Pre-selector	Agilent	N9039A	MY46520201	Oct. 11, 2016
7	Test Cable	emci	LMR-400(30MHz-1GHz)	C-23	Jan. 04, 2016
8	Test Cable	emci	LMR-400 (30MHz-1GHz)	C-22	Jan. 04, 2016
9	Receiver	Agilent	N9038A	MY53220133	Jun. 24. 2016
10	Multi-Device Controller	ETS-Lindgren	2090	N/A	N/A
11	Measurement Software	Farad	EZ-EMC Ver.BTL-2ANT-1	N/A	N/A

Radiated emissions above 1 GHz test					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Horn Antenna	EMCO	3115	9605-4803	Mar. 28, 2016
2	Amplifier	Agilent	8449B	3008A02584	Oct. 11, 2016
3	Test Cable	emci	SUCOFLEX_15m_5m(0.01GHz－26.5GHz)	C-15/C-39	Jun. 04, 2016
4	Position Control	MF	MF-7802	MF780208159	N/A
5	Test Cable	emci	SUCOFLEX 102_8m(0.01GHz－40GHz)	C-38	Mar. 27, 2016

Conducted Emission at AC Mains Power Ports					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Artificial-Mains Network	SCHWARZBECK	NSLK 8127	8127685	Dec. 05, 2015
2	LISN	R&S	ENV216	100526	Mar. 28, 2016
3	Test Cable	N/A	RG400 12m	N/A	Mar. 13, 2016
4	EMI Test Receiver	R&S	ESR3	101862	Jan. 02, 2016
5	50Ω Terminator	SHX	TF2-3G-A	08122901	Mar. 28, 2016
6	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

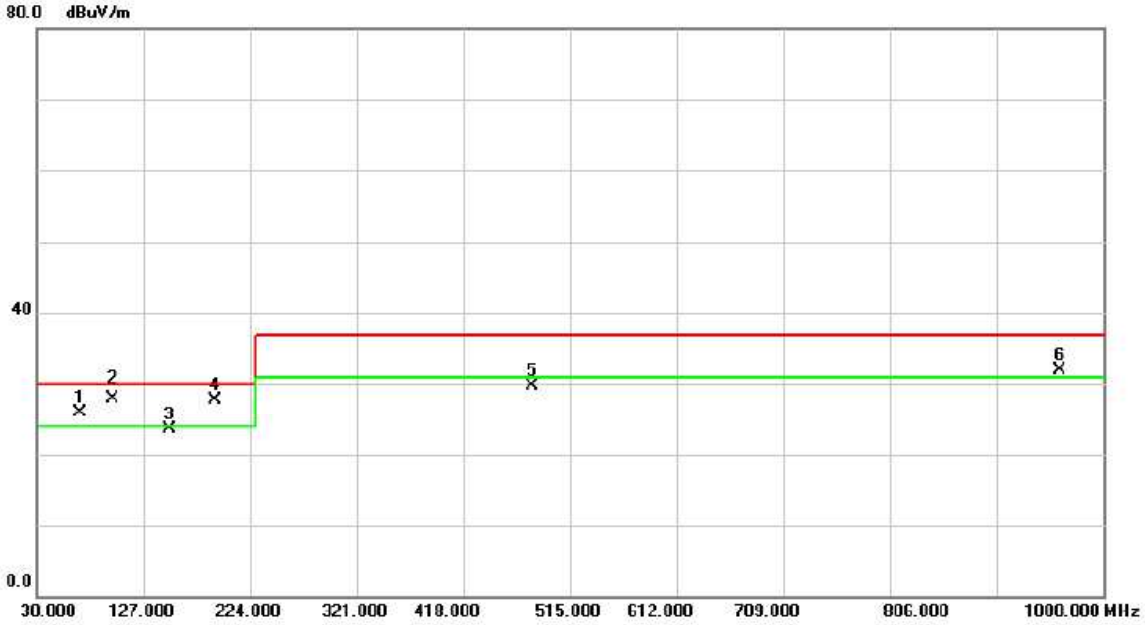
Asymmetric mode conducted emissions test					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Artificial-Mains Network	SCHWARZBECK	NSLK 8127	8127685	Dec. 05, 2015
2	LISN	R&S	ENV216	100526	Mar. 28, 2016
3	Test Cable	N/A	RG400 12m	N/A	Mar. 13, 2016
4	EMI Test Receiver	R&S	ESR3	101862	Jan. 02, 2016
5	50Ω Terminator	SHX	TF2-3G-A	08122901	Mar. 28, 2016
7	ISN	Teseq GmbH	ISN T8	30833	Sep. 30, 2016

Remark: “N/A” denotes no model name, serial no. or calibration specified.
All calibration period of equipment list is one year.

ATTACHMENT A - RADIATED EMISSION (UP TO 1GHZ)

Test Voltage:	AC 230V/50Hz
Test Mode:	AUX IN(LAN)

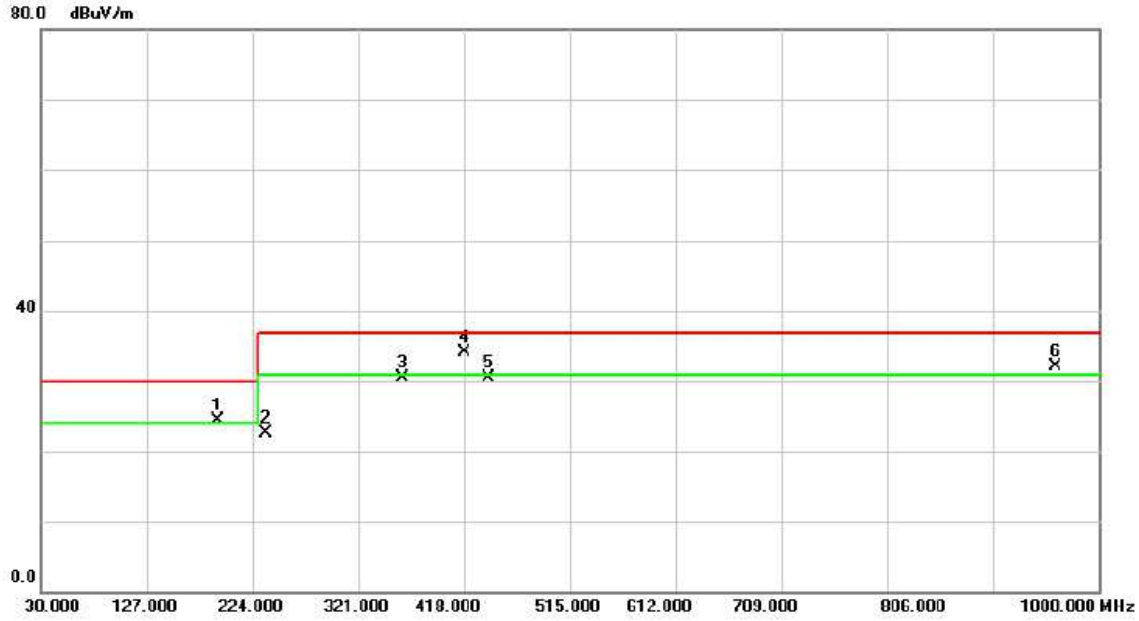
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	!	68.8000	46.22	-20.24	25.98	30.00	-4.02	peak	
2	*	98.8700	46.21	-18.27	27.94	30.00	-2.06	QP	
3		151.2500	40.86	-17.26	23.60	30.00	-6.40	peak	
4	!	191.9900	43.15	-15.42	27.73	30.00	-2.27	peak	
5		480.0800	35.30	-5.62	29.68	37.00	-7.32	peak	
6	!	960.2300	29.71	2.16	31.87	37.00	-5.13	peak	

Test Voltage:	AC 230V/50Hz
Test Mode:	AUX IN(LAN)

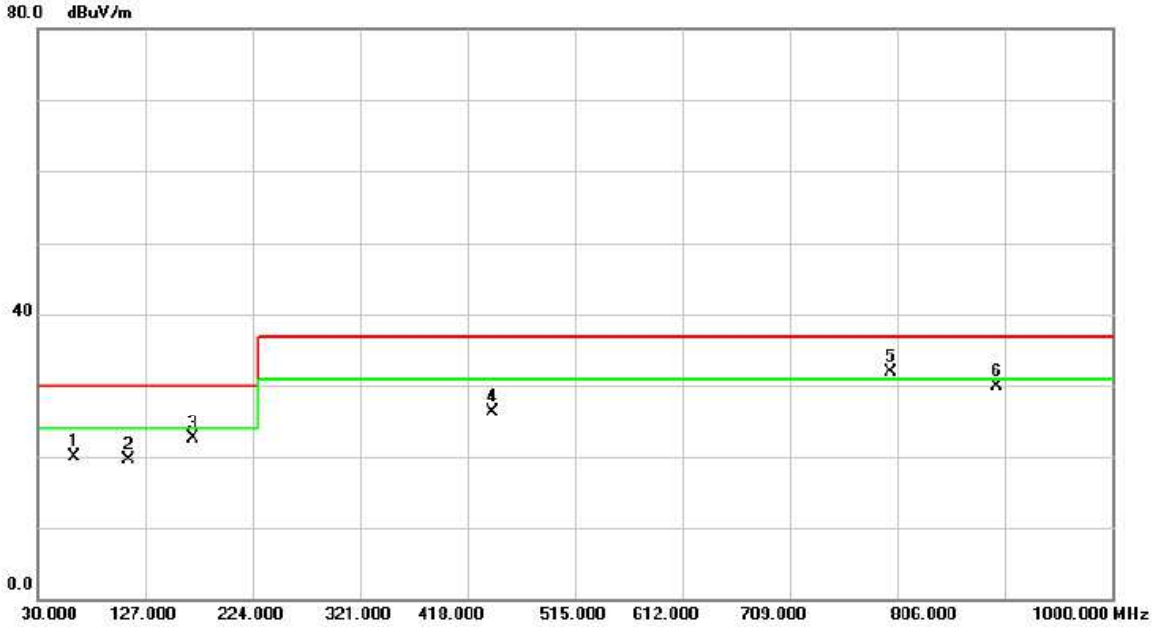
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	!	191.9900	39.74	-15.42	24.32	30.00	-5.68	peak	
2		236.6100	35.49	-13.04	22.45	37.00	-14.55	peak	
3		361.7400	38.63	-8.22	30.41	37.00	-6.59	peak	
4	*	418.0000	41.72	-7.65	34.07	37.00	-2.93	peak	
5		440.3100	37.75	-7.29	30.46	37.00	-6.54	peak	
6	!	960.2300	29.90	2.16	32.06	37.00	-4.94	peak	

Test Voltage:	AC 230V/50Hz
Test Mode:	AUX IN(WIFI)

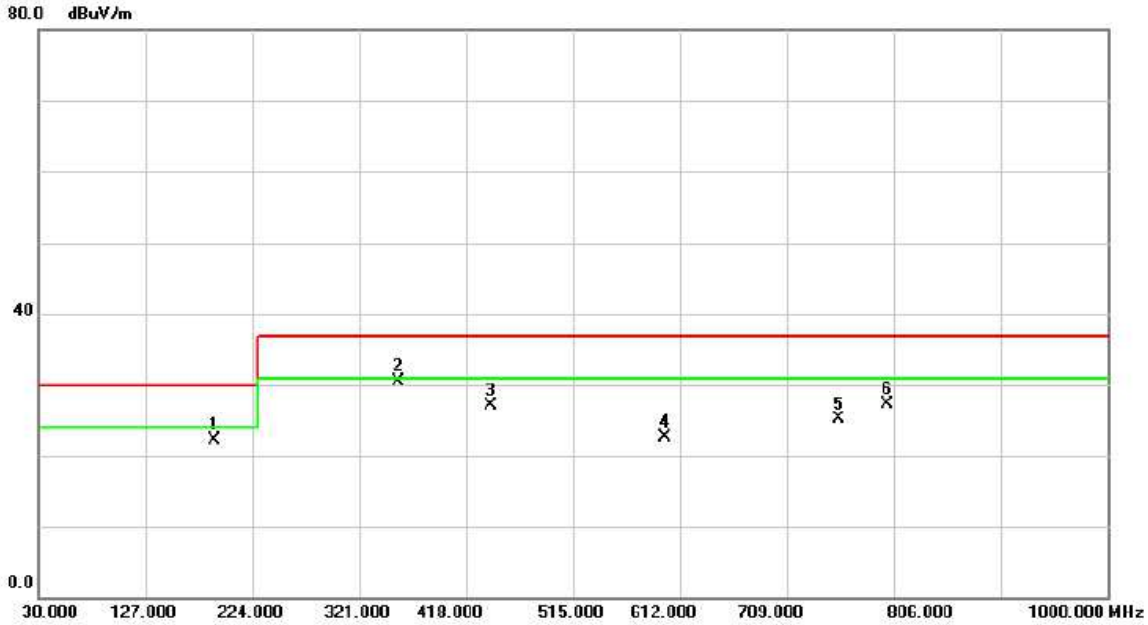
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		62.9800	39.64	-19.69	19.95	30.00	-10.05	peak	
2		112.4500	38.29	-18.83	19.46	30.00	-10.54	peak	
3		169.6800	38.77	-16.29	22.48	30.00	-7.52	peak	
4		440.3100	33.68	-7.29	26.39	37.00	-10.61	peak	
5	*	800.1800	32.37	-0.48	31.89	37.00	-5.11	peak	
6		896.2100	28.17	1.69	29.86	37.00	-7.14	peak	

Test Voltage:	AC 230V/50Hz
Test Mode:	AUX IN(WIFI)

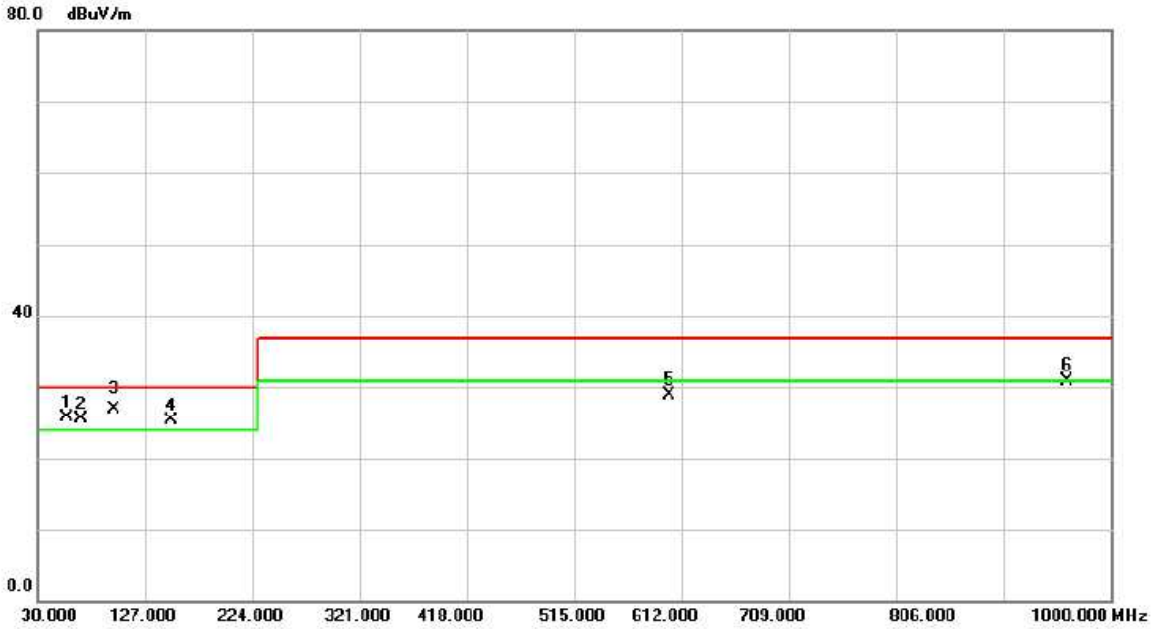
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		189.0800	37.62	-15.43	22.19	30.00	-7.81	peak	
2	*	355.9200	38.96	-8.45	30.51	37.00	-6.49	peak	
3		440.3100	34.49	-7.29	27.20	37.00	-9.80	peak	
4		598.4200	26.18	-3.60	22.58	37.00	-14.42	peak	
5		756.5300	25.74	-0.72	25.02	37.00	-11.98	peak	
6		800.1800	27.79	-0.48	27.31	37.00	-9.69	peak	

Test Voltage:	AC 230V/50Hz
Test Mode:	USB PLAY(LAN)

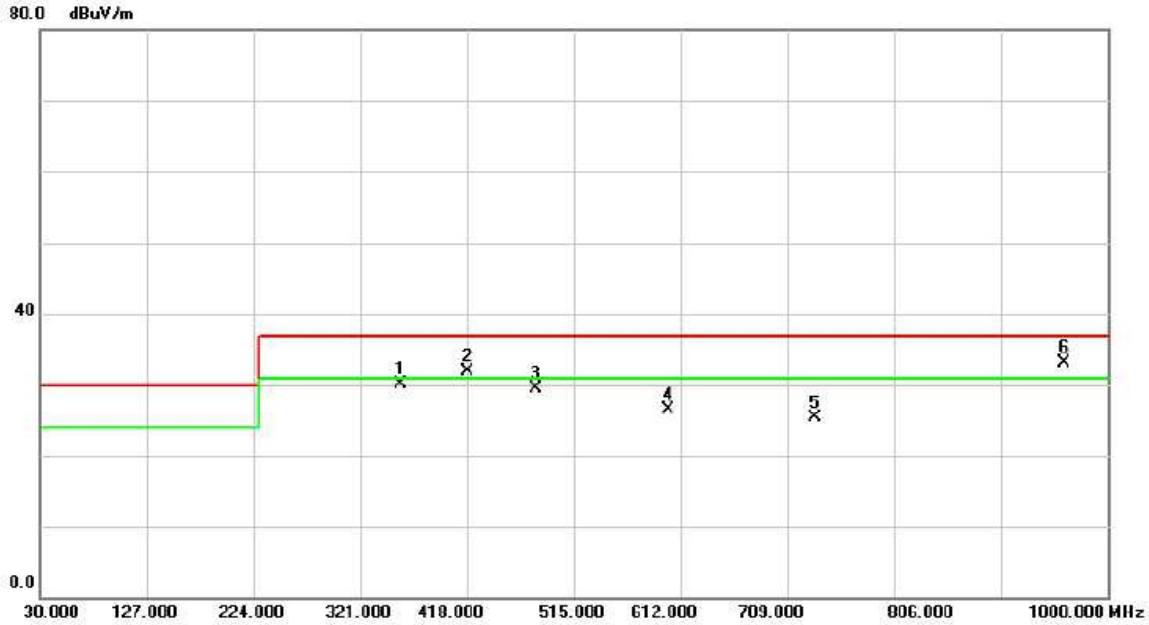
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	!	56.1900	44.78	-19.04	25.74	30.00	-4.26	peak	
2	!	68.8000	45.84	-20.24	25.60	30.00	-4.40	peak	
3	*	98.8700	45.08	-18.27	26.81	30.00	-3.19	QP	
4	!	151.2500	42.65	-17.26	25.39	30.00	-4.61	peak	
5		600.3600	32.40	-3.52	28.88	37.00	-8.12	peak	
6		960.2300	28.69	2.16	30.85	37.00	-6.15	peak	

Test Voltage:	AC 230V/50Hz
Test Mode:	USB PLAY(LAN)

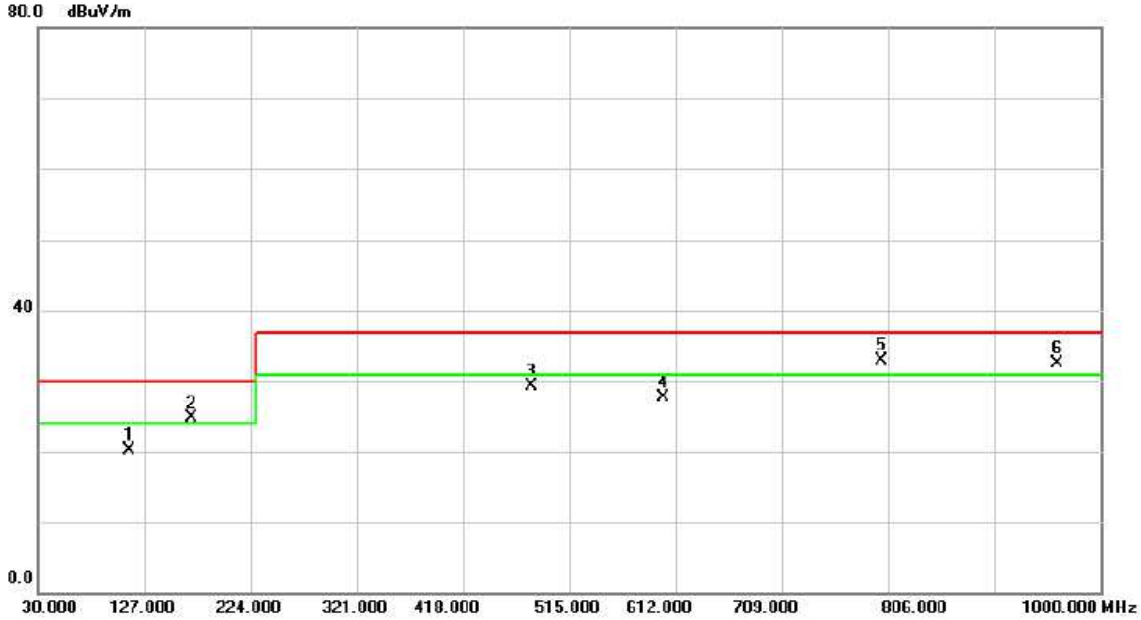
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		357.8600	38.51	-8.38	30.13	37.00	-6.87	peak	
2	!	418.0000	39.46	-7.65	31.81	37.00	-5.19	peak	
3		480.0800	35.08	-5.62	29.46	37.00	-7.54	peak	
4		600.3600	29.99	-3.52	26.47	37.00	-10.53	peak	
5		734.2200	26.37	-0.98	25.39	37.00	-11.61	peak	
6	*	960.2300	31.03	2.16	33.19	37.00	-3.81	peak	

Test Voltage:	AC 230V/50Hz
Test Mode:	USB PLAY(WIFI)

Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		113.4200	39.03	-18.88	20.15	30.00	-9.85	peak	
2	!	169.6800	41.03	-16.29	24.74	30.00	-5.26	peak	
3		480.0800	34.86	-5.62	29.24	37.00	-7.76	peak	
4		600.3600	31.29	-3.52	27.77	37.00	-9.23	peak	
5	*	800.1800	33.42	-0.48	32.94	37.00	-4.06	peak	
6	!	960.2300	30.35	2.16	32.51	37.00	-4.49	peak	