DM-CE12018-R6

EU Declaration of Conformity

Company:	D&M Holdings Inc.
Address :	2-1, Nisshin-cho, Kawasaki-ku, Kawasaki, Kanagawa, 210-8569 Japan
Brand:	DENON
Product Type:	Integrated Amplifier
Model Name:	PMA-520AE

Hereby, [D&M Holdings Inc.] declares that the noted model(s) with following EU/EC Directives;

LV:	***2014/35/EU***
EMC:	***2014/30/EU***
RoHS:	***2011/65/EU, and amendment directive (EU) 2015/863***
ErP:	***EC regulation 1275/2008 and its frame work directive 2009/125/EC including amendment 801/2013***

The following standards are applicable;

Safety:	***EN60065:2014***
EMC:	***EN55032:2015***
	EN55020:2007+ A11:2011
	EN61000-3-2:2014
	EN61000-3-3:2013
ErP:	***EN50564:2011***
RoHS:	***EN50581:2012***

CE Mark first affixed in 2012

Manufacturer: D&M Holdings Inc.
Address : 2-1 Nisshin-cho, Kawasaki-ku, Kawasaki-shi, Kanagawa, 210-8569 Japan

Responsible: Mikio Nagata
Senior Manager, NPD Quality Assurance
Date: 09-October-2018

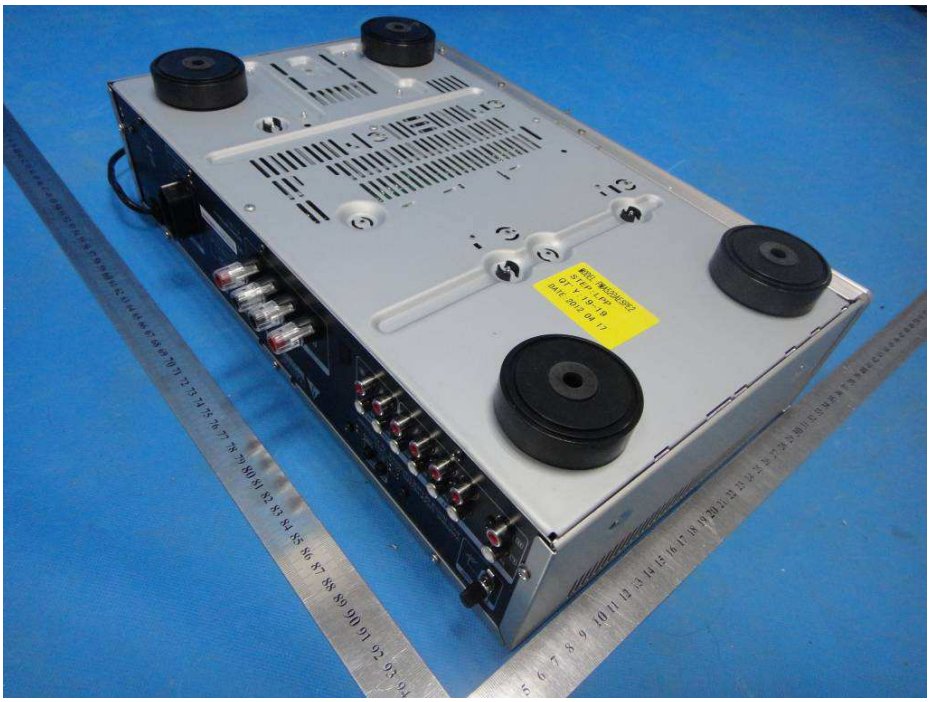
EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
Annex B	**Finland, Norway and Sweden** All sub clauses given below are sub clauses of IEC 62151 (ref. corrigenda 1 and 2 to IEC 62151). **Subclause 4.1.1 (corrigendum 2):** **Add** after the first paragraph: NOTE In **Finland**, **Norway** and **Sweden**, CLASS I equipment which is intended for connection to the building installation via a non-industrial plug or a non-industrial appliance coupler, or both and in addition is intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and ACCESSIBLE parts, has a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows: In Finland: " Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan " In Norway: "Apparatet må tilkoples jordet stikkontakt" In Sweden: "Apparaten skall anslutas till jordat uttag" **Subclause 4.1.4 (corrigendum 1)** **Add** at the end of the subclause: NOTE In **Norway**, for requirements see 4.1.1, note and 5.3.1, note 1. **Subclause 4.2.1.2 (corrigendum 1)** **Add** at the end of the subclause: NOTE 3 In **Norway**, for requirements see 5.3.1, note 1**.** **Subclause 4.2.1.3 (corrigendum 2)** **Add** at the end of the subclause: NOTE In **Norway**, for requirements see 4.1.1, note and 5.3.1, note 1**.** **Subclause 4.2.1.4 (corrigendum 1)** **Number** the existing note as NOTE 1 and **add** at the end of the subclause the following NOTE 2: NOTE 2 In **Norway**, for requirements see 4.1.1, note and 5.3.1, note 1. **Subclause 5.3.1 (corrigendum 1)** **Add** after the first test specifications paragraph: NOTE 1 In **Finland**, **Norway** and **Sweden**, there are additional requirements for the insulation. **Renumber** the existing note as NOTE 2. For additional requirements for the insulation in Finland, Norway and Sweden in NOTE 1 the following text is added between the first and the second paragraph (this text is identical to the corresponding EN 60950-1:2001):	The EUT didn't be connected to telecommunication networks.	N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	NOTE 1 In **Finland**, **Norway** and **Sweden**, if this insulation is solid, including insulation forming part of a component, it shall at least consist of either • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in the accordance with the compliance clause below and in addition: • passes the test and inspection criteria of 13.6 with an electric strength test of 10.3 using the test voltage of 1,5 kV multiplied by 1,6, and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5 kV (for performance of the test see N.2.1). It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2. A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions: • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in IEC 62151:2000, 6.2.1; • the additional testing shall be performed on all the test specimens as described in EN 132400; • the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400 in the sequence of tests as described in EN 132400. **Subclause 5.3.2 (corrigendum 1)** **Add** after the fourth dash: NOTE In **Finland**, **Norway** and **Sweden**, exclusions are applicable for equipment which is intended for connection to the building installation wiring using screw terminals or other reliable means, and for equipment which is intended for connection to the building installation wiring via an industrial plug and socket -outlet or an appliance coupler, or both, complying with EN 60309 or with a comparable national standard.	The EUT didn't be connected to telecommunication networks.	N/A
J.2	**Norway** After Table J.1 the following is added: Due to the IT power distribution system used, the a.c. MAINS supply voltage is considered to be equal to the line-to-line voltage, and will remain 230 V in case of a single earth fault. *Justification:* Based on a use in Norway of an IT power distribution system where the neutral is not provided	The EUT was operated at 230V voltage, it includes 230 V.	P

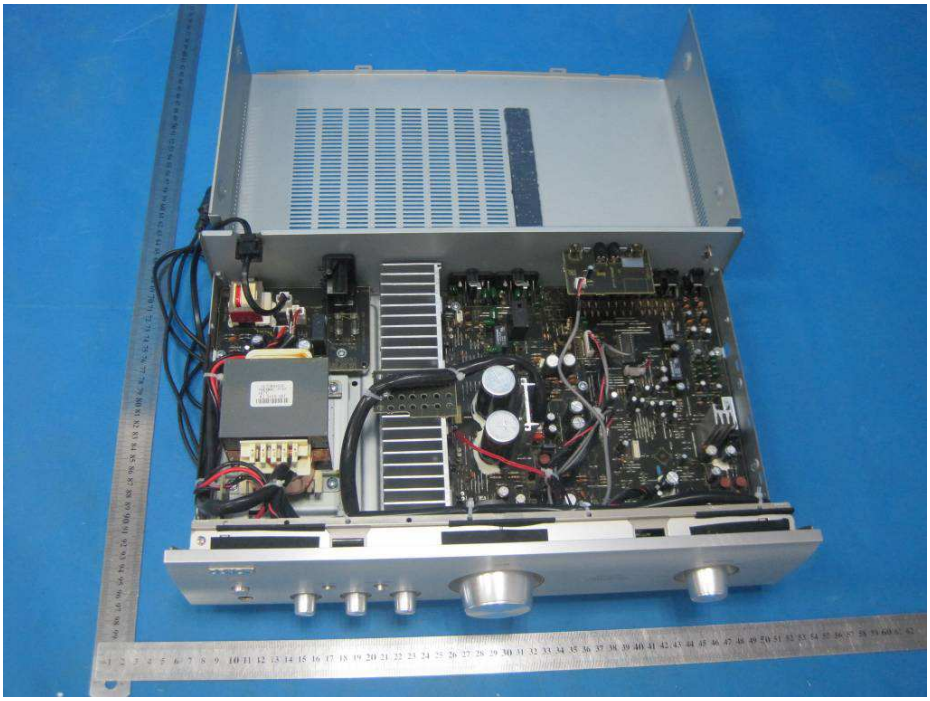
EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
C	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		**N/A**
5.1	**Italy** The following requirements shall be fulfilled: - The power consumption in Watts (W) shall be indicated on TV receivers and in their instruction for use (Measurement according to IEC 60107-1) NOTE EN 60555-2 has since been replaced by IEC 60107-1:1997. - TV receivers shall be provided with an instruction for use, schematic diagrams and adjustments procedure in Italian language. - Marking for controls and terminals shall be in Italian language. Abbreviation and international symbols are allowed provided that they are explained in the instruction for use. - The ECC manufacturers are bound to issue a conformity declaration according to the above requirements in the instruction manual. The correct statement for conformity to be written in the instruction manual, shall be: Questo apparecchio è fabbricato nella CEE nel rispetto delle disposizioni del D.M. marzo 1992 ed è in particolare conforme alle prescrizioni dell'art. 1 dello stesso D.M. - The first importers of TV receivers manufactured outside EEC are bound to submit the TV receivers for previous conformity certification to the Italian Post Ministry (PP.TT). The TV receivers shall have on the backcover the certification number in the following form: D.M. 26/03/1992 xxxxx/xxxxx/S or T or pT S for stereo T for teletext pT for retrofitable teletext *Justification:* Ministerial Decree of 26 March 1992: National rules for television receivers trade. NOTE The ministerial decree above contains additional, but not safety relevant requirements.	Not such equipment	N/A

EN 60065			
Clause	Requirement + Test	Result - Remark	Verdict
6.1	**Germany** 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 Council Directive 96/29/Euratom in Germany. NOTE Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int+49-531-592-6320, Internet: http://www.ptb.de	No cathode ray in the EUT	N/A
14.1	**Sweden** The following requirements shall be fulfilled: Switches containing mercury such as thermostats, relays and level controllers are not allowed.	No such device	N/A

General view – 1

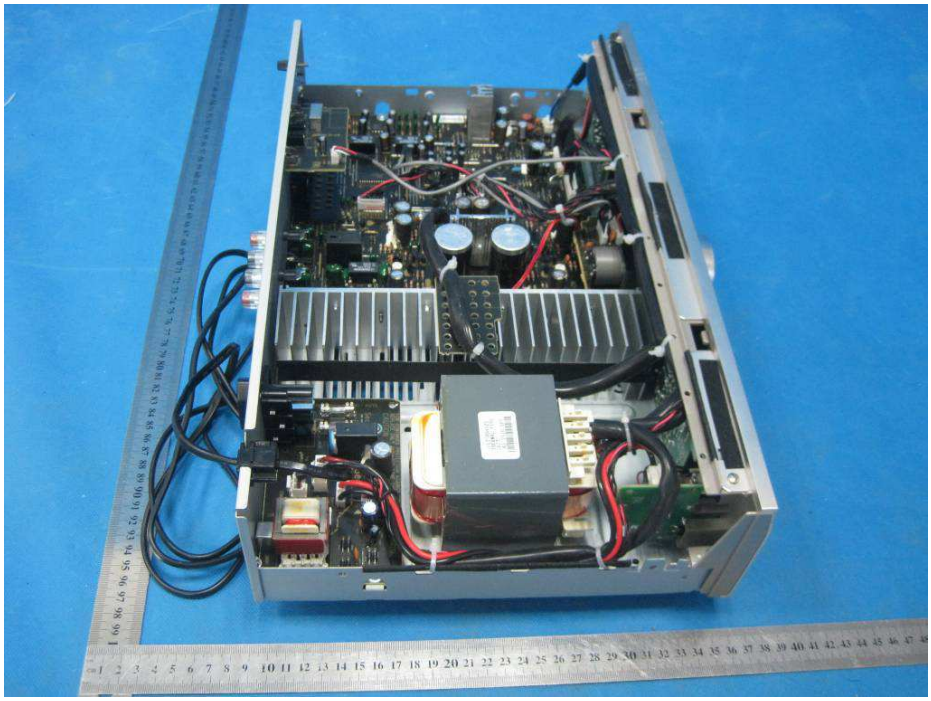


General view – 2

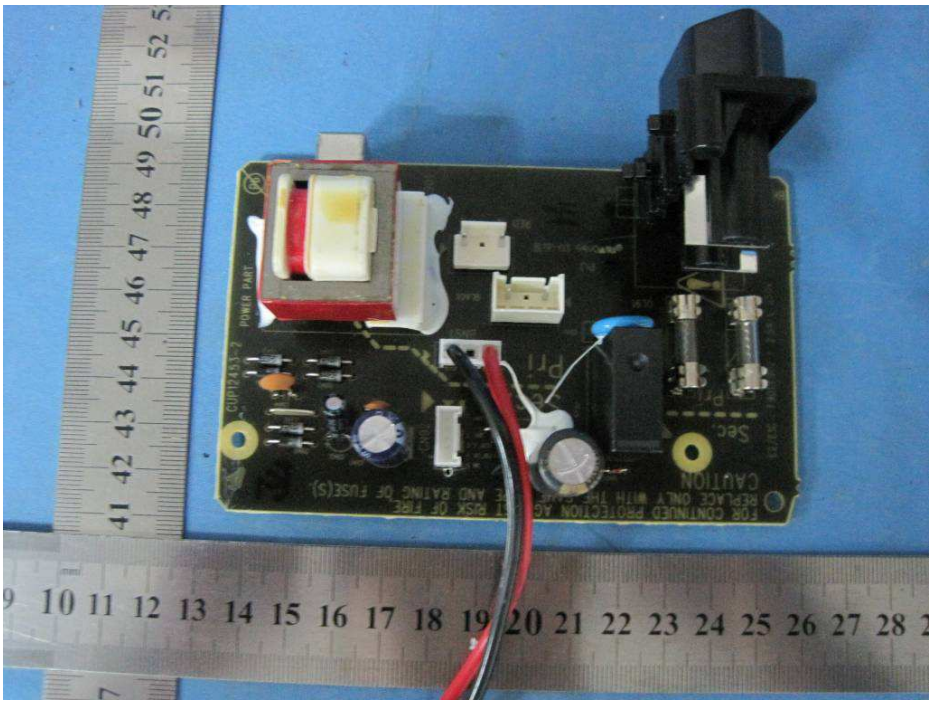


Internal view-1

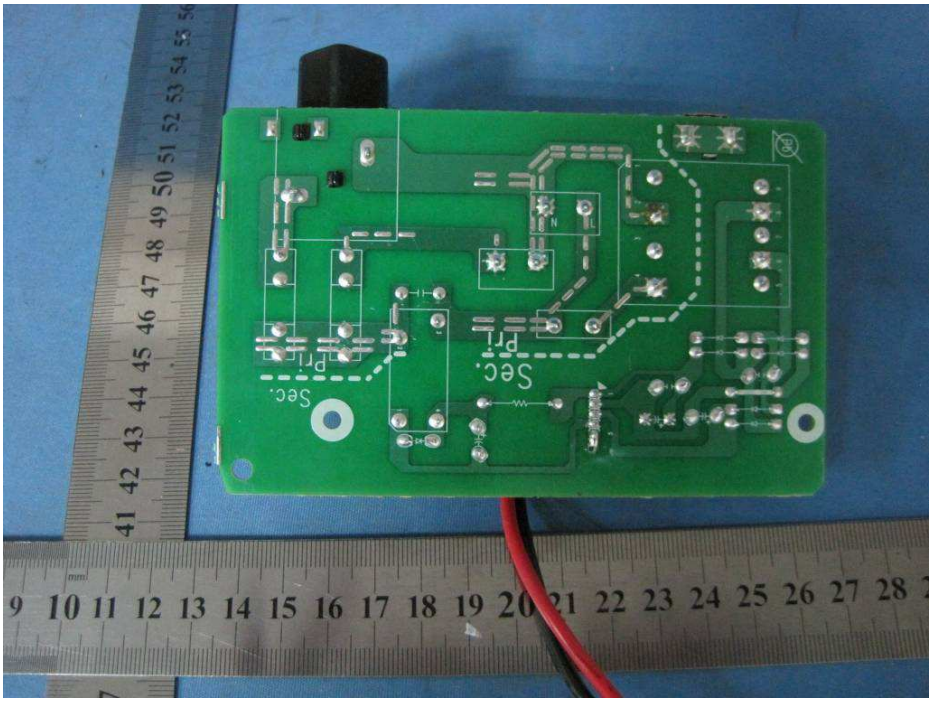
Internal view-2



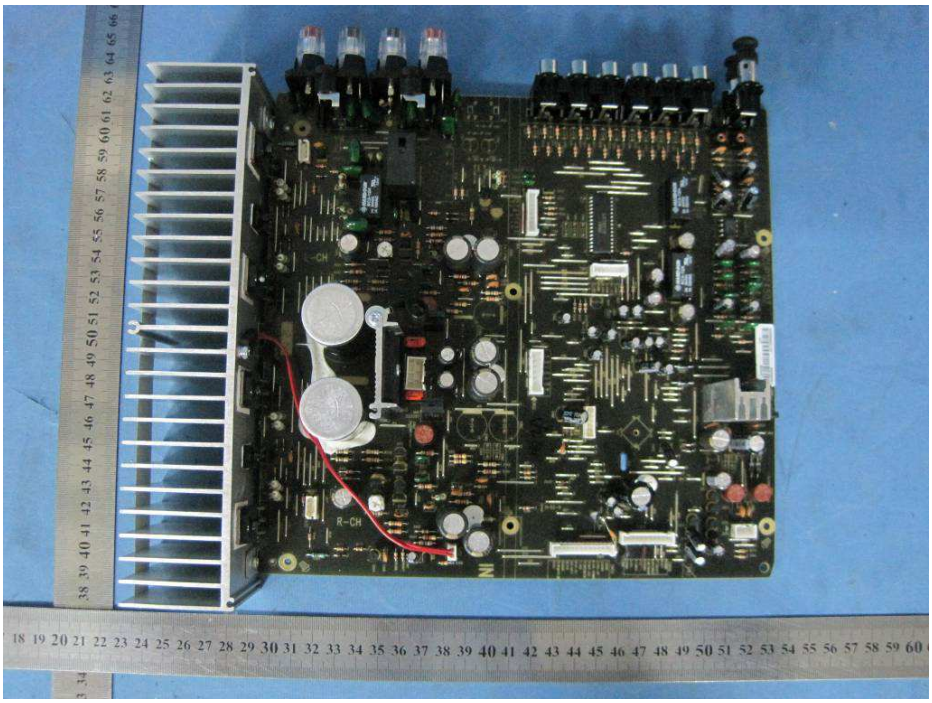
Internal view-3



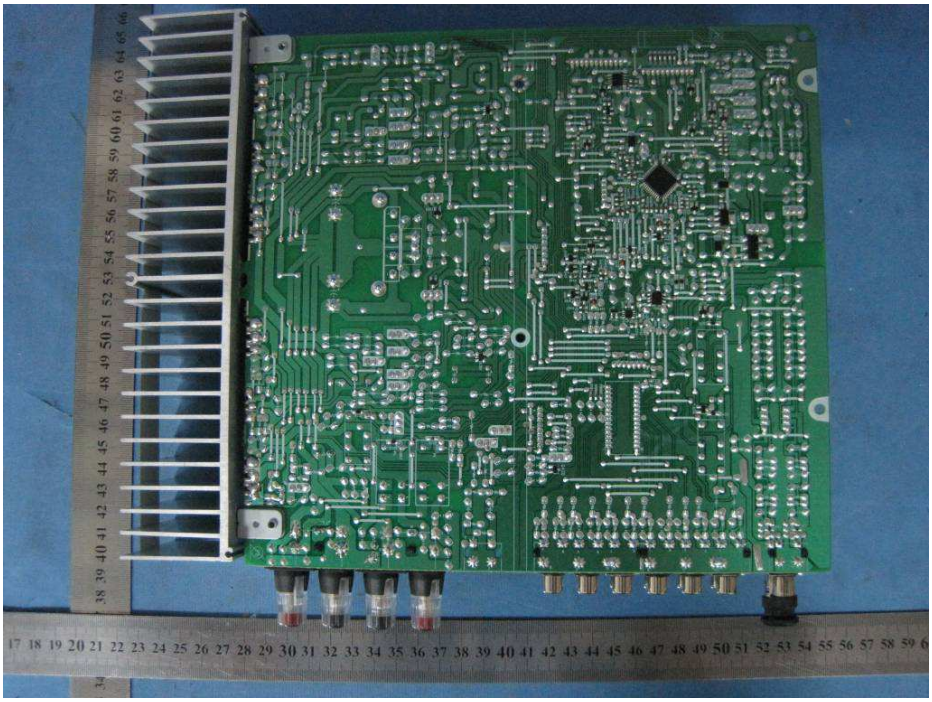
Component side view of power board



Soldering side view of power board



Component side view of Amplifier board



Soldering side view of Amplifier board

Accréditation N°5-0014 Portée disponible sur www.cofrac.fr

Ref. Certif. No.

FR 627160

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	Integrated Amplifier
Name and address of the applicant Nom et adresse du demandeur	**Anam Electronics (Dongguan) Co. Ltd.** Xincheng Management Area,Liaobu Town, Dongguan City, Guangdong Province , China
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 Note : *When more than one factory, please report on page 2* Note : *Lorsqu'il y a plus d'une usine, veuillez utiliser la 2ème page*	**Anam Electronics (Dongguan) Co. Ltd.** Xincheng Management Area,Liaobu Town, Dongguan City, Guangdong Province , China
Ratings and principal characteristics Valeurs nominales et caractéristiques principales	230Vac, 50/60Hz, 230W
Trademark (if any) Marque de fabrique (si elle existe)	DENON
Model / Type Ref. Ref. De type	PMA-520AE
Additional information (if necessary may also be reported on page 2) Informations complémentaires (si nécessaire, peuvent être indiquées sur la 2ème page)	See test report Test procedure : CB Scheme (National Differences: CH, DE, DK, GB, IT, NO, SE, UA)
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	**PUBLICATION EDITION** IEC 60065:2001 (Seventh Edition) + A1:2005 + A2:2010
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	BV Shenzhen n°CB120424N019 001-R1

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

Laboratoire Central des Industries Électriques
33, av du Général Leclerc – BP 8
FR 92266 Fontenay-aux-Roses cedex
www.lcie.fr

Date: 2012-06-08

Signature: Jean LANZO
Certification Officer

LABORATOIRE CENTRAL DES INDUSTRIES ELECTRIQUES
S.A.S au capital de 15.745.984€ RCS Nanterre B 408 363 174 33, Av. du Gal Leclerc FONTENAY-aux-ROSES F-92260

Issued 2008-01 (LCIE)

Test Report issued under the responsibility of:

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

Report Number. .....:	CB120424N019 001
Date of issue .....:	May 21, 2012
Total number of pages.....:	73
Applicant's name .....:	Anam Electronics(Dongguan) Co., Ltd.
Address .....:	Xincheng Management Area, Liaobu Town, Dongguan City, Guangdong Province, China.
Test specification:	
Standard .....:	IEC 60065:2001 (Seventh Edition) + A1:2005 + A2:2010
Test procedure .....:	CB Scheme (National Differences: CH, DE, DK, GB, IT, NO, SE, UA)
Non-standard test method .....:	N/A
Test Report Form No. .....:	IEC60065K
Test Report Form(s) Originator ....:	**Intertek Semko AB**
Master TRF.....:	Dated 2010-10

Copyright © 2010 Worldwide System for Conformity Testing and Certification of Electrotechnical Equipment and Components (IECEE), Geneva, Switzerland. All rights reserved.

This publication may be reproduced in whole or in part for non-commercial purposes as long as the IECEE is acknowledged as copyright owner and source of the material. IECEE takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

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 .....:	INTEGRATED AMPLIFIER
Trade Mark .....:	DENON
Manufacturer.....:	D&M_Holdings Inc.
Model/Type reference .....:	PMA-520AE
Ratings .....:	230Vac, 50/60Hz, 185W for main unit + 100W for AC socket-outlet

Testing procedure and testing location:			
☒	**CB Testing Laboratory:**	BV Shenzhen Co., Ltd. Dongguan Branch Laboratory	
Testing location/ address.....:		34 Chenwulu Section, Guantai Rd. Houjie Town 523942 Dongguan City Guangdong CHINA	
☐	**Associated CB Laboratory:**	--	
Testing location/ address.....:		--	
	Tested by (name + signature).....:	Storm Xiong	
	Approved by (name + signature)..:	Jason Liu	
☐	**Testing procedure: TMP**	N/A	
Testing location/ address.....:		N/A	
	Tested by (name + signature).....:	--	--
	Approved by (name + signature)..:	--	--
☐	**Testing procedure: WMT**	N/A	
Testing location/ address.....:		N/A	
	Tested by (name + signature).....:	--	--
	Witnessed by (name + signature).:	--	--
	Approved by (name + signature)..:	--	--
☐	**Testing procedure: SMT**		
Testing location/ address.....:		N/A	
	Tested by (name + signature).....:	--	--
	Approved by (name + signature)..:	--	--
	Supervised by (name + signature):	--	--
☐	**Testing procedure: RMT**		
Testing location/ address.....:		N/A	
	Tested by (name + signature).....:	--	--
	Approved by (name + signature)..:	--	--
	Supervised by (name + signature):	--	--

List of Attachments (including a total number of pages in each attachment):
- 40 pages of report.
- 5 pages of photos.
- 28 pages of EUROPEAN GROUP DIFFERENCES.

Summary of testing:

All tests were measured under the most severe condition and the load conditions used during testing are:
- The "AUX IN" port was received a 1 KHz sine wave signal according to input test result.
- The EUT was operated to deliver one-eighth of the non-clipped output power to the two 4 ohm load impedance and the socket outlet loading the rating power Max. 100W.

Tests performed (name of test and test clause):	**Testing location:**
- 5 Marking Test - 5.1 Input Test - 7.1 Heating Test - 7.2 Softening Temperature of Thermoplastics Test - 8.3 Hygroscopic Material – Humidity Test - 9.1.1.1 Determination of Hazardous Live Parts - 10.1 Surge Test - 10.2 Humidity Treatment Test - 10.3 Insulation Resistance Test - 10.3 Dielectric Strength Test - 11 Fault Conditions Test - 12.1.2 Vibration Test - 12.1.3 Impact Test - 12.1.5 Stress Relief Test - 13.2 Determination of Operating Voltage Test - 16.5 Strain Relief Bushing Test - 17.1 Screw Fixing Test	BV Shenzhen Co., Ltd. Dongguan Branch Laboratory 34 Chenwulu Section, Guantai Rd. Houjie Town 523942 Dongguan City Guangdong CHINA

The equipment under test (EUT) has been evaluated at maximum ambient (Tma) of +35 °C according to the declaration of manufacture.

☒ **The product fulfils the requirements of IEC 60065:2001 (Seventh Edition) + A1:2005 + A2:2010**

The EUT was also tested and found to comply with the requirements of EN 60065:2002 + A1:2006 + A11:2008 + A2:2010 + A12:2011, and the result is in "ATTACHMENT" of this test report.

Summary of compliance with National Differences

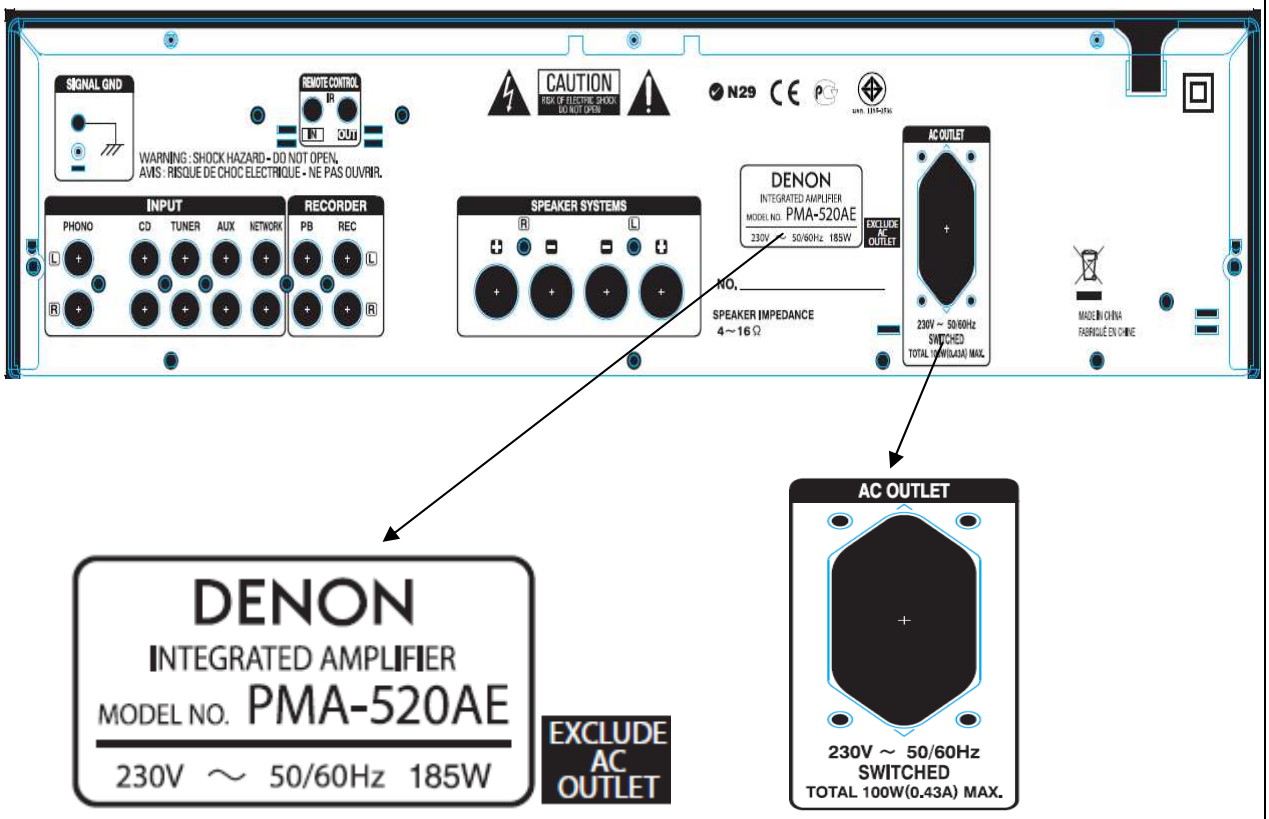
List of countries addressed:

CH, DE, DK, GB, IT, NO, SE, UA

(CH= Switzerland, DE= Germany, DK= Denmark, IT= Italy, GB= United Kingdom, NO= Norway, SE= Sweden, UA= Ukraine)

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.



Test item particulars..... :	
Classification of installation and use..... :	Class II apparatus
Supply Connection ..... :	Non-detachable power cord used
..... :	
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.....:	**Apr. 26, 2012**
Date (s) of performance of tests .....:	**Apr. 26, 2012 – May 18, 2012**

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**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) .....:	Anam Electronics (Dongguan) Co., Ltd. Xincheng Management Area, Liaobu Town, Dongguan City, Guangdong Province, China.

General product information:

(1) The equipment is an "INTEGRATED AMPLIFIER" which has used for audio amplifier applications of the audio/video apparatus.
(2) Physical Size: 265mm (W) * 440mm (L) * 100mm (H).
(3) Mass of the equipment is 6.83 kg.
(4) All tests performed on model PMA -520AE.
(5) The EUT shall be equipped with a non-detachable power supply cord compatible with the input rating and acceptable to the authorities in the country of usage.

Test condition:

Temperature: 25°C
Relative humidity: 65%
Air pressure: 960 mbar

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

3	**General requirements**		P
	Safety class of the apparatus .....:	Class II equipment.	P

4	**General test conditions**		P
4.1.4	Ventilation instructions require the use of the test box	The test was carried out with the apparatus positioned in accordance with the manufacturer instruction.	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: INTEGRATED AMPLIFIER Trademark: DENON	P
	b) Model number or type reference.....:	PMA -520AE	P
	c) Class II symbol if applicable .....:	Provided on marking plate.	P
	d) Nature of supply.....:	A.C. symbol is applied in according to IEC60417-5032	P
	e) Rated supply voltage .....:	230V~	P
	f) Mains frequency if safety dependant .....:	50/60 Hz	P
	g) Rated current or power consumption for apparatus supplied by supply apparatus for general use .....:	The apparatus is connection to an a.c.mains supply	N/A
	Measured current or power consumption .....:		N/A
	Deviation % (max 10%) .....:		N/A
	h) Rated current or power consumption for apparatus intended for connection to an a.c. mains supply .....:	185W for main unit + 100W for AC socket-outlet	P
	Measured current or power consumption .....:	233.3W	P
	Measured current or power consumption for Television set .....:	The EUT is not a Television set	N/A
	Deviation % (max 10%) .....:	- 18.2%	P
5.2	a) Earth terminal	Class II equipment.	N/A
	b) Hazardous live terminals	No such terminals provided.	N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	c) Markings on supply output terminals	No such terminals provided.	N/A
5.3	a) Use of triangle with exclamation mark	Symbol provided at appropriate sections of the circuit diagram.	P
	b) marking on loudspeaker grille, IEC 60417-5036	No such construction	N/A
5.4	Instructions for use	Evaluated the user manual in English version. The manufacturer will provide user manual in the language of the countries where the product will be distributed.	P
5.4.1	a) Mains powered equipment not exposed to dripping or splashing. Warning concerning objects filled with liquid, etc.	Provided in the user manual.	P
	b) Hazardous live terminals, instructions for wiring	No live terminals.	N/A
	c) Instructions for replacing lithium battery	No lithium battery used	N/A
	d) Class I earth connection warning	Class II equipment.	N/A
	e) Instructions for multimedia system connection	Described in the user manual.	P
	f) Special stability warning for attachment of the apparatus to the floor/wall	No special fixed installation necessary.	N/A
	g) Warning: battery exposure to heat	Provided in the user manual.	P
	h) Warning: protective film on CRT face	No CRT provided	N/A
5.4.2	a-b) Disconnect device: plug/coupler or all-pole mains switch location, accessibility and markings	Mains plug is used as disconnect device and mentioned in the manual	P
	c) Instructions for permanently connected equipment	The EUT is not permanently connected equipment.	N/A
	Marking, signal lamps or similar for completely disconnection from the mains	No such device.	N/A

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

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
7.1.2	Temperature rise of parts providing electrical insulation	See appended table 7.1	P
7.1.3	Temperature rise of parts acting as a support or as a mechanical barrier	See appended table 7.1	P
7.1.4	Temperature rise of windings	See appended table 7.1	P
7.1.5	Parts not subject to a limit under 7.1.1 to 7.1.4	No such parts	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℃	Primary connector and transformer bobbin complied with the requirement, See appended table 7.2	P
8	**Constructional requirements with regard to the protection against electric shock**		P
8.1	Conductive parts covered by lacquer, paper, untreated textile oxide films and beads etc. considered to be bare	The conductive parts covered only by lacquer, or enamel had benn considered as bare parts	P
8.2	No shock hazard when changing voltage setting device, fuse-links or handling drawers etc.	No such construction	N/A
8.3	Insulation of hazardous live parts not provided by hygroscopic material	The hygroscopic material which used in main transformer passed the test of 40℃, 95%, 96h with suitable result.	P
8.4	No risk of electric shock from accessible parts or from parts rendered accessible following the removal of a cover which can be removed by hand	No cover can be removable by hand	N/A
8.5	Class I equipment	Class II equipment.	N/A
	Basic insulation between hazardous live parts and earthed accessible parts	Class II equipment.	N/A
	Resistors bridging basic insulation complying with 14.1 a)	Class II equipment.	N/A
	Capacitors bridging basic insulation complying with 14.2.1 a)	Class II equipment.	N/A
	Protective earthing terminal	Class II equipment.	N/A
8.6	Class II equipment and Class II constructions within Class I equipment	Class II equipment.	P
	Double or reinforced insulation between hazardous live parts and accessible parts	The accessible parts and wiring were separated from the hazardous live parts by reinforced insulation.	P
	Components bridging double or reinforced insulation complying with 14.1 a) or 14.3	Transformer provided with the reinforced insulation.	P
	Basic insulation bridged by components complying with 14.3.4.3.	No such components.	N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	Basic and supplementary insulation each being bridged by a capacitor complying with 14.1 a)	No such capacitor.	N/A
	Double or reinforced insulation being bridged with 2 capacitors in series complying with 14.2.1 a)	No such components.	N/A
	Double or reinforced insulation being bridged with a single capacitor complying with 14.2.1 b)	No such components.	N/A
8.7	This clause is void		—
8.8	Basic or supplementary insulation > 0,4 mm (mm) :	Approved power cord used	P
	Reinforced insulation > 0,4 mm (mm) .....:	Transformer's bobbin are provided distance through insulation more than 0.4 mm.	P
	Thin sheet insulation (excluding non-separable thin sheet insulation. See 8.22)	Insulation tape were used for Transformer	P
	Basic or supplementary insulation, at least two layers, each meeting 10.3	Each layer comply with 10.3	P
	Basic or supplementary insulation, three layers any two of which meet 10.3	No such construction.	N/A
	Reinforced insulation, two layers each of which meet 10.3	No such construction.	N/A
	Reinforced insulation, three layers any two which meet 10.3	No such construction.	N/A
8.9	Adequate insulation between internal hazardous live conductors and accessible parts	The accessible parts were separated from the internal hazardous live conductors by double or reinforce insulation.	P
	Adequate insulation between internal hazardous live parts and conductors connected to accessible parts	The conductors connected to the accessible parts were separated from the internal hazardous live conductors by double or reinforce insulation.	P
8.10	Double insulation between conductors connected to the mains and accessible parts.	The conductors connected to the accessible parts were separated from the internal hazardous live conductors by double or reinforce insulation.	P
	Double insulation between internal hazardous live parts and conductors connected to accessible parts.	The conductors connected to the accessible parts were separated from the internal hazardous live conductors by double or reinforce insulation.	P
8.11	Detaching of wires	There is no risk of a wire becoming detached, see below for evaluation.	P
	No undue reduction of creepages or clearance distances if wires become detached	The necessary spacing did not become loosened or detached after the test.	P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

	Vibration test carried out .....:	See sub-clause 12.1.2.	P
8.12	This clause is void		—
8.13	Adequate fastening of windows, lenses, lamp covers etc. (pull test 20 N for 10 s)	No such windows, lenses, lamps etc.	N/A
8.14	Adequate fastening of covers (push/pull test 50 N for 10 s)	No such covers	N/A
8.15	No risk of damage to the insulation of internal wiring due to hot parts or sharp edges	The internal wiring does not touch heat sources or sharp edges that may damage the insulation or cause hazards when considered the 2 N forces.	P
8.16	Only special supply equipment can be used	No such device.	N/A
8.17	Insulated winding wire without additional interleaved insulation	No such insulated winding wire.	N/A
8.18	Endurance test as required by 8.17		N/A
8.19	Disconnection from the mains	See below.	P
8.19.1	Disconnect device	Mains plug used as disconnect device, See sub-clause 5.4.2.	P
	All-pole switch or circuit breaker with >3mm contact separation	Mains plug used as disconnect device, See sub-clause 5.4.2.	N/A
8.19.2	Mains switch ON indication	No such device.	N/A
8.20	Switch not fitted in the mains cord	Fixed on front panel	P
8.21	Bridging components comply with clause 14	No such device.	N/A
8.22	Non-separable thin sheet material	No non-separable thin sheet material used	N/A

9	**Electric shock hazard under normal operating conditions**		P
9.1	Testing on the outside		P
9.1.1	For voltages >1000 V ac or >1500 V dc complies with clause 13.3.1 for basic insulation	See below.	N/A
9.1.1.1	a) Open circuit voltages	L /N and metallic enclosure: 117Vp max. L /N and accessible terminals: 130Vp max. Speaker output: 27.3Vrms max.	P
	b) Touch current measured from terminal devices using the network in annex D .....:	L /N and metallic enclosure: U1:1.13Vp max., U2: 0.040Vp L /N and accessible terminals: U1:1.14Vp, U2: 0.042Vp.	P
	c) Discharge not exceeding 45 µC	The stores charges did not exceed 45 µC.	P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

	d) Energy of discharge not exceeding 350 mJ	No such circuit.	N/A
9.1.1.2	Test with test finger and test probe	The test finger and test probe cannot access to the hazardous live part.	P
9.1.2	No hazardous live shafts of knobs, handles or levers	No shafts, handles or likes.	N/A
9.1.3	Ventilation holes and other holes tested by means of 4 mm x 100 mm test pin	No internal part could be accessible while the test pin applied.	P
9.1.4	Terminal devices tested with 1 mm x 20 mm test pin (10 N); test probe D of IEC 61032	All terminals did not become hazardous live after test.	P
	Terminal devices tested with 1 mm x 100 mm straight wire (1 N); test probe D of IEC 61032	All terminals did not become hazardous live after test.	P
9.1.5	Pre-set controls tested with 2.5 mm x 100 mm test pin (10 N); test probe C of IEC 61032	No pre-set control.	N/A
9.1.6	No shock hazard due to stored charge on withdrawal of the mains plug; voltage (V) after 2 s .....:	See below	N/A
	If C is not greater than 0,1 µF no test needed	Not greater than 0.1uF no test needed.	N/A
9.1.7	Resistance to external forces	No damage to the enclosure.	P
	a) Test probe 11 of IEC 61032 for 10 s (50 N)	Hazardous live part is not accessible.	P
	b) Test hook of fig. 4 for 10 s (20 N)	Hazardous live part is not accessible.	P
	c) 30 mm diameter test tool for 5 s (100 or 250 N)	250N applied no damage.	P
9.2	No hazard after removing a cover by hand	No such cover used.	N/A

10	**Insulation requirements**		P
10.1	Insulation resistance (MΩ) at least 2 MΩ min. after surge test for basic and 4 MΩ min. for reinforced insulation .....:	The insulation between accessible parts and hazardous live parts is subjected to 50 discharges at maximum rate of 12mins, from a 1 nF capacitor charged to10kV, after tested, EUT complied with the requirements of 10.3	P
10.2	Humidity treatment 48 h or 120 h .....:	The humidity treatment test was conducted at 93% R.H., 120hrs, 40 ℃ as client required	P
10.3	Insulation resistance and dielectric strength between mains terminals	see appended table 10.3	P
	Insulation Resistance and dielectric strength across BASIC or SUPPLEMENTARY insulation (Class I)	No such construction.	N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

	Insulation resistance and dielectric strength across REINFORCED insulation (Class II)	see appended table 10.3	P

11	**Fault conditions**		P
11.1	No shock hazard under fault condition	L /N and metallic enclosure: 137Vp max. L /N and accessible terminals: 148Vp max. L /N and metallic enclosure: U1=1.58Vp max., U2=0.06Vp max.; L /N and accessible terminals: U1=1.25Vp max., U2=0.64Vp max.	P
11.2	Heating under fault condition	See below.	P
	Flames extinguish within 10 seconds	No flames occurred during the test.	P
	No hazard from softening solder	No softening solder occurred.	P
	Soldered terminations not used as protective mechanism	No soldered termination used as protective mechanism in the EUT.	P
11.2.1	Measurement of temperature rises	See appended table 11.2	P
11.2.2	Temperature rise of accessible parts	See appended table 11.2	P
11.2.3	Temperature rise of parts, other than windings and printed boards, providing electrical insulation	See appended table 11.2	P
11.2.4	Temperature rise of parts acting as a support or mechanical barrier	See appended table 11.2	P
11.2.5	Temperature rise of windings	See appended table 11.2	P
11.2.6	Temperature rise of printed boards shall not exceed the limits of table 3 by max. 100 K for max. 5 min	No such parts	N/A
	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):	See above.	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 .....:	Temperature did not exceed the limits.	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	Temperature did not exceed the limits.	N/A
	Meets all the special conditions if conductors on printed circuit boards are interrupted	No such parts	N/A
	Class I protective earthing maintained	Class II equipment.	N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
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”.	No such parts.	N/A
12	**Mechanical strength**		P
12.1.1	Bump test where mass >7 kg	The mass of the apparatus < 7Kg	N/A
12.1.2	Vibration test	No damage to the apparatus after the vibration test.	P
12.1.3	Impact hammer test	No damage to the apparatus after the impact test.	P
	Steel ball test	No damage to the apparatus after the impact test.	P
12.1.4	Drop test for portable apparatus where mass ≤ 7 kg	No such device	N/A
12.1.5	Thermoplastic enclosures stress relief test	Test was conducted at 70 ^{o}C with acceptable results.	P
12.2	Fixing of knobs, push buttons, keys and levers	No actuating elements affecting electric shock.	N/A
12.3	Remote controls with hazardous live parts	No hazardous live parts are inside the remote control.	N/A
12.4	Drawers (pull test 50 N, 10 s)	No drawer inside the equipment.	N/A
12.5	Antenna coaxial sockets providing isolation	Antenna not for providing isolation.	N/A
12.6	Telescoping or rod antennas construction	No telescoping or rod inside the EUT.	N/A
12.6.1	Telescoping or rod antennas securement	No telescoping or rod inside the EUT.	N/A
13	**Clearances and creepage distances**		P
13.1	Clearances in accordance with 13.3	See appended table 13	P
	Creepage distances in accordance with 13.4	See appended table 13	P
13.2	Determination of working voltage	The unit was connected to a 230V TN power system. Results see appended table 13.	P
13.3	Clearances	See appended table 13	P
13.3.1	General	See appended table 13	P
13.3.2	Circuits conductively connected to the mains comply with table 8 and, where applicable, table 9.....:	See appended table 13	P
13.3.3	Circuits not conductively connected to the mains comply with table 10	See appended table 13	P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
13.3.4	Measurement of transient voltages	Considered only normal transient voltage.	N/A
13.4	Creepage distances	See appended table 13	P
	Creepage distances greater than table 11 minimum values	See appended table 13	P
13.5	Printed boards	No such construction	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	No such construction	N/A
13.5.2	Type B coated printed circuit boards complying with IEC 60664-3 (basic insulation only)	No such construction	N/A
13.6	Conductive parts along uncemented joints clearances and creepage distances comply with 13.3 and 13.4	No such construction	N/A
	Conductive parts along reliably cemented joints comply with 8.8	No such construction	N/A
	Temperature cycle test and dielectric strength test	No such construction	N/A
	500V test for transformers, magnetic coupler and similar devices, if insulation is relied upon for safety	No such construction	N/A
13.7	Enclosed, enveloped or hermetically sealed parts not conductively connected to the mains, clearances and creepage distances as in table 12	No such construction	N/A
13.8	Parts filled with insulating compound, meeting the requirements of 8.8	No such construction	N/A

14	**Components**		P
14.1	Resistors	No such component.	N/A
	a) Resistors between hazardous live parts and accessible metal parts	No such component.	N/A
	b) Resistors, other than between hazardous live parts and accessible parts	No such component.	N/A
	Resistors separately approved .....:	No such component.	N/A
14.2	Capacitors and RC units	See below.	N/A
	Capacitors separately approved :	No such capacitor used	N/A
14.2.1	Y capacitors tested to IEC 60384-14:2005 .....:	No such capacitor used	N/A
14.2.2	X capacitors tested to IEC 60384-14:2005 .....:	No such capacitor used	N/A
14.2.3	Capacitors operating at mains frequency but not connected to the mains: tests for X2 .....:	No such device.	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 .....:	All capacitors with volume exceeding 1750 mm³ were provided with the metallic case.	N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	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 .....:	All capacitors with volume exceeding 1750 mm³ were provided with the metallic case.	N/A
	Shielded by a barrier acc. To 20.1.4/ table 21 or metal .....:	All capacitors with volume exceeding 1750 mm³ were provided with the metallic case.	N/A
14.3	Inductors and windings	see appended table 14	P
	Comply with IEC 61558-1, IEC 61558-2 (as relevant) and clause 20.1.4	No such component.	N/A
14.3.1	Transformers and inductors marked with manufacturer's name and type .....:	The transformer is marked with the manufacturer's trade mark and type. See appended 14 for details.	P
	Transformers and inductors separately approved .:		N/A
14.3.2	General	See 14.3.3, 14.3.4 and 14.3.5.	P
	Insulation material complies with clause 20.1.4	Bobbin of transformer comply with 20.1.4	P
14.3.3	Constructional requirements	See below.	P
14.3.3.1	Clearances and creepage distances comply with clause 13	Complied with clause 13.	P
14.3.3.2	Transformers meet the constructional requirements	Double insulation between primary and secondary windings.	P
14.3.4	Separation between windings	See below.	P
14.3.4.1	Class II transformers have adequate separation between hazardous live parts and accessible parts (double or reinforced insulation).....:	Double insulation provided in transformer.	P
	Coil formers and partition walls > 0,4 mm	See clause 8.8.	P
14.3.4.2	Class I transformers, with basic insulation and protective screening only if all 7 conditions of 14.3.4.2 are met	No such construction.	N/A
14.3.4.3	Separating transformers with at least basic insulation	No such construction.	N/A
14.3.5	Insulation between HAZARDOUS LIVE parts and ACCESSIBLE parts	Double or reinforce insulation between hazardous live parts and accessible parts	P
14.3.5.1	Class II transformers have adequate insulation between hazardous live parts and accessible parts (double or reinforced insulation)	Double insulation provided in transformer.	P
	Coil formers and partition walls > 0,4 mm	See sub-clause 8.8.	P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
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	Not a Class I transformer design.	N/A
	Winding wires connected to protective earth have adequate current-carrying capacity	Not such a transformer design.	N/A
14.4	High voltage components	No component operated at voltage higher than 4 kV.	N/A
	High-voltage components and assemblies: U > 4 kV (peak) separately approved	No component operated at voltage higher than 4 kV.	N/A
	Component meets category V-1 of IEC 60695-11-10	No component operated at voltage higher than 4 kV.	N/A
14.4.1	High voltage transformers and multipliers tested as part of the submission	No such device.	N/A
14.4.2	High voltage assemblies and other parts tested as part of the submission	No such device.	N/A
14.5	Protective devices	See below.	P
	Protective devices used within their ratings	See sub-clause 14.5.1.2, 14.5.2.1.	P
	External clearances and creepage distances meet requirement of clause 13 for the voltage across the device when opened	Basic insulation was provided between the terminals of the protective devices.	P
14.5.1.1	a) Thermal cut-outs separately approved	No such device.	N/A
	b) Thermal cut-outs tested as part of the submission	No such device.	N/A
14.5.1.2	a) Thermal links separately approved	Approved thermal link used	P
	b) Thermal links tested as part of the submission	No such device.	N/A
14.5.1.3	Thermal devices re-settable by soldering	No such device.	N/A
14.5.2.1	Fuse-links in the mains circuit according to IEC 60127	Certified components used.	P
14.5.2.2	Correct marking of fuse-links adjacent to holder ...:	F901, F902: F2.5AL, 250 Vac; Fuse F801, F802, F803, F804: T1AL, 250 Vac	P
14.5.2.3	Not possible to connect fuses in parallel .....:	No such construction	P
14.5.2.4	Not possible to touch hazardous live parts when replacing fuse-links without the use of a tool .....:	The fuse-link was not for user replaceable.	N/A
14.5.3	PTC thermistors comply with IEC 60730-1:2007	No such device.	N/A
	PTC devices (15 W) category V-1 or better	No such device.	N/A
14.5.4	Circuit protectors have adequate breaking capacity and their position is correctly marked	No such device.	N/A
14.6	Switches	See below	P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
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	The switch is certified according to IEC 61058-1	P
14.6.1 b)	Tested in the apparatus:	The switch is certified according to IEC 61058-1	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	The switch is certified according to IEC 61058-1	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	The switch is certified according to IEC 61058-1	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	The switch is certified according to IEC 61058-1	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	The switch is certified according to IEC 61058-1	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	The switch is certified according to IEC 61058-1	N/A
14.6.4	Switch tested to 14.6.1 b) has adequate dielectric strength	No such device.	N/A
14.6.5	Mains switch controlling mains socket outlets additional tests to IEC 61058-1	The switch is certified according to IEC 61058-1	P
	Socket outlet current marking correct	Marking total Max. 100W, 0.43A.	P
14.7	Safety interlocks	No safety interlocks inside the EUT.	N/A
	Safety interlocks to 2.8 of IEC 60950-1	No safety interlocks inside the EUT.	N/A
14.8	Voltage setting devices and the like	No voltage setting devices inside the EUT.	N/A
	Voltage setting device not likely to be changed accidentally	No voltage setting devices inside the EUT.	N/A
14.9	Motors	No such device.	N/A
14.9.1	Endurance test on motors	No such device.	N/A
	Motor start test	No such device.	N/A
	Dielectric strength test	No such device.	N/A
14.9.2	Not adversely affected by oil or grease etc.	No such device.	N/A
14.9.3	Protection against moving parts	No such device.	N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
14.9.4	Motors with phase-shifting capacitors, three-phase motors and series motors meet clause. B.8, B.9 and B.10 of IEC 60950-1, Annex B	No such device.	N/A
14.10	Batteries	Non-rechargeable battery used in remote control.	P
14.10.1	Batteries mounted with no risk of accumulation of flammable gases	No such risk	P
14.10.2	No possibility of recharging non-rechargeable batteries	Non-rechargeable battery used in remote control and can not be recharged	P
14.10.3	Recharging currents and times within manufacturers limits	No such battery used	N/A
	Lithium batteries discharge and reverse currents within the manufacturers limits	No such battery used	N/A
14.10.4	Battery mould stress relief	No such battery used	N/A
14.10.5	Battery drop test	No such battery used	N/A
14.11	Optocouplers	See below	N/A
	a) Comply with 13.6 (jointed insulation) and N.2.1	No such component used	N/A
	b) Comply with IEC 60747-5-5:2007	No such component used	N/A
	Alternative to a) and b) optocoupler comply with 13.8	No such component used	N/A
14.12	Surge suppression varistors	No such components	N/A
	Comply with IEC 61051-2	No such components	N/A
	Not connected between mains and accessible parts except for earthed parts of permanently connected apparatus	No such components	N/A
	Complies with the current pulse, fire hazard and thermal stress requirements of 14.12	No such components	N/A
15	**Terminals**		P
15.1.1	Mains plug, appliance inlet, interconnection couplers and mains socket-outlet meet the appropriate standard	Certified mains plug used.	P
	Overloading of plugs or appliance inlets prevented if the apparatus has mains socket outlets	Rated marking was marked near the socket outlets.	P
	Overloading of internal wiring prevented if the apparatus has mains socket outlets	The mains socket outlet was directly soldered on the PCB.	N/A
15.1.2	Connectors for antenna, earth, audio, video or data	See below	P
	No risk of insertion in mains socket-outlets	No connector has a shape that matches the mains socket-outlets	P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	No risk of insertion into audio- or video- outlets marked with the symbol of 5.2	No such parts	N/A
15.1.3	Output terminals of a.c. adaptors or similar devices not compatible with household mains socket-outlets	Approved socket-outlet fixed on the apparatus	P
15.2	Provision for protective earthing		N/A
	Accessible conductive parts of Class I equipment reliably connected to earth terminal, within equipment	Class II equipment.	N/A
	Protective earth conductors correctly coloured	Class II equipment.	N/A
	Equipment with non-detachable mains cord provided with separate protective earth terminal near mains input	Class II equipment.	N/A
	Protective earth terminal resistant to corrosion	Class II equipment.	N/A
	Earth resistance test: < 0,1 Ω at 25 A .....:	Class II equipment.	N/A
15.3	Terminals for external flexible cords and for permanent connection to the mains supply	See below.	P
15.3.1	Adequate terminals for connection of permanent wiring	Not permanently connected equipment.	N/A
15.3.2	Reliable connection of non-detachable cords	Reliable connection between non-detachable cords and PCB by certified primary connector.	P
	Not soldered to conductors of a printed circuit board	Reliable connection between non-detachable cords and PCB by certified primary connector.	P
	Adequate clearances and creepage distances between connections should a wire break away	Reliable connection between non-detachable cords and PCB by certified primary connector.	P
	Wire secured by additional means to the conductor	Reliable connection between non-detachable cords and PCB by certified primary connector.	P
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	No such construction.	N/A
	Clamping of conductor and insulation if not soldered or held by screws	The insulation and conductor was clamped by primary connector.	P
15.3.5	Terminals allow connection of appropriate cross-sectional area of conductors, for the rated current of the equipment	Primary connectors were operating within its rating.	P
15.3.6	Terminals to 15.3.3 have sizes required by table 16	No such device.	N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
15.3.7	Terminals clamp conductors between metal and have adequate pressure	No such construction.	N/A
	Terminals designed to avoid conductor slipping out when tightened or loosened	No such construction.	N/A
	Terminals adequately fixed to avoid loosening when the clamping is tightened or loosened and stress on internal wiring is avoided	No such construction.	N/A
15.3.8	Terminals carrying a current more than 0,2 A: contact pressure not transmitted by insulating material except ceramic	A certified primary connector was used with its rating.	P
15.3.9	Termination of non-detachable cords: wires terminated near to each other	A certified primary connector was used.	P
	Terminals located and shielded: test with 8 mm strand	A certified primary connector was used.	N/A
15.4	Devices forming a part of the mains plug	No such device	N/A
15.4.1	No undue strain on mains socket-outlets	No such device	N/A
15.4.2	Device complies with standard for dimensions of mains plugs	No such device	N/A
15.4.3	Device has adequate mechanical strength (tests a,b,c)	No such device	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 .....:	Certified non-detachable power supply cord used.	P
	Non-detachable cords for Class I have green/yellow core for protective earth	Class II equipment	N/A
16.2	Mains cords conductors have adequate cross-sectional area for rated current consumption of the equipment	Certified non-detachable power supply cord operated within its rating.	P
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	Not interconnection carrying the hazardous voltage.	N/A
	b) Flexible cords not complying with 16.1, withstand bending and mechanical stress (3.2 of IEC 60227-2)	No such device.	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	No such interconnected flexible cords.	N/A
16.5	Adequate strain relief on external flexible cords	A strain-relief bushing was provided to prevent the external strain from outside.	P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	Not possible to push cord back into equipment	A strain-relief bushing was provided to prevent the push back of the power supply cord.	P
	Strain relief device unlikely to damage flexible cord	A strain-relief bushing was provided to prevent the push back of the power supply cord.	P
	For mains cords of Class I equipment, hazardous live conductors become taut before earth conductor	Class II equipment.	N/A
16.6	Apertures for external flexible cord: no risk of damage to the cord during assembly or movement in use	A bushing was provided to prevent the damage of the power cord.	P
16.7	Transportable musical instruments and amplifiers fitted with detachable cord set with appliance inlet to IEC 60320-1	Not transportable musical instruments.	N/A
	Transportable musical instruments and amplifiers fitted with detachable cord sets or with means of stowage to protect the cord	Not transportable musical instruments.	N/A
17	**Electrical connections and mechanical fixings**		P
17.1	Torque test to table 20	See below	P
	- screws into metal: 5 times	No damaged	P
	- screws into non-metallic material: 10 times	No such screws	N/A
17.2	Correct introduction into female threads in non-metallic material	No such devices.	N/A
17.3	Cover fixing screws: captive	No cover on the EUT.	N/A
	Non-captive fixing screws: no hazard when replaced by a screw whose length is 10 times its diameter	No captive screws used. No hazard when replacing a screw with one which length is 10 times its diameter.	P
17.4	No loosening of conductive parts carrying a current > 0,2 A	All conductive parts are fixed on PCB by at least two soldering points.	P
17.5	Contact pressure not transmitted through plastic other than ceramic for connections carrying a current > 0,2 A	No polymeric material was withstanding the strain from contact pressure.	N/A
17.6	Stranded conductors of flexible supply cords carrying a current > 0,2 A with screw terminals not consolidated by solder	No such construction.	N/A
17.7	Cover fixing devices other than screws have adequate strength and their positioning is unambiguous	No cover on the EUT.	N/A
17.8	Fixing devices for detachable legs or stands provided	No such device.	N/A
17.9	Internal pluggable connections, affecting safety, unlikely to become disconnected	After applying the 2N force, no hazard occurs.	P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

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	N/A
	Picture tube separately approved to 18.2 .....:	No picture tube	N/A
18.2	Non-intrinsically protected tubes tested to 18.2	No picture tube	N/A

19	**Stability and mechanical hazards**		P
	Mass of the equipment exceeding 7 kg .....:	6.83 kg.	N/A
	Apparatus intended to be fastened in place – suitable instructions .....:		N/A
19.1	Test on a plane, inclined at 10° to the horizontal	The mass of apparatus was less than 7Kg	N/A
19.2	100 N force applied vertically downwards	The mass of apparatus was less than 7Kg	N/A
19.3	100 N force, or 13% of weight, applied horizontally to point of least stability	The weight of the EUT did not exceed 25 kg and height does not exceed 1m.	N/A
19.4	Edges or corners not hazardous	No dangerous edges or corner in the equipment.	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	No any glass surface.	N/A
19.6	Wall or ceiling mountings adequate	No such construction	N/A

20	**Resistance to fire**		P
20.1	Electrical components and mechanical parts		P
	a) Exemption for components contained in an enclosure of material V-0 to IEC 60695-11-10 with openings not exceeding 1 mm in width	See item b).	N/A
	b) Exemption for small components as defined in 20.1	V-1 min. fire enclosure was provided.	P
20.1.1	Electrical components meet the requirements of Clause 14 or 20.1.4	For components covered in the Clause 14, the certified components were used.	P
20.1.2	Insulation of internal wiring working at voltages > 4 kV or leaving an internal fire enclosure, or located within the areas mentioned in Table 21, not contributing to the spread of fire	Internal PVC wirings are working at voltage less than 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 60695-11-10, unless used in a fire enclosure	Rated V-0 min. PCB used.	P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	Material of printed circuit boards on which the available power exceeds 15 W at a voltage >400 V (peak) a.c. or d.c. meets V-0 to IEC 60695-11-10.	Rated V-0 min. PCB used.	P
20.1.4	Components and parts not covered by 20.1.1, 20.1.2 and 20.1.3 (other than fire enclosures) mounted nearer to a potential ignition source than the distances in Table 21 comply with the relevant flammability category in Table 21	V-1 min. fire enclosure was provided.	P
	Components and parts as above but shielded from a potential ignition source, with the barrier area in accordance with Table 21 and fig. 13	No such construction.	N/A
	Apparatus with voltages >4kV under normal operating conditions and distances to the enclosure exceed those specified Table 21, flammability classification HB40 or better is required for the enclosure	No circuit are working at the voltage higher than 4kV.	N/A
20.2	Fire enclosure	See below.	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 parts are working at voltage higher than 4 kV.	N/A
20.2.2	Internal fire enclosures with openings not exceeding 1 mm in width and with openings for wires completely filled	No such construction	N/A
20.2.3	Requirements of 20.2.1 and 20.2.2 met by an internal fire enclosure	No such construction	N/A

A	**Annex A, Additional requirements for apparatus with protection against splashing water**		N/A
A.5	Marking and instructions	The EUT is used to indoor condition.	N/A
A.5.1	j) Marked with IPX4 (IEC 60529), 5.4.1 a) does not apply	The EUT is used to indoor condition.	N/A
A.10	Insulation requirements	The EUT is used to indoor condition.	N/A
A.10.2	Splash and humidity treatment	The EUT is used to indoor condition.	N/A
A.10.2.1	Enclosure provides protection against splashing water	The EUT is used to indoor condition.	N/A
A.10.2.2	Humidity treatment carried out for 7 days	The EUT is used to indoor condition.	N/A

B	**Annex B, Apparatus to be connected to the TELECOMMUNICATION NETWORKS**		N/A
	Complies with IEC 62151 clause 1	The EUT didn't connect to telecommunication networks.	N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

	Complies with IEC 62151 clause 2	The EUT didn't connect to telecommunication networks.	N/A
	Complies with IEC 62151 clause 3 but with 3.5.4 modified to 2.4.10 of this standard	The EUT didn't connect to telecommunication networks.	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	The EUT didn't connect to telecommunication networks.	N/A
	Complies with IEC 62151 cause 5 but with 5.3.1 modified in accordance with annex B of this standard	The EUT didn't connect to telecommunication networks.	N/A
	Complies with IEC 62151 clause 6	The EUT didn't connect to telecommunication networks.	N/A
	Complies with IEC 62151 clause 7	The EUT didn't connect to telecommunication networks.	N/A
	Complies with IEC 62151 annex A, B and C	The EUT didn't connect to telecommunication networks.	N/A

L	**ANNEX L, Additional requirements for electronic flash apparatus for photographic purposes**		N/A
L. 5	Marking and instructions	No such device	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	No such device	N/A
	Instructions for flash apparatus indicating type or model number of battery chargers or Supply apparatus with which it is to be used	No such device	N/A
L. 7	Heating under normal operating conditions	No such device	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	No such device	N/A
L. 9	Electric shock hazard under normal operating conditions	No such device	N/A
L. 9.1.1	Terminals to connection to synchronizer not HAZARDOUS LIVE	No such device	N/A
L.10	Insulation requirements	No such device	N/A
L. 10.3.2	High frequency plus ignition	No such device	N/A
L. 12	Mechanical strength	No such device	N/A
L. 12.1.3	Windows for flash tubes are excluded from steel ball impact test	No such device	N/A
L. 14	Components	No such device	N/A
L14.6.6	Mains switch characteristics appropriate to its function under normal conditions	No such device	N/A
L. 20	Resistance to fire	No such device	N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
L. 20.1 c)	Trigger coil for discharge purpose is not considered to be a POTENTIAL IGNITION SOURCE	No such device	N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

Variations to IEC 60065:2001 (Seventh Edition) + A1:2005 for application in Switzerland			
21.	Ordinance on environmentally hazardous substances SR 814.081, Annex 1.7, Mercury – Annex 1.7 of SR 814.81 applies for mercury. Switches containing mercury such as thermostats, relays and level controllers are not allowed. Ordinance on chemical hazardous risk reduction SR 814.81, Annex 2.15 Batteries Annex 2.15 of SR 814.81 applies for batteries containing cadmium and mercury. Note: Ordinance relating to environmentally hazardous substances, SR 814.013 of 1986-06-09 is not longer in force and superseded by SR 814.81 of 2009-02-01 (ChemRRV).	No such device	N/A
24.	Supply cords of portable electrical appliances having a rated current not exceeding 10 A shall be provided with a plug complying with IEC 60884-1(3.ed.) + am1, SEV 1011 and one of the following dimension sheets: - SEV 6533-2:2009 Plug type 11, L + N, 250V 10A - SEV 6534-2:2009 Plug type 12, L + N + PE, 250V 10A - SEV 6532-2:2009 Plug type 15, 3L + N + PE, 250/400V 10A Supply cords of portable electrical appliances having a rated current not exceeding 16 A shall be provided with a plug complying with IEC 60884-1(3.ed.) + am1, SEV 1011 and one of the following dimension sheets: - SEV 5933-2:2009 Plug type 21 L + N, 250 V, 16A - SEV 5934-2:2009 Plug type 23 L + N + PE, 250 V, 16A - SEV 5932-2:2009 Plug type 25 3L + N + PE, 250/400V 16A NOTE 16 A plugs are not often used in Swiss domestic installation system. See TRF template regulatory requirements Switzerland on IECEE Website R.R. TRF templates.	Need to be checked when sold to Switzerland.	N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

Variations to IEC 60065:1998 (Sixth Edition) for application in Ukraine			
	“National difference” in testing of conformity with the requirements of IEC 60335 series standards is the value of the nominal voltage that is fixed 220V a.c. for the power supply network in Ukraine and is used for testing instead of the value specified by the manufacturer.	Need to be checked when distribution the country.	N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

7.1	TABLE: temperature rise measurements:							P
	Power consumption in the OFF/Stand-by mode of the functional switch (W) ..... :						--	--
Cond.	Un (V)	Hz	In (mA)	Pn (W)	Uout (V)	Pout (W)	Operating Condition / Status	
1	207	50	1060	201.6	6.43	10.3	The unit was operated to deliver one-eighth of the maximum non-clipped output power to the load impedance (two 4ohm resistors replace speaker working) with I KHz sine wave signal from external audio generator on AUX mode. The Socket outlet loading with 100W.	
2	230	50	1103	233.3	6.44	10.4		
3	253	50	1146	266.4	6.44	10.4		
4	207	60	1048	200.0	6.35	10.1		
5	230	60	1087	230.1	6.36	10.1		
6	253	60	1131	262.7	6.36	10.1		
7	207	50	674	132.7	8.31	4.3	The unit was operated to deliver one-eighth of the maximum non-clipped output power to the load impedance (two 16ohm resistors replace speaker working) with I KHz sine wave signal from external audio generator on AUX mode. The Socket outlet loading with 100W.	
8	230	50	703	153.8	8.31	4.3		
9	253	50	731	175.9	8.31	4.3		
10	207	60	670	132.2	8.24	4.2		
11	230	60	699	152.9	8.24	4.2		
12	253	60	725	174.8	8.24	4.2		
13	207	50	1054	200.4	6.35	10.1	The unit was operated to deliver one-eighth of the maximum non-clipped output power to the load impedance (two 4ohm resistors replace speaker working) with I KHz sine wave signal from external audio generator on PHONO mode. The Socket outlet loading with 100W.	
14	230	50	1093	232.1	6.36	10.1		
15	253	50	1134	265.3	6.36	10.1		
16	207	60	1040	198.8	6.35	10.1		
17	230	60	1084	229.0	6.36	10.1		
18	253	60	1128	261.3	6.36	10.1		
19	207	50	672	131.6	8.27	4.3	The unit was operated to deliver one-eighth of the maximum non-clipped output power to the load impedance (two 16ohm resistors replace speaker working) with I KHz sine wave signal from external audio generator on PHONO mode. The Socket outlet loading with 100W.	
20	230	50	699	153.0	8.27	4.3		
21	253	50	728	174.8	8.27	4.3		
22	207	60	688	132.1	8.27	4.2		
23	230	60	698	152.8	8.27	4.2		
24	253	60	724	173.2	8.27	4.2		
	Loudspeaker impedance (Ω) ..... :						4Ω*2	—
	Several loudspeaker systems..... :						--	--
	Marking of loudspeaker terminals..... :						--	--

Temperature Rise dT of Part	dT (K)				Limit max dT (K)
Test Condition No.	--	No 1	No 3	--	--
AC input wire	--	19.4	23.2	--	60

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

AC connector CN90	--	18.8	22.7	--	50
Electrolytic capacitor C951	--	22.2	26.9	--	70
Relay RY92	--	27.6	34.8	--	50
Electrolytic capacitor C945	--	25.8	31.3	--	70
Primary winding of transformer T901	--	20.4	25.1	--	85
Secondary winding of transformer T901	--	19.6	24.2	--	85
Core of transformer T901	--	20.0	24.7	--	85
PCB near D942 and D944	--	21.0	24.8	--	85
Electrolytic capacitor C941	--	19.0	22.4	--	70
Primary winding of the main transformer	--	55.4	64.9	--	95
Secondary winding of the main transformer	--	57.6	66.8	--	95
Core of of the main transformer	--	45.2	53.2	--	95
Primary lead wire of the main transformer	--	50.3	58.8	--	60
Secondary output wire of the main transformer	--	45.8	53.7	--	60
Power switch body	--	16.4	18.8	--	20
Enclosure(plastic) inside near power switch	--	14.4	16.8	--	45
Heat-sink near Q322	--	54.3	68.7	--	85
PCB near Q319	--	52.5	65.3	--	85
PCB near Q317	--	44.4	54.1	--	85
PCB near Q321	--	53.3	66.3	--	85
PCB near Q322	--	52.0	65.4	--	85
PCB near Q318	--	41.8	51.9	--	85
PCB near Q320	--	48.8	61.6	--	85
Electrolytic capacitor C902	--	28.1	32.9	--	70
Electrolytic capacitor C901	--	27.4	32.1	--	70
PCB near D901	--	39.1	43.5	--	85
Heat-sink near D901	--	44.7	49.0	--	85
PCB near IC92	--	17.1	21.0	--	85
Heat-sink near IC92	--	19.6	24.9	--	85
Enclosure outside (rear)near heat-sink	--	18.1	21.6	--	65
Socket outlet	--	19.9	24.3	--	60

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

Voice control device	--	5.5	6.8	--	30
Enclosure outside, metallic, on the top of the main transformer	--	18.8	23.5	--	40
Enclosure outside, metallic, on the top of the heat-sink	--	31.7	39.2	--	40
Enclosure outside, metallic on the bottom of the main transformer	--	28.5	33.4	--	65
Ambient(℃)	--	27.1	27.1	--	--
Winding temperature rise measurements					
Ambient temperature t1 (^{o}C) .....:		26.5	27.8	--	--	—
Ambient temperature t2 (^{o}C) .....:		27.1	27.1	--	--	—

Temperature rise dT of winding: $dT = \frac{(R_2 - R_1)}{R_1} \times (234.5 + t1) - (t2 - t1)$	R_1 (Ω)	R_2 (Ω)	dT (K)	Limit max (K)	Insulation class
Condition: 207V, 50Hz					
Primary winding of the main transformer	10.521	12.991	62.3	95	B
Secondary winding of the main transformer	1.4268	1.7820	66.0	95	B
Primary winding of transformer T901	5217	5785	27.4	85	polyvinyl-formaldehyde or polyurethane resins
Secondary winding of transformer T901	10.99	12.10	25.32	85	polyvinyl-formaldehyde or polyurethane resins
Condition: 253V, 50Hz					
Primary winding of the main transformer	10.521	13.411	71.1	95	B
Secondary winding of the main transformer	1.4268	1.8302	73.2	95	B
Primary winding of transformer T901	5217	5860	33.0	85	polyvinyl-formaldehyde or polyurethane resins
Secondary winding of transformer T901	10.99	12.31	31.97	85	polyvinyl-formaldehyde or polyurethane resins

Remark: Supplementary information:

- The temperatures were measured under the worst case on loading two 4 ohm speakers according to the input test. .
- The maximum ambient temperature is specified as 35°C

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

Fault Condition:

The unit was operated in AUX mode to deliver one-eighth of the non-clipped output power to the load impedance (two 4ohm resistors replace speak working) with I KHz sine wave signal from external audio generator. Following tests, the Socket outlet without loading 100W, except the condition of loading 1.1 times of socket outlet rating.

A, Blocked the top ventilation; B, Blocked the side ventilation; C, Max. non-clipped output; D, Transformer T901 output overload; E, The main Transformer output (red to red) overload; F, The main Transformer output (blue to blue) overload; G, Socket outlet loading with 1.1 times of rating power.

Temperature Rise dT of Part	dT (K)				Limit max dT (K)
Test Condition No.	A	B	C	D	
AC input wire	42.3	28.8	21.3	23.4	100
AC connector CN90	42.5	28.6	20.3	24.0	110
Electrolytic capacitor C951	45.0	32.8	24.0	27.2	110
Relay RY92	53.2	40.3	30.7	35.3	110
Electrolytic capacitor C945	51.9	37.5	30.0	31.6	110
Primary winding of transformer T901	44.3	29.9	19.1	40.6	150
Secondary winding of transformer T901	44.1	29.2	18.4	41.2	150
Core of transformer T901	44.1	29.4	18.7	38.8	150
PCB near D942 and D944	43.4	29.9	23.3	25.0	110
Electrolytic capacitor C941	43.7	28.1	24.1	22.9	110
Primary winding of the main transformer	81.5	68.5	127.2	66.5	150
Secondary winding of the main transformer	83.4	70.2	142.1	71.7	150
Core of of the main transformer	69.7	57.2	72.5	58.1	150
Primary lead wire of the main transformer	76.4	62.7	94.5	59.7	115
Secondary output wire of the main transformer	71.6	57.5	112.6	55.0	115
Power switch body	44.7	29.0	23.4	25.5	110
Enclosure(plastic) inside near power switch	42.7	27.0	21.4	23.5	89(124-35)
Heat-sink near Q322	84.7	70.0	57.1	71.2	110
PCB near Q319	82.7	66.3	61.5	68.6	110
PCB near Q317	71.5	55.2	56.9	56.7	110
PCB near Q321	83.6	67.6	63.8	70.2	110
PCB near Q322	82.7	65.9	60.5	66.8	110
PCB near Q318	69.0	52.9	48.8	54.6	110
PCB near Q320	76.9	62.2	58.5	62.9	110

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

Electrolytic capacitor C902	51.8	36.5	35.5	34.6	110
Electrolytic capacitor C901	50.8	35.2	33.8	33.5	110
PCB near D901	60.2	46.6	63.5	45.1	110
Heat-sink near D901	65.8	52.5	76.1	50.6	110
PCB near IC92	39.0	27.9	16.0	30.4	110
Heat-sink near IC92	43.2	31.9	18.7	36.4	110
Enclosure outside (rear)near heat-sink	34.2	24.6	18.6	22.4	65
Socket outlet	34.0	26.0	21.0	26.4	65
Voice control device	11.4	7.4	3.7	7.6	65
Enclosure outside, metallic, on the top of the main transformer	39.2	25.0	19.4	27.0	65
Enclosure outside, metallic, on the top of the heat-sink	46.1	41.5	34.1	41.5	65
Enclosure outside, metallic on the bottom of the main transformer	47.0	35.4	39.6	34.2	65
Ambient(℃)	26.8	26.6	27.0	27.0	--
Test Condition No.	E	F	G	--	--
AC input wire	29.9	31.8	23.5	--	100
AC connector CN90	29.2	31.3	23.3	--	110
Electrolytic capacitor C951	33.6	35.5	26.6	--	110
Relay RY92	40.9	44.0	34.8	--	110
Electrolytic capacitor C945	43.3	44.7	32.1	--	110
Primary winding of transformer T901	30.5	32.6	24.1	--	150
Secondary winding of transformer T901	29.8	31.3	23.2	--	150
Core of transformer T901	29.7	32.0	23.4	--	150
PCB near D942 and D944	32.7	33.4	24.4	--	110
Electrolytic capacitor C941	30.9	32.6	22.1	--	110
Primary winding of the main transformer	126.7	120.5	66.6	--	150
Secondary winding of the main transformer	132.3	148.3	69.2	--	150
Core of of the main transformer	98.8	93.4	56.2	--	150
Primary lead wire of the main transformer	111.6	99.3	54.0	--	115

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

Secondary output wire of the main transformer	113.3	92.5	56.0	--	115
Power switch body	56.5	30.3	19.0	--	110
Enclosure(plastic) inside near power switch	54.5	28.3	17.0	--	89(124-35)
Heat-sink near Q322	71.3	72.3	70.9	--	110
PCB near Q319	68.9	69.3	66.7	--	110
PCB near Q317	57.0	57.8	55.5	--	110
PCB near Q321	68.7	69.4	68.5	--	110
PCB near Q322	66.5	66.7	66.8	--	110
PCB near Q318	53.9	54.9	54.8	--	110
PCB near Q320	63.0	62.8	63.6	--	110
Electrolytic capacitor C902	34.2	33.5	33.7	--	110
Electrolytic capacitor C901	33.5	33.2	33.0	--	110
PCB near D901	45.2	44.2	44.0	--	110
Heat-sink near D901	52.9	49.5	49.9	--	110
PCB near IC92	23.2	22.6	22.8	--	110
Heat-sink near IC92	26.8	26.3	26.6	--	110
Enclosure outside (rear)near heat-sink	25.9	27.3	21.0	--	65
Socket outlet	27.0	27.0	25.9	--	65
Voice control device	8.6	7.4	7.8	--	65
Enclosure outside, metallic, on the top of the main transformer	27.9	25.6	26.0	--	65
Enclosure outside, metallic, on the top of the heat-sink	41.3	40.8	38.9	--	65
Enclosure outside, metallic on the bottom of the main transformer	50.8	48.8	33.6	--	65
Ambient(℃)	26.0	27.4	27.2	--	--

Winding temperature rise measurements						
Ambient temperature t1 (^{o}C)	--	--	--	--	--	—
Ambient temperature t2 (^{o}C)	--	--	--	--	--	—

Temperature rise dT of winding: $dT = \frac{(R_2 - R_1)}{R_1} \times (234.5 + t1) - (t2 - t1)$	R_1 (Ω)	R_2 (Ω)	dT (K)	Limit max (K)	Insulation class
Condition A: Blocked the top ventilation					
Primary winding of the main transformer	10.521	14.130	89.8	150	B

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

Secondary winding of the main transformer	1.4268	1.9150	89.0	150	B
Primary winding of transformer T901	5217	6250	51.4	150	polyvinyl-formaldehyde or polyurethane resins
Secondary winding of transformer T901	10.99	13.15	51.1	150	polyvinyl-formaldehyde or polyurethane resins
Condition B: Blocked the side ventilation					
Primary winding of the main transformer	10.521	13.630	75.6	150	B
Secondary winding of the main transformer	1.4268	1.8560	77.0	150	B
Primary winding of transformer T901	5217	5950	36.6	150	polyvinyl-formaldehyde or polyurethane resins
Secondary winding of transformer T901	10.99	12.55	37.0	150	polyvinyl-formaldehyde or polyurethane resins
Condition D: Transformer T901 output overload					
Primary winding of the main transformer	10.520	13.550	74.6	150	B
Secondary winding of the main transformer	1.4268	1.8655	79.7	150	B
Primary winding of transformer T901	5217	6205	48.9	150	polyvinyl-formaldehyde or polyurethane resins
Secondary winding of transformer T901	10.99	13.1	49.6	150	polyvinyl-formaldehyde or polyurethane resins
Comdition G: Socket outlet loading with 1.1 times of rating power.					
Primary winding of the main transformer	10.521	13.655	74.8	150	B
Secondary winding of the main transformer	1.4268	1.8555	75.5	150	B
Primary winding of transformer T901	5217	5845	30.7	150	polyvinyl-formaldehyde or polyurethane resins

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

Secondary winding of transformer T901	10.99	12.25	29.2	150	polyvinyl-formaldehyde or polyurethane resins
Remark: Supplementary information: - The temperatures were measured under the worst case on loading two 4 ohm speakers according to the input test. . - The maximum ambient temperature is specified as 35°C					

7.2	TABLE: softening temperature of thermoplastics			P
Temperature T of part	**T – normal conditions (°C)**	**T – fault conditions (°C)**	**Min T softening (°C)**	
The bobbin of transformer T901	52.2	78.4	200	
The bobbin of the main transformer	93.9	175.4	191	
Primary connector CN94, CN91	49.8	69.3	180	
Primary connector CN90	49.8	69.3	181	
Plastic enclosure	43.9	80.5	124	
Note:				

10.3	TABLE: insulation resistance measurements		P
Insulation resistance R between:	**R (MΩ)**	**Required R (MΩ)**	
Between different polarity of mains (primary fuse disconnected)	500	Minimum 2	
Between line/ Neutral and metallic enclosure	500	Minimum 4	
Between line/ Neutral and secondary output terminals	500	Minimum 4	
Transformer T901 primary winding and secondary winding	500	Minimum 4	
Transformer T901 primary winding and core	500	Minimum 4	
The main transformer primary winding and secondary winding	500	Minimum 4	
The main transformer primary winding and core	500	Minimum 4	
One layer of two layers insulation tape of transformer	500	Minimum 2	

10.3	TABLE: electric strength measurements		P
Test voltage applied between:	**Test voltage (V)**	**Breakdown**	
Between different polarity of mains (primary fuse disconnected)	2120 Vdc	No	
Between line/ Neutral and metallic enclosure	4240 Vdc	No	
Between line/ Neutral and secondary output terminals	4240 Vdc	No	
Transformer T901 primary winding and secondary winding	4240 Vdc	No	
Transformer T901 primary winding and core	4240 Vdc	No	
The main transformer primary winding and secondary winding	4240 Vdc	No	

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

The main transformer primary winding and core	4240 Vdc	No
One layer of two layers insulation tape of transformer	2120 Vdc	No

11.2	TABLE: summary of fault condition tests				P
	Voltage (V) 0,9 or 1,1 times rated voltage .....:			253Vac	—
	Frequency (Hz) .....:			--	—
	Ambient temperature (^{o}C) .....:			See table 7.1, if not otherwise stated	—
No.	Component	Fault	dT (K) / Component	Other results (include description and test duration)	
Operate condition: **The unit was operated to deliver one-eighth of the non-clipped output power to the load impedance (two 4ohm resistors replace speak working) with I KHz sine wave signal from external audio generator. Following tests, the Socket outlet without loading 100W, except the condition of loading 1.1 times of socket outlet rating.**					
1.	Speaker output	Max.non-clipped	Refer to table 7.1, fault conditions	The input power increased to 329.3W, After 30 minutes, the main transformer thermal link open, and no hazards. Test duration: 1h	
2.	Top ventilation opening	Blocked	Refer to table 7.1, fault conditions	The temperature measurement stable. After testing, no hazards, no damage. Test duration: 4h13min.	
3.	Side ventilation opening	Blocked	Refer to table 7.1, fault conditions	The temperature measurement stable. After testing, no hazards, no damage. Test duration: 4h32min.	
4.	Speaker output	Short	--	The unit shut down and the input power decreased to 0W, recoverable, no damage, no hazard. Test duration: 30min.	
5.	C941	Short	--	The unit shut down, recoverable, no damage, no hazard. Test duration: 30min.	
6.	D941	Short	--	The unit work as normal, after testing, no damage, no hazard. Test duration: 30min.	
7.	C945	Short	--	The unit shut down, recoverable, no damage, no hazard. Test duration: 30min.	
8.	Transformer T901 output	Overload	Refer to table 7.1, fault conditions	The temperature measurement stable at 0.25A, when the current increased to 0.26A, the unit shut down. After testing, no hazards, no damage. Test duration: 12h 34min.	

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

9.	Transformer T901 output	Short	--	The unit shut down, recoverable, no damage, no hazard. Test duration: 30min.
10.	The main transformer output (red to red)	Overload	Refer to table 7.1, fault conditions	The temperature measurement stable at 1.5A. When the current increased to 1.8A, the main transformer thermal link open. After testing, no hazards. Test duration: 7h 09min..
11.	The main transformer output (blue to blue)	Overload	Refer to table 7.1, fault conditions	The temperature measurement stable at 1.8A. When the current increased to 2.1A, the main transformer thermal link open. After testing, no hazards. Test duration: 11h 31min.
12.	C901	Short	--	The unit shut down, recoverable, no damage, no hazard. Test duration: 30min.
13.	D901 pin 1-4	Short	--	The fuse F901 opened with breaking current exceeding 2.1 times of the fuse rating, after testing, no hazard. Test duration: 30min..
14.	C923	Short	--	The fuse F801, F802 opened with breaking current exceeding 2.1 times of the fuse rating, after testing, no hazard. Test duration: 30min.
15.	D922	Short	--	The unit worked as normal, no damaged, no hazard. Test duration: 30min.
16.	Transistor Q319(B-E)	Short	--	The unit shut down, recoverable, no damage, no hazard. Test duration: 30min.
17.	Transistor Q319(B-C)	Short	--	The fuse F901 opened with breaking current exceeding 2.1 times of the fuse rating, Q319, Q321 damaged, after testing, no hazard. Test duration: 30min.
18.	Transistor Q319(C-E)	Short	--	The fuse F901 opened with breaking current exceeding 2.1 times of the fuse rating, Q319, Q321 damaged, after testing, no hazard. Test duration: 30min.
19.	Socket outlet	Load 1.1 times of rating	Refer to table 7.1, fault conditions	The unit worked as normal, no damaged, no hazard. Test duration: 7h 21min.

13	**TABLES: clearances and creepage distances**				**P**
Rated supply voltage:	230 V	Pollution degree.. :	II	Material Group.... :	IIIa or IIIb
2 N force on internal parts applied:			Applied		P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

30 N force on outside of conductive enclosure applied:	Applied					P
Location	Working Voltage		Clearance (mm)		Creepage (mm)	
	V rms	V peak	Min	Actual	Min	Actual
Line to Neutral before the current fuse (B)	<250	<420	2.0	4.1	2.5	4.1
Under Fuse (F901, F902) (B)	<250	<420	2.0	6.2	2.5	6.2
The primary soldering and accessible metallic enclosure (R)	<250	<420	4.0	6.4	5.0	6.4
The primary and secondary of the relay on PCB(R)	<250	<420	4.0	10.0	5.0	10.0
Internal primary part and internal secondary part of Relay (RY92) (R)	<250	<420	4.0	9.0	5.0	9.0
Under Fuse (F802) (B)	<50	<71	1.0	1.8	1.2	1.8
Under Fuse (F801) (B)	<50	<71	1.0	1.3	1.2	1.3
Under Fuse (F803, F804) (B)	<50	<71	1.0	2.4	1.2	2.4
For main transformer						
Primary to secondary (R)	265	<420	4.0	9.5	5.6	9.5
Secondary to core (R)	265	<420	4.0	8.8	5.6	8.8
The Line to Neutral before the thermal link(B)	<250	<420	2.0	16.0	2.5	16.0
The two terminals of thermal link (B)	<250	<420	2.0	9.7	2.5	9.7
For the transformer T901						
Primary to secondary (R)	<250	<420	4.0	8.0	5.0	8.0
Secondary to core (R)	<250	<420	4.0	6.0	5.0	6.0
Circuits conductively connected to the mains (use Tables 8, 9 and 11): see note below.						

Notes:
For the main transformer:
- Core is considered as secondary.
- The thermal link wrapped absolutely with approved tube.

For the transformer T901:
- The core is considered as secondary.

“Min” = minimum required.
“Actual = Actual dimensions measured.

14	TABLE: list of critical components and materials				P
Object / part No.	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1)]**
Mains plug	Kenic Electric Mfg. Co. Ltd.	KE-21	2.5A, 250V	EN 50075	VDE
Or	All	All accepted	2.5A, 250V	EN 50075	VDE

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

Power cord	Kenic Electric Mfg. Co. Ltd.	H03VVH2-F	0.5 mm^2 x 2C or 0.75mm^2 x 2C	DIN VDE 0281-5 (VDE 0281 Teil 5): 2002-09; HD 21.5 S3:1994+A1:1999+A2:2001	VDE
Or	All	All accepted	0.5 mm^2 x 2C or 0.75mm^2 x 2C	DIN VDE 0281-5 (VDE 0281 Teil 5): 2002-09; HD 21.5 S3:1994+A1:1999+A2:2001	VDE
Plastic enclosure	Chi Mei Corporation	PA-765A(+)	V-1 min., 80℃, thickness min. 1.5mm	UL94	UL
AC socket-outlets	Dongbo Industries Ltd.	A302D006	250V, 2.5A	IEC 60884-1	Nemko certificate: No.:P06206573
Plastic matrtial of SR	All	All accepted	V-2, internal 7.5mmX4.5mm	UL94	UL
Primary connector CN91, CN94	Yeon Ho Electronics Co Ltd	YAW396-03AB	250V, 7.5A, 85℃	UL1977	UL
Primary connector CN90	Yeon Ho Electronics Co Ltd	YTAW396-03AV	250V, 7.5A, 85℃	UL1977	UL
Primary connector BN91	Jowle Technology Co Ltd	B3951H02	250V, 7.5A, 120℃	UL1977	UL
Internal primary wire	Ls Cable & System Ltd	1672	300V, 105℃,	UL1977	UL
Or	All	1672	300V, 105℃,	UL1977	UL
Relay RY 92	Omron Electronic Components (henzhen) Ltd.	G5PA-1	250Vac, 5A; 30Vdc, 5A	EN 61810-1: 2008	TUV
Primary fuse(F901, F902)	Suzhou Littelfuse OVS Ltd.	217-Serie(s)	F2.5AL, 250V	EN 60127-1, EN 60127-2	VDE
Power switch	POSTEC Electronics Co., Ltd.	SDL1P-B	250V, 5A, 55℃	EN 61058-1	VDE
Or	All	All accepted	250V, 5A, 55℃ min.	EN 61058-1	VDE
Secondary fuse(F801, F804, F802, F803)	Littelfuse, Inc.	372	T1AL, 250V	EN 60127-1, EN 60127-2	VDE

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

PCB	All	All accepted	V-0, 130 °C	UL 796	UL
Main transformer	Seoul Electronics & Telecom Co., Ltd	CLT5R045ZE	Class B	IEC/EN 60065	Tested with appliance
- bobbin	Lg Chemical (Guangzhou) Engineering Plastics Co Ltd	LUPOS GP-2306F	V-0, thickness requirement min. 1.5mm; measured min.1.5mm	UL94	UL
- insulation tape	Tae Hwa Industrial Co Ltd	H-5673* or H-5673a	130℃	UL510	UL
- Or	Duck Sung Hitech Co Ltd	DTS-204 or DTS-204K	130℃	UL510	UL
Tube (wrapped the input and output wire of transformer)	Changyuan Electronics (Shenzhen) Co Ltd	CB-SRT	600V,150℃,VW-1	UL 224	UL
Or	All	All accepted	600V,150℃,VW-1	UL 224	UL
- thermal link	Therm-O-Disc Europe B.V.	E4A51167C	250V, 10A, 167℃	IEC 60691	VDE
Primary lead wire	Kyungshin Cable Co Ltd	1672	300V,105℃	UL758	UL
Secondary lead wire	Kyungshin Cable Co Ltd	1015, 1430, 1007	300V,105℃	UL758	UL
Transformer T901	Seoul Electronics & Telecom Co., Ltd	CLT5I008ZE	polyvinyl-formaldehyde or polyurethane resins	IEC/EN 60065	Tested with appliance
- bobbin	Lg Chemical (Guangzhou) Engineering Plastics Co Ltd	LUPOS GP-2306F	V-0, thickness requirement min. 1.5mm; measured min.1.5mm	UL94	UL
-or	Lg Chemical (Guangzhou) Engineering Plastics Co Ltd	LUPOX GP-1006F(#)	V-0, thickness requirement min. 1.5mm; measured min.1.5mm	UL94	UL
- insulation tape	Duck Sung Hitech Co Ltd	DTS-204 or DTS-204K	130℃	UL510	UL
Supplementary information: **[1)] Provided evidence ensures the agreed level of compliance. See OD-CB2039.**					

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 60065 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Audio, video and similar electronic apparatus – Safety requirements	
Differences according to ..... :	EN 60065:2002 + A1:2006 + A11:2008 + A2:2010 + A12:2011
Attachment Form No..... :	EU_GD_IEC60065K_II
Attachment Originator ..... :	Intertek Semko AB
Master Attachment..... :	Date (2011-09)
Copyright © 2011 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.	

	IEC 60065, GROUP DIFFERENCES (CENELEC common modifications (EN))		**P**
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 **Annex ZB** (normative) Special national conditions **Annex ZC** (informative) A-deviations		P
Definition 2.2.Z1 (A11:2008)	**Add** after the definition 2.2.12 the following new definition: **PORTABLE SOUND SYSTEM** small battery powered audio equipment: • whose prime purpose is to listen to recorded or broadcasted sound; and • that uses headphones or earphones that can be worn in or on or around the ears; and • that allows the user to walk around NOTE Examples are mini-disk or CD players, MP3 audio players or similar equipment.	Not portable sound system	N/A
2.2 (A12:2011)	In EN 60065:2002/A11:2008 **Delete** the definition 2.2.Z1	Not portable sound system	N/A

IEC 60065			
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.	Not portable sound system	N/A
3.1 (A12:2011)	In EN 60065:2002 **Delete** the addition of indent regarding sound pressure excessive	Not portable sound system	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.	Considered.	P
4.1.1	**Replace** the text of the note by: NOTE For ROUTINE TEST reference is made to EN 50333.	Not portable sound system	N/A

IEC 60065			
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 portable sound system	N/A
5.4.1 (A12:2011)	In EN 60065:2002/A1:2006 and EN 60065;2002/A11:2008 Delete the modification in indent za) Add the following clause and annex to the existing standard and amendments	Not portable sound system	N/A
	Zx Protection against excessive sound pressure from personal music players		N/A

IEC 60065			
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 appliance	N/A

IEC 60065			
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 increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and NOTE 2 Examples of means include visual or audible signals. Action from the user is always required. NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off.	Not such appliance	N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
Cont.	d) have a warning as specified in Zx.3; and e) not exceed the following: 1) equipment provided as a package (player with Its listening device), the acoustic output shall be ≤ 100 dBA measured while playing the fixed “programme simulation noise” described in EN 50332-1; and 2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be ≤ 150 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” described in EN 50332-1. For music where the average sound pressure (long term L_{Aeq},T) measured over the duration of the song is lower than the average produced by the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. In this case T becomes the duration of the song. NOTE 4 Classical music typically has an average sound pressure (long term L_{Aeq},T) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the song and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. 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.	Not such appliance	N/A
	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.	Not such appliance	N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
Cont.	**Zx.4 Requirements for listening devices (headphones and earphones)**		
	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 appliance	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 appliance	N/A
	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 appliance	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.	Not such appliance	N/A

IEC 60065			
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: **6.1 Ionizing radiation** Apparatus including a potential source of ionizing radiation shall be so constructed that personal protection against ionizing radiation is provided under normal operating conditions and under fault conditions. 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

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
Z1 (A11:2008)	**Add** the following new clause after Clause 20: **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 20 mm diameter while the candle is still touching the supporting surface. A typical candle used in the home is assumed to be 20 mm diameter. NOTE 5 It is expected that CLC/TS 62441 will in the future be replaced by a standard, at which time that standard will become applicable, subject to a vote by National Committees at the time.	No such equipment	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)	Considered	N/A

IEC 60065			
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.	Delete	N/A
Bibliography	Add the following standards: EN 50332-1: 2000, 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”. PrEN 50332-2 (uder consideration), Sound system equipement: 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. Add the following notes for the standards indicated: IEC 60130 NOTE Parts 9 and 17: 1998 are harmonized as ENs (not modified). IEC 60169 NOTE Partly harmonized in the EN 60169/HD 134 series (not modified). IEC 60173 NOTE Harmonized as HD 27 S1: 1978 (not modified). IEC 60335-2-56 NOTE Harmonized as EN 60335-2-56: 1997 (not modified). IEC 60335-2-82 NOTE Harmonized as EN 60335-2-82: 2000 (not modified). IEC 60695 NOTE Harmonized as EN 60695 series (not modified). IEC 61040 NOTE Harmonized as EN 61040: 1992 (not modified). IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1: 1997 (not modified). IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4: 1997 (not modified). IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6: 1997 (not modified).	Not such appliance	N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
Bibliography (A1:2006)	Replace the paragraph related to prEN 50332-2 by: EN 50332-2:2003, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Matching of sets with headphones if either or both are offered separately. Add the following notes for the standards indicated: IEC 60598-2-9 NOTE Harmonized as EN 60598-2-9:1989 + A1:1994 (not modified). IEC 60598-2-17 NOTE Harmonized as EN 60598-2-17:1989 + A2:1991 (not modified).	Not such appliance	N/A
Bibliography (A2:2010)	Add the following notes for the standards indicated: IEC 60695 series NOTE Harmonized in EN 60695 series. IEC 62087 NOTE Harmonized as EN 62087.	Not such appliance	N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

Annex ZA	**Normative references to international publications with their corresponding European publications** The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies. NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.	P

Publication	Date	Title	EN/HD	Date
-	-	Audio, video and similar electronic apparatus – Routine electrical safety testing in production	EN 50333 [1)]	2001
-	-	Insulating, sheathing and covering materials for low-voltage energy cables	EN 50363	series
-	-	Electrical test methods for low voltage energy cables	EN 50395	2005
-	-	Non electrical test methods for low voltage energy cables	EN 50396	2005
IEC 60027	series	Letter symbols to be used in electrical technology	EN/HD 60027	series
IEC 60038	2002	IEC standard voltages	-	-
IEC 60068-2-6 + corr. March	1995 1995	Environmental testing Part 2: Tests – Test Fc: Vibration (sinusoidal)	EN 60068-2-6	1995 [2)]
IEC 60068-2-31	2008	Environmental testing Part 2-31: Tests – Test Ec: Rough handling shocks, primarily for equipment-type specimensl	EN 60068-2-31	2008
IEC 60068-2-75	1997	Environmental testing Part 2-75: Tests - Test Eh: Hammer tests	EN 60068-2-75	1997

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

	Publication	Date	Title	EN/HD	Date	
	IEC 60068-2-78	2001	Environmental testing Part 2-78: Tests - Test Cab: Damp heat, steady state	EN 60068-2-78	2001	P
	IEC 60085	2004	Thermal evaluation and classification of electrical insulation	EN 60085	2004 [4)]	
	IEC 60086-4	2000	Primary batteries Part 4: Safety of lithium batteries	EN 60086-4	2000 [5)]	
	IEC 60107-1	1997	Methods of measurement on receivers for television broadcast transmissions - Part 1: General considerations - Measurements at radio and video frequencies	EN 60107-1	1997	
	IEC 60112	2003	Method for the determination of the proof and the comparative tracking indices of solid insulating materials	EN 60112	2003	
	IEC 60127	series	Miniature fuses	EN 60127	series	
	IEC 60167	1964	Methods of test for the determination of the insulation resistance of solid insulating materials	HD 568 S1	1990	
	IEC 60216	series	Electrical insulating materials - Thermal endurance properties	EN 60216	series	
	IEC 60227 [6)]	series	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V	HD 21	series	
	IEC 60245 [7)]	series	Rubber insulated cables – Rated voltages up to and including 450/750 V	HD 22	series	
	IEC 60249-2	series	Base materials for printed circuits Part 2: Specifications	EN 60249-2	series	
	IEC 60268-1	1985	Sound system equipment Part 1: General	HD 483.1 S2 [8)]	1989	
	IEC 60317	series	Specifications for particular types of winding wires	EN 60317	series	
	IEC 60320	series	Appliance couplers for household and similar general purposes	EN 60320	series	

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

	Publication	Date	Title	EN/HD	Date	
	IEC 60335-1 (mod) A1 A2 + Corr. August	2001 2004 2006	Safety of household and similar electrical appliances Part 1: General requirements	EN 60335-1 A1 A2 + A11 + A12 + A13	2002 2004 2006 2004 2006 2008	P
	IEC 60384-1 (mod)	1999	Fixed capacitors for use in electronic equipment Part 1: Generic specification	EN 60384-1	2001	
	IEC 60384-14	2005	Fixed capacitors for use in electronic equipment Part 14: Sectional specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains	EN 60384-14	2005	
	IEC 60417	database	Graphical symbols for use on equipment	-	-	
	IEC 60454	series	Pressure-sensitive adhesive tapes for electrical purposes	EN 60454	series	
	IEC 60529 A1	1989 1999	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May A1	1991 1993 2000	
	IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems Part 1: Principles, requirements and tests	EN 60664-1	2007	
	IEC 60664-3	2003	Insulation coordination for equipment within low-voltage systems Part 3: Part 3: Use of coating, potting or moulding for protection against pollution	EN 60664-3	2003	
	IEC 60691 A1	2002 2006	Thermal links – Requirements and application guide	EN 60691 A1	2003 2007	
	IEC 60695-11-5	2004	Fire hazard testing Part 11-5: Test flames - Needle-flame test method – Apparatus, confirmatory test arrangement and guidance	EN 60695-11-5	2005	
	IEC 60695-11-10 A1	1999 2003	Fire hazard testing Part 11-10: Test flames – 50 W horizontal and vertical flame test methods	EN 60695-11-10 A1	1999 2003	
	IEC 60695-11-20 A1	1999 2003	Fire hazard testing Part 11-20: Test flames - 500 W flame test methods	EN 60695-11-20 A1	1999 2003	

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

	Publication	Date	Title	EN/HD	Date	
	IEC 60730 (mod)	series	Automatic electrical controls for household and similar use	EN 60730	series	P
	IEC 60747-5-5	2007	Semiconductor devices - Discrete devices - Part 5-5: Optoelectronic devices - Photocouplers	EN 60747-5-5 9)	201X	
	IEC 60825-1	2007	Safety of laser products Part 1: Equipment classification and requirements	EN 60825-1	2007	
	IEC 60851	series	Winding wires – Test methods	EN 60851	series	
	IEC 60884	series	Plugs and socket-outlets for household and similar purposes	-	-	
	IEC 60885-1	1987	Electrical test methods for electric cables Part 1: Electrical tests for cables, cords and wires for voltages up to and including 450/750 V	-	-	
	IEC 60906	series	IEC system of plugs and socket-outlets for household and similar purposes	-	-	
	IEC 60950-1 (mod)	2005	Safety of information technology equipment Part 1: General requirements	EN 60950-1 + A11	2006 2009	
	IEC 60990	1999	Methods of measurement of touch-current and protective conductor current	EN 60990	1999	
	IEC 60998-2-2 (mod)	2002	Connecting devices for low-voltage circuits for household and similar purposes Part 2-2: Particular requirements for connecting devices as separate entities with screwless-type clamping units	EN 60998-2-2	2004	
	IEC 60999-1	1999	Connecting devices – Safety requirements for screw-type and screwless-type clamping units Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm^2 up to 35 mm^2 (included)	EN 60999-1	2000	
	IEC 61032	1997	Protection of persons and equipment by enclosures – Probes for verification	EN 61032	1998	
	IEC 61051-2	1991	Varistors for use in electronic equipment Part 2: Sectional specification for surge suppression varistors	-	-	
	IEC 61058-1 + A1 (mod) A2	2000 2001 2007	Switches for appliances Part 1: General requirements	EN 61058-1 A2	2002 2008	

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

P

Publication	Date	Title	EN/HD	Date
IEC/TR2 61149	1995	Guide for safe handling and operation of mobile radio equipment	-	-
IEC 61260 A1	1995 2001	Electroacoustics – Octave-band and fractional-octave-band filters	EN 61260 A1	1995 2001
IEC 61293	1994	Marking of electrical equipment with ratings related to electrical supply – Safety requirements	EN 61293	1994
IEC 61558-1 A1	2005 2009	Safety of power transformers, power supplies, reactors and similar products Part 1: General requirements and tests	EN 61558-1 + corr. August A1	2005 2006 2009
IEC 61558-2-17	1997	Safety of power transformers, power supply units and similar Part 2-17: Particular requirements for transformers for switch mode power supplies	EN 61558-2-17	1997
IEC 61965	2003	Mechanical safety of cathode ray tubes	EN 61965	2003
IEC 62087	-	Methods of measurement for the power consumption of audio, video and related equipment	EN 62087	-
IEC 62151	2000	Safety of equipment electrically connected to a telecommunication network	-	-
IEC/TS 62441	-	Accidentally caused candle flame ignition for audio/video, communication and information technology equipment	CLC/TS 62441	-
ISO 261 [10]	1973	ISO general purpose metric screw threads - General plan	-	-
ISO 262 [11]	1973	ISO general purpose metric screw threads - Selected sizes for screws, bolts and nuts	-	-
ISO 306	1994	Plastics - Thermoplastic materials - Determination of Vicat softening temperature (VST)	EN ISO 306 [12]	1996
ISO 7000 [13]	1989	Graphical symbols for use on equipment - Index and synopsis	-	-
ITU-T Recommendation K17	1988	Tests on power-fed repeaters using solid-state devices in order to check the arrangements for protection from external interference	-	-
ITU-T Recommendation K21	1996	Resistibility of telecommunication equipment installed in customer's premises to overvoltages and overcurrents	-	-

1) Will be superseded by EN 50514:2008 “Audio, video and information technology equipment - Routine electrical safety testing in production” on 2011-07-01.

2) Will be superseded by EN 60068-2-6:2008 “Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)” on 2011-02-01.

3) EN 60068-2-32 includes A2:1990 to IEC 60068-2-32:1975 (IEC/EN 60068-2-32 has been replaced by IEC/EN 60068-2-31:2008).

4) Will be superseded by EN 60085:2008 “Electrical insulation - Thermal evaluation and designation” on 2010-12-01.

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

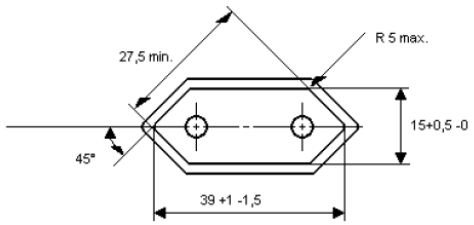
	5) Will be superseded by EN 60086-4:2007 “Primary batteries -- Part 4: Safety of lithium batteries” on 2010-11-01. 6) The HD 21 series, which is related to, but not directly equivalent with the IEC 60227 series. Also EN 50363, EN 50395 and EN 396 are to be taken into account. 7) The HD 22 series, which is related to, but not directly equivalent with the IEC 60245 series. Also EN 50363, EN 50395 and EN 396 are to be taken into account. 8) HD 483.1 S2:1989 includes A1:1988 to IEC 60268-1:1985. 9) At draft stage. 10) Superseded by ISO 261:1998. 11) Superseded by ISO 262:1998. 12) Superseded by EN ISO 306:2004, which is based on ISO 306:2004. 13) Superseded by ISO 7000:2004.		P

Annex ZB	**Special national conditions** Special national condition: National characteristic or practice that cannot be changed even over a long period, e.g. climatic conditions, electrical earthing conditions. NOTE If it affects harmonization, it forms part of the European Standard. For the countries in which the relevant special national apply these provisions are normative, for other countries they are informative.		P
2.6.1	**Denmark** 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.	Class II apparatus	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.	Need to be checked when distribution the country.	N/A

IEC 60065			
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”	Class II apparatus	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"”	Class II apparatus	N/A

IEC 60065			
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.””	Class II equipment	N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.1 (A2:2010)	**Norway and Sweden** **Secretary Note:** Modification at the end of 5.4.1 (after the compliance statement) already part of A11 (This note will be deleted from the final text)	The EUT is not connected to the cable distribution system.	N/A
13.3.1	**Norway** To the second paragraph the following is **added**: In Norway, due to IT power distribution system used, the a.c. MAINS supply voltage is considered to be equal to the line-to-line voltage, and will remain 230V in case of a single earth fault. Justification: Based on a use in Norway of an IT power distribution system where the neutral is not provided.		P
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	Need to be checked when distribution the country.	N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
15.1.1	**Ireland** Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, “13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. Justification: SI 525: 1997	Need to be checked when distribution the country.	N/A
15.1.1	**Norway** Mains socket-outlets mounted on CLASS II apparatus shall comply with the specifications given in CEE Publ. 7 as far as applicable, with the following amendments: § 8 Dimensions A 2,5 A 250 V two-pole socket-outlets for electronic apparatus shall comply with the enclosed Standard Sheet I. STANDARD SHEET I 2,5 A/250 V SOCKET-OUTLET FOR ELECTRONIC APPLIANCES OF CLASS II  Dimensions in mm Other dimensions according to CEE Publication 7 Standard Sheet I "Portable Single-Way Socket-Outlets". § 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).	Approved socket-outlet used	P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
15.1.1	**United Kingdom** Apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug shall be fitted with a "standard plug" in accordance with Statutory Instrument 1768: 1994: The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those Regulations. 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.	Need to be checked when distribution the country.	N/A
J.2	**Norway** 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.		P

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
Annex B (A1:2006)	Add the following special national conditions: All sub-clauses given below are sub-clauses of IEC 62151 (ref. corrigenda 1 and 2 to IEC 62151). **Subclause 4.1.1 (corrigendum 2):** Add after the first paragraph: NOTE In Finland, Norway and Sweden, CLASS I equipment which is intended for connection to the building installation via a non-industrial plug or a non-industrial appliance coupler, or both and in addition is intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and ACCESSIBLE parts, has a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows: In Finland: “Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan” In Norway: “Apparatet må tilkoples jordet stikkontakt” In Sweden: "Apparaten skall anslutas till jordat uttag" **Subclause 4.1.4 (corrrigendum 1)** Add at the end of the subclause: NOTE In Norway, for requirements see 4.1.1, note and 5.3.1, note 1. **Subclause 4.2.1.2 (corrigendum 1)** Add at the end of the subclause: NOTE 3 In Norway, for requirements see 5.3.1, note 1. **Subclause 4.2.1.3 (corrigendum 2)** Add at the end of the subclause: NOTE In Norway, for requirements see 4.1.1, note and 5.3.1, note 1.	No such equipment	N/A
	Subclause 4.2.1.4 (corrigendum 1) Number the existing note as NOTE 1 and add at the end of the subclause the following NOTE 2: NOTE 2 In Norway, for requirements see 4.1.1, note and 5.3.1, note 1. **Subclause 5.3.1 (corrigendum 1)** Add after the first test specifications paragraph: NOTE 1 In Finland, Norway and Sweden, there are additional requirements for the insulation. Renumber the existing note as NOTE 2.	No such equipment	N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
Annex B (continued) (A1:2006)	For additional requirements for the insulation in Finland, Norway and Sweden in NOTE 1 the following text is added between the first and the second paragraph (this text is identical to the corresponding EN 60950-1:2001): NOTE 1 In Finland, Norway and Sweden, if this insulation is solid, including insulation forming part of a component, it shall at least consist of either • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in the accordance with the compliance clause below and in addition: • passes the test and inspection criteria of 13.6 with an electric strength test of 10.3 using the test voltage of 1,5 kV multiplied by 1,6, and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5 kV (for performance of the test see N.2.1). It is permitted to bridge this insulation with a capacitor complying with IEC 60384-14:1993, subclass Y2. A capacitor classified Y3 according to IEC 60384-14:1993, may bridge this insulation under the following conditions: • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by IEC 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in IEC 62151, Subclause 6.2.1;	No such equipment	N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	• the additional testing shall be performed on all the test specimens as described in IEC 60384-14; • the impulse test of 2,5 kV is to be performed before the endurance test in IEC 60384-14 in the sequence of tests as described in IEC 60384-14. **Subclause 5.3.2 (corrigendum 1)** Add after the fourth dash: NOTE In Finland, Norway and Sweden, exclusions are applicable for equipment which is intended for connection to the building installation wiring using screw terminals or other reliable means, and for equipment which is intended for connection to the building installation wiring via an industrial plug and socket -outlet or an appliance coupler, or both, complying with EN 60309 or with a comparable national standard.	No such equipment	N/A

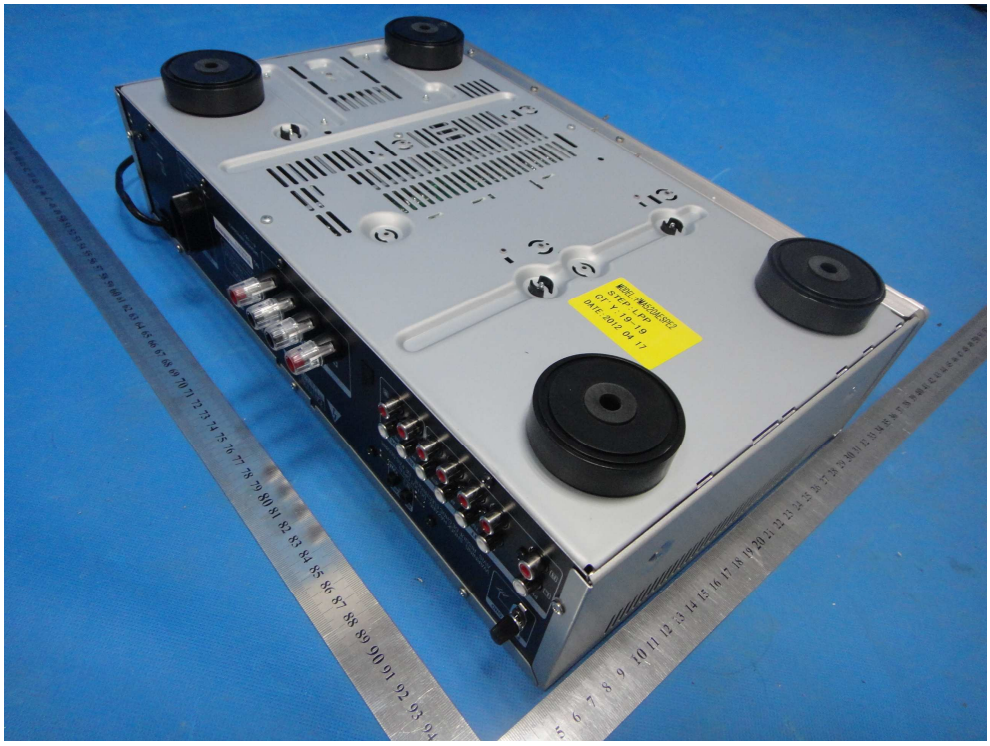
IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

Annex ZC	**A-deviations**		N/A
5	**Germany** The following markings are required: a) In case of intrinsically ionizing radiation safe cathode-ray tubes with accelerating voltages between 20 kV and 30 kV: - On the cathode-ray tube itself the wording: Eigensichere Kathodenstrahlröhre nach Anlage III Röntgen-verordnung - Inside the apparatus: the maximum allowed accelerating voltage in kV, and the maximum allowed beam current in mA. - On the outer of the apparatus: a notice in German language that produced X-rays are sufficiently shielded by the intrinsically safe cathode-ray tube. b) In case of approval of the whole TV receiver with an accelerating voltage exceeding 20 kV: - On the outer of the apparatus: the licence number .../.../.../Rö, and the following text: Die in diesem Gerät entstehende Röntgenstrahlung ist ausreichend abgeschirmt. Beschleunigungsspannung: max: ... kV. - Supplied with the apparatus: a copy of the "Zulassungsschein", together with the notices required there. c) In case of TV receivers with accelerating voltages not exceeding 20 kV: Die in diesem Gerät entstehende Röntgenstrahlung ist ausreichend abgeschirmt. Beschleunigungsspannung: max: ... kV. Justification: German ministerial decree against ionizing radiation (Röntgenverordnung), dated 1987-01-08. NOTE The German ministerial decree (Röntgenverordnung) is under revision.	No ionizing radiation	N/A

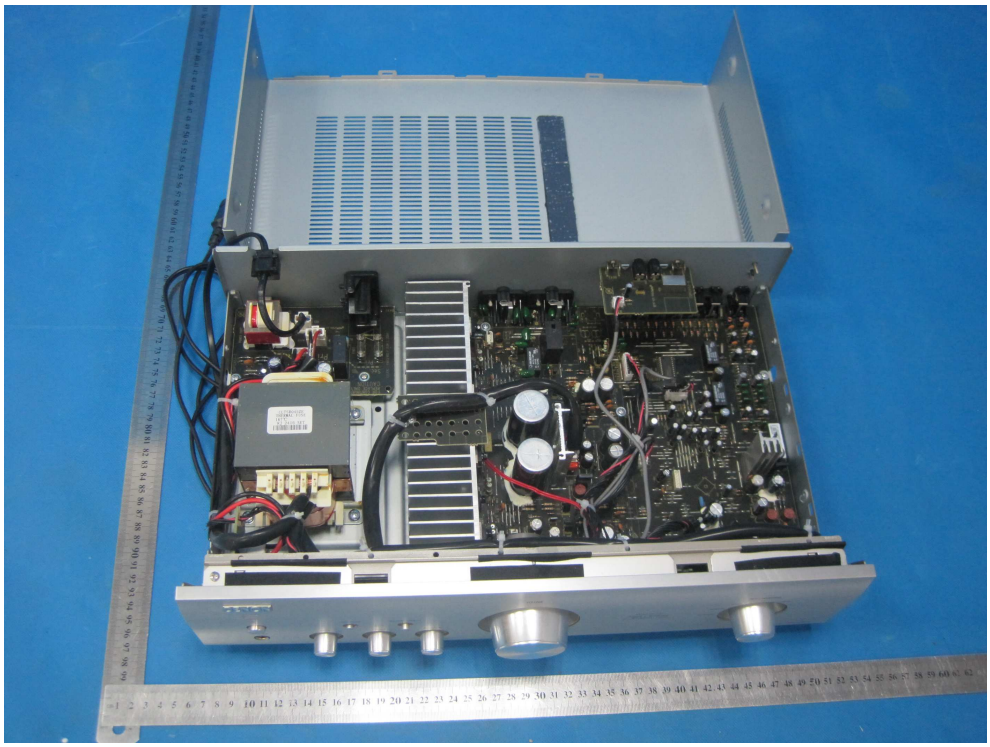
IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
5.1	**Italy** The following requirements shall be fulfilled: - The power consumption in Watts (W) shall be indicated on TV receivers and in their instruction for use (Measurement according to EN 60555-2). NOTE EN 60555-2 has since been replaced by IEC 60107-1:1997. - TV receivers shall be provided with an instruction for use, schematic diagrams and adjustments procedure in Italian language. - Marking for controls and terminals shall be in Italian language. Abbreviation and international symbols are allowed provided that they are explained in the instruction for use. - The ECC manufacturers are bound to issue a conformity declaration according to the above requirements in the instruction manual. The correct statement for conformity to be written in the instruction manual, shall be: Questo apparecchio è fabbricato nella CEE nel rispetto delle disposizioni del D.M. marzo 1992 ed è in particolare conforme alle prescrizioni dell'art. 1 dello stesso D.M. - The first importers of TV receivers manufactured outside EEC are bound to submit the TV receivers for previous conformity certification to the Italian Post Ministry (PP.TT). The TV receivers shall have on the backcover the certification number in the following form: D.M. 26/03/1992 xxxxx/xxxxx/S or T or pT S for stereo T for teletext pT for retrofitable teletext Justification: Ministerial Decree of 26 March 1992: National rules for television receivers trade. NOTE The ministerial decree above contains additional, but not safety relevant requirements.	No such device	N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
6.1	**Germany** 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	**Sweden** The following is added: 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 device	N/A

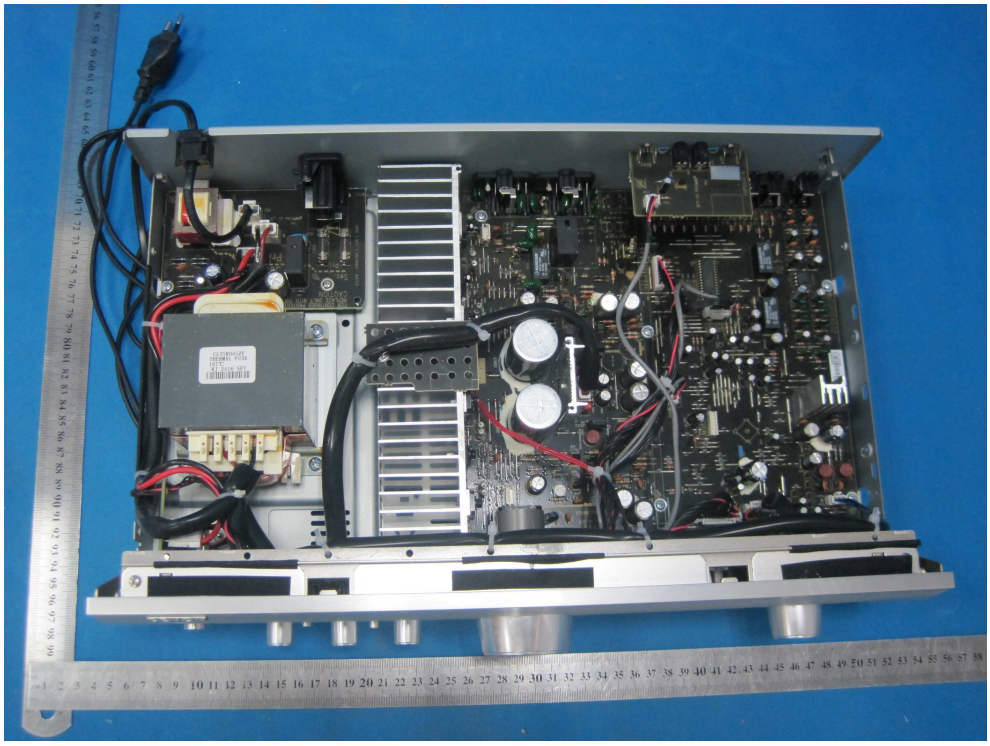
General view – 1



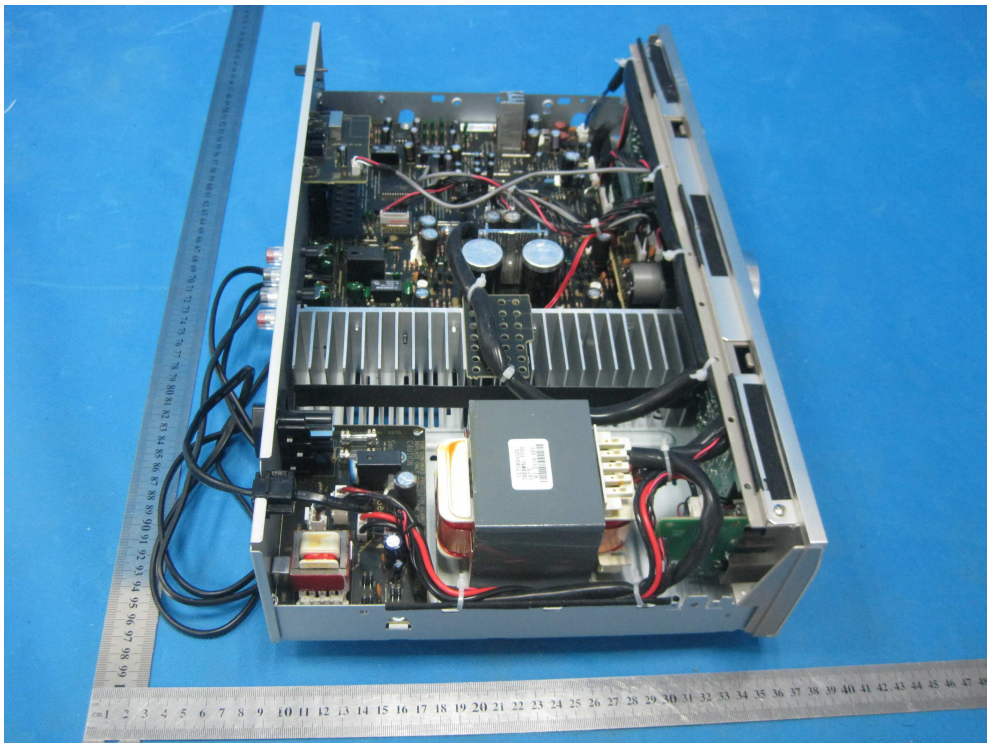
General view – 2



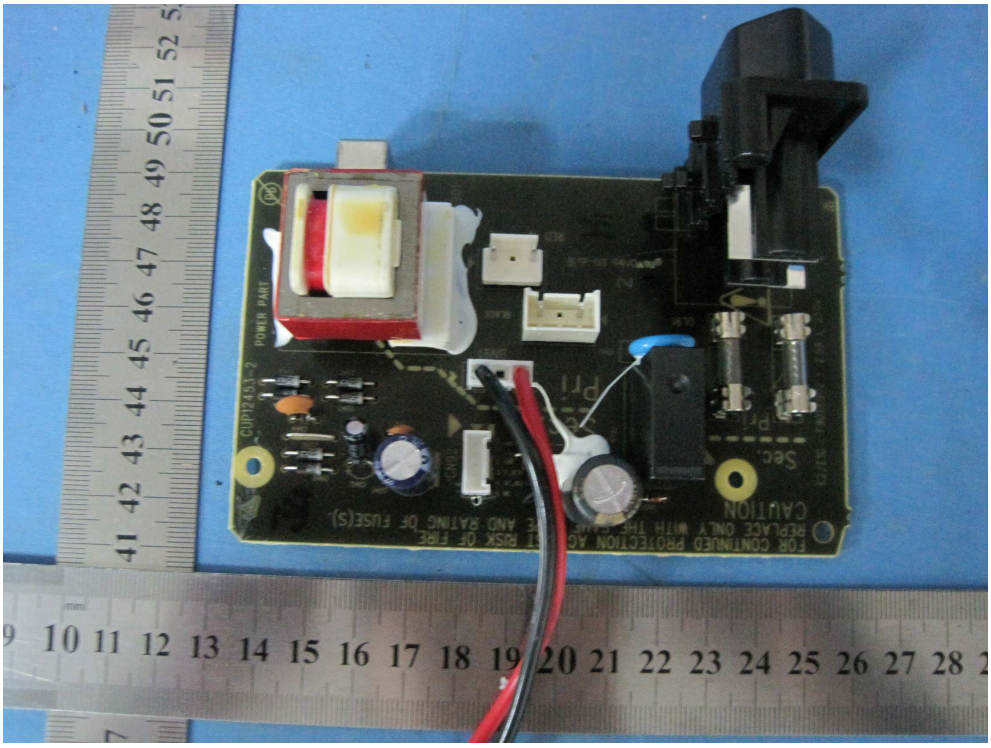
Internal view-1



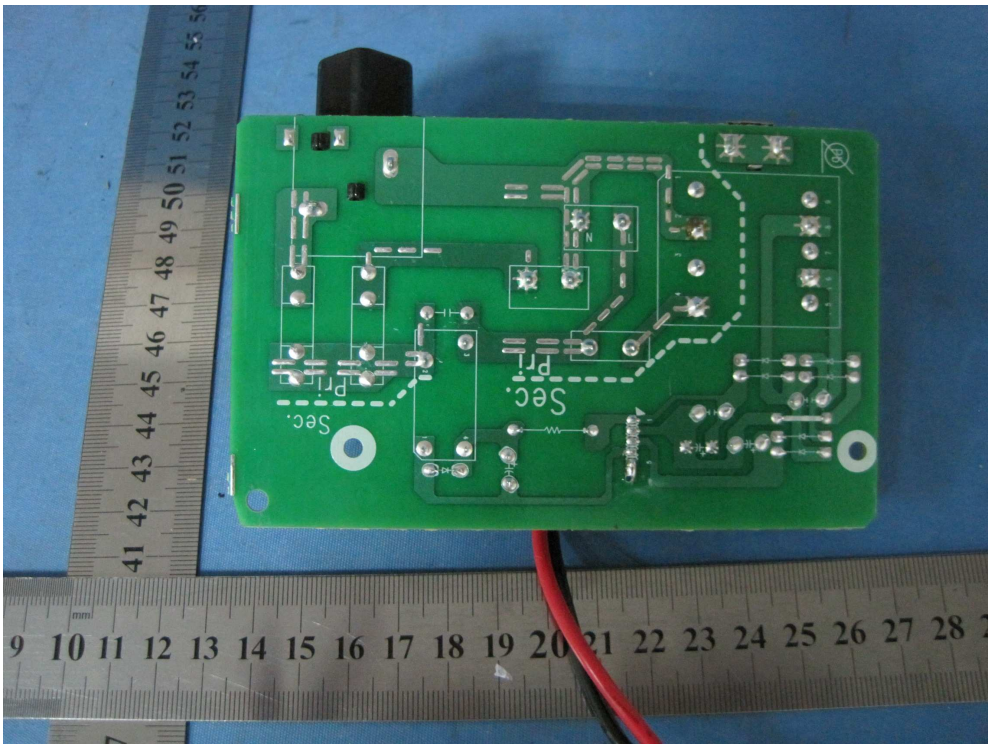
Internal view-2



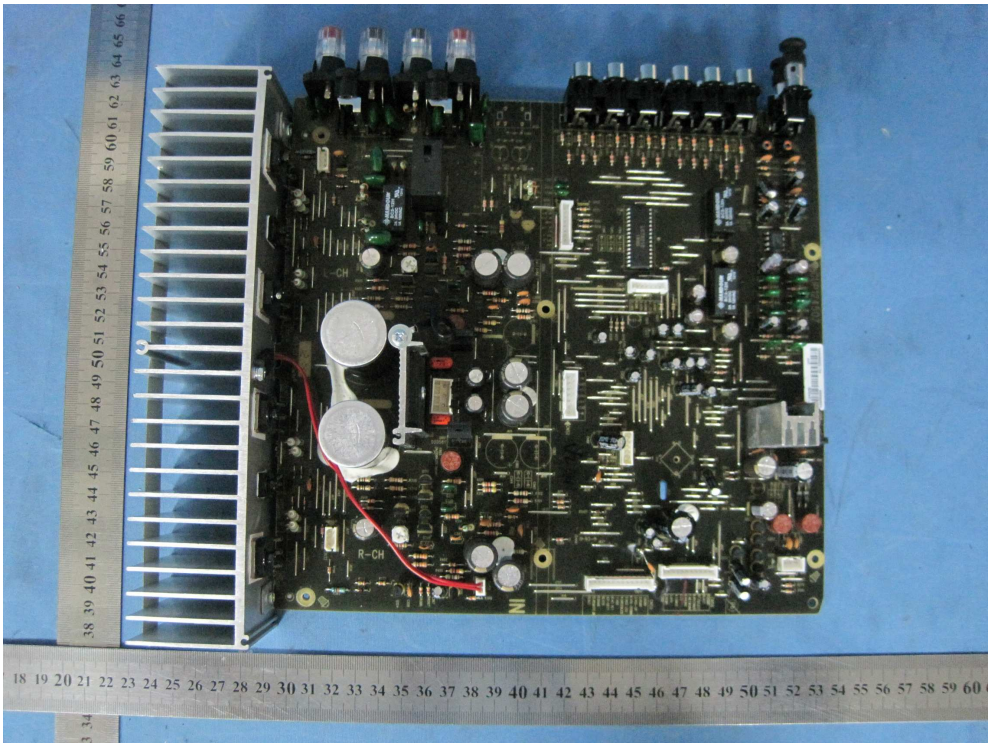
Internal view-3



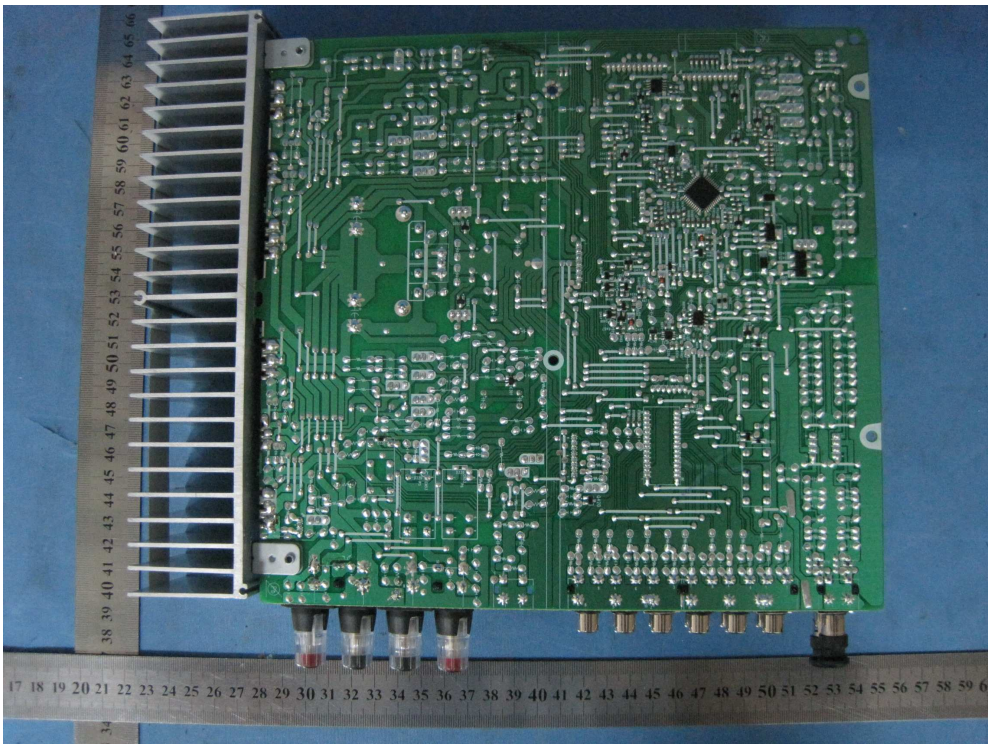
Component side view of power board



Soldering side view of power board



Component side view of Amplifier board



Soldering side view of Amplifier board

ATTESTATION
of conformity with European Directives

Product:	**INTERATED AMPLIFIER**
Brand Name:	**DENON**
Model:	**PMA-520AE**
Applicant:	**Anam Electronics (Dongguan) Co., Ltd**
Address:	**Xincheng Management Area, Liaobu Town, Dongguan City, Guangdong Province China.**
Technical Characteristics:	**Power input: AC 230V~ 50/60Hz 185W**

The submitted sample of the above equipment has been tested for CE marking according to following European Directive and standards:

- **Electromagnetic Compatibility Directive 2004/108/EC**

Standards	Report Number	Report date
EN 55013:2001 + A1:2003 + A2:2006 **EN 61000-3-2:2006 + A1:2009 + A2:2009** **EN 61000-3-3:2008** **EN 55020:2007 + A11:2011**	**CE120424N019**	**May 14, 2012**

The referred test report(s) show that the product complies with standard(s) recognized as giving presumption of compliance with the essential requirements in the specified European Directive.

This verification does not imply assessment of the production of the product. The CE marking may be affixed if all relevant and effective European Directives with CE are applicable.

Manager
EMC Department

Name: Sam Tung
Date: May 14, 2012

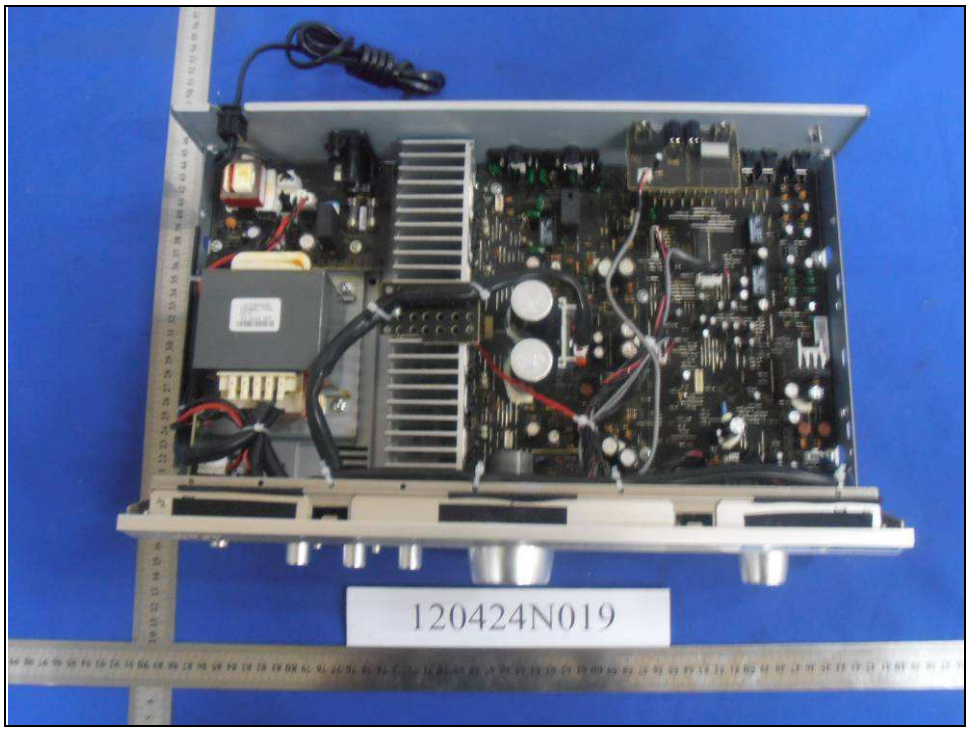
This document shall not be reproduced, except in full, without the written approval of
Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch.
Information given in this document is related to the tested specimen of the described electrical sample.

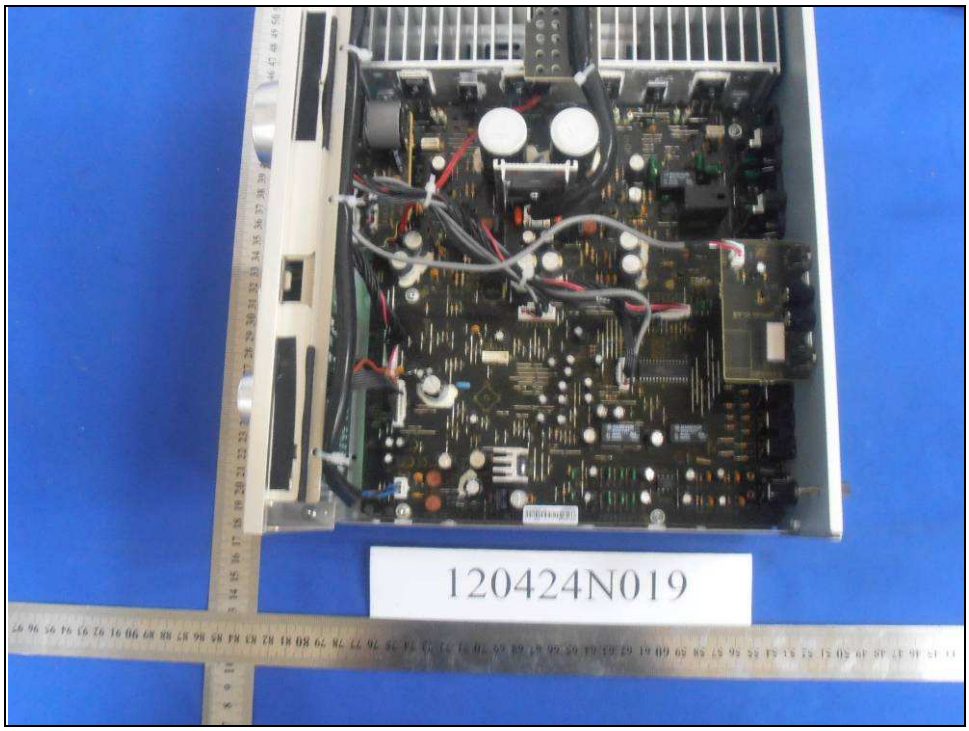
Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

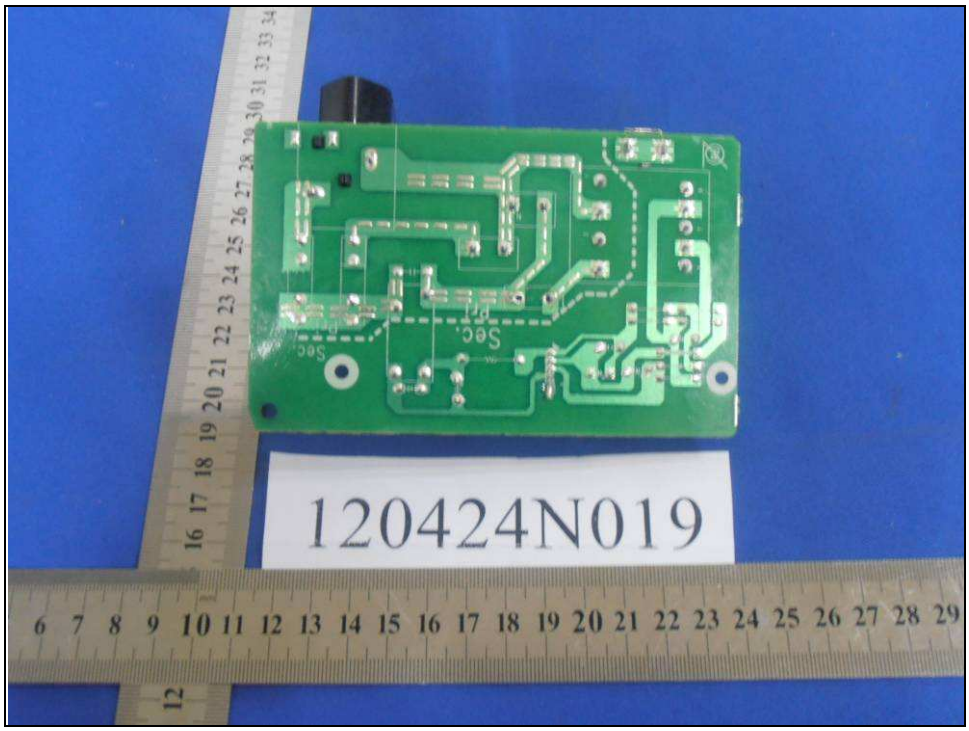
No. 34, Chenwulu Section, Guantai Rd.,
Houjie Town, Dongguan City,
Guangdong 523942, China

Tel.: +86 769 8593 5656
Fax: +86 769 8593 1080
Email: customerservice.dg@cn.bureauveritas.com

PHOTOGRAPHS OF THE EUT


120424N019


120424N019



Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd., Houjie Town, Dongguan City, Guangdong 523942, China

Tel.: +86 769 8593 5656
Fax: +86 769 8593 1080
Email: customerservice.dg@cn.bureauveritas.com

Bureau Veritas Shenzhen Co., Ltd.
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd., Houjie Town, Dongguan City, Guangdong 523942, China

Tel.: +86 769 8593 5656
Fax: +86 769 8593 1080
Email: customerservice.dg@cn.bureauveritas.com

ANAM ELECTRONICS CO., LTD.
27, Digital-ro 27ga-gil, Guro-gu, Seoul, Korea TEL.: 82-2-6424-4894

EMI TEST REPORT

Reference No. 54121607E

Electromagnetic compatibility of multimedia equipment - Emission requirements

Equipment Under Test

Equipment : Integrated Amplifier

Type/Model : PMA-520AE

Brand Name : DENON

Manufacturer : D&M Holdings Inc.

Total page of this report: 15(including this page)

SUMMARY

Referring to the performance criteria and the operation mode during the test specified in this report the equipment does comply with the requirements according to EN 55032 : 2015(Class B). The test results in this report apply only to the sample(s) tested.

Report Issued : July 26, 2016 EUT Received : July 19, 2016

Tested by: Approved by:

H. K. Jung/ Assistant Engineer B. S. Lee / Researching Engineer

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

CONTENTS

Page

1. Client Information 3

2. Equipment under test (EUT) 3
- 2.1. Identification of the EUT
- 2.2. Additional information about the EUT

3. Test specifications 4
- 3.1. Standard
- 3.2. Additions, Deviations and Exclusions from standard
- 3.3. Purpose of the test
- 3.4. Mode of operation during the test

4. Test summary 4

5. Conducted emissions from the AC mains power ports and asymmetric mode conducted emissions 5
- 5.1. Operating environment
- 5.2. Test set-up and procedure
- 5.3. Measurement uncertainty
- 5.4. Test instrumentation
- 5.5. Test protocol

6. Radiated emissions 7
- 6.1. Operating environment
- 6.2. Test set-up and procedure
- 6.3. Measurement uncertainty
- 6.4. Test instrumentation

8. Photograph of Product 10

9. Photograph of the test set-up 13

Annex - Measurement data;

Annex A : Conducted emissions from the AC mains power ports and asymmetric mode conducted emissions (2 Copies) 14

1. CLIENT INFORMATION

The EUT has been tested by request of:

* Company	D&M Holdings Inc. D&M Building, 2-1 Nisshin-cho, Kawasaki-ku, Kawasaki-shi, Kanagawa-ken, 210-8569, JAPAN

2. EQUIPMENT UNDER TEST (EUT)

2.1. Identification of the EUT

*Equipment	Integrated Amplifier
*Model No.	PMA-520AE
*Brand Name	DENON
*Serial No.	4101201137
*Manufacturer	D&M Holdings Inc. D&M Building, 2-1 Nisshin-cho, Kawasaki-ku, Kawasaki-shi, Kanagawa-ken, 210-8569, JAPAN
*Power Rating	AC 230V~, 50/60Hz, 185W
*External signal	SPEAKER L/R
*In/Out terminal	AUDIO : PHONO, CD, TUNER, AUX, NETWORK RECORDER PB/REC REMOTE CONTROL PHONES AC OUTLET

2.2. Additional Information about the EUT

The EUT consists of the following Subsystems/Modules/Parts: N/A

The test have been performed on the EUT provided with the following modifications : None.

3. TEST SPECIFICATIONS

3.1. Standards

*EN55032 : 2015(Class B)

Electromagnetic compatibility of multimedia equipment

- Emission requirements - Limits and methods of measurement.

3.2. Additions, deviations and exclusions from standard

No additions, deviations or exclusions have been made from standard.

3.3. Purpose of the test:

To determine whether the EUT fulfils the EMC-emission requirements of the Standards stated in section 3.1.

3.4. Mode of operation during the test

The EUT was operated in such a way as to deliver one-eighth on the non-clipped output power to the rated load impedance using the sinusoidal of 1 ㎑ & color-bar.

The EUT was set to the mode of Tuner.

4. TEST SUMMARY

The results in this report apply only to sample(s) tested:

Test item	Passed the test	Note
Conducted emissions from the AC mains power ports and asymmetric mode conducted emissions	Yes	
Radiated emissions	Yes	

The equipment does comply with the requirements.

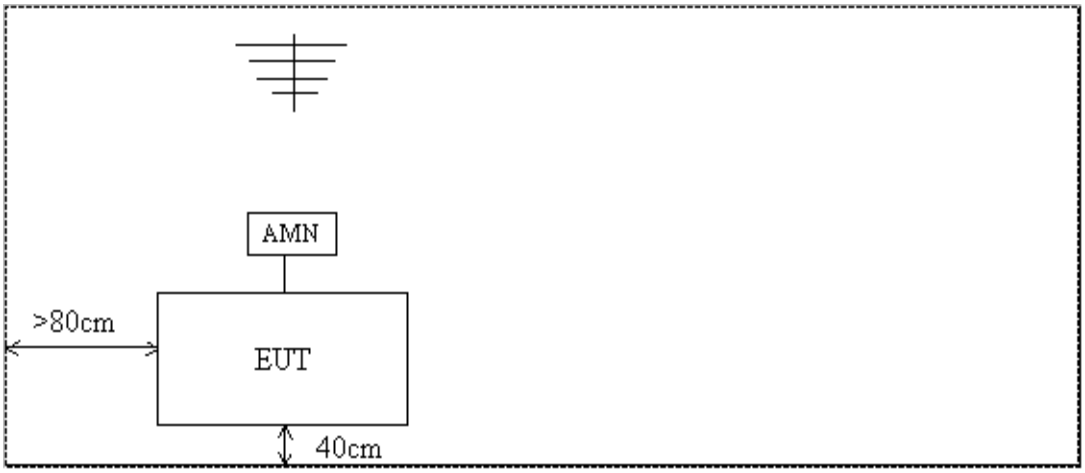
For the measurement data, see Annex.

5. Conducted emissions from the AC mains power ports and asymmetric mode conducted emissions

5.1. Operating environment

Temperature : 21℃
Relative humidity : 42 %

5.2. Test set-up and procedure



The mains terminal disturbance voltage was measured with the EUT in a Screened room. The EUT was placed on a non-metallic table by 0.8m above the metallic grounded floor and 0.4m from the reference ground panel (RGP) wall. The distance to other metallic surfaces was at least 0.8m.
The EUT was tested with the outer conductor of the antenna input connected as well as not connected to the ground terminal of the AMN.
The level of the test signal was 500mV (1 KHz) at coaxial RF input connector.
Amplitude measurements were performed with a quasi-peak detector and, If required, with an average detector.

5.3. Measurement uncertainty

Mains terminal disturbance voltage, quasi-peak detection: ±2.0dB
Mains terminal disturbance voltage, average detection : ±2.0dB
The measurement uncertainty describes the overall uncertainty of the given measured value during the operation of the EUT in the above-mentioned way.

5.4. Test instrument

Equipment	Manufacturer	Type No.	Serial No.
Test site	Shielded room	-	-
Measurement Receiver	R & S	ESCI	100348
Artificial mains Network	R & S	ESH3-Z5	844249/020
	EMCO	3825/2	90101718
Test Compact Disc	Abex	TCD-782	N/A
R. C. Oscillator	Kenwood	AG-203A	3090241
Signal Generator	Anritsu	MG3632A	MT79870
USB	Sony	Memoy Stick	N/A
iPhone	Apple	iPhone	N/A

* R & S: Rohde & Schwarz

5.5. Test protocol

Date: July 19, 2016

Ungrounded at the Signal GND Terminal on the Rear Enclosure.

An overview sweep performed with peak detector is included in the test report as Annex A

Mode	Freq. (㎒)	Quasi-peak (dBμV)			Cispr Average (dBμV)		
		Limit	Disturbance value		Limit	Disturbance value	
			Line 1	Line 2		Line 1	Line 2
Analog	1.610	56.0	26.8	*	46.0	18.8	*
Analog	1.646	56.0	*	28.5	46.0	*	19.0

The equipment does comply with the requirements.

For the measurement data, see Annex A (2 Copies).

6. RADIATED EMISSIONS

6.1. Operating environment

Temperature : 21℃
Relative humidity : 42%

6.2. Test set-up and procedure

The measurement was performed on a semi anechoic chamber with a reference ground plane and at a distance of 3m. The height of the measuring antenna was varied between 1 to 4m and the table was rotated a full revolution in order to obtain maximum value of the electric field intensity. The measurement was made in both the vertical and horizontal polarization, and the maximum value is presented in the report.

The measurement was performed with a quasi-peak detector.

Disturbance radiation due to the fundamental and harmonic frequencies of the local oscillator and the other source were measured on a selected number of FM sound broadcast channels. About the Disturbance radiation value from the other source, the sixteen maximum values were recorded.

The test was measured with the main unit and the remote control unit.

6.3. Measurement uncertainty

Radiated disturbance electric field intensity, 30 ~ 300 ㎒: ±2.0 ㏈
Radiated disturbance electric field intensity, 300 ~ 1,000 ㎒: ±2.0 ㏈

The Measurement uncertainty describes the overall uncertainty of the given measured value during operation of the EUT in the above-mentioned way.

6.4. Test instrumentation

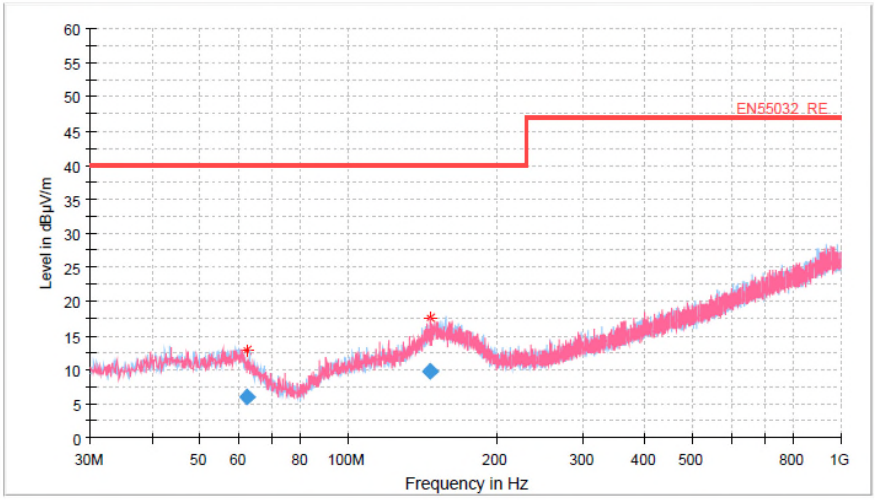
Equipment	Manufacturer	Type No.	Serial No.
Test site	3m Anechoic Chamber		-
Measurement Receiver	R & S	ESCI	100348
Measurement Receiver	R & S	ZVL	101568
Signal Generator	Anritsu	MG3632A	MT79870
Test Compact Disc	Abex	TCD-782	N/A
Bi-conical Ant.	Schwarzbeck	VHA9103	9103 1135
Log-periodic Ant.	Schwarzbeck	UHALP 9108-A	91081098
Trilog Super Broadband test Antena	Schwarzbeck	VULB9161SE	9161 4109
Horn Antenna	Schwarzbeck	BBHA 9120D	9120D 122
Pre amplifier	HP	8447F	3113A06859
Signal Conditioning Unit	R & S	SCU18	102278
Ant. Master	INNCO		
Turn table	INNCO		

Radiated emission

Common Information

Test Description:	Radiated emission
Test Site:	ANAM EMC 3m Anechoic Chamber
Test Standard:	EN55032
Environment Conditions:	1KHz sine wave play at Analog
Operator Name:	H.K.Jung
Comment:	PMA-520AE Test Date : 2016.07.20

Full Spectrum



Final_Result

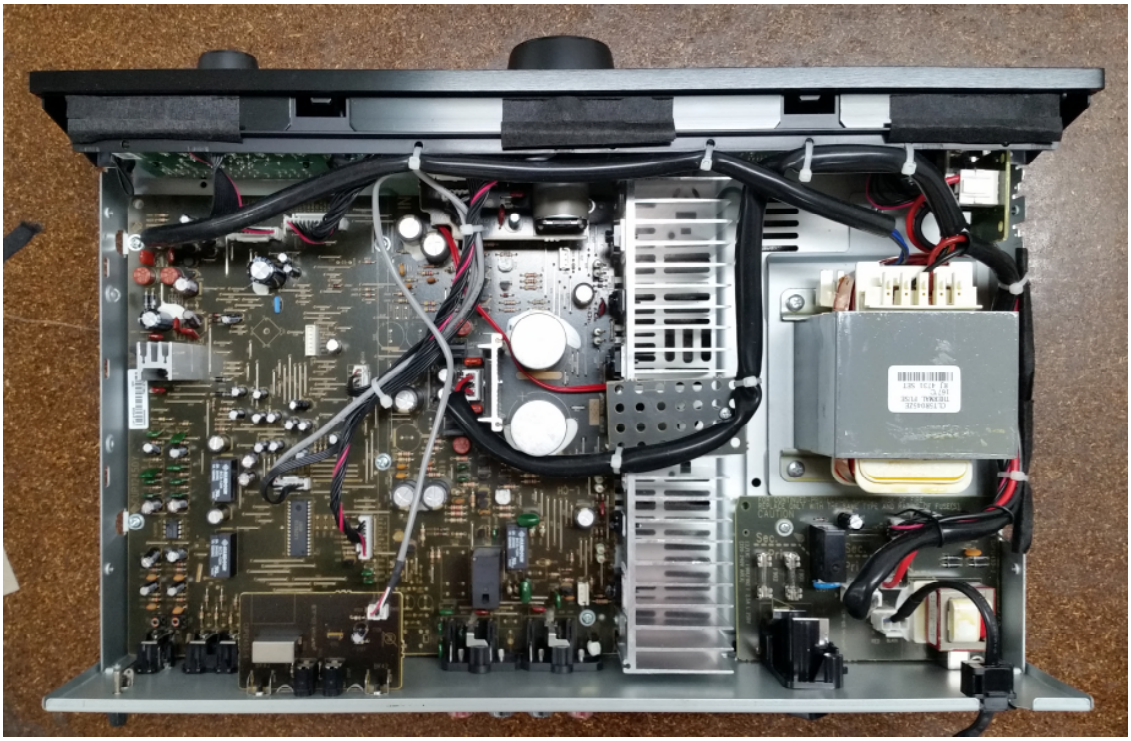
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
62.141250	5.94	40.00	34.06	15000.0	120.000	125.0	H	239.0	-15.6
147.122500	9.81	40.00	30.19	15000.0	120.000	100.1	V	163.0	-11.1

7. Photograph of the EUT

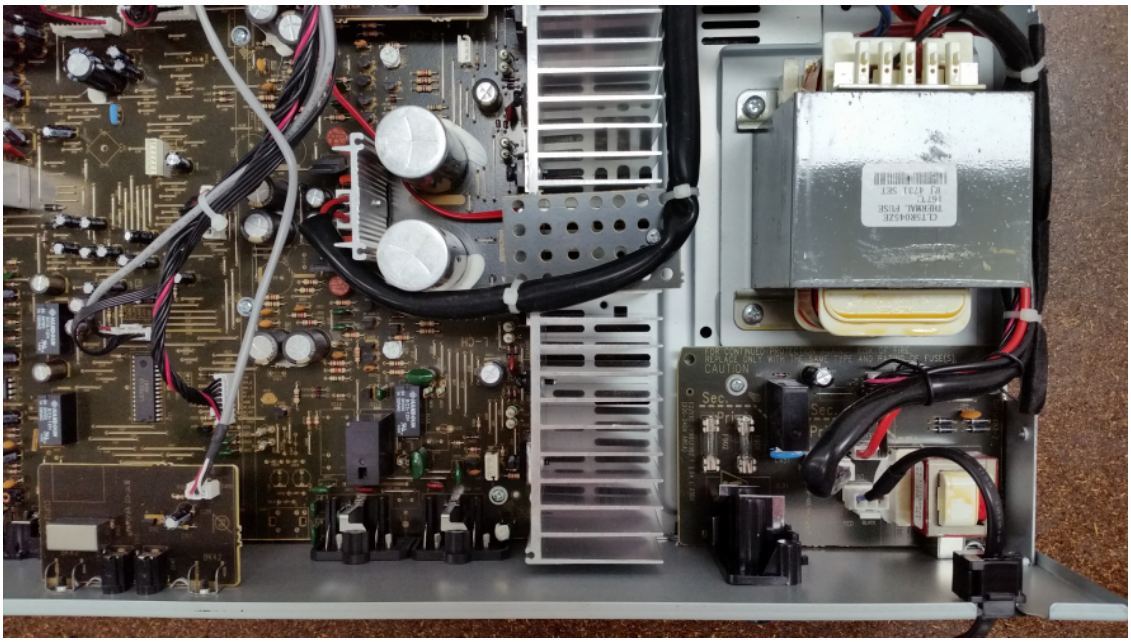
7.1 Front of the EUT

7.2 Rear of the Product

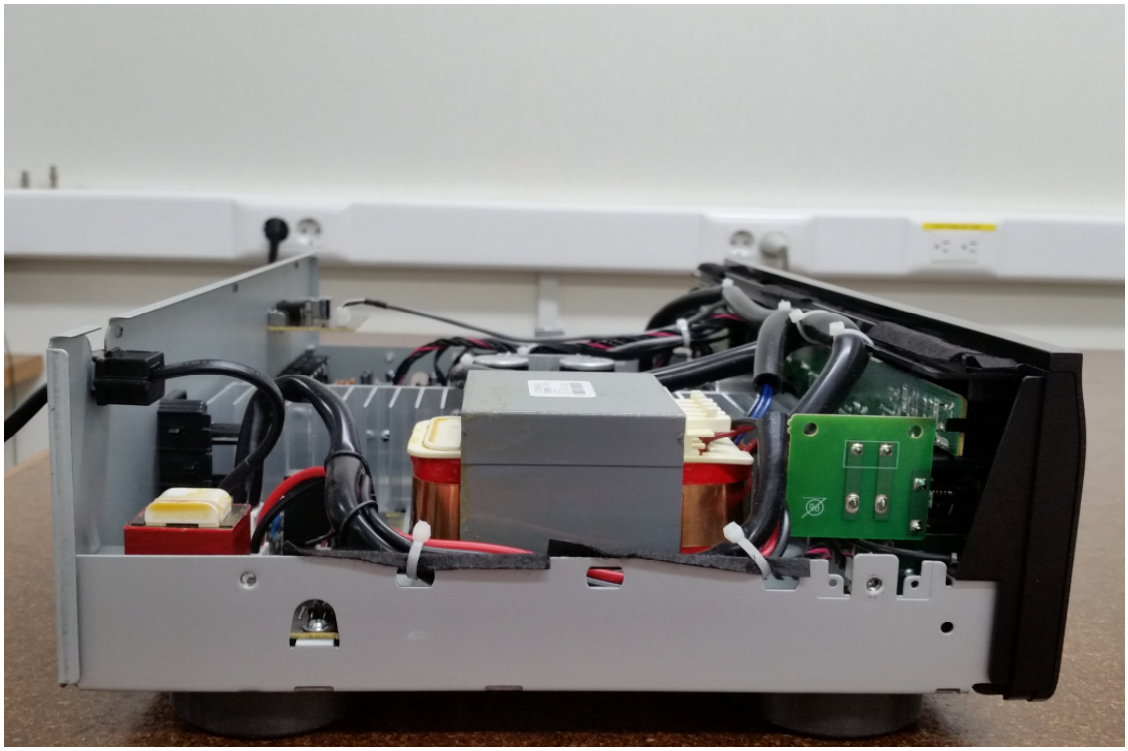
7.3 Inside view 1 of Product



7.4 Inside view 2 of the Product



7.5 Inside view 3 of the Product

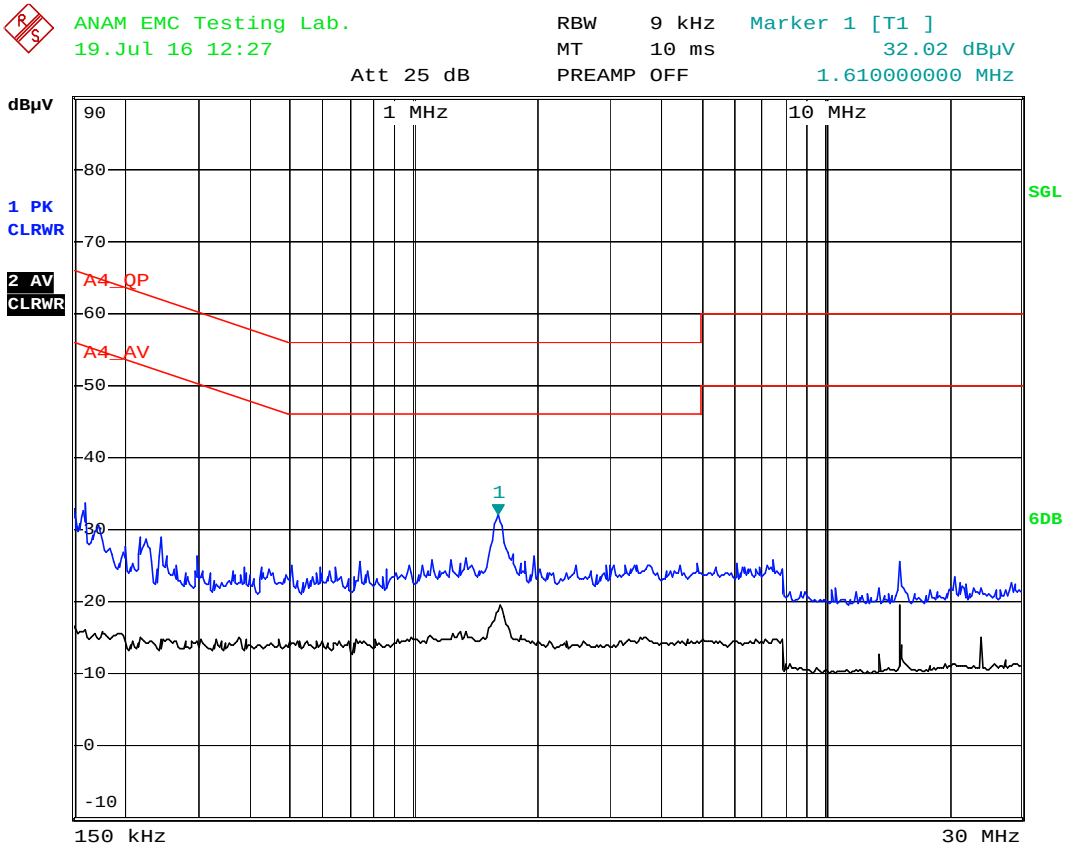


8. Photograph of the test set-up

8.1 Conducted emissions from the AC mains power ports and asymmetric mode conducted emissions Set-up

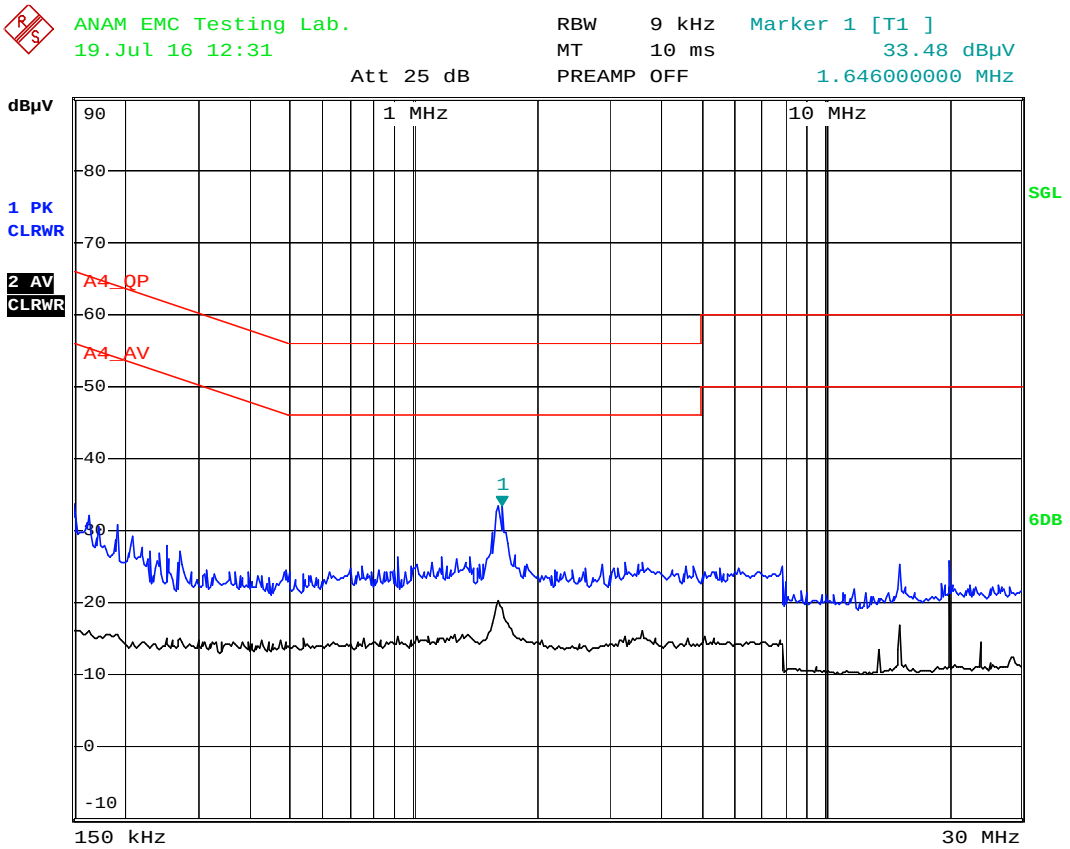
8.2 Radiated emission Set-up

Annex A: Conducted emissions from the AC mains power ports



PMA-520AE_Nonground line1(1KHz sine wave Play at Analog)

Date: 19.JUL.2016 12:27:02



PMA-520AE_Nonground line2(1KHz sine wave Play at Analog)

Date: 19.JUL.2016 12:31:55

Test Lab
Cert 2951.01

TEST REPORT

Applicant	Anam Electronics (Dongguan) Co., Ltd
Address	Xincheng Management Area, Liaobu Town, Dongguan City, Guangdong Province China.

Manufacturer or Supplier	D&M HOLDINGS INC.	
Address	2-1 Nisshin-Cho, Kawasaki-ku, Kawasaki-Shi Kanagawa. 210-8569 Japan.	
Product	INTERATED AMPLIFIER	
Brand Name	DENON	
Model	PMA-520AE	
Additional Model & Model Difference	N/A	
Date of tests	Apr. 25 ~ May 14, 2012	

The submitted sample of the above equipment has been tested for according to following European Directiv - Electromagnetic directive 2004/108/EC and the tests have been carried out according to the requirements of the following standards:

☒ **EN 55013:2001+A1:2003+A2:2006**
☒ **EN 61000-3-2:2006+A1:2009+A2:2009,**
☒ **EN 61000-3-3:2008**
☒ **EN 55020:2007+A11:2011**

CONCLUSION: The submitted sample was found to <u>COMPLY</u> with the test requirement

Tested by Jerry Fu Project Engineer/ EMC Department	Approved by Sam Tung Manager / EMC Department
	Date: May 14, 2012

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification

Table of Contents

RELEASE CONTROL RECORD 4
1 SUMMARY OF TEST RESULTS 5
1.1 MEASUREMENT UNCERTAINTY 6
2 GENERAL INFORMATION 7
2.1 GENERAL DESCRIPTION OF EUT 7
2.2 DESCRIPTION OF TEST MODES 8
2.3 GENERAL DESCRIPTION OF APPLIED STANDARDS 10
2.4 DESCRIPTION OF SUPPORT UNITS 11
3 EMISSION TEST 12
3.1 MAINS TERMINAL DISTURBANCE VOLTAGE MEASUREMENT 12
3.1.1 LIMITS OF MAINS TERMINAL DISTURBANCE VOLTAGE MEASUREMENT 12
3.1.2 TEST INSTRUMENTS 12
3.1.3 TEST PROCEDURE 13
3.1.4 DEVIATION FROM TEST STANDARD 13
3.1.5 TEST SETUP 14
3.1.6 EUT OPERATING CONDITIONS 15
3.1.7 TEST RESULTS 16
3.1.8 TEST RESULTS 17
3.2 DISTURBANCE POWER EMISSIONS MEASUREMENT 18
3.2.1 LIMITS OF DISTURBANCE POWER EMISSIONS MEASUREMENT 18
3.2.2 TEST INSTRUMENTS 18
3.2.3 TEST PROCEDURE 19
3.2.4 DEVIATION FROM TEST STANDARD 19
3.2.5 TEST SETUP 20
3.2.6 EUT OPERATING CONDITIONS 20
3.2.7 TEST RESULTS 21
3.3 HARMONICS CURRENT MEASUREMENT 22
3.3.1 LIMITS OF HARMONICS CURRENT MEASUREMENT 22
3.3.2 TEST INSTRUMENTS 22
3.3.3 TEST PROCEDURE 23
3.3.4 DEVIATION FROM TEST STANDARD 23
3.3.5 TEST SETUP 24
3.3.6 EUT OPERATING CONDITIONS 24
3.3.7 TEST RESULTS 25
3.4 VOLTAGE FLUCTUATION AND FLICKS MEASUREMENT 27
3.4.1 LIMITS OF VOLTAGE FLUCTUATION AND FLICKS MEASUREMENT 27
3.4.2 TEST INSTRUMENTS 27
3.4.3 TEST PROCEDURE 27
3.4.4 DEVIATION FROM TEST STANDARD 27
3.4.5 TEST SETUP 28
3.4.6 EUT OPERATING CONDITIONS 28
3.4.7 TEST RESULTS 29
4 IMMUNITY TEST 30

4.1 GENERAL DESCRIPTION 30
4.2 GENERAL PERFORMANCE CRITERIA DESCRIPTION 31
4.3 EUT OPERATING CONDITION.....31
4.4 IMMUNITY FROM CONDUCTED VOLTAGES (S2A).....32
4.4.1 TEST LIMIT 32
4.4.2 TEST INSTRUMENTS 33
4.4.3 TEST PROCEDURE..... 33
4.4.4 DEVIATION FROM TEST STANDARD 33
4.4.5 TEST SETUP 34
4.4.6 TEST RESULTS (REFER TO APPENDIX B) 34
4.5 IMMUNITY FROM RADIATED FIELDS (S3) 35
4.5.1 TEST LIMIT 35
4.5.2 TEST INSTRUMENTS 35
4.5.3 TEST PROCEDURE..... 35
4.5.4 DEVIATION FROM TEST STANDARD 36
4.5.5 TEST SETUP 36
4.5.6 TEST RESULTS - (REFER TO APPENDIX B) 36
4.6 ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD) 37
4.6.1 TEST SPECIFICATION 37
4.6.2 TEST INSTRUMENTS 37
4.6.3 TEST PROCEDURE..... 38
4.6.4 DEVIATION FROM TEST STANDARD 38
4.6.5 TEST SETUP 39
4.6.6 TEST RESULTS..... 40
4.7 RADIATED, RADIO-FREQUENCY, ELECTROMAGNETIC FIELD IMMUNITY TEST (RS) 41
4.7.1 TEST SPECIFICATION 41
4.7.2 TEST INSTRUMENTS 41
4.7.3 TEST PROCEDURE..... 42
4.7.4 DEVIATION FROM TEST STANDARD 43
4.7.5 TEST SETUP 43
4.7.6 TEST RESULTS..... 44
4.8 ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST (EFT) 45
4.8.1 TEST SPECIFICATION 45
4.8.2 TEST INSTRUMENTS 45
4.8.3 TEST PROCEDURE..... 45
4.8.4 DEVIATION FROM TEST STANDARD 45
4.8.5 TEST SETUP 46
4.8.6 TEST RESULTS..... 47

5 PHOTOGRAPHS OF THE TEST CONFIGURATION..... 48

6 PPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB 54

7 APPENDIX B – MEASUREMENT DATA 55

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release:	N/A	May 14, 2012

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

EMISSION			
Standard	**Test Type**	**Result**	**Remarks**
EN 55013:2001 +A1:2003+A2:2006	Mains Terminal Disturbance Voltage Test	PASS	Minimum passing margin is – 15.99dB at 4. 32588MHz
	Disturbance Power emissions test	PASS	Minimum passing margin is – 12.69dB at 37.81250MHz
EN 61000-3-2:2006 +A1:2009+A2:2009	Harmonic current emissions	PASS	Meets the requirements.
EN 61000-3-3:2008	Voltage fluctuations & flicker	PASS	Meets the requirements.

IMMUNITY (EN 55020:2007)			
Standard	**Test Type**	**Result**	**Remarks**
EN 55020:2007 +A11:2011	Immunity from conducted voltages (S2a)	PASS	Meets the requirements.
	Immunity from radiated fields (S3)	PASS	Meets the requirements.
IEC 61000-4-2:2008	Electrostatic discharge immunity test	PASS	Meets the requirements of Standards. Performance Criterion A
IEC 61000-4-3: 2006+A1+A2:2010	Radiated, radio-frequency, electromagnetic field immunity test	PASS	Meets the requirements Performance Criterion A
IEC 61000-4-4:2010	Electrical fast transient / burst immunity test.	PASS	Meets the requirements Performance Criterion A

1.1 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:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Mains Terminal Disturbance Voltage Test	0.15MHz ~ 30MHz	+/-2.56 dB
Disturbance Power emissions test	30MHz ~ 300MHz	+/-2.56 dB

“This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.”

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT OF EUT	INTERATED AMPLIFIER
MODEL NO.	PMA-520AE
POWER SUPPLY	Power input: AC 230V~ 50/60Hz 185W
DATA CABLE SUPPLIED	AC Line: Unshielded, Undetachable 1.8m

NOTE:

1. For the test results, the EUT had been tested with all conditions. But only the worst case was showed in test report.
2. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.2 DESCRIPTION OF TEST MODES

The EUT was tested under the following modes' the final worst mode were marked in boldface and recorded in this report.

◆ FOR Mains Terminal Disturbance Voltage Test:

Aux In (Playing with 1kHz signal)
Phono In (Playing with 1kHz signal)
CD In (Playing with 1kHz signal)
Tuner In (Playing with 1kHz signal)
Network In (Playing with 1kHz signal)

◆ DISTURBANCE POWER EMISSIONS TEST

Aux In (Playing with 1kHz signal)	Phono Input Line CD Input Line Tuner Input Line Aux Input Line Network Input Line Recorder Pb Line Recorder Rec Line Prc Out Line Speakers (A+R) Line Speakers (A+L) Line Speakers (B+R) Line Speakers (B+L) Line **AC Line**
Phono In (Playing with 1kHz signal)	
CD In (Playing with 1kHz signal)	
Tuner In (Playing with 1kHz signal)	
Network In (Playing with 1kHz signal)	

◆ HARMONIC & FLICKERED TESTS

Aux In (Playing with 1kHz signal)

◆ FOR ESD & EFT &R/S TEST:

Aux In (Playing with 1kHz signal)
Phono In (Playing with 1kHz signal)
CD In (Playing with 1kHz signal)
Tuner In (Playing with 1kHz signal)
Network In (Playing with 1kHz signal)

◆ IMMUNITY FROM CONDUCTED VOLTAGES (S2a)

Test Item	Interference Signal:
Aux In (Playing with 1kHz signal)	1kHz AM80%
Tuner In (Playing with 1kHz signal)	1kHz AM80%
CD In (Playing with 1kHz signal)	1kHz AM80%

◆ IMMUNITY FROM RADIATED FIELDS (S3)

Test Item	Interference Signal:
Aux In (Playing with 1kHz signal)	1kHz AM80%
Tuner In (Playing with 1kHz signal)	1kHz AM80%
CD In (Playing with 1kHz signal)	1kHz AM80%

2.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

According to the specifications of the manufacturers, the EUT must comply with the requirements of the following standards:

EN 55013:2001 + A1:2003 + A2:2006

EN 61000-3-2:2006 + A1:2009 + A2:2009

EN 61000-3-3:2008

EN 55020:2007 + A11:2011

S2a, Immunity from conducted voltages

S3, Immunity from radiated fields

IEC 61000-4-2:2008

IEC 61000-4-3:2010

IEC 61000-4-4:2004 + A1:2010

The EUT is without tuner function and therefore the test items **S1, S2b & S4** were not tested.

All applicable tests have been performed and recorded as per the above standards.

2.4 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.

Note: There is no support units

3 EMISSION TEST

3.1 MAINS TERMINAL DISTURBANCE VOLTAGE MEASUREMENT

3.1.1 LIMITS OF MAINS TERMINAL DISTURBANCE VOLTAGE MEASUREMENT

TEST STANDARD: EN 55013

EQUIPMENT TYPE	FREQUENCY RANGE (MHz)	LIMITS (dB (uV))	
		Quasi-peak	Average
Television and sound receivers and associated equipment	0.15 to 0.5 0.5 to 5 5 to 30	66 to 56* 56 60	56 to 46* 46 50
* Decreasing linearly with the logarithm of the frequency.			

Note: 1. If the limits for the average are met when using the quasi-peak detector, then the limits for the measurements with the average detector are considered to be met.
2. The higher value measured with and without the aerial input outer conductor screen connected to earth is considered.
3. Television receivers with teletext facilities should be tested in teletext mode with teletext picture.

3.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESU 26	100005	May 25,11	May 25,12
Artificial Mains Network	Rohde&Schwarz	ENV216	101173	May 25,11	May 25,12
Artificial Mains Network	Rohde&Schwarz	ESH2-Z5	100071	May 25,11	May 25,12
Impedance Stabilization Network	TESEQ	ISN T800	27957	Oct 16,11	Oct 16,12
Test Software	ADT	ADT_Cond_V7.3.7	N/A	N/A	N/A

NOTE:

1. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA and NIM/CHINA.
2. The test was performed in shielded room 553.

3.1.3 TEST PROCEDURE

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20dB) were not recorded.

NOTE: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

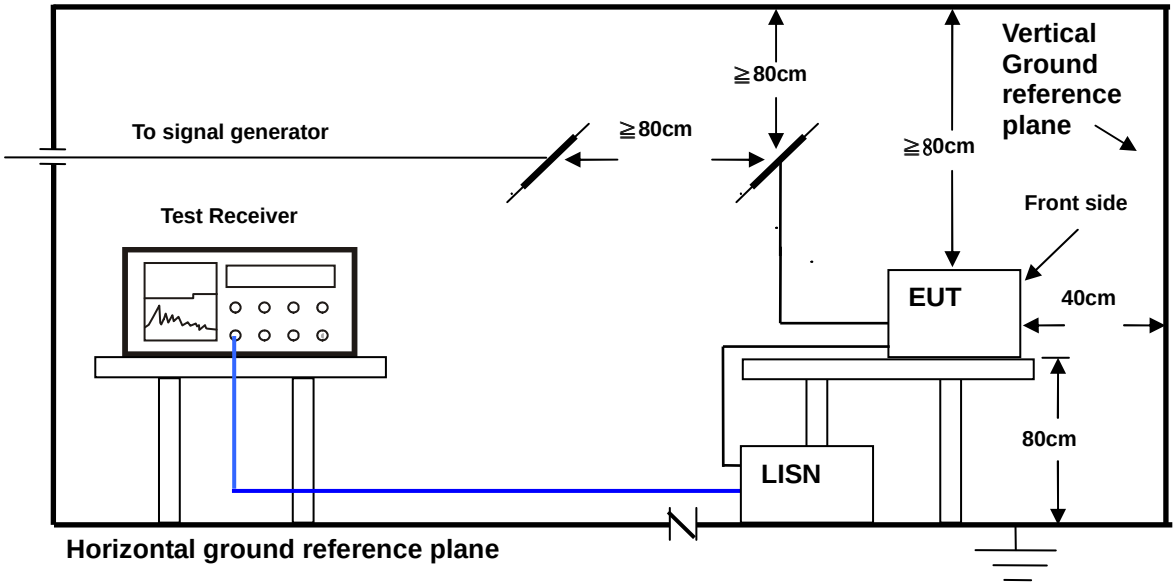
3.1.4 DEVIATION FROM TEST STANDARD

No deviation

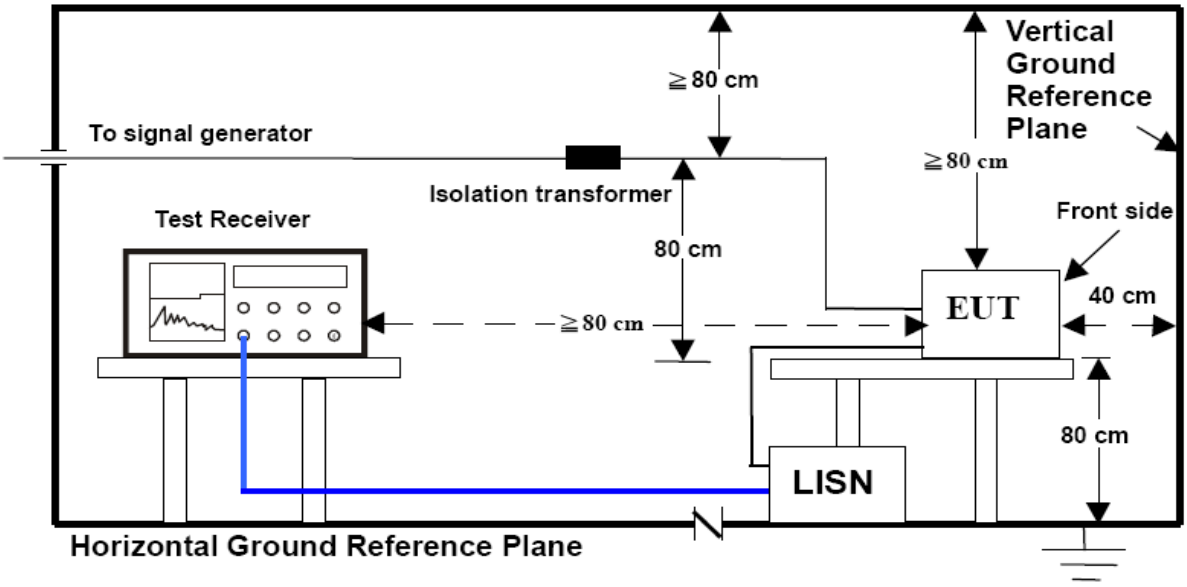
3.1.5 TEST SETUP

<For Analog signal in>

<For Digital signal in>



Note: Support units were connected to second LISN.



Note: Support units were connected to second LISN.

3.1.6 EUT OPERATING CONDITIONS

a. Turned on the power of all equipment.
b. EUT was operated according to the type used was description in manufacturer's specifications or the User's Manual.

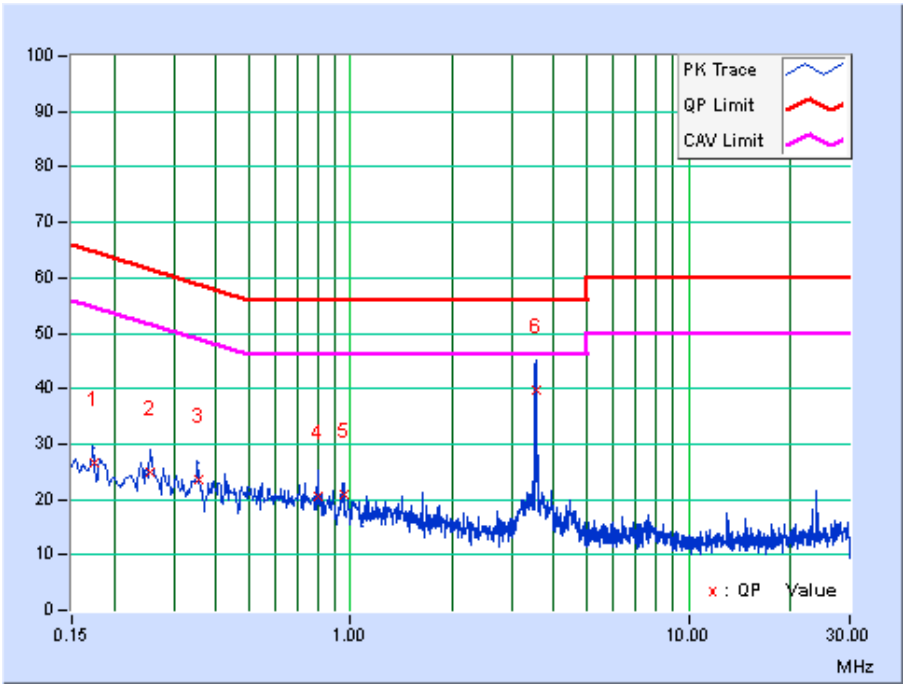
3.1.7 TEST RESULTS

TEST MODE	Aux In (Playing with 1KHz Signal)		
INPUT POWER	AC 230V/50Hz	**6dB BANDWIDTH**	9 kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 55% RH	**TESTED BY**: Robert	

PHASE OF POWER: LINE (L)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17374	9.79	16.95	9.09	26.74	18.88	64.78	54.78	-38.04	-35.90
2	0.25557	9.75	15.20	7.44	24.95	17.19	61.57	51.57	-36.62	-34.38
3	0.35389	9.76	13.89	6.03	23.65	15.79	58.87	48.87	-35.23	-33.09
4	0.79906	9.79	10.64	5.48	20.43	15.27	56.00	46.00	-35.57	-30.73
5	0.95546	9.79	10.92	6.74	20.71	16.53	56.00	46.00	-35.29	-29.47
6	3.55170	9.84	29.78	6.98	39.62	16.82	56.00	46.00	-16.38	-29.18

REMARKS: The emission levels of other frequencies were very low against the limit.

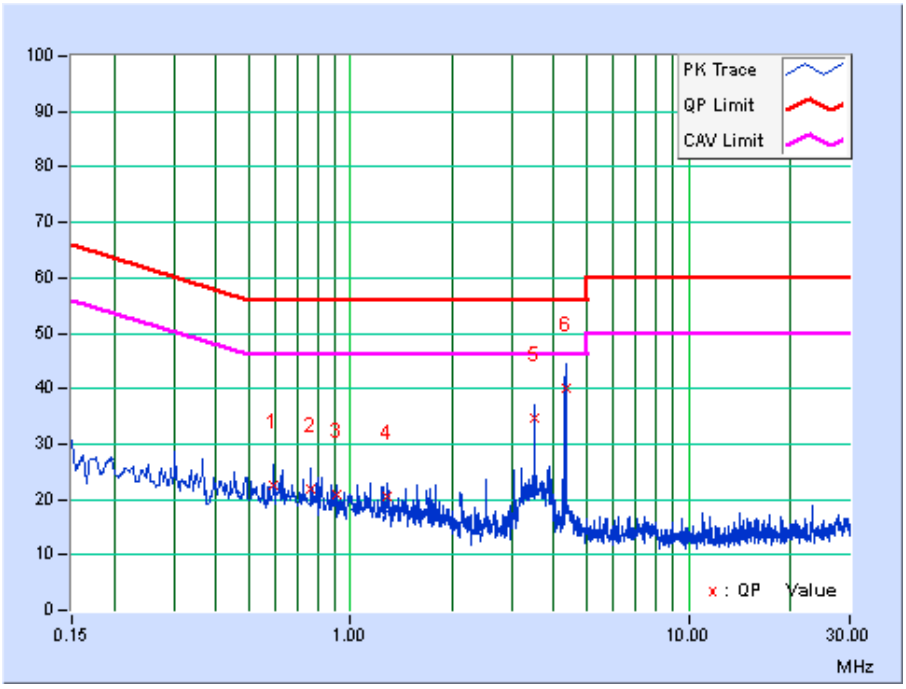


3.1.8 TEST RESULTS

TEST MODE	Aux In (Playing with 1KHz Signal)		
INPUT POWER	AC 230V/50Hz	**6dB BANDWIDTH**	9 kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 55% RH	**TESTED BY**: Robert	

PHASE OF POWER: NEUTRAL (N)										
No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.59183	9.78	12.92	6.84	22.70	16.62	56.00	46.00	-33.30	-29.38
2	0.76386	9.78	12.05	5.93	21.83	15.71	56.00	46.00	-34.17	-30.29
3	0.90854	9.77	11.03	5.05	20.80	14.82	56.00	46.00	-35.20	-31.18
4	1.29172	9.77	10.83	4.63	20.60	14.40	56.00	46.00	-35.40	-31.60
5	3.49305	9.83	24.93	5.06	34.76	14.89	56.00	46.00	-21.24	-31.11
6	**4.32588**	**9.84**	**30.17**	**7.64**	**40.01**	**17.48**	**56.00**	**46.00**	**-15.99**	**-28.52**

REMARKS: The emission levels of other frequencies were very low against the limit.



3.2 DISTURBANCE POWER EMISSIONS MEASUREMENT

3.2.1 LIMITS OF DISTURBANCE POWER EMISSIONS MEASUREMENT

TEST STANDARD: EN 55013

EQUIPMENT TYPE	FREQUENCY RANGE(MHz)	LIMITS dB (pW)	
		Quasi-peak	Average
Associated equipment (video recorder excluded)	30 to 300	45 to 55*	35 to 45*
* Increasing linearly with frequency.			

3.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESCS30	100340	May 25,11	May 25,12
Absorbing Clamp	Rohde&Schwarz	MDS-21	100084	Jun.04,11	Jun.04,12
Clamp Attenuation	Rohde&Schwarz	MDS-21	100084	May 25,11	May 24,12
Test Software	ADT	ADT_Clamp_V7.3.7	N/A	N/A	N/A

NOTE:

1. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to To CEPREI/CHINA and NIM/CHINA.
2. The test was performed in shield room 843.

3.2.3 TEST PROCEDURE

a. The EUT was placed on a non-metallic table at least 0.8m from other metallic objects.

b. The clamp was placed around the lead so as to measure a quantity proportional to the disturbance power on the lead.

c. The absorbing clamp is positioned for maximum indication at each test frequency, the clamp shall be moved along the lead until the maximum value is found .

d. The straight portion of the lead to be measured on should therefore be about 6m long , this being equal to λmax/2+0.6m .

e. If the original lead of the appliance is shorter than the necessary length it shall be extended or replaced by a similar lead.

f. Any plug or socket which will not pass through the absorbing clamp due to its size shall be removed.

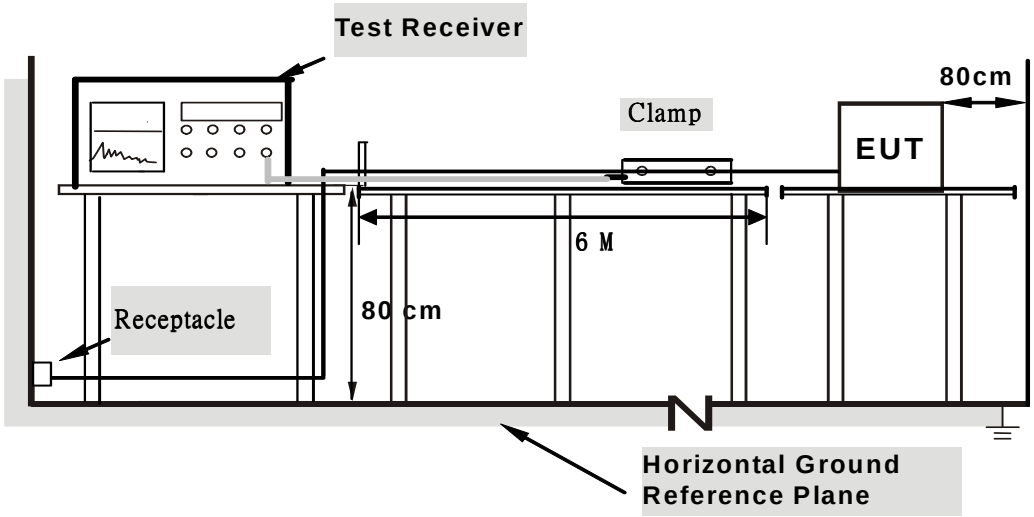
g. For each suspected emission, the EUT was arranged to its worst case and then the clamp was moved to lengths from 0 meter to 6 meters to find the maximum reading.

h. The test-receiver system was set to quasi-peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is from 30MHz – 300MHz.

3.2.4 DEVIATION FROM TEST STANDARD

No deviation

3.2.5 TEST SETUP



3.2.6 EUT OPERATING CONDITIONS

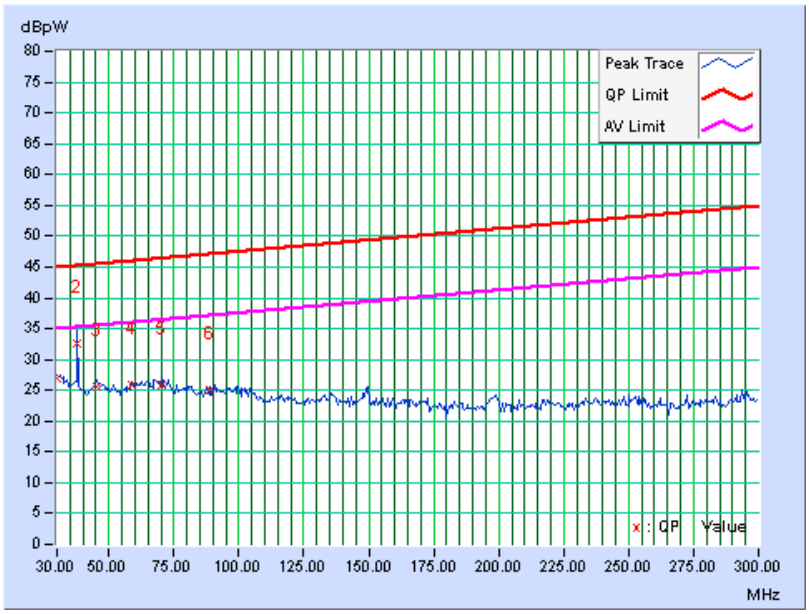
Same as item 3.1.6.

3.2.7 TEST RESULTS

TEST MODE	CD In(Playing with 1kHz signal); AC Line	**FREQUENCY RANGE**	30-300MHz
INPUT POWER	AC 230V/50Hz	**DETECTOR FUNCTION & BANDWIDTH**	Quasi-Peak/ Average, 120kHz
ENVIRONMENTAL CONDITIONS	25deg. C, 55% RH	**TESTED BY**: Robert	

NO	Freq.	Corr. Factor	Reading Value (dBpW)		Emission Level (dBpW)		Limit (dBpW)		Margin (dB)	
	(MHz)	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	30.25000	3.35	23.61	9.77	26.96	13.12	45.01	35.01	-18.05	-21.89
2	**37.81250**	**1.66**	**30.94**	**9.67**	**32.60**	**11.33**	**45.29**	**35.29**	**-12.69**	**-23.96**
3	45.37500	2.13	23.57	8.63	25.70	10.76	45.57	35.57	-19.87	-24.81
4	59.06250	1.30	24.67	8.94	25.97	10.24	46.08	36.08	-20.11	-25.84
5	70.00000	1.27	24.54	8.64	25.81	9.91	46.48	36.48	-20.67	-26.57
6	88.87500	0.51	24.49	9.43	25.00	9.94	47.18	37.18	-22.18	-27.24

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



3.3 HARMONICS CURRENT MEASUREMENT

3.3.1 LIMITS OF HARMONICS CURRENT MEASUREMENT

TEST STANDARD: EN 61000-3-2

Limits for Class A equipment	
Harmonics Order n	Max. permissible harmonics current A
Odd harmonics	
3	2.30
5	1.14
7	0.77
9	0.40
11	0.33
13	0.21
15<=n<=39	0.15x15/n
Even harmonics	
2	1.08
4	0.43
6	0.30
8<=n<=40	0.23x8/n

Limits for Class D equipment		
Harmonics Order n	Max. permissible harmonics current per watt mA/W	Max. permissible harmonics current A
Odd Harmonics only		
3	3.4	2.30
5	1.9	1.14
7	1.0	0.77
9	0.5	0.40
11	0.35	0.33
13	0.30	0.21
15<=n<=39	3.85/n	0.15x15/n

NOTE: 1. Class A and Class D are classified according to section 5 of EN 61000-3-2: 2006+A1：2009.

2. According to section 7 of EN 61000-3-2: 2006+A1 ：2009, the above limits for all equipment except for lighting equipment are for all applications having an active input power > 75 W and no limits apply for equipment with an active input power up to and including 75 W.

3.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
California Instruments	5001ix-400	55194	May 25,11	May 25,12
California Instruments	PACS-1	72134	May 25,11	May 25,12

NOTE: 1. The test was performed in EMS Room 1.
2. The calibration interval of the above test instruments is 12 months.

3.3.3 TEST PROCEDURE

a. The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn.

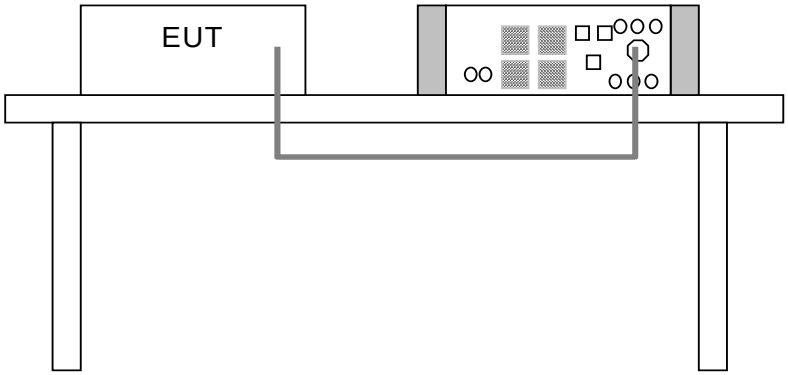
b. The classification of EUT is according to section 5 of EN 61000-3-2:2006+A1:2009+A2:2009.
The EUT is classified as follows:
Class A: Balanced three-phase equipment, Household appliances excluding equipment as Class D, Tools excluding portable tools, Dimmers for incandescent lamps, audio equipment, equipment not specified in one of the three other classes.
Class B: Portable tools.; Arc welding equipment which is not professional equipment
Class C: Lighting equipment.
Class D: Equipment having a specified power less than or equal to 600 W of the following types: Personal computers and personal computer monitors and television receivers.

c. The correspondent test program of test instrument to measure the current harmonics emanated from EUT is chosen. The measure time shall be not less than the time necessary for the EUT to be exercised.

3.3.4 DEVIATION FROM TEST STANDARD

No deviation

3.3.5 TEST SETUP



3.3.6 EUT OPERATING CONDITIONS

Same as item 3.1.6.

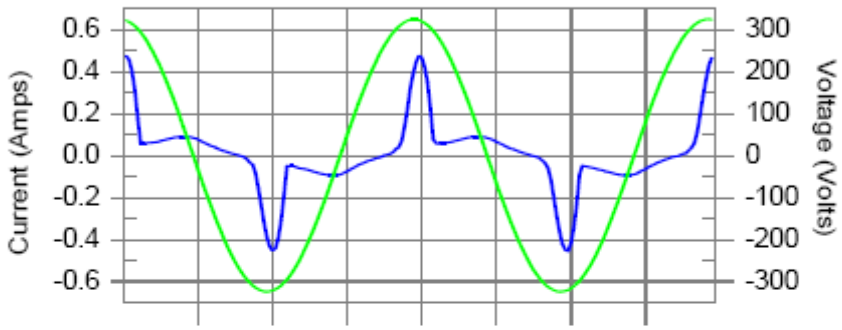
3.3.7 TEST RESULTS

Harmonics – Class-A per Ed. 3.0 (2005-11)(Run time)

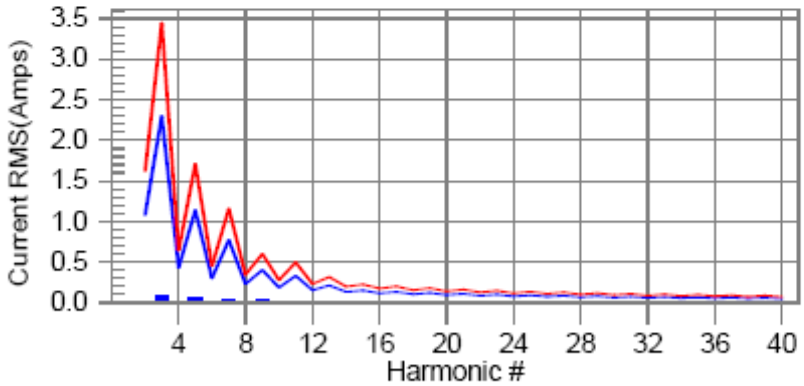
EUT: Stereo amplifiers Model:PMA-720AE Tested by: Endy
Test category: Class-A per Ed. 3.0 (2005-11) (European limits) Test Margin: 100
Test date: 2012-3-15 Start time: 8:55:24 End time: 8:58:17
Test duration (min): 2.5 Data file name: H-000227.cts_data
Comment: AUX IN Temp:22'C Humi.:56%
Customer: Anam

Test Result: Pass Source qualification: Normal

Current & voltage waveforms



Harmonics and Class A limit line European Limits



Test result: Pass Worst harmonic was #9 with 6.80% of the limit.

California Instruments CTS 3.0 - V3.2.0.16 Page 1 of 2

Current Test Result Summary (Run time)

EUT: Stereo amplifiers Model:PMA-720AE Tested by: Endy
Test category: Class-A per Ed. 3.0 (2005-11) (European limits) Test Margin: 100
Test date: 2012-3-15 Start time: 8:55:24 End time: 8:58:17
Test duration (min): 2.5 Data file name: H-000227.cts_data
Comment: AUX IN Temp:22'C Humi.:56%
Customer: YANAN

Test Result: Pass Source qualification: Normal
THC(A): 0.11 I-THD(%): 89.98 POHC(A): 0.005 POHC Limit(A): 0.251
Highest parameter values during test:

V_RMS (Volts):	229.76	Frequency(Hz):	50.00
I_Peak (Amps):	0.482	I_RMS (Amps):	0.167
I_Fund (Amps):	0.125	Crest Factor:	3.040
Power (Watts):	25.6	Power Factor:	0.668

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.002	1.080	0.2	0.003	1.620	0.18	Pass
3	0.074	2.300	3.2	0.074	3.450	2.15	Pass
4	0.002	0.430	0.4	0.002	0.645	0.30	Pass
5	0.064	1.140	5.6	0.065	1.710	3.79	Pass
6	0.001	0.300	0.2	0.001	0.450	0.25	Pass
7	0.043	0.770	5.6	0.043	1.155	3.75	Pass
8	0.000	0.230	0.2	0.001	0.345	0.31	Pass
9	0.027	0.400	6.8	0.027	0.600	4.55	Pass
10	0.000	0.184	0.2	0.001	0.276	0.30	Pass
11	0.014	0.330	4.1	0.014	0.495	2.77	Pass
12	0.000	0.153	0.2	0.001	0.230	0.26	Pass
13	0.006	0.210	2.9	0.006	0.315	1.96	Pass
14	0.000	0.131	0.1	0.000	0.197	0.14	Pass
15	0.005	0.150	3.1	0.005	0.225	2.13	Pass
16	0.000	0.115	0.1	0.000	0.173	0.14	Pass
17	0.005	0.132	4.0	0.005	0.199	2.67	Pass
18	0.000	0.102	0.1	0.000	0.153	0.15	Pass
19	0.005	0.118	3.9	0.005	0.178	2.62	Pass
20	0.000	0.092	0.1	0.000	0.138	0.14	Pass
21	0.003	0.107	2.9	0.003	0.161	1.92	Pass
22	0.000	0.084	0.1	0.000	0.125	0.12	Pass
23	0.002	0.098	1.9	0.002	0.147	1.26	Pass
24	0.000	0.077	0.1	0.000	0.115	0.11	Pass
25	0.002	0.090	2.2	0.002	0.135	1.48	Pass
26	0.000	0.071	0.1	0.000	0.106	0.14	Pass
27	0.002	0.083	2.6	0.002	0.125	1.75	Pass
28	0.000	0.066	0.1	0.000	0.099	0.15	Pass
29	0.002	0.078	2.2	0.002	0.116	1.50	Pass
30	0.000	0.061	0.1	0.000	0.092	0.13	Pass
31	0.001	0.073	1.4	0.001	0.109	0.98	Pass
32	0.000	0.058	0.1	0.000	0.086	0.15	Pass
33	0.001	0.068	1.6	0.001	0.102	1.05	Pass
34	0.000	0.054	0.2	0.000	0.081	0.13	Pass
35	0.001	0.064	1.9	0.001	0.096	1.29	Pass
36	0.000	0.051	0.1	0.000	0.077	0.12	Pass
37	0.001	0.061	1.6	0.001	0.091	1.13	Pass
38	0.000	0.048	0.1	0.000	0.073	0.15	Pass
39	0.001	0.058	1.2	0.001	0.087	0.84	Pass
40	0.000	0.046	0.1	0.000	0.069	0.13	Pass

California Instruments CTS 3.0 - V3.2.0.16 Page 2 of 2

3.4 VOLTAGE FLUCTUATION AND FLICKS MEASUREMENT

3.4.1 LIMITS OF VOLTAGE FLUCTUATION AND FLICKS MEASUREMENT

TEST STANDARD: EN 61000-3-3

TEST ITEM	LIMIT	NOTE
P_{st}	1.0	P_{st} means short-term flicker indicator.
P_{lt}	0.65	P_{lt} means long-term flicker indicator.
$T_{d(t)}$ (ms)	500	$T_{d(t)}$ means maximum time that d(t) exceeds 3.3%.
d_{max} (%)	4	d_{max} means maximum relative voltage change.
dc (%)	3.3	dc means relative steady-state voltage change

3.4.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
California Instruments	5001ix-400	55194	May 25,11	May 25,12
California Instruments	PACS-1	72134	May 25,11	May 25,12

NOTE: 1. The test was performed in EMS Room 1.
2. The calibration interval of the above test instruments is 12 months.

3.4.3 TEST PROCEDURE

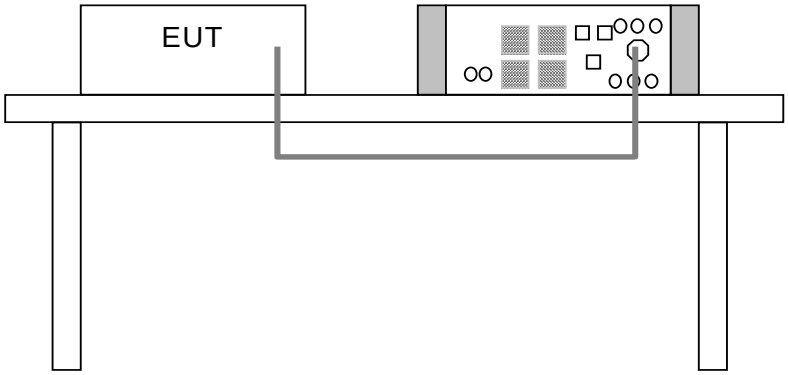
a. The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the most unfavorable sequence of voltage changes under normal operating conditions.

b. During the flick measurement, the measure time shall include that part of whole operation cycle in which the EUT produce the most unfavorable sequence of voltage changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

3.4.4 DEVIATION FROM TEST STANDARD

No deviation

3.4.5 TEST SETUP



3.4.6 EUT OPERATING CONDITIONS

Same as item 3.1.6.

3.4.7 TEST RESULTS

TEST MODE	Aux In (Playing with 1kHz signal)		
FUNDAMENTAL VOLTAGE/AMPERE	AC 230V/50Hz	**OBSERVATION PERIOD (Tp)**	10 mins
ENVIRONMENTAL CONDITIONS	25.5 deg. C, 55.6% RH	**TESTED BY:** Harry	

TEST PARAMETER	MEASUREMENT VALUE	LIMIT	REMARKS
P_{st}	0.064	1.0	Pass
P_{lt}	0.028	0.65	Pass
$T_{d(t)}$ (ms)	0	500	Pass
d_{max} (%)	0	4	Pass
dc (%)	0	3.3	Pass

NOTE:
(1) P_{st} means short-term flicker indicator.
(2) P_{lt} means long-term flicker indicator.
(3) $T_{d(t)}$ means maximum time that d(t) exceeds 3.3%
(4) d_{max} means maximum relative voltage change.
(5) dc means relative steady-state voltage change.

4 IMMUNITY TEST

4.1 GENERAL DESCRIPTION

Product Standard:	**EN 55020:2007+A11:2011**	
Basic Standard, Specification, and Performance Criteria:	Input immunity (S1)	--
	Immunity from conducted voltages (S2a)	Meet the requirements.
	Immunity from conducted currents (S2b)	--
	Immunity from radiated fields (S3)	Meet the requirements.
	Screening effectiveness (S4)	--
	IEC 61000-4-2	Electrostatic Discharge – ESD: 8kV air discharge, 4kV Contact discharge, Performance Criterion B
	IEC 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test – RS: 900 MHz, 3V/m, duty cycle 1/8, 217 Hz repetition frequency Performance Criterion A
	IEC 61000-4-4	Electrical Fast Transient/Burst - EFT, Power line: 1kV, Tr/Th: 5/50 ns, 5kHz repetition frequency Performance Criterion B

4.2 GENERAL PERFORMANCE CRITERIA DESCRIPTION

CRITERION A	The equipment shall continue to operate as intended during the test. No change of actual operating state (for eg. Change of channel) is allowed as a result of the application of the test. Multifunction equipment shall for each function meet the relevant requirements. Evaluation is carried out for audio and video functions. The equipment is supposed to operate as intended if the criteria of “Evaluation of audio quality” and/or “Evaluation of picture quality” are fulfilled.
CRITERION B	The equipment shall continue to operate as intended after the test. No loss of function is allowed after the test when the apparatus is used as intended, but failures which are recovered automatically, but which cause temporary delay in processing, are permissible. No change of actual operating state for example change of channel or stored data and settings is allowed as a result of the application of the test. During the test, degradation of performance is allowed.

4.3 EUT OPERATING CONDITION

Same as item 3.1.6

4.4 IMMUNITY FROM CONDUCTED VOLTAGES (S2A)

4.4.1 TEST LIMIT

Limits of immunity to RF voltages of mains, loudspeaker and headphone terminals

Frequency MHz	Level dB (uV) (e.m.f.)
0.15 to 30	130
30 to 100	120
100 to 150	120 – 110[a]
[a] Decreasing linearly with the logarithm of the frequency	

Limits of immunity to RF voltages of audio input and output terminals (except loudspeaker and headphone terminals)

Frequency MHz	Level dB (uV) (e.m.f.)
0.15 to 1.6	80 – 90 [a]
1.6 to 20	90 – 120[a]
20 to 100	120
100 to 150	120 – 110 [b]
[a] Increasing Linearly with the logarithm of the frequency. [b] Decreasing Linearly with the logarithm of the frequency.	

4.4.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Broadcast Test System	Rohde&Schwarz	SFU	101543	Jun. 04,11	Jun. 04,12
TV Generator PAL	Rohde&Schwarz	SGPF	100200	May 25,11	May 25,12
Spectrum Analyzer	Rohde&Schwarz	FSL3	101507	May 25,11	May 25,12
Signal Generator	Rohde&Schwarz	SMB100A	102382	May 25,11	May 25,12
Signal Generator	Rohde&Schwarz	SMB100A	102383	May 25,11	May 25,12
Power Meter	Rohde&Schwarz	NRVS	101732	May 25,11	May 25,12
Audio Analyzer	Rohde&Schwarz	UPV	101346	May 25,11	May 25,12
Level Meter	Rohde&Schwarz	URV35	100335	May 25,11	May 25,12
100V Insertion Unit 50Ω	Rohde&Schwarz	URV5-Z4	100207	May 25,11	May 25,12
RF Probe	Rohde&Schwarz	URV5-Z7	100657	May 25,11	May 25,12
Absorbing Clamp	Rohde&Schwarz	MDS-21	100352	Jun. 04,11	Jun. 04,12
Test Software	ADT	T80-K1	N/A	N/A	N/A

NOTE: 1. The test was performed in EN55020 Test Room.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA and NIM/CHINA.

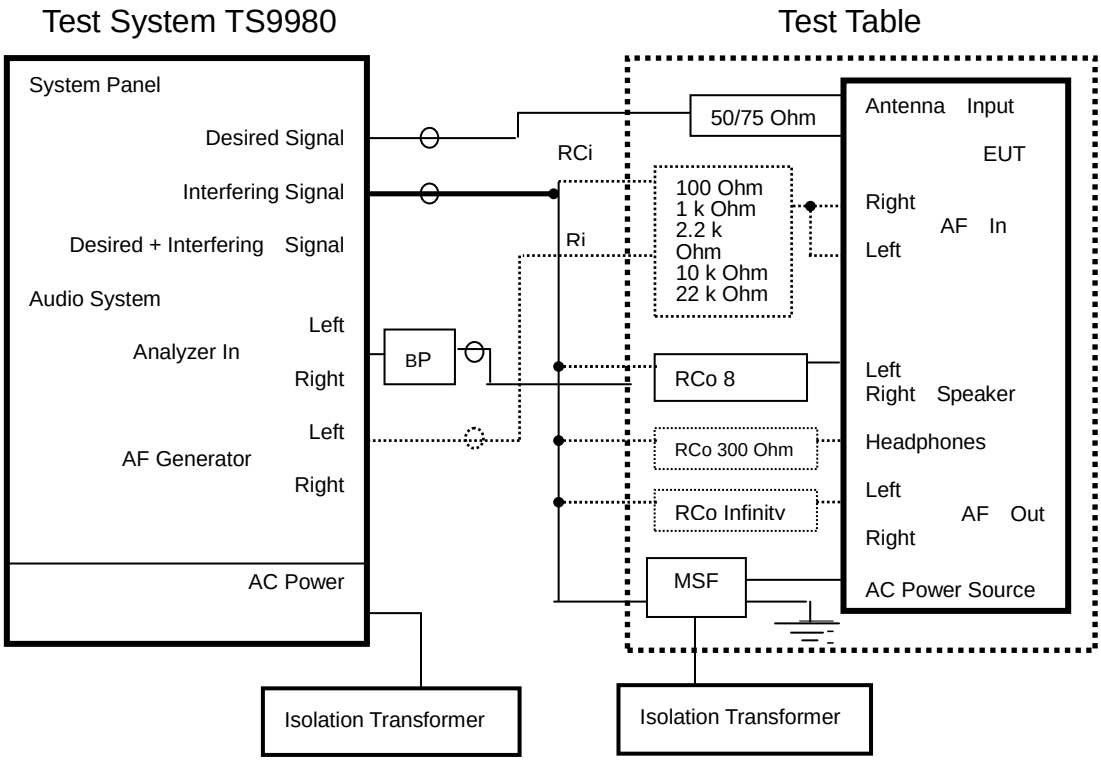
4.4.3 TEST PROCEDURE

The test requirement was in accordance with EN 55020, item 5.7.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 TEST RESULTS (REFER TO APPENDIX B)

The actual test results are contained in the APPENDIX B.

4.5 IMMUNITY FROM RADIATED FIELDS (S3)

4.5.1 TEST LIMIT

Limits of immunity to ambient electromagnetic fields of television receivers operating in the reception function.

Frequency MHz	Level dB (uV/m)
0.15 to 47 Except frequency bands (f_c-1.5) to (f_c+1.5) (f_s – 0.5) to (f_s+1.5) (f_i – 2) to (f_v + 2)[a] (f_v-2) to (f_i +2)[b]	125 101 101 101 101
For non-European countries and Russia 47 to 150[c] Except the tuned channel ± 0.5	109[d]
For European countries 47 to 87 87 to 108 108 to 144 144 to 150 Except the tuned channel ± 0.5	109 125 109 125
NOTE f_i is the sound intermediate frequency f_v is the vision intermediate frequency f_s is the intercarrier sound frequency f_c is the color subcarrier frequency	
[a] for systems B, D, G, K, I, L, M [b] Only for system L. [c] The frequency 47 MHz can be varied on a national basis depending on the use of this frequency range [d] For television receivers with reception function in this frequency range. For television receivers without reception function in this frequency range a level of 125dB (uV/m) shall apply.	

4.5.2 TEST INSTRUMENTS

Same as item 4.4.2

4.5.3 TEST PROCEDURE

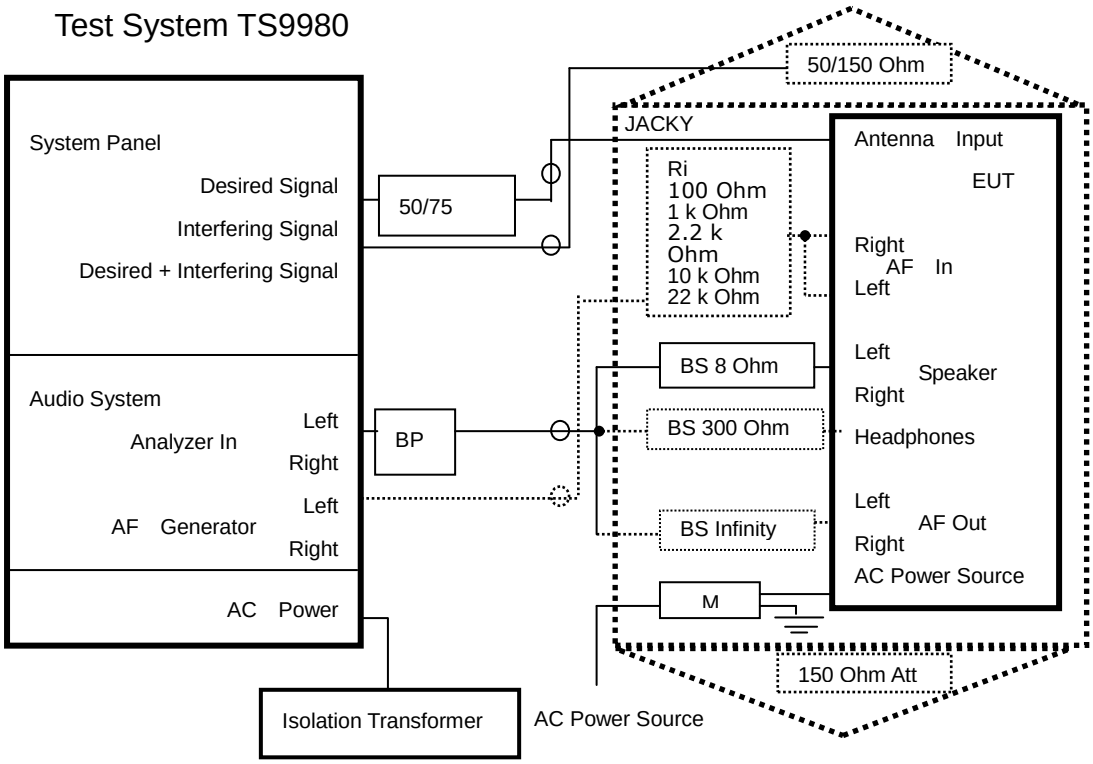
The test requirement was in accordance with EN 55020, item 5.8.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP

Test System TS9980



4.5.6 TEST RESULTS - (REFER TO APPENDIX B)

The actual test results are contained in the APPENDIX B.

4.6 ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD)

4.6.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-2
Discharge Impedance:	330 ohm / 150 pF
Discharge Voltage:	Air Discharge**:** 2, 4, 8 kV (Direct)
	Contact Discharge**:** 2, 4 kV (Indirect & Direct)
Polarity:	Positive / Negative
Number of Discharge:	20 times at each test point
Discharge Mode:	Single Discharge
Discharge Period:	1-second

4.6.2 TEST INSTRUMENTS

EQUIPMENT	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL.	NEXT CAL.
ESD Generator	TESEQ	NSG 437	279	Oct.22,11	Oct.22,12
Test Software	ADT	V03.03	N/A	N/A	N/A

NOTE: 1. The test was performed in EMS Room1.
2. The calibration interval of the above test instruments is 12 months.

4.6.3 TEST PROCEDURE

The basic test procedure was in accordance with IEC 61000-4-2:

a. Electrostatic discharges were applied only to those points and surfaces of the EUT that are accessible to users during normal operation.

b. The test was performed with at least ten single discharges on the pre-selected points in the most sensitive polarity.

c. The time interval between two successive single discharges was at least 1 second.

d. The ESD generator was held perpendicularly to the surface to which the discharge was applied and the return cable was at least 0.2 meters from the EUT.

e. Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.

f. Air discharges were applied with the round discharge tip of the discharge electrode approaching the EUT as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator was removed from the EUT and re-triggered for a new single discharge. The test was repeated until all discharges were complete.

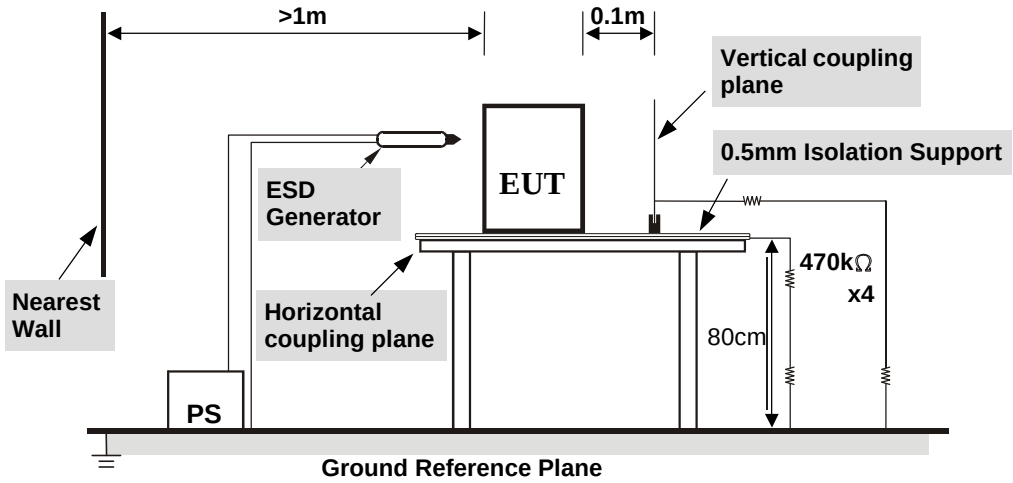
g. At least ten single discharges (in the most sensitive polarity) were applied to the **H**orizontal **C**oupling **P**lane at points on each side of the EUT. The ESD generator was positioned horizontally at a distance of 0.1 meters from the EUT with the discharge electrode touching the **HCP.**

h. At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the **V**ertical **C**oupling **P**lane in sufficiently different positions that the four faces of the EUT were completely illuminated. The **VCP** (dimensions 0.5m x 0.5m) was placed vertically to and 0.1 meters from the EUT.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 TEST SETUP



NOTE:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table 0.8 meters high standing on the **G**round **R**eference **P**lane. The **GRP** consisted of a sheet of aluminum at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system. A **H**orizontal **C**oupling **P**lane (1.6m x 0.8m) was placed on the table and attached to the **GRP** by means of a cable with 940kΩ total impedance. The equipment under test, was installed in a representative system as described in section 7 of IEC 61000-4-2, and its cables were placed on the **HCP** and isolated by an insulating support of 0.5mm thickness. A distance of 1-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

FLOOR-STANDING EQUIPMENT

The equipment under test was installed in a representative system as described in section 7 of IEC 61000-4-2, and its cables were isolated from the Ground Reference Plane by an insulating support of 0.1-meter thickness. The GRP consisted of a sheet of aluminum that is at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system and extended at least 0.5 meters from the EUT on all sides.

4.6.6 TEST RESULTS

TEST MODE	See section 2.2	**INPUT POWER**	AC 230V/50Hz
ENVIRONMENTAL CONDITIONS	25.5 deg. C, 56.5% RH, 101.36kPa	**TESTED BY**: Endy	

TEST RESULTS OF DIRECT APPLICATION					
Discharge Level (kV)	Polarity (+ /-)	Test Point	Contact Discharge	Air Discharge	Performance Criterion
2,4	+ /-	Metal port	NOTE	N/A	A
2,4,8	+ /-	Nonmetal port	N/A	NOTE	A

TEST RESULTS OF INDIRECT APPLICATION					
Discharge Level (kV)	Polarity (+ /-)	Test Point	Horizontal Coupling Plane	Vertical Coupling Plane	Performance Criterion
2,4	+ /-	4sides	NOTE	NOTE	A

Description of test point:

1. Left side
2. Right side
3. Front side
4. Rear side

NOTE: There was no change compared with initial operation during the test.

4.7 RADIATED, RADIO-FREQUENCY, ELECTROMAGNETIC FIELD IMMUNITY TEST (RS)

4.7.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-3
Frequency Range:	900MHz
Field Strength:	3 V/m
Duty Cycle:	1/8
Modulation:	Pulse 217 Hz
Polarity of Antenna:	Vertical
Antenna Height:	1.5 m
Dwell Time:	3 seconds

4.7.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Signal Generator	Agilent	N5181A	MY50142530	Nov 7,11	Nov 7,12
Antenna Log-Periodic	CORAD	ATR80M6G	0337307	Sep.1,11	Sep.2,12
RF Power Meter	ESE	4242	13984	Nov 7,11	Nov 7,12
Audio Analyzer	AP	ATS-1	N/A	Nov 7,11	Nov 7,12
Power Amplifier	TESEQ	CBA 1G-150	T44029	Sep.1,11	Sep.2,12
Test Software	ADT	BVADT_RS_V7.6.4_DG	N/A	N/A	N/A

NOTE: 1. The test was performed in RS Room .
2. The calibration interval of the above test instruments is 12 months.

4.7.3 TEST PROCEDURE

The test procedure was in accordance with IEC 61000-4-3

a. The testing was performed in a fully-anechoic chamber. The transmit antenna was located at a distance of 3 meters from the EUT.

b. The frequency range is swept on 900 MHz, with the signal 217Hz pulse modulated 1/8 duty cycle

c. The dwell time at each frequency shall not be less than the time necessary for the EUT to be exercised and to respond, but shall in no case be less than 0,5s.

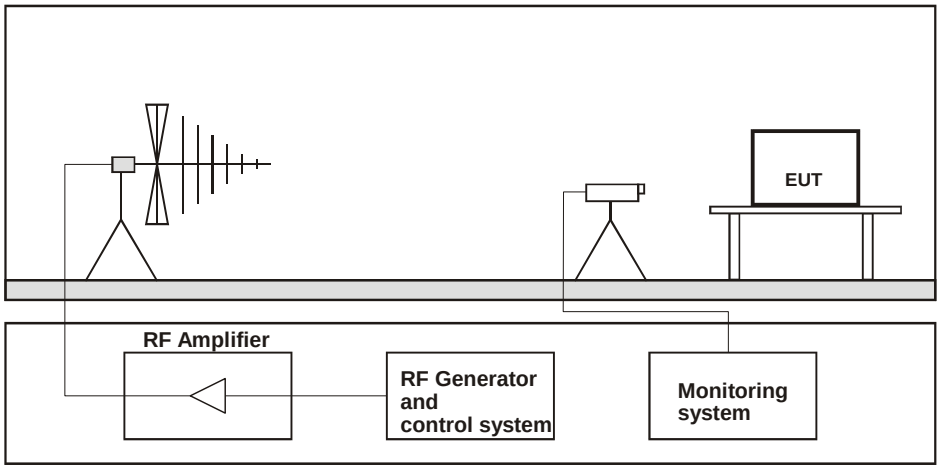
d. The field strength level was 3V/m.

e. The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

4.7.4 DEVIATION FROM TEST STANDARD

No deviation

4.7.5 TEST SETUP



NOTE:

TABLETOP EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

FLOOR STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

4.7.6 TEST RESULTS

TEST MODE	See section 2.2	INPUT POWER	AC 230V/50Hz
ENVIRONMENTAL CONDITIONS	25.6 deg. C, 53.5% RH	TESTED BY: Endy	

Frequency (MHz)	Polarity	Azimuth	Test Mode	Result S/N (dB)	Limit S/N (dB)	Monitor Port
900	V	90, 270	CD In	68.43	⩾40	Speaker
900	V	90, 270	AUX In	67.68	⩾40	Speaker
900	V	90, 270	Phono In	64.50	⩾40	Speaker
900	V	90, 270	Network In	69.33	⩾40	Speaker
900	V	90, 270	Tuner In	63.16	⩾40	Speaker

NOTE: There were no other changes compared with initial operation during the test.

4.8 ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST (EFT)

4.8.1 TEST SPECIFICATION

Basic Standard:	IEC 61000-4-4
Test Voltage:	Power Line : 1 kV
Polarity:	Positive & Negative
Impulse Frequency:	5 kHz
Impulse Waveshape :	5/50 ns
Burst Duration:	15 ms
Burst Period:	300 ms
Test Duration:	1 min.

4.8.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
EFT Tester	PEFT4010	150546	May 25,11	May 25,12
EFT Coupling Clamp	IP4A	150407	May 25,11	May 25,12
Test Software	SWPE4010 1.22	N/A	N/A	N/A

NOTE: 1. The test was performed in EMS Room 2.
2. The calibration interval of the above test instruments is 12 months.

4.8.3 TEST PROCEDURE

a. Both positive and negative polarity discharges were applied.

b. The length of the “hot wire” from the coaxial output of the EFT generator to the terminals on the EUT should not exceed 0.5m +/- 0.05m.

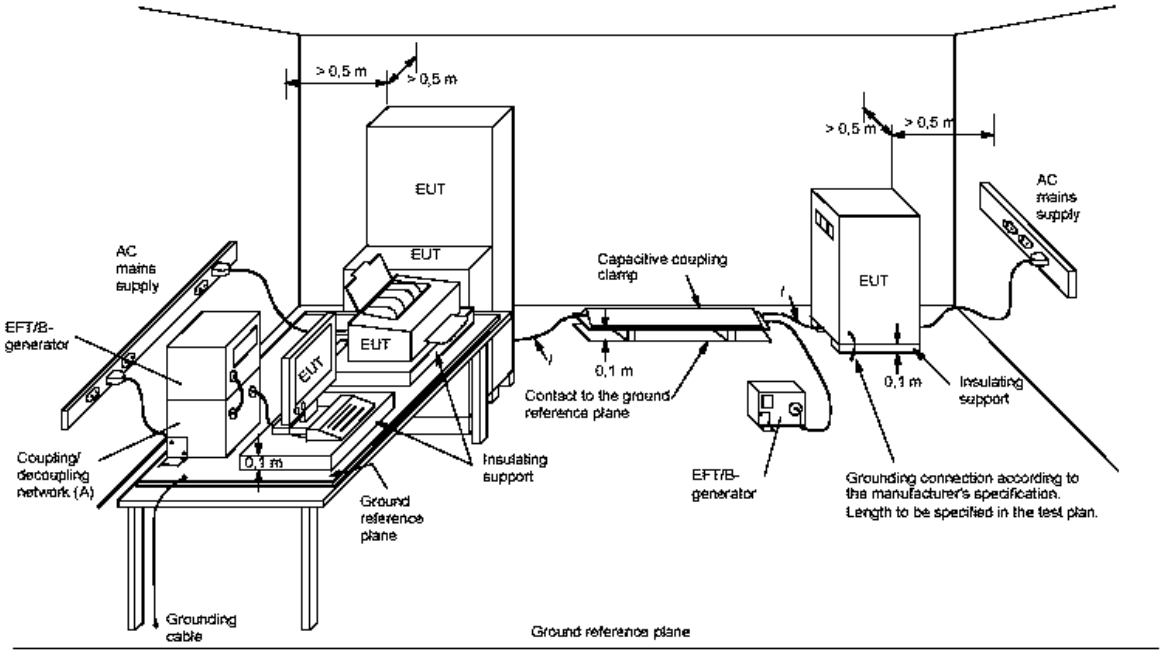
c. The duration time of each test sequential was 1 minutes.

d. The transient/burst waveform was in accordance with IEC 61000-4-4, 5/50ns.

4.8.4 DEVIATION FROM TEST STANDARD

No deviation

4.8.5 TEST SETUP



NOTE:

TABLETOP EQUIPMENT

The configuration consisted of a wooden table standing on the Ground Reference Plane and should be located 0.1m +/- 0.01m above the Ground Reference Plane.

The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system. A minimum distance of 0.5m was provided between the EUT and the walls of the laboratory or any other metallic structure.

FLOOR STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC 61000-4-4 and its cables, were isolated from the Ground Reference Plane by an insulating support that is 0.1-meter thick. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system.

4.8.6 TEST RESULTS

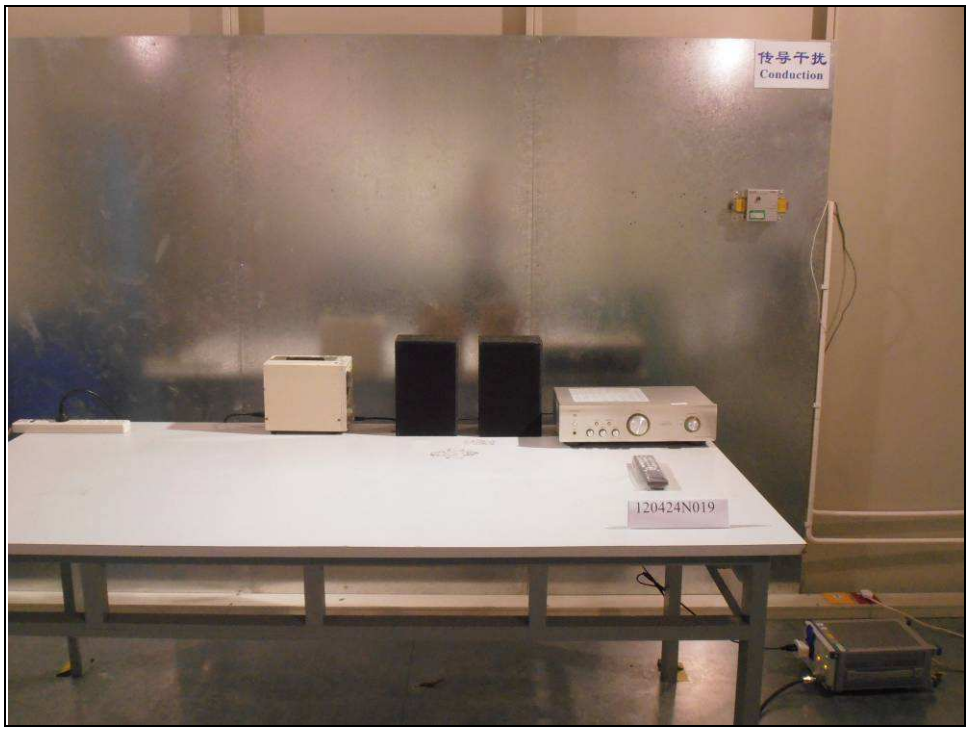
TEST MODE	See section 2.2	INPUT POWER	AC 230V/50Hz
ENVIRONMENTAL CONDITIONS	25.5deg. C, 56.5% RH	TESTED BY: Endy	

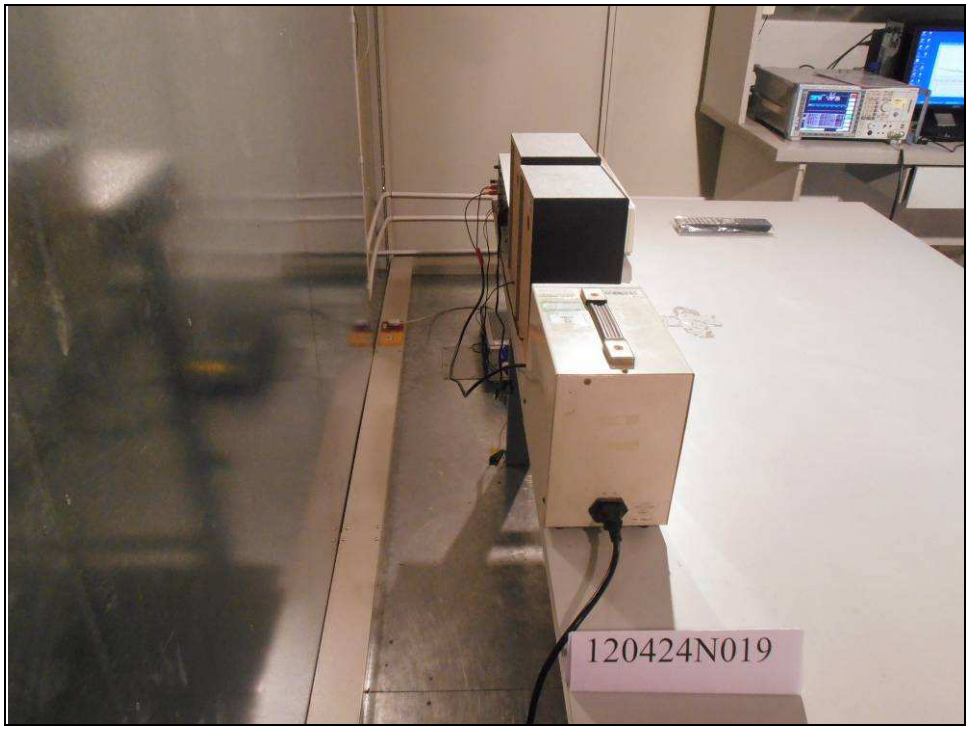
Test Point	Polarity	Test Level (kV)	Observation	Performance Criterion
L	+ /-	1	Note	A
N	+ /-	1	Note	A
L-N	+ /-	1	Note	A

NOTE: There was no change compared with initial operation during the test.

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

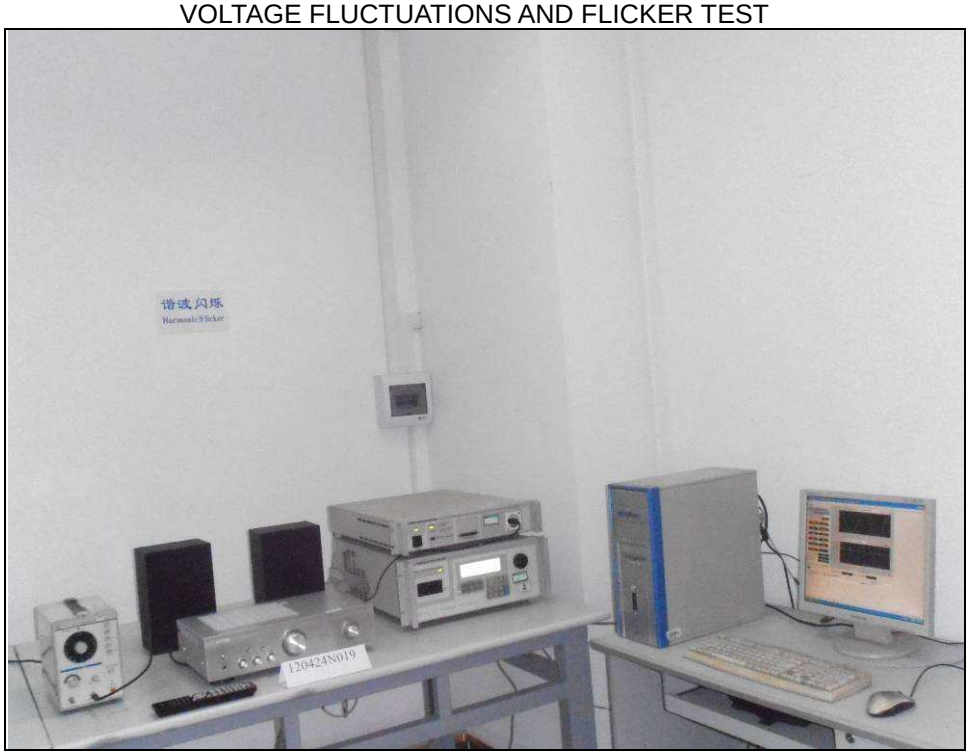
CONDUCTED EMISSION TEST



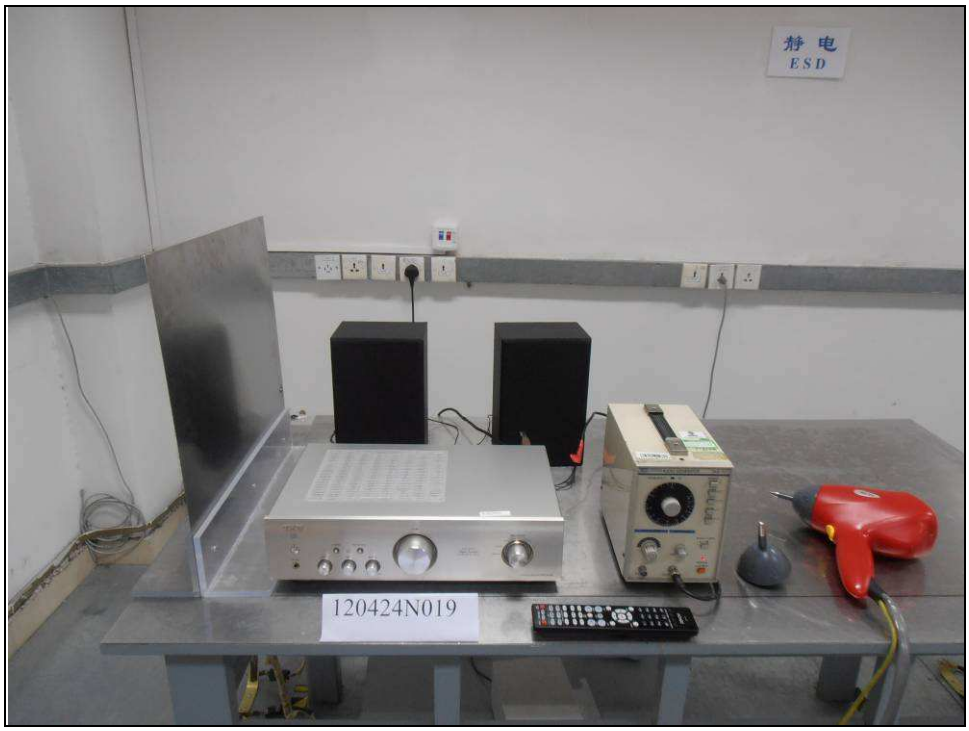


DISTURBANCE POWER EMISSION TEST

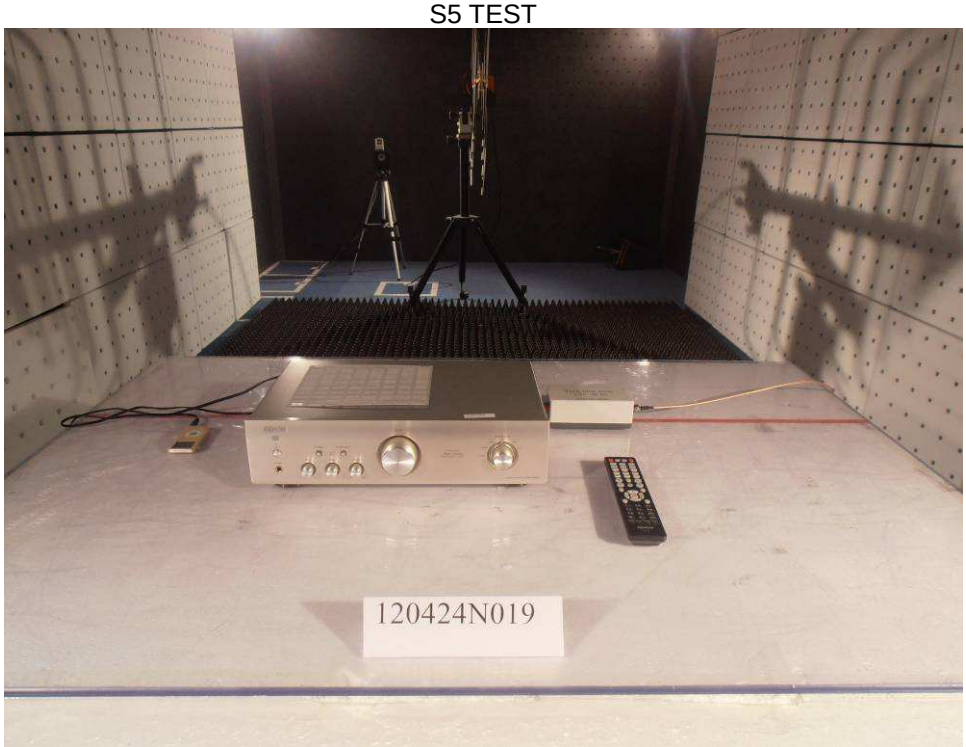
HARMONICS EMISSION TEST &
VOLTAGE FLUCTUATIONS AND FLICKER TEST



ESD TEST



S5 TEST



EFT TEST

S2A TEST

S3 TEST

6 PPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications were made to the EUT by the lab during the test.

7 APPENDIX B – MEASUREMENT DATA

- **IMMUNITY FROM CONDUCTED VOLTAGES (S2a)**
- **IMMUNITY FROM RADIATED FIELDS (S3)**

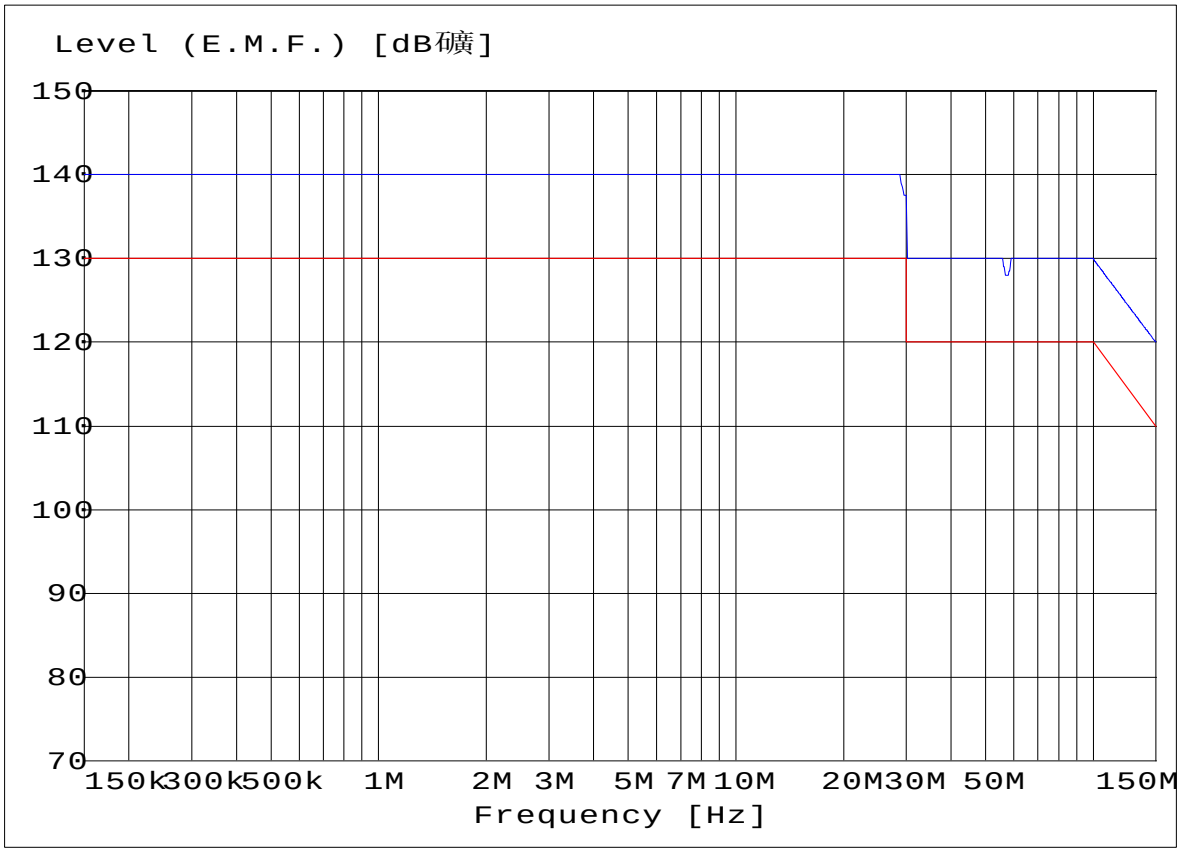
Note: The Appendix B includes 10 pages of the data, which will be attached after this page.

Test: Immunity Conducted Voltages S2a <120424N019>

EUT:	PMA-520AE	Operator:	Sky
Manufacturer:	YANAN	Test Specifica:	Temp:25.6';Humi:56%;Press;101.52k
Operating Condi:	AUX IN	Comment:	AC 230V/50Hz
Test Site:	BV DG EMC Lab TS9980	:	

Test Mode:	Receiver -	Monitor:	Speaker L
Operating Mode:	Tuner	S/N:	78.8 dB
Frequency:	-	AF Level:	50.8 mW

Interf. Signal: Mains, 250412-00007-001, 4/25/2012, 4:58:00PM

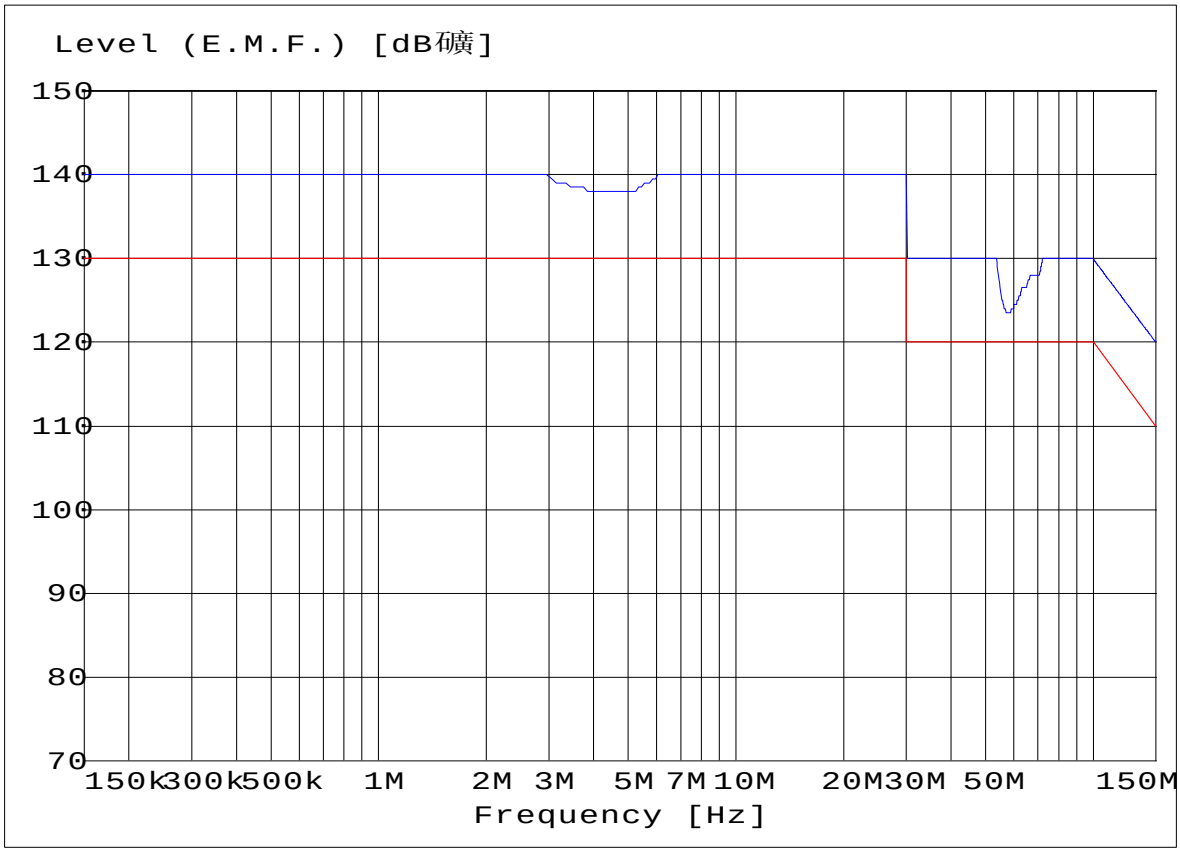


Test: Immunity Conducted Voltages S2a <120424N019>

EUT:	PMA-520AE	Operator:	Sky
Manufacturer:	YANAN	Test Specifica:	Temp:25.6';Humi:56%;Press;101.52k
Operating Condi:	AUX IN	Comment:	AC 230V/50Hz
Test Site:	BV DG EMC Lab TS9980	:	

Test Mode:	Receiver -	Monitor:	Speaker L
Operating Mode:	Tuner	S/N:	78.7 dB
Frequency:	-	AF Level:	50.9 mW

Interf. Signal: Speaker L, 250412-00006-001, 4/25/2012, 4:49:33PM



Measurement Result, 250412-00006-001-1

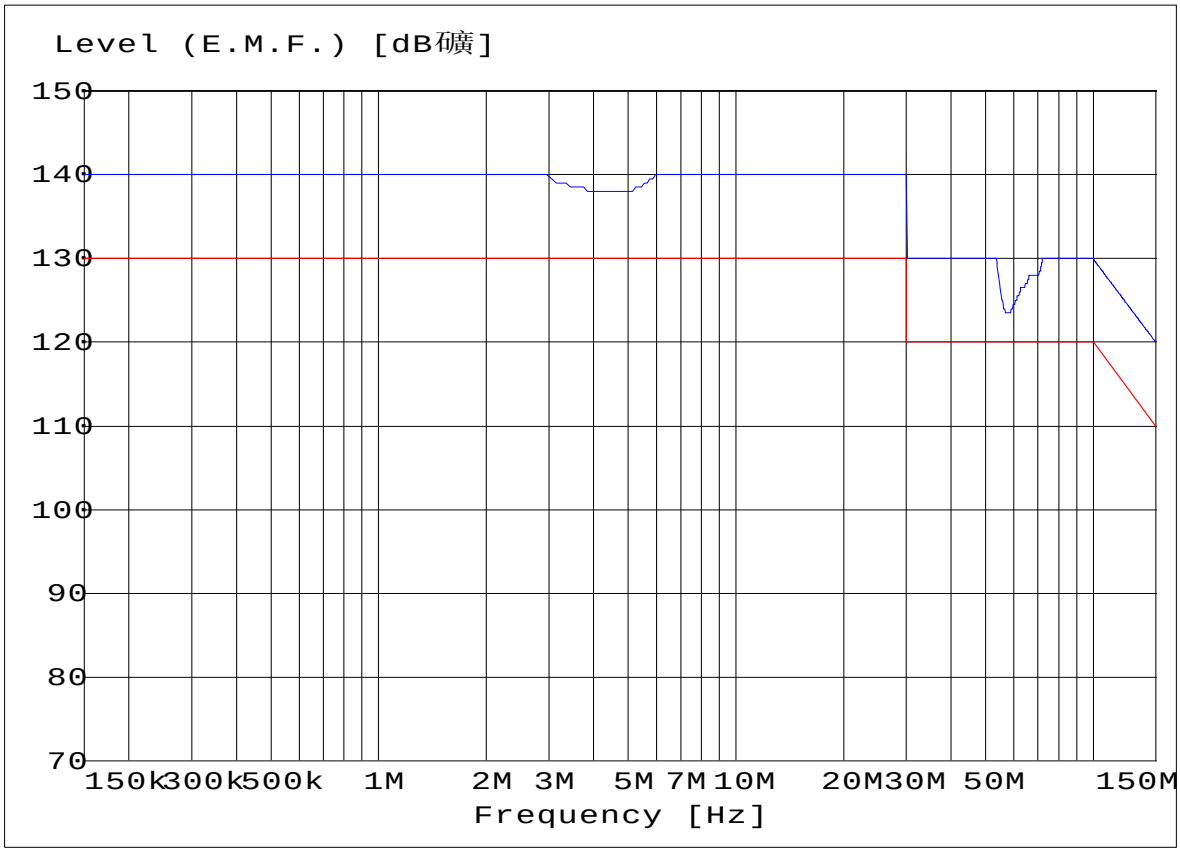
Frequency MHz	Level dBµV	Limit dBµV	Margin dB	Status	S/N dB
55.200000	126.0	120.0	6.0		40.9
55.400000	125.5	120.0	5.5		40.7
55.600000	125.0	120.0	5.0		40.9
55.800000	125.0	120.0	5.0		40.4
56.000000	124.5	120.0	4.5		40.6

Test: Immunity Conducted Voltages S2a <120424N019>

EUT:	PMA-520AE	Operator:	Sky
Manufacturer:	YANAN	Test Specifica:	Temp:25.6';Humi:56%;Press;101.52k
Operating Condi:	AUX IN	Comment:	AC 230V/50Hz
Test Site:	BV DG EMC Lab TS9980	:	

Test Mode:	Receiver -	Monitor:	Speaker L
Operating Mode:	CD	S/N:	64.9 dB
Frequency:	-	AF Level:	54.0 mW

Interf. Signal: Speaker L, 250412-00005-001, 4/25/2012, 4:40:40PM



Measurement Result, 250412-00005-001-1

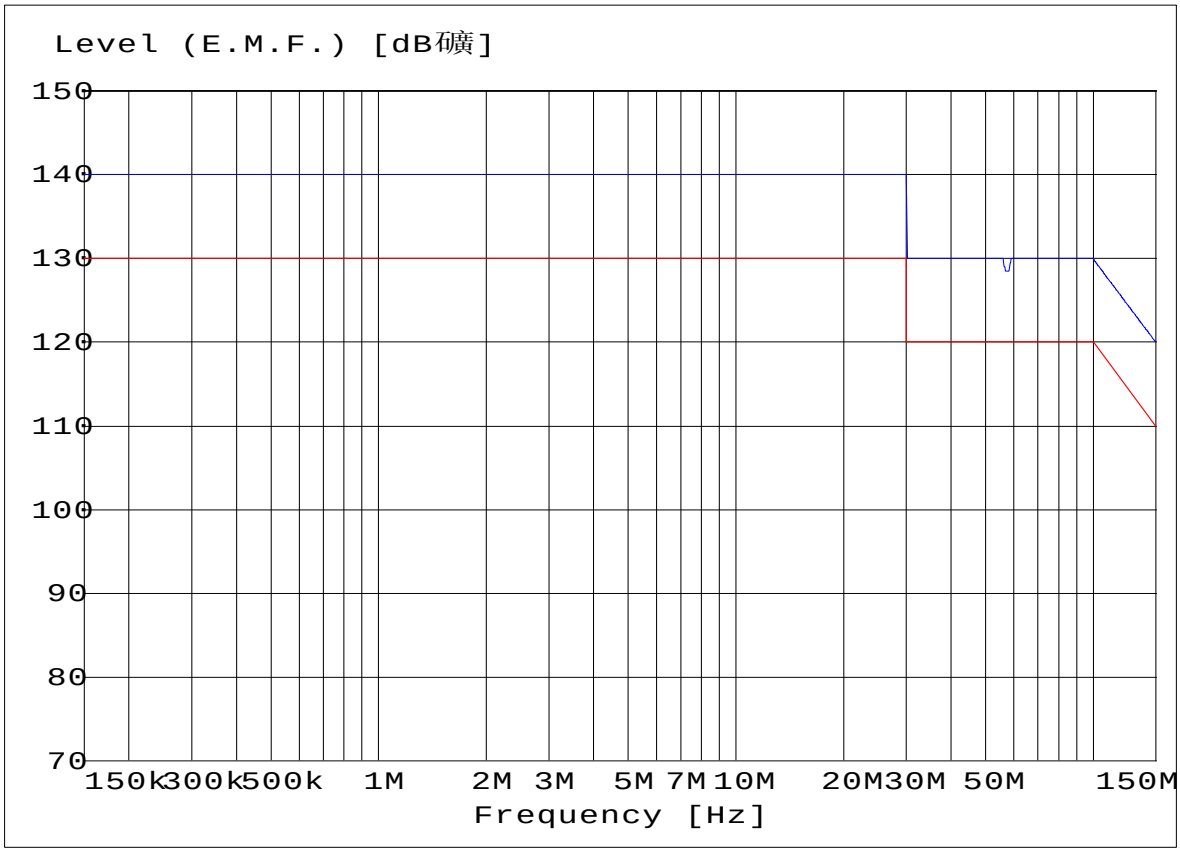
Frequency MHz	Level dBµV	Limit dBµV	Margin dB	Status	S/N dB
55.200000	126.0	120.0	6.0		40.7
55.400000	125.5	120.0	5.5		40.7
55.600000	125.0	120.0	5.0		40.9
55.800000	125.0	120.0	5.0		40.2
56.000000	124.5	120.0	4.5		40.4

Test: Immunity Conducted Voltages S2a <120424N019>

EUT:	PMA-520AE	Operator:	Sky
Manufacturer:	YANAN	Test Specifica:	Temp:25.6';Humi:56%;Press;101.52k
Operating Condi:	AUX IN	Comment:	AC 230V/50Hz
Test Site:	BV DG EMC Lab TS9980	:	

Test Mode:	Receiver -	Monitor:	Speaker L
Operating Mode:	CD	S/N:	65.1 dB
Frequency:	-	AF Level:	55.1 mW

Interf. Signal: Mains, 250412-00004-001, 4/25/2012, 4:31:08PM

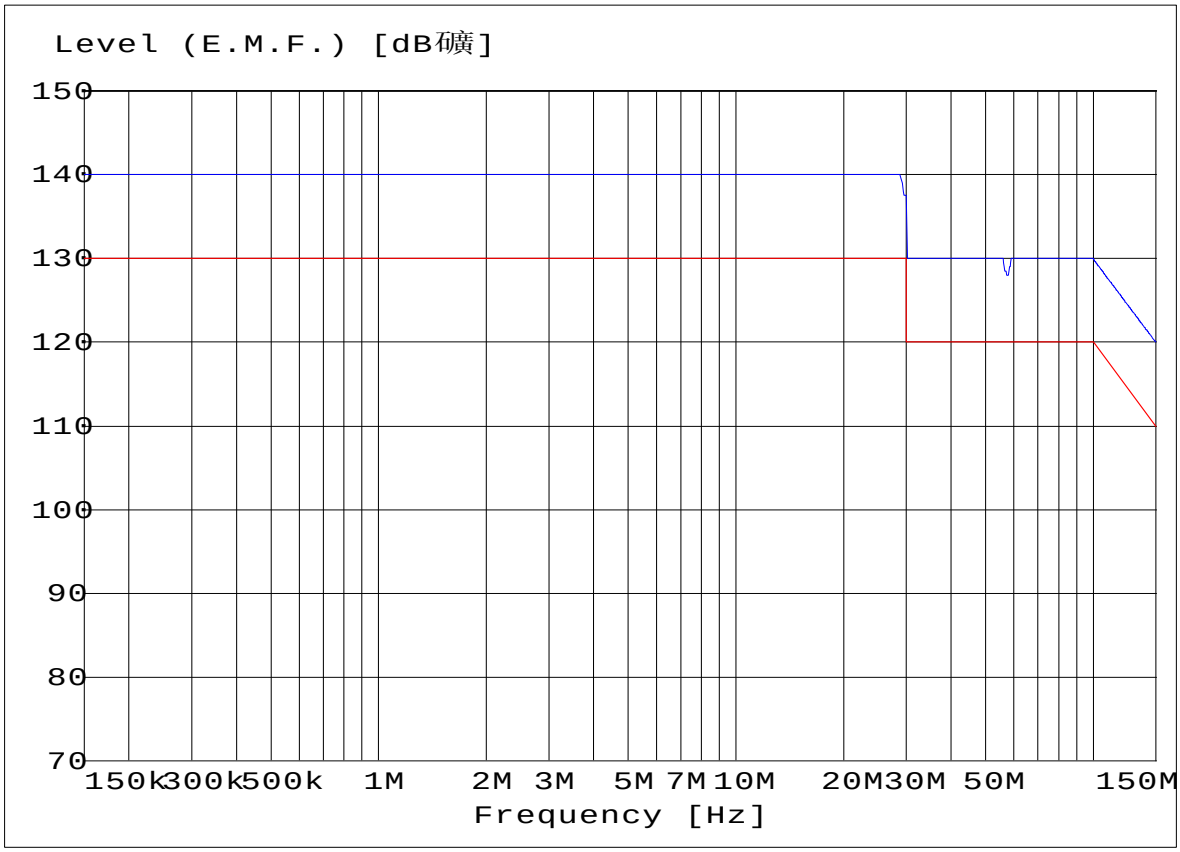


Test: Immunity Conducted Voltages S2a <120424N019>

EUT:	PMA-520AE	Operator:	Sky
Manufacturer:	YANAN	Test Specifica:	Temp:25.6';Humi:56%;Press;101.52k
Operating Condi:	AUX IN	Comment:	AC 230V/50Hz
Test Site:	BV DG EMC Lab TS9980	:	

Test Mode:	Receiver -	Monitor:	Speaker L
Operating Mode:	AUX	S/N:	79.7 dB
Frequency:	-	AF Level:	55.0 mW

Interf. Signal: Mains, 250412-00003-001, 4/25/2012, 4:23:11PM

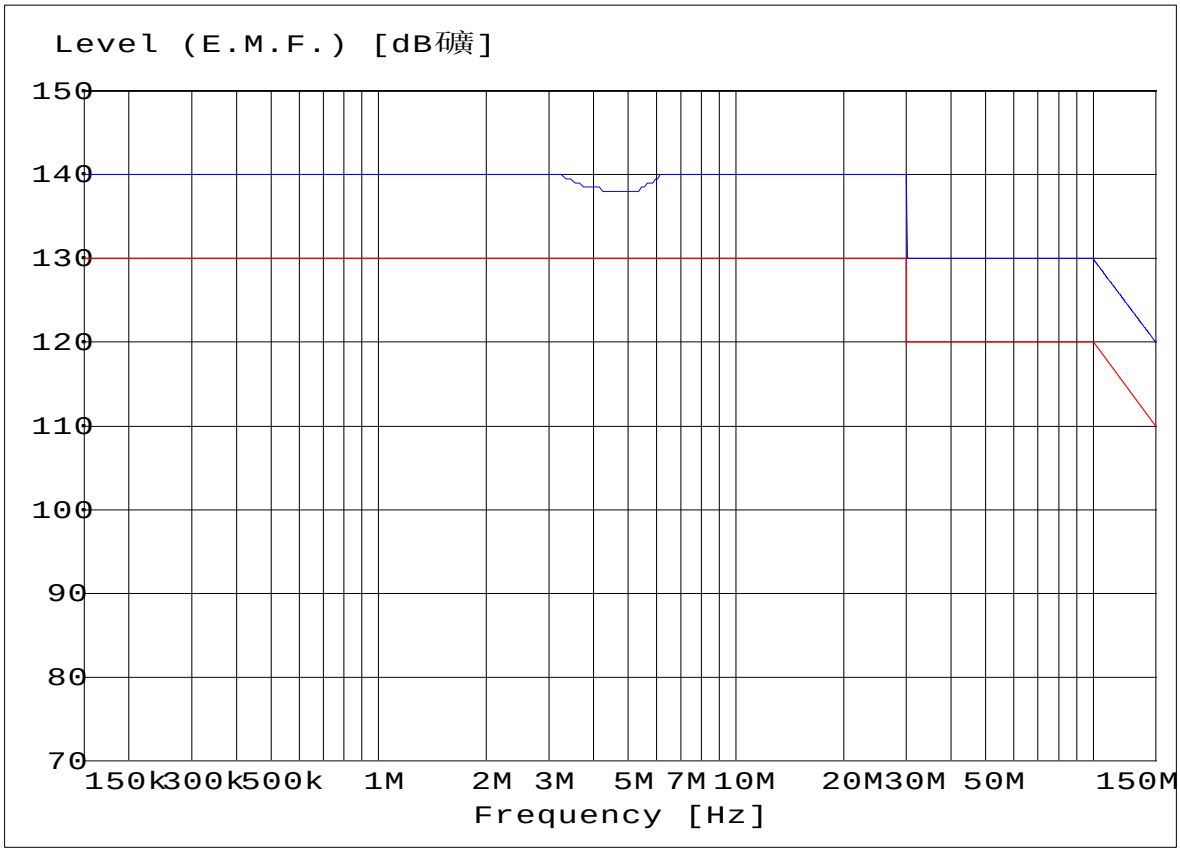


Test: Immunity Conducted Voltages S2a <120424N019>

EUT:	PMA-520AE	Operator:	Sky
Manufacturer:	YANAN	Test Specifica:	Temp:25.6';Humi:56%;Press;101.52k
Operating Condi:	AUX IN	Comment:	AC 230V/50Hz
Test Site:	BV DG EMC Lab TS9980	:	

Test Mode:	Receiver -	Monitor:	Speaker R
Operating Mode:	AUX	S/N:	75.4 dB
Frequency:	-	AF Level:	48.8 mW

Interf. Signal: Speaker R, 250412-00002-001, 4/25/2012, 4:13:41PM

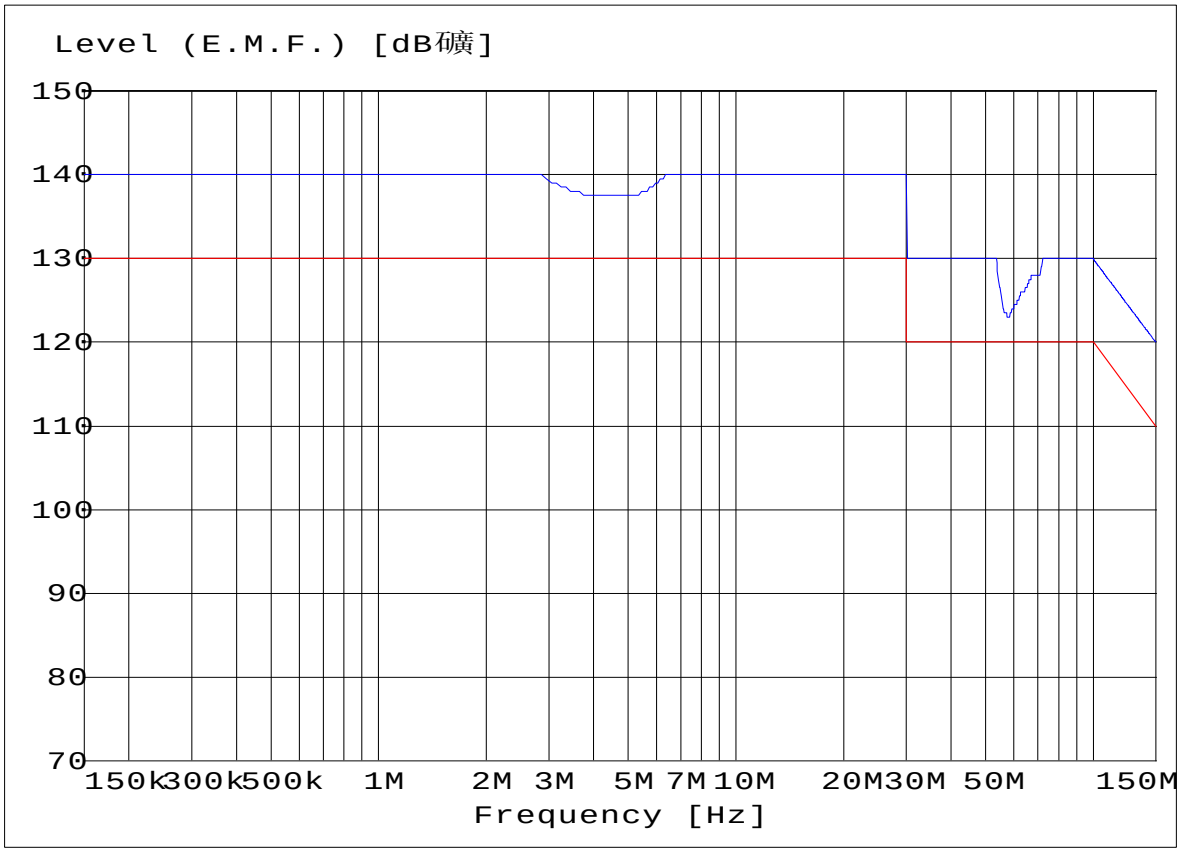


Test: Immunity Conducted Voltages S2a <120424N019>

EUT:	PMA-520AE	Operator:	Sky
Manufacturer:	YANAN	Test Specifica:	Temp:25.6';Humi:56%;Press;101.52k
Operating Condi:	AUX IN	Comment:	AC 230V/50Hz
Test Site:	BV DG EMC Lab TS9980	:	

Test Mode:	Receiver -	Monitor:	Speaker L
Operating Mode:	AUX	S/N:	78.7 dB
Frequency:	-	AF Level:	50.5 mW

Interf. Signal: Speaker L, 250412-00001-001, 4/25/2012, 4:05:18PM



Measurement Result, 250412-00001-001-1

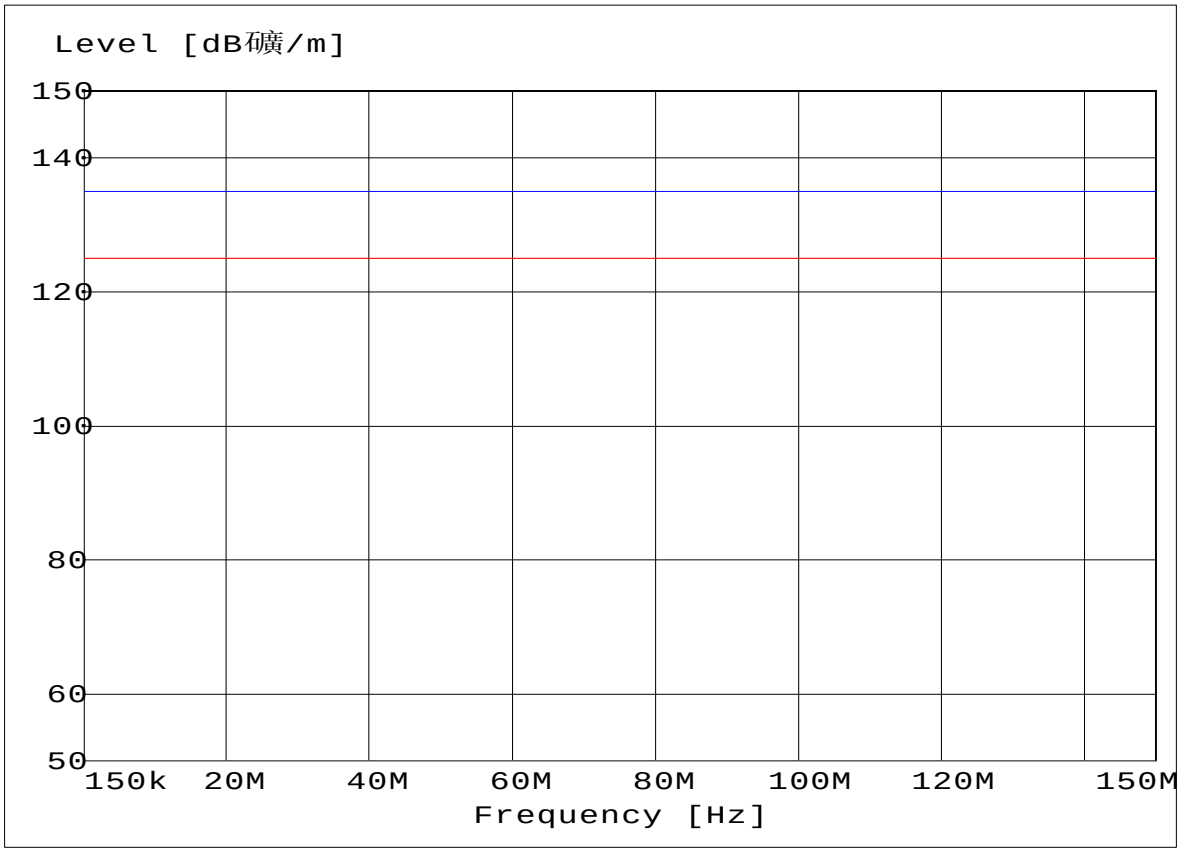
Frequency MHz	Level dBµV	Limit dBµV	Margin dB	Status	S/N dB
55.200000	126.0	120.0	6.0		40.3
55.400000	125.5	120.0	5.5		40.2
55.600000	125.0	120.0	5.0		40.4
55.800000	124.5	120.0	4.5		40.6
56.000000	124.0	120.0	4.0		40.8

Test: Immunity Radiated Fields S3 <120424N019>

EUT:	PMA-520AE	Operator:	Sky
Manufacturer:	YANAN	Test Specifica:	Temp:25.6';Humi:56%;Press;101.52k
Operating Condi:	AUX IN	Comment:	AC 230V/50Hz
Test Site:	BV DG EMC Lab TS9980	:	

Test Mode:	Receiver -	Monitor:	Speaker R
Operating Mode:	CD	S/N:	65.2 dB
Frequency:	-	AF Level:	52.4 mW

Interf. Signal: Scan, 250412-00010-001, 4/25/2012, 5:31:15PM K2 = 1.6 dB

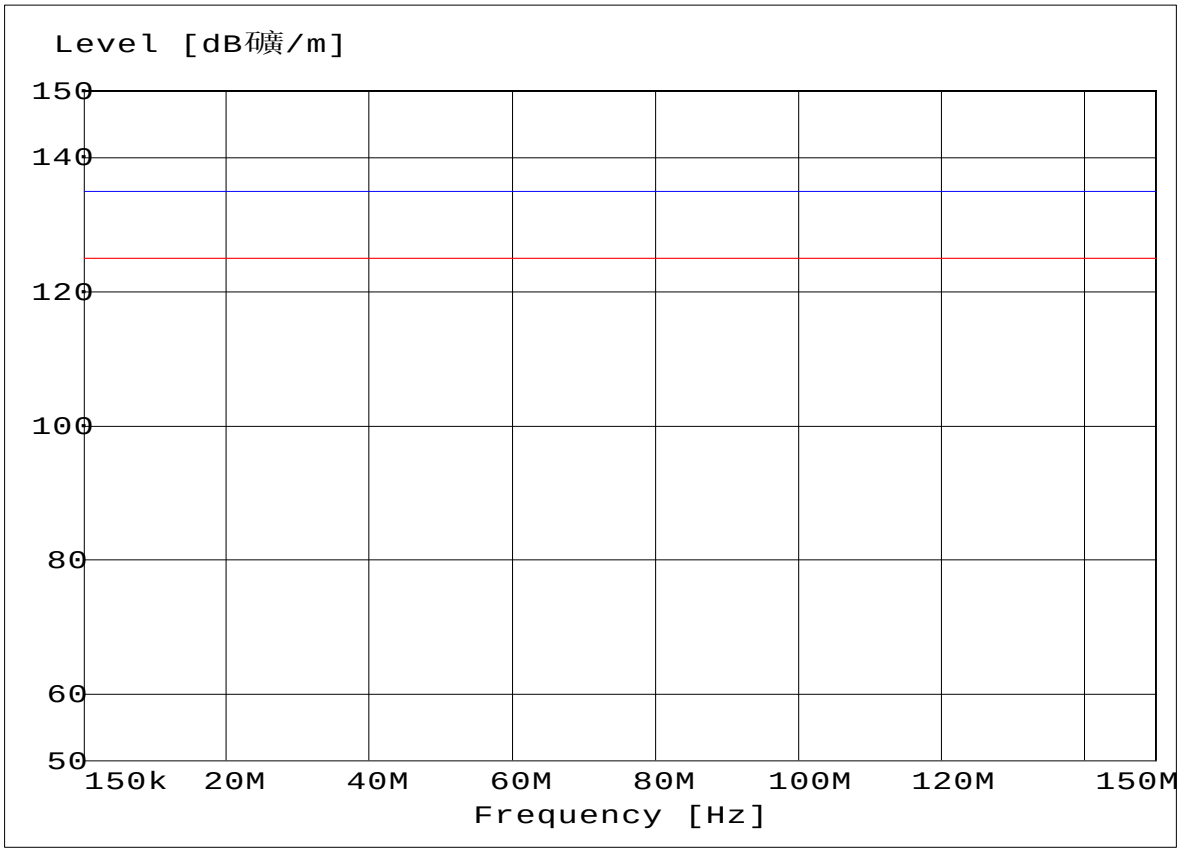


Test: Immunity Radiated Fields S3 <120424N019>

EUT:	PMA-520AE	Operator:	Sky
Manufacturer:	YANAN	Test Specifica:	Temp:25.6';Humi:56%;Press;101.52k
Operating Condi:	AUX IN	Comment:	AC 230V/50Hz
Test Site:	BV DG EMC Lab TS9980	:	

Test Mode:	Receiver -	Monitor:	Speaker R
Operating Mode:	Tuner	S/N:	78.8 dB
Frequency:	-	AF Level:	52.1 mW

Interf. Signal: Scan, 250412-00009-001, 4/25/2012, 5:19:39PM K2 = 1.6 dB

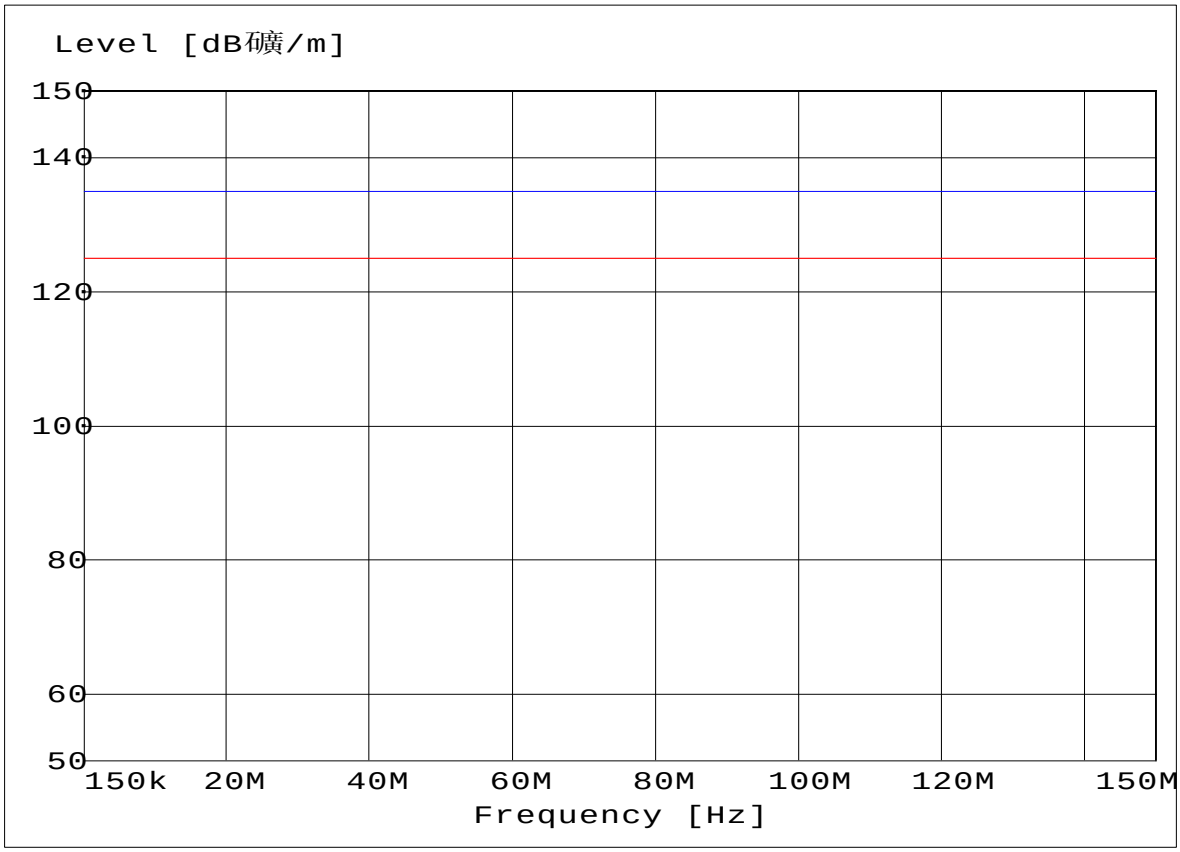


Test: Immunity Radiated Fields S3 <120424N019>

EUT:	PMA-520AE	Operator:	Sky
Manufacturer:	YANAN	Test Specifica:	Temp:25.6';Humi:56%;Press;101.52k
Operating Condi:	AUX IN	Comment:	AC 230V/50Hz
Test Site:	BV DG EMC Lab TS9980	:	

Test Mode:	Receiver -	Monitor:	Speaker R
Operating Mode:	AUX	S/N:	79.1 dB
Frequency:	-	AF Level:	52.4 mW

Interf. Signal: Scan, 250412-00008-001, 4/25/2012, 5:10:28PM K2 = 1.6 dB



D&M

EMC TEST REPORT

Emission of electromagnetic disturbances

SUMMARY

The equipment complies with the requirements according to the following standards:
Emission

EN61000-3-2:2014
EN61000-3-3:2013

Date of issue: 18, April, 2016

PMA-520AE E2 HARMONICS (Average)

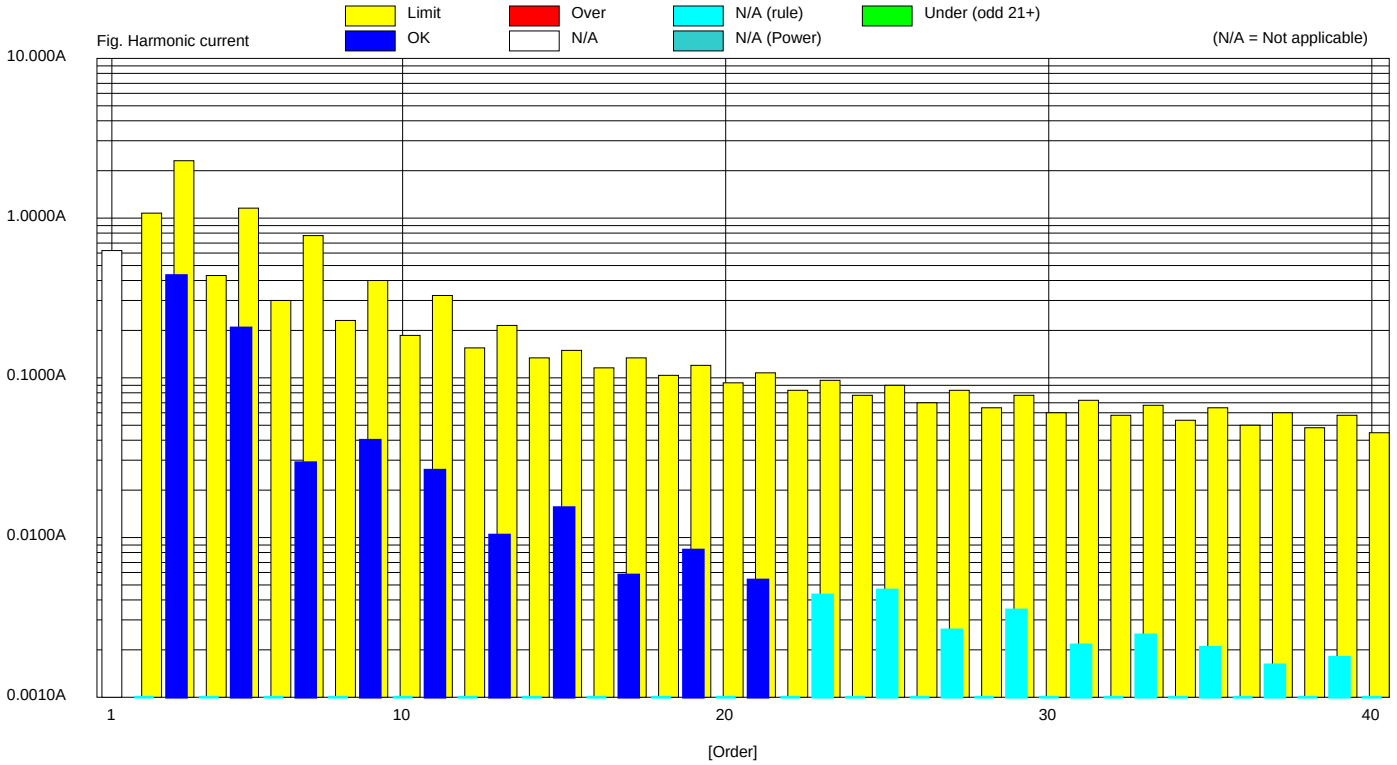
Print Date	:	Tue Feb 16 09:43:01 2016
MeasureDate	:	Tue Feb 16 09:26:02 2016
Comment	:	S/No.4071200075, 230V/50Hz,
		CD FUNC. 1kHz 4 ¶, @1/8Po i6.4Vx2 j,

Regulation	:	IEC61000-3-2 Ed3.0 am2
		IEC61000-4-7 Ed2.0 A1
Class	:	CLASS A
MeasureTime	:	150.00sec
Model	:	YOKOGAWA WT3000
Rating Voltage	:	230.00 V
Wiring	:	single-phase 2-wire
Element	:	1
Range	:	300V/2.5A
Current(rms)	:	0.7940 A
Voltage(rms)	:	229.95 V
Frequency	:	50.001 Hz
Power Factor	:	0.7843
POHC Limit	:	0.2514 A
POHC Max	:	0.0106 A
THC	:	0.4818 A

PASS

Set Fundamental I	:	---------
Set Power Factor	:	---------
Set P	:	---------
Sigma W Max	:	144.7566 W
Sigma PF	:	0.7843
Distortion factor(V)	:	0.07 %
V THDS	:	0.07 %
V THDG	:	0.07 %
Distortion factor(A)	:	76.35 %
A THDS	:	76.35 %
A THDG	:	76.35 %
P THD	:	0.05 %
Power Limit	:	75 W

Order	Measure[A]	Limit[A]	Margin[%]	Order	Measure[A]	Limit[A]	Margin[%]
1	0.6311			2	0.0006	1.0800	99.9
3	0.4311	2.3000	81.3	4	0.0002	0.4300	100.0
5	0.2061	1.1400	81.9	6	0.0001	0.3000	100.0
7	0.0293	0.7700	96.2	8	0.0001	0.2300	99.9
9	0.0411	0.4000	89.7	10	0.0001	0.1840	100.0
11	0.0263	0.3300	92.0	12	0.0001	0.1533	99.9
13	0.0105	0.2100	95.0	14	0.0001	0.1314	99.9
15	0.0152	0.1500	89.8	16	0.0001	0.1150	99.9
17	0.0058	0.1324	95.6	18	0.0001	0.1022	99.9
19	0.0083	0.1184	93.0	20	0.0001	0.0920	99.9
21	0.0055	0.1071	94.9	22	0.0001	0.0836	99.9
23	0.0044	0.0978	95.5	24	0.0001	0.0767	99.9
25	0.0046	0.0900	94.8	26	0.0000	0.0708	99.9
27	0.0026	0.0833	96.9	28	0.0001	0.0657	99.9
29	0.0035	0.0776	95.5	30	0.0000	0.0613	99.9
31	0.0022	0.0726	97.0	32	0.0000	0.0575	99.9
33	0.0024	0.0682	96.5	34	0.0000	0.0541	99.9
35	0.0020	0.0643	96.8	36	0.0000	0.0511	99.9
37	0.0016	0.0608	97.3	38	0.0000	0.0484	99.9
39	0.0018	0.0577	96.9	40	0.0001	0.0460	99.9



PMA-520AE E2 HARMONICS (Maximum)

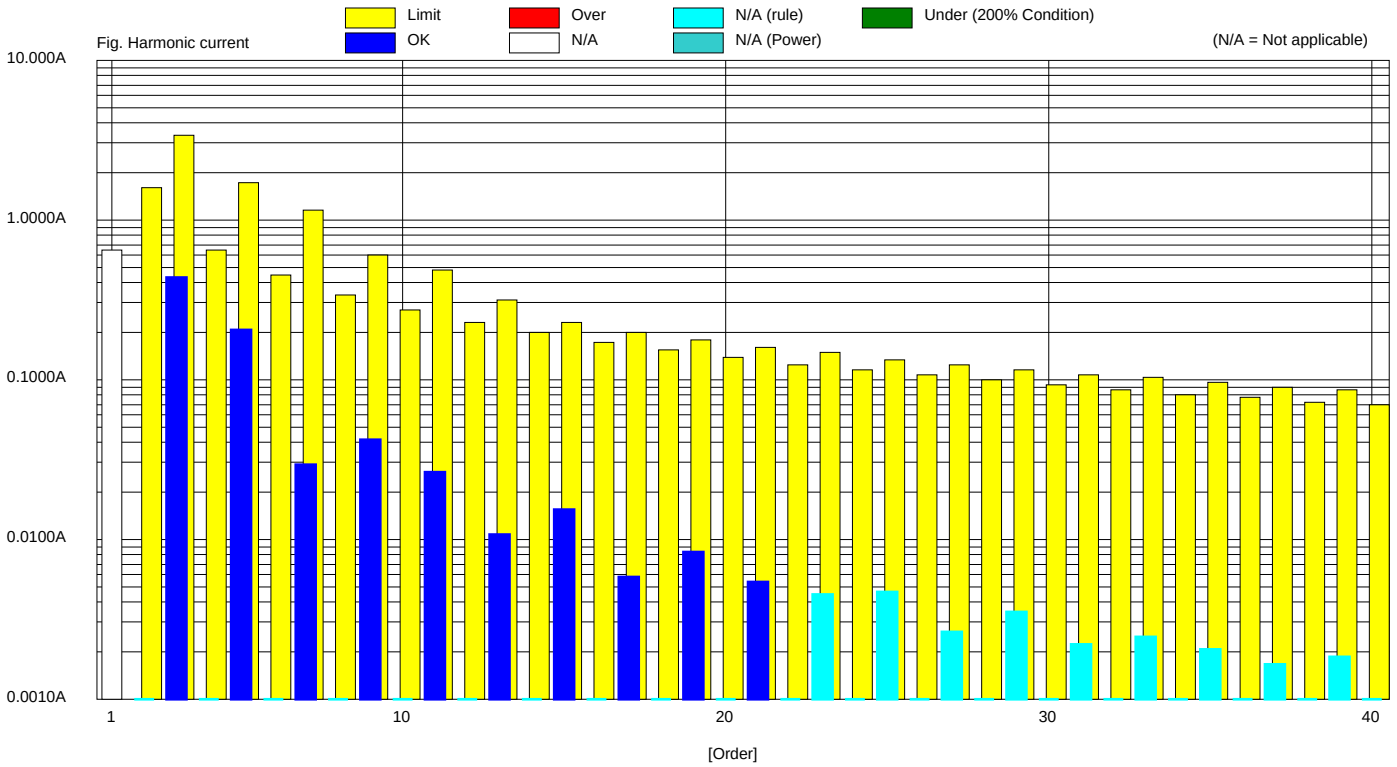
Print Date	:	Tue Feb 16 09:43:01 2016
MeasureDate	:	Tue Feb 16 09:26:02 2016
Comment	:	S/No.4071200075, 230V/50Hz,
		CD FUNC. 1kHz 4 ¶, @1/8Po i6.4Vx2 j,

Regulation	:	IEC61000-3-2 Ed3.0 am2
		IEC61000-4-7 Ed2.0 A1
Class	:	CLASS A
MeasureTime	:	150.00sec
Model	:	YOKOGAWA WT3000
Rating Voltage	:	230.00 V
Wiring	:	single-phase 2-wire
Element	:	1
Range	:	300V/2.5A
Current(rms)	:	0.8025 A
Voltage(rms)	:	229.96 V
Frequency	:	50.011 Hz
Power Factor	:	0.7844
Beyond Limit Time	:	14.9998 s
Beyond Total Time	:	0.0000 s
THC	:	0.4868 A

PASS

Set Fundamental I	:	---------
Set Power Factor	:	---------
Set P	:	---------
Sigma W Max	:	144.7566 W
Sigma PF	:	0.7844
Distortion factor(V)	:	0.07 %
V THDS	:	0.08 %
V THDG	:	0.08 %
Distortion factor(A)	:	76.36 %
A THDS	:	76.36 %
A THDG	:	76.36 %
P THD	:	0.05 %
Power Limit	:	75 W

Order	Measure[A]	Limit[A]	Margin[%]	Order	Measure[A]	Limit[A]	Margin[%]
1	0.6379			2	0.0007	1.6200	100.0
3	0.4358	3.4500	87.4	4	0.0002	0.6450	100.0
5	0.2080	1.7100	87.8	6	0.0002	0.4500	100.0
7	0.0295	1.1550	97.4	8	0.0001	0.3450	100.0
9	0.0415	0.6000	93.1	10	0.0001	0.2760	100.0
11	0.0264	0.4950	94.7	12	0.0001	0.2300	100.0
13	0.0107	0.3150	96.6	14	0.0001	0.1971	100.0
15	0.0154	0.2250	93.2	16	0.0001	0.1725	100.0
17	0.0059	0.1985	97.0	18	0.0001	0.1533	99.9
19	0.0084	0.1776	95.3	20	0.0001	0.1380	99.9
21	0.0055	0.1607	96.6	22	0.0001	0.1255	99.9
23	0.0045	0.1467	97.0	24	0.0001	0.1150	99.9
25	0.0047	0.1350	96.5	26	0.0001	0.1062	99.9
27	0.0027	0.1250	97.9	28	0.0001	0.0986	99.9
29	0.0035	0.1164	97.0	30	0.0001	0.0920	99.9
31	0.0022	0.1089	98.0	32	0.0001	0.0862	99.9
33	0.0025	0.1023	97.6	34	0.0001	0.0812	99.9
35	0.0020	0.0964	97.9	36	0.0001	0.0767	99.9
37	0.0017	0.0912	98.2	38	0.0001	0.0726	99.9
39	0.0018	0.0865	97.9	40	0.0001	0.0690	99.9



PMA-520AE E2 FLICKER

Print Date	:	Tue Feb 16 10:54:05 2016
MeasureDate	:	Tue Feb 16 10:26:15 2016
Comment	:	230V / 50Hz S/No.4071200075

Regulation	:	IEC61000-3-3 Ed3.0 IEC61000-4-15 Ed2.0
Interval	:	1Min
Model	:	YOKOGAWA WT3000
Wiring	:	single-phase 2wire
Voltage Range	:	300.00V
Set Voltage	:	230V
Set Frequency	:	50Hz
Voltage U1	:	229.96V
Frequency U1	:	50.000Hz
Element	:	1
dmin	:	0.20%

PASS

Element1	:	Pass
dc (-----)	:	----
dmax(4.00%)	:	Pass
Tmax(-----)	:	----
Pst (-----)	:	----
Plt (-----)	:	----

No.	dc[%]	dmax[%]	Tmax[ms]	Pst
1	-----	0.00 max	-----	-----
2	-----	0.00	-----	-----
3	-----	0.00	-----	-----
4	-----	0.00	-----	-----
5	-----	0.00	-----	-----
6	-----	0.00	-----	-----
7	-----	0.00	-----	-----
8	-----	0.00	-----	-----
9	-----	0.00	-----	-----
10	-----	0.00	-----	-----
11	-----	0.00	-----	-----
12	-----	0.00	-----	-----
13	-----	0.00	-----	-----
14	-----	0.00	-----	-----
15	-----	0.00	-----	-----
16	-----	0.00	-----	-----
17	-----	0.00	-----	-----
18	-----	0.00	-----	-----
19	-----	0.00	-----	-----
20	-----	0.00	-----	-----
21	-----	0.00	-----	-----
22	-----	0.00	-----	-----
23	-----	0.00	-----	-----
24	-----	0.00 min	-----	-----

Average dmax	0.00	Plt

D&M

D&M Holdings Inc., Brand Group Japan

Quality Assurance Division

2-1 Nisshin-cho, Kawasaki-ku, Kawasaki-shi, Kanagawa, 210-8569 Japan

Tel : +81-44-670-2665 Fax : +81-44-670-2697

Test Report for Energy-related Products (ErP) EC Regulation No.1275/2008

General Information:

Report Date:	22-May-12	Report No.:	DM-ERP12018
Manufacturer:	D&M Holdings Inc.		
Factory	Anam Electronics (Dongguan) Co.,Ltd.		
Model Tested:	PMA-520AE		
Appliance Type	Integrated Amplifier		
Brand Name:	DENON		
Country of Origin:	China		
Test Method:	IEC 62301:2011 Household electrical appliances - Measurement of standby power		

Test Results:

Date Tested:	24-Apr-12	Ambient Temperature:	26.6°C
Power Supply:	230V~ 50Hz	THD:	≤2%

Operating Condition (Refer to the user's manual)	Description of the mode select	Measured Input Watts
Off mode	Main Switch OFF	0.005
Initial Standby mode	Auto STB On/STANDBY	0.291
Max. consumed Standby mode if any	-	N/A
Other function than Off/Standby modes if any	-	-
Power management function	Yes	
Functional time of power management	30min.	

Complied with 1st stage of ErP from 7 January, 2009 (≤1.0W)	Yes
Complied with 2nd stage of ErP from 7 January, 2013 (≤0.5W & Power Management)	Yes

Test Equipment:

Meter Maker	Model	Meter Control No.	Calibration Due
HIOKI	3332	1F030	30-Apr-13

Test Notes:

Uncertainty of Measurement:	≤2%
Resolution of Power Measurement:	0.001W

Tested by: Daisuke Hashimoto

Approved by:

Mikio Nagata, Senior Manager
Quality Assurance Division
D&M Holdings Inc.

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

Test Report for Restriction of Hazardous Substances (RoHS)
EU Directive 2011/65/EU, and amendment Directive (EU) 2015/863

General Information:

Report Date:	9-Oct-18	Report No.:	DM-RoHS12018-R6
Manufacturer:	D&M Holdings Inc.		
Address:	2-1 Nisshin-cho, Kawasaki-ku, Kawasaki, Kanagawa, 210-8569, Japan		
Factory	ANAM ELECTRONICS VIETNAM CO.,LTD		
Address(1):	Dong Van II Industrial Zone, Duy Tien District, Ha Nam Province, Viet Nam		
Address(2):	Dong Van IV Industrial Park, Dai Cuong Commune, Kim Bang dsistrict, Ha Nam province, Viet Nam		
Model Tested:	PMA-520AE		
Appliance Type	Integrated Amplifier		
Brand Name:	DENON		
Country of Origin:	Viet Nam		
Harmonised Standards:	EN 50581:2012 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances		

Test Results: For more detail, refer to the attached parts list.

Date Reported:	9-Oct-18		
Substance	Limit (%)	Containing substances	Judgment
Lead	0.1	Yes*1	Pass
Mercury	0.1	ND*2	Pass
Cadmium	0.01	ND*2	Pass
Hexavalent chromium	0.1	ND*2	Pass
Polybrominated biphenyls (PBB)	0.1	ND*2	Pass
Polybrominated diphenyl ethers (PBDE)	0.1	ND*2	Pass
Bis (2-ethylhexyl) phthalate (DEHP)	0.1	ND*2	Pass
Butyl benzyl phthalate (BBP)	0.1	ND*2	Pass
Dibutyl phthalate (DBP)	0.1	ND*2	Pass
Diisobutyl phthalate (DIBP)	0.1	ND*2	Pass

*1: These are included to only those parts defined as exemption in ANNEX Ⅲ.
*2: ND = Not Detected

Checked by: Akihiro Yoshida

Approved by:

Mikio Nagata, Senior Manager
NPD, Quality Assurance.
D&M Holdings Inc.