Test Report issued under the responsibility of:

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

Report Reference No ..... :	E487915-A1-CB-1
Date of issue ..... :	2016-10-27
Total number of pages ..... :	39
CB Testing Laboratory ..... :	UL Korea, Ltd.
Address ..... :	218 Maeyeong-ro Yeongtong-gu, Suwon-si Gyeonggi-do, 443-823, Korea
Applicant's name ..... :	IMP
Address ..... :	67, HWAHAP-RO 1402 BEON-GIL, GYEONGGI-DO YANGJU-SI KOREA
Test specification:	
Standard ..... :	IEC 60065:2001(Seventh Edition) + A1:2005 + A2:2010
Test procedure ..... :	CB Scheme
Non-standard test method ..... :	N/A
Test Report Form No. ..... :	IEC60065K
Test Report Form originator ..... :	Intertek Semko AB
Master TRF ..... :	Dated 2010-10

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.

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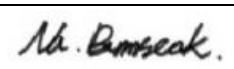
Test item description ..... :	Audio Processor
Trade Mark ..... :	Imp
Manufacturer ..... :	IMP 67, HWAHAP-RO 1402 BEON-GIL, GYEONGGI-DO YANGJU-SI KOREA
Model/Type reference ..... :	IPV-632EP
Ratings ..... :	220-240Vac, 50/60Hz, 15W or 24 Vdc, 250mA

Testing procedure and testing location:			
[x]	**CB Testing Laboratory**		
	Testing location / address .....:	UL Korea, Ltd. 218 Maeyeong-ro Yeongtong-gu, Suwon-si Gyeonggi-do, 443-823, Korea	
[ ]	**Associated CB Test Laboratory**		
	Testing location / address .....:		
	Tested by (name + signature) .....:	DaeHwan Kim / Project Handler	
	Approved by (name + signature)....:	BumSeok Na / Project Reviewer	
[ ]	**Testing Procedure: TMP/CTF Stage 1**		
	Testing location / address .....:		
	Tested by (name + signature) .....:		
	Approved by (name + signature)....:		
[ ]	**Testing Procedure: WMT/CTF Stage 2**		
	Testing location / address .....:		
	Tested by (name + signature) .....:		
	Witnessed by (name + signature) ..:		
	Approved by (name + signature)....:		
[ ]	**Testing Procedure: SMT/CTF Stage 3 or 4**		
	Testing location / address .....:		
	Tested by (name + signature) .....:		
	Approved by (name + signature)....:		
	Supervised by (name + signature) .:		
[ ]	**Testing Procedure: RMT**		
	Testing location / address .....:		
	Tested by (name + signature) .....:		
	Approved by (name + signature)....:		
	Supervised by (name + signature) .:		

List of Attachments
National Differences (9 pages)
Enclosures (19 pages)
Summary Of Testing Unless otherwise indicated, all tests were conducted at UL Korea, Ltd. 218 Maeyeong-ro Yeongtong-gu, Suwon-si Gyeonggi-do, 443-823, Korea.

	Tests performed (name of test and test clause)	**Testing location / Comments**
	Test Conditions	

Input - Apparatus Not Employing Signal Inputs and Not Containing an Audio Amplifier (4.2)

Fault Conditions - Fire Hazard Determination (4.3)

Fault Conditions - General (4.3)

Fault Conditions - Clearance and Creepage, Insulating Materials and Electronic Components (4.3.1, 4.3.2, 4.3.4)

Fault Conditions - Output Terminal Overload (4.3.9)

Dielectric Strength After Fault Conditions (11)

Touch Current After Fault Conditions (11.1)

Marking Durability and Legibility (5)

Heating Under Normal Operating Conditions (7)

Winding Insulation (8.8)

Touch Current (9.1.1)

Withdrawal of Mains Plug (9.1.6)

Enclosure Resistance to External Forces (9.1.7)

Humidity Treatment (10.2)

Insulation Resistance and Dielectric Strength After Humidity Treatment (10.3)

Impact (12.1.3)

Dielectric Strength After Impact (12.1.3)

Impact 2 (IEC 60065, 12.1.3)

Dielectric Strength After Impact (IEC 60065, 12.1.3)

Determination of Working Voltage (13.2)

Protective Earth Terminal Resistance (15.2)

Screw Securement (17.1)

Summary of Compliance with National Differences:

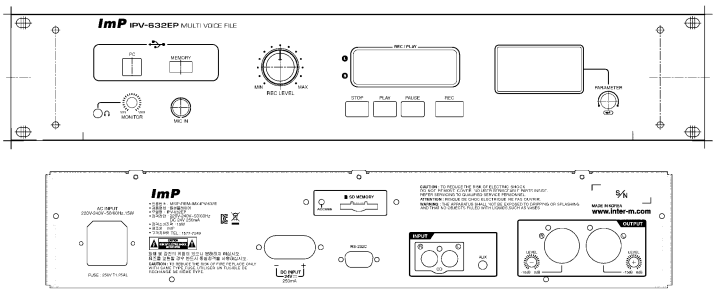
Countries outside the CB Scheme membership may also accept this report.

List of countries addressed: EU, KR

The product fulfills the requirements of: N/A

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 .....:	Commercial, Rack-mounted
Supply connection .....:	Appliance inlet
Possible test case verdicts:	
- test case does not apply to the test object .....:	N / A
- test object does meet the requirement .....:	P(Pass)
- test object does not meet the requirement .....:	F(Fail)
Testing:	
Date(s) of receipt of test item .....:	2016-07-18, 2016-08-24, 2016-09-22, 2016-10-26
Date(s) of Performance of tests .....:	2016-08-10 to 2016-10-26
General remarks:	
"(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 point is used as the decimal separator.	
Manufacturer's Declaration per Sub Clause 4.2.5 of IECEE 02:	
The application for obtaining a CB Test Certificate includes more than one factory 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 ..... When differences exist, they shall be identified in the General Product Information section.	Not Applicable
Name and address of Factory(ies):	IMP 67, HWAHAP-RO 1402 BEON-GIL, GYEONGGI-DO YANGJU-SI KOREA

GENERAL PRODUCT INFORMATION:

Report Summary

All applicable tests according to the referenced standard(s) have been carried out.

Product Description

The model IPV-632EP is designed for Audio Processor.

Model Differences

N/A

Additional Information

Original, Ref.No. E487915-A1-CB-1
- Maximum Normal Load: The apparatus was recording a sound source. USB Load(0.5A)

Technical Considerations

- Equipment class: Class I
- The product was investigated to the following additional standards: EN 60065:2002 + A1:2006 + A11:2008 + A2:2010 + A12:2011

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
3	**GENERAL REQUIREMENTS**		Pass
	Safety class of the apparatus.....:	CLASS I	Pass
4	**GENERAL TEST CONDITIONS**		Pass
4.1.4	Ventilation instructions require the use of the test box		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

5	**MARKING AND INSTRUCTIONS**		Pass
	Comprehensible and easily discernible		Pass
	Permanent durability against water and petroleum spirit	The marking(s) withstood the required test.	Pass
5.1	a) Identification, maker.....:	Imp	Pass
	b) Model number or type reference.....:	IPV-632EP	Pass
	c) Class II symbol if applicable.....:		N/A
	d) Nature of supply.....:	The apparatus is marked with the symbol "~" (IEC 60417-5032). The apparatus is marked with the dc only symbol (IEC 60417-5033).	Pass
	e) Rated supply voltage.....:	220-240 Vac or 24 Vdc	Pass
	f) Mains frequency if safety dependent.....:	50/60 Hz	Pass
	g) Rated current or power consumption for apparatus supplied by supply apparatus for general use .....:		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 .....:	15 W or 250mA(for DC)	Pass
	Measured current or power consumption.:	(see appended table 7.1)	Pass
	Measured current or power consumption for Television set.....:		N/A
	Deviation % (max 10%).....:	Max. 10%	Pass
5.2	a) Earth terminal	The earth terminal associated with the supply wiring is marked with the standard earth symbol (60417-2-IEC-5019) near the terminal.	Pass
	b) Hazardous live terminals		N/A
	c) Markings on supply output terminals		N/A
5.3	a) Use of triangle with exclamation mark	The exclamation point within an equilateral triangle graphic symbol (ISO 7000-0434) is	Pass

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
		used in the service manual to indicate critical replacement components.	
	b) Marking on loudspeaker grille, IEC 60417-5036		N/A
5.4	Instructions for use		Pass
5.4.1	a) Mains powered equipment not exposed to dripping or splashing. Warning concerning objects filled with liquid, etc.	The instructions supplied with the apparatus were marked, with the required warning.	Pass
	b) Hazardous live terminals, instructions for wiring		N/A
	c) Instructions for replacing lithium battery		N/A
	d) Class I earth connection warning	The required warning is in the instruction manual.	Pass
	e) Instructions for multimedia system connection		N/A
	f) Special stability warning for attachment of the apparatus to the floor/wall		N/A
	g) Warning: battery exposure to heat		N/A
	h) Warning: protective film on CRT face		N/A
5.4.2	a-b) Disconnect device: plug/coupler or all-pole mains switch location, accessibility and markings		Pass
	c) Instructions for permanently connected equipment		N/A
	Marking, signal lamps or similar for completely disconnection from the mains		N/A
6	**HAZARDOUS RADIATION**		N/A
6.1	Ionizing radiation < 36 pA/kg (0,5 mR/h)		N/A
	Ionizing radiation under fault condition		N/A
6.2	Laser radiation, emission limits to IEC 60825-1:2007 .....:		N/A
	Emission limits under fault conditions.....:		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
7	**HEATING UNDER NORMAL OPERATING CONDITIONS**		Pass
7.1	Temperature rises not exceeding specified values; fuse links and other protective devices defeated	(see appended table 7.1)	Pass
7.1.1	Temperature rise of accessible parts	(see appended table 7.1)	Pass
7.1.2	Temperature rise of parts providing electrical insulation	(see appended table 7.1)	Pass
7.1.3	Temperature rise of parts acting as a support or as a mechanical barrier		N/A
7.1.4	Temperature rise of windings	(see appended table 7.1)	Pass
7.1.5	Parts not subject to a limit under 7.1.1 to 7.1.4	(see appended table 7.1)	Pass
7.2	Softening temperature of insulating material supporting parts conductively connected to the mains carrying a current > 0,2 A at least 150°C		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

8	**CONSTRUCTIONAL REQUIREMENTS WITH REGARD TO THE PROTECTION AGAINST ELECTRIC SHOCK**		Pass
8.1	Conductive parts covered by lacquer, paper, untreated textile oxide films and beads etc. considered to be bare		Pass
8.2	No shock hazard when changing voltage setting device, fuse-links or handling drawers etc.		N/A
8.3	Insulation of hazardous live parts not provided by hygroscopic material	The apparatus does not contain any hygroscopic materials.	Pass
8.4	No risk of electric shock from accessible parts or from parts rendered accessible following the removal of a cover which can be removed by hand		N/A
8.5	Class I equipment		Pass
	Basic insulation between hazardous live parts and earthed accessible parts		Pass
	Resistors bridging basic insulation complying with 14.1 a)		N/A
	Capacitors bridging basic insulation complying with 14.2.1 a)		N/A
	Protective earthing terminal		Pass
8.6	Class II equipment and Class II constructions within Class I equipment	Class I product, accessible parts separated from hazardous live parts according to 8.5.	N/A
	Double or reinforced insulation between hazardous live parts and accessible parts		N/A
	Components bridging double or reinforced insulation complying with 14.1 a) or 14.3	Transformer	Pass
	Basic insulation bridged by components complying with 14.3.4.3		N/A
	Basic and supplementary insulation each being bridged by a capacitor complying with 14.2.1 a)		N/A
	Double or reinforced insulation being bridged with 2 capacitors in series complying with 14.2.1 a)		N/A
	Double or reinforced insulation being bridged with a single capacitor complying with 14.2.1 b)		N/A
8.7	This clause is void.....:		-
8.8	Basic or supplementary insulation > 0,4 mm (mm).....:		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	Reinforced insulation > 0,4 mm (mm) .....:	Bobbin of transformer	Pass
	Thin sheet insulation (excluding non-separable thin sheet insulation. See 8.22)	Inside of Transformer	Pass
	Basic or supplementary insulation, at least two layers, each meeting 10.3		N/A
	Basic or supplementary insulation, three layers any two of which meet 10.3		N/A
	Reinforced insulation, two layers each of which meet 10.3	See appended table 10.3	Pass
	Reinforced insulation, three layers any two which meet 10.3		N/A
8.9	Adequate insulation between internal hazardous live conductors and accessible parts		Pass
	Adequate insulation between internal hazardous live parts and conductors connected to accessible parts		Pass
8.10	Double insulation between conductors connected to the mains and accessible parts		N/A
	Double insulation between internal hazardous live parts and conductors connected to accessible parts		N/A
8.11	Detaching of wires		Pass
	No undue reduction of creepages or clearance distances if wires become detached	Connectors provided for all detaching of wires	Pass
	Vibration test carried out .....:		N/A
8.12	This clause is void.....:		-
8.13	Adequate fastening of windows, lenses, lamp covers etc. (pull test 20 N for 10 s)		N/A
8.14	Adequate fastening of covers (push/pull test 50 N for 10 s)		N/A
8.15	No risk of damage to the insulation of internal wiring due to hot parts or sharp edges	There was no contact with sharp edges or hot parts.	Pass
8.16	Only special supply equipment can be used		N/A
8.17	Insulated winding wire without additional interleaved insulation		N/A
8.18	Endurance test as required by 8.17		N/A
8.19	Disconnection from the mains		Pass
8.19.1	Disconnect device	Appliance Inlet	Pass
	All-pole switch or circuit breaker with > 3mm		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	contact separation		
8.19.2	Mains switch ON indication		N/A
8.20	Switch not fitted in the mains cord		N/A
8.21	Bridging components comply with clause 14		N/A
8.22	Non-separable thin sheet material		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

9	**ELECTRIC SHOCK HAZARD UNDER NORMAL OPERATING CONDITIONS**		Pass
9.1	Testing on the outside		Pass
9.1.1	For voltages >1000 V ac or >1500 V dc complies with clause 13.3.1 for basic insulation	Voltages do not exceed 1 000 V a.c. or 1 500 V dc.	Pass
9.1.1.1	a) Open circuit voltages	Test loacation a) : Normal, Reverse: 195Vac(Switch, S1/n Open) Normal, Reverse: 146Vac(Switch, S1/n Closed), Test loacation b) : Normal, Reverse: 191Vac(Switch, S1/n Open) Normal, Reverse: 143Vac(Switch, S1/n Closed)	Pass
	b) Touch current measured from terminal devices using the network in annex D.....:	Test loacation a) : Normal, Reverse U2: 48mVpeak(Switch, S1/n Open) Normal, Reverse U2: 60mVpeak(Switch, S1/n Closed), Test loacation b) : Normal, Reverse U2: 37mVpeak(Switch, S1/n Open) Normal, Reverse U2: 48mVpeak(Switch, S1/n Closed),	Pass
	c) Discharge not exceeding 45 µC		N/A
	d) Energy of discharge not exceeding 350 mJ		N/A
9.1.1.2	Test with test finger and test probe		N/A
9.1.2	No hazardous live shafts of knobs, handles or levers		N/A
9.1.3	Ventilation holes and other holes tested by means of 4 mm x 100 mm test pin	No vetilation holes	N/A
9.1.4	Terminal devices tested with 1 mm x 20 mm test pin (10 N); test probe D of IEC 61032		N/A
	Terminal devices tested with 1 mm x 100 mm straight wire (1 N); test probe D of IEC 61032		N/A
9.1.5	Pre-set controls tested with 2.5 mm x 100 mm test pin (10 N); test probe C of IEC 61032		N/A
9.1.6	No shock hazard due to stored charge on withdrawal of the mains plug; voltage (V) after 2 s .....:	0 V after 2 S	Pass

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	If C is not greater than 0,1 µF no test needed		N/A
9.1.7	Resistance to external forces		Pass
	a) Test probe 11 of IEC 61032 for 10 s (50 N)	During application of force by the rigid test finger, the enclosure did not become hazardous live, hazardous live parts did not become accessible and textile coverings did not contact hazardous live parts.	Pass
	b) Test hook of fig. 4 for 10 s (20 N)	During application of the test hook, hazardous live parts did not become accessible.	Pass
	c) 30 mm diameter test tool for 5 s (100 or 250 N)	During 100 N application of the circular plane test tool, hazardous live parts the enclosure did not become hazardous live and hazardous live parts did not become accessible.	Pass
9.2	No hazard after removing a cover by hand		N/A
10	**INSULATION REQUIREMENTS**		Pass
10.1	Insulation resistance (M Ohms) at least 2 (M Ohms) min. after surge test for basic and 4 (M Ohms) min. for reinforced insulation.....:		N/A
10.2	Humidity treatment 48 h or 120 h .....:	48 h / 30 Degree / 93%	Pass
10.3	Insulation resistance and dielectric strength between mains terminals	(see appended table 10.3)	Pass
	Insulation resistance and dielectric strength across BASIC or SUPPLEMENTARY insulation (Class 1)		Pass
	Insulation resistance and dielectric strength across REINFORCED insulation (Class II)		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
11	**FAULT CONDITIONS**		Pass
11.1	No shock hazard under fault condition	(see appended table 11.2)	Pass
11.2	Heating under fault condition		Pass
	Flames extinguish within 10 seconds		Pass
	No hazard from softening solder		Pass
	Soldered terminations not used as protective mechanism		Pass
11.2.1	Measurement of temperature rises	(see appended table 11.2)	Pass
11.2.2	Temperature rise of accessible parts	(see appended table 11.2)	Pass
11.2.3	Temperature rise of parts, other than windings and printed boards, providing electrical insulation	(see appended table 11.2)	Pass
11.2.4	Temperature rise of parts acting as a support or mechanical barrier		N/A
11.2.5	Temperature rise of windings	(see appended table 11.2)	Pass
11.2.6	Temperature rise of printed boards shall not exceed the limits of table 3 by max. 100 K for max. 5 min	(see appended table 11.2)	Pass
	Printed circuit boards (PCB) classified as V-0 according to 60695-11-10 or Clause G.1 may exceed the limit in table 3 in case a) and b):		N/A
	a) Temperature rise of printed circuit boards exceeding the limits of table 3 by not more than 100 K for an area not greater than 2 cm^2 :		N/A
	b) Temperature rise of printed circuit boards exceeding the limits of table 3 up to 300 K for an area not greater than 2 cm^2 for a maximum of 5 min		N/A
	Meets all the special conditions if conductors on printed circuit boards are interrupted		N/A
	Class I protective earthing maintained		Pass
11.2.7	Temperature rise of parts not subject to the limits of 11.2.1 to 11.2.6 shall not exceed the limits in table 3, item e), "Fault conditions".	(see appended table 11.2)	Pass

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

12	**MECHANICAL STRENGTH**		Pass
12.1.1	Bump test where mass >7 kg		N/A
12.1.2	Vibration test		N/A
12.1.3	Impact hammer test	No damage	Pass
	Steel ball test	No damage	Pass
12.1.4	Drop test for portable apparatus where mass =< 7kg		N/A
12.1.5	Thermoplastic enclosures stress relief test		N/A
12.2	Fixing of knobs, push buttons, keys and levers	No damage	Pass
12.3	Remote controls with hazardous live parts		N/A
12.4	Drawers (pull test 50 N, 10 s)		N/A
12.5	Antenna coaxial sockets providing isolation		N/A
12.6	Telescoping or rod antennas construction		N/A
12.6.1	Telescoping or rod antennas securement		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

13	**CLEARANCE AND CREEPAGE DISTANCES**		Pass
13.1	Clearances in accordance with 13.3		Pass
	Creepage distances in accordance with 13.4		Pass
13.2	Determination of working voltage	Transformer: 356 Vpeak / 251 Vrms	Pass
13.3	Clearances		Pass
13.3.1	General		Pass
13.3.2	Circuits conductively connected to the mains comply with table 8 and, where applicable, table 9 .....:	Primary to Secondary: 8.0mm(Transformer)	Pass
13.3.3	Circuits not conductively connected to the mains comply with table 10		Pass
13.3.4	Measurement of transient voltages		N/A
13.4	Creepage distances	Primary to Secondary: 8.0mm(Transformer)	Pass
	Creepage distances greater than table 11 minimum values		Pass
13.5	Printed boards		Pass
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		Pass
13.5.2	Type B coated printed circuit boards complying with IEC 60664-3 (basic insulation only)		N/A
13.6	Conductive parts along uncemented joints clearances and creepage distances comply with 13.3 and 13.4		N/A
	Conductive parts along reliably cemented joints comply with 8.8		N/A
	Temperature cycle test and dielectric strength test		N/A
	500V test for transformers, magnetic coupler and similar devices, if insulation is relied upon for safety		N/A
13.7	Enclosed, enveloped or hermetically sealed parts: not conductively connected to the mains: clearances and creepage distances as in table 12		N/A
13.8	Parts filled with insulating compound, meeting the requirements of 8.8		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
14	**COMPONENTS**		Pass
14.1	Resistors		N/A
	a) Resistors between hazardous live parts and accessible metal parts		N/A
	b) Resistors, other than between hazardous live parts and accessible parts		N/A
	Resistors separately approved.....:		N/A
14.2	Capacitors and RC units		N/A
	Capacitors separately approved		N/A
14.2.1	Y capacitors tested to IEC 60384-14, 2nd Edition.....:		N/A
14.2.2	X capacitors tested to IEC 60384-14, 2nd Edition.....:		N/A
14.2.3	Capacitors operating at mains frequency but not connected to the mains: tests for X2.....:		N/A
14.2.5	Capacitors with volume exceeding 1750 mm³, where short-circuit current exceeds 0,2 A: compliance with IEC60384-1, 4.38 category B or better.....:		N/A
	Capacitors with volume exceeding 1750 mm³, mounted closer to a potential ignition source than table 5 permits: compliance with IEC 60384-1, 4.38 category B or better.....:		N/A
	Shielded by a barrier acc. to 20.1.4/table 21 or metal.....:		N/A
14.3	Inductors and windings		Pass
	Comply with IEC 61558-1, IEC 61558-2 (as relevant) and clause 20.1.4		N/A
14.3.1	Transformers and inductors marked with manufacturer's name and type.....:	HanYang Trans Co. PV-632	Pass
	Transformers and inductors separately approved.....:	Tested in this equipment	N/A
14.3.2	General		Pass

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	Insulation material complies with clause 20.1.4		Pass
14.3.3	Constructional requirements		Pass
14.3.3.1	Clearances and creepage distances comply with clause 13		Pass
14.3.3.2	Transformers meet the constructional requirements		Pass
14.3.4	Separation between windings		Pass
14.3.4.1	Class II transformers have adequate separation between hazardous live parts and accessible parts (double or reinforced insulation).....:		N/A
	Coil formers and partition walls > 0,4 mm		N/A
14.3.4.2	Class I transformers, with basic insulation and protective screening only if all 7 conditions of 14.3.4.2 are met		Pass
14.3.4.3	Separating transformers with at least basic insulation		Pass
14.3.5	Insulation between HAZARDOUS LIVE parts and ACCESSIBLE parts	(See sub-clause 14.3.4.2)	Pass
14.3.5.1	Class II transformers have adequate insulation between hazardous live parts and accessible parts (double or reinforced insulation)		N/A
	Coil formers and partition walls > 0,4 mm		N/A
14.3.5.2	Class I transformers have adequate insulation between hazardous live parts and accessible conductive parts or those conductive parts or protective screens connected to a protective earth terminal		Pass
	Winding wires connected to protective earth have adequate current-carrying capacity		N/A
14.4	High voltage components		N/A
	High voltage components and assemblies: U > 4 kV (peak) separately approved		N/A
	Component meets category V-1 of IEC 60707		N/A
14.4.1	High voltage transformers and multipliers tested as part of the submission		N/A
14.4.2	High voltage assemblies and other parts tested as part of the submission		N/A
14.5	Protective devices		Pass

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	Protective devices used within their ratings		Pass
	External clearances and creepage distances meet requirement of clause 13 for the voltage across the device when opened		Pass
14.5.1.1	a) Thermal cut-outs separately approved		N/A
	b) Thermal cut-outs tested as part of the submission		N/A
14.5.1.2	a) Thermal links separately approved		N/A
	b) Thermal links tested as part of the submission		N/A
14.5.1.3	Thermal devices re-settable by soldering		N/A
14.5.2.1	Fuse-links in the mains circuit according to IEC 60127	Fuse in Appliance Inlet, F401	Pass
14.5.2.2	Correct marking of fuse-links adjacent to holder .....:	For Fuse in Appliance Inlet, F401: T1.25AL/250V	Pass
14.5.2.3	Not possible to connect fuses in parallel ..:		N/A
14.5.2.4	Not possible to touch hazardous live parts when replacing fuse-links without the use of a tool .....:		N/A
14.5.3	PTC thermistors comply with IEC 60730-1:2007		N/A
	PTC devices (15 W) category V-1 or better		N/A
14.5.4	Circuit protectors have adequate breaking capacity and their position is correctly marked	Protector IC for USB	Pass
14.6	Switches		N/A
14.6.1a)	Separate testing to IEC 61058-1 including: - 10 000 operations - Normal pollution suitability - Make and break speed independent of speed of actuation V-0 compliance with annex G, G.1.1		N/A
14.6.1b)	Tested in the apparatus:		N/A
	Switch controlling > 0.2A with open contact voltage > 35 V (peak)/24 V dc complying with 14.6.3, 14.6.4 and V-0 in annex G, G.1.1		N/A
	Switch controlling > 0.2A with open contact voltage < 35 V (peak)/24 V dc complying with 14.6.3 and V-0 in annex G, G.1.1		N/A
	Switch controlling < 0.2A with open contact voltage > 35 V (peak)/24 V dc complying with		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	14.6.4 and V-0 in annex G, G.1.1		
14.6.2	Switch tested to 14.6.1 b) constructed to IEC 61058-1 subclause 13.1 and has making/breaking action independent of speed of actuation		N/A
14.6.3	Switch tested to 14.6.1 b) compliant with IEC 61058-1 subclause 16.2.2 d) and m) not attaining excessive temperatures in use		N/A
14.6.4	Switch tested to 14.6.1 b) has adequate dielectric strength		N/A
14.6.5	Mains switch controlling mains socket outlets additional tests to IEC 60058-1		N/A
	Socket outlet current marking correct		N/A
14.7	Safety interlocks		N/A
	Safety interlocks to 2.8 of IEC 60950-1		N/A
14.8	Voltage setting devices and the like		N/A
	Voltage setting device not likely to be changed accidentally		N/A
14.9	Motors		N/A
14.9.1	Endurance test on motors		N/A
	Motor start test		N/A
	Dielectric strength test		N/A
14.9.2	Not adversely affected by oil or grease etc.		N/A
14.9.3	Protection against moving parts		N/A
14.9.4	Motors with phase-shifting capacitors, three-phase motors and series motors meet clause. B.8, B.9 and B.10 of IEC 60950-1, Annex B		N/A
14.10	Batteries		N/A
14.10.1	Batteries mounted with no risk of accumulation of flammable gases		N/A
14.10.2	No possibility of recharging non-rechargeable batteries		N/A
14.10.3	Recharging currents and times within manufacturers limits		N/A
	Lithium batteries discharge and reverse currents within the manufacturers limits		N/A
14.10.4	Battery mold stress relief		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
14.10.5	Battery drop test		N/A
14.11	Optocouplers		N/A
	a) Comply with 13.6 (jointed insulation) and N.2.1		N/A
	b) Comply with IEC 60747-5-5:2007		N/A
	Alternative to a) and b) optocoupler comply with 13.8		N/A
14.12	Surge suppression varistors		N/A
	Comply with IEC 61051-2		N/A
	Not connected between mains and accessible parts except for earthed parts of permanently connected apparatus		N/A
	Complies with the current pulse, fire hazard and thermal stress requirements of 14.12		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
15	**TERMINALS**		Pass
15.1.1	Mains plug, appliance inlet, interconnection couplers and mains socket-outlet meet the appropriate standard	(see appended table 14)	Pass
	Overloading of plugs or appliance inlets prevented if the apparatus has mains socket outlets		N/A
	Overloading of internal wiring prevented if the apparatus has mains socket outlets		N/A
15.1.2	Connectors for antenna, earth, audio, video or data		Pass
	No risk of insertion in mains socket-outlets		N/A
	No risk of insertion into audio or video: outlets marked with the symbol of 5.2		N/A
15.1.3	Output terminals of a.c. adaptors or similar devices not compatible with household mains socket-outlets		N/A
15.2	Provision for protective earthing		Pass
	Accessible conductive parts of Class I equipment reliably connected to earth terminal, within equipment		Pass
	Protective earth conductors correctly coloured	The colour of the insulation on protective earthing conductors is green/yellow.	Pass
	Equipment with non-detachable mains cord provided with separate protective earth terminal near mains input		N/A
	Protective earth terminal resistant to corrosion		Pass
	Earth resistance test: < 0,1 ohms at 25 A :	0.015 ohms between earth terminal of appliance inlet and accessible metal parts	Pass
15.3	Terminals for external flexible cords and for permanent connection to the mains supply		N/A
15.3.1	Adequate terminals for connection of permanent wiring		N/A
15.3.2	Reliable connection of non-detachable cords:		N/A
	Not soldered to conductors of a printed circuit board		N/A
	Adequate clearances and creepage distances between connections should a wire break away		N/A

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

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
16	**EXTERNAL FLEXIBLE CORDS**		Pass
16.1	Mains cords sheathed type, complying with IEC 60227 for PVC or IEC 60245 for synthetic rubber cords.....:	PVC(see appended table 14) *Note: A power supply cord suitable for the application and subject to country's national code and regulations is to be provided by the manufacturer; proper application is determine by the country's local Certification Body	Pass
	Non-detachable cords for Class I have green/yellow core for protective earth		N/A
16.2	Mains cords conductors have adequate cross-sectional area for rated current consumption of the equipment	0.75 mm^2 (18 AWG)	Pass
16.3	a) Flexible cords not complying with 16.1, used for interconnections between separate units of equipment used in combination and carrying hazardous live voltages, have adequate dielectric strength		N/A
	b) Flexible cords not complying with 16.1, withstand bending and mechanical stress (3.2 of IEC 60227-2)		N/A
16.4	Flexible cords used for connection between equipment have adequate cross-sectional areas to avoid temperature rise under normal and fault conditions		Pass
16.5	Adequate strain relief on external flexible cords		N/A
	Not possible to push cord back into equipment		N/A
	Strain relief device unlikely to damage flexible cord		N/A
	For mains cords of Class I equipment, hazardous live conductors become taut before earth conductor		N/A
16.6	Apertures for external flexible cord: no risk of damage to the cord during assembly or movement in use		N/A
16.7	Transportable musical instruments and amplifiers fitted with detachable cord set with appliance inlet to IEC 60320-1	(see appended table 14)	Pass
	Transportable musical instruments and amplifiers fitted with detachable cord sets or with means of stowage to protect the cord		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
17	**ELECTRICAL CONNECTIONS AND MECHANICAL FIXINGS**		Pass
17.1	Torque test to table 20		Pass
	- screws into metal: 5 times	Enclosures fixing: 1.2 / 0.5 Nm	Pass
	- screws into non-metallic material: 10 times		N/A
17.2	Correct introduction into female threads in non-metallic material		N/A
17.3	Cover fixing screws: captive		N/A
	Non-captive fixing screws: no hazard when replaced by a screw whose length is 10 times its diameter	(Screw diameter= 3.85 mm / 2.8 mm)	Pass
17.4	No loosening of conductive parts carrying a current > 0,2 A	Secured by connectors	Pass
17.5	Contact pressure not transmitted through plastic other than ceramic for connections carrying a current > 0,2 A		N/A
17.6	Stranded conductors of flexible supply cords carrying a current > 0,2 A with screw terminals not consolidated by solder		N/A
17.7	Cover fixing devices other than screws have adequate strength and their positioning is unambiguous		N/A
17.8	Fixing devices for detachable legs or stands provided		N/A
17.9	Internal pluggable connections, affecting safety, unlikely to become disconnected	No impairment and loosening against a pull of 2N	Pass
18	**MECHANICAL STRENGTH OF PICTURE TUBES AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION**		N/A
18.1	Picture tube separately approved to IEC 61965 : .....:		N/A
	Picture tube separately approved to 18.2 : .....:		N/A
18.2	Non-intrinsically protected tubes tested to 18.2		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
19	**STABILITY AND MECHANICAL HAZARDS**		Pass
	Mass of the equipment exceeding 7 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		N/A
19.2	100 N force applied vertically downwards		N/A
19.3	100 N force, or 13% of weight, applied horizontally to point of least stability		N/A
19.4	Edges or corners not hazardous		Pass
19.5	Glass surfaces (exc. laminated) with an area exceeding 0,1 m² or maximum dimension > 450 mm, pass the test of 19.5.1		N/A
19.6	Wall or ceiling mountings adequate		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

20	**RESISTANCE TO FIRE**		Pass
20.1	Electrical components and mechanical parts		Pass
	a) Exemption for components contained in an enclosure of material V-0 to IEC 60695-11-10 with openings not exceeding 1 mm in width		N/A
	b) Exemption for small components as defined in 20.1		Pass
20.1.1	Electrical components meet the requirements of Clause 14 or 20.1.4	(see appended table 14)	Pass
20.1.2	Insulation of internal wiring working at voltages > 4 kV or leaving an internal fire enclosure, or located within areas mentioned in Table 21, not contributing to the spread of fire		N/A
20.1.3	Material of printed circuit boards on which the available power exceeds 15 W at a voltage between 50 V and 400 V (peak) a.c. or d.c. meets V-1 or better to IEC 60707, unless used in a fire enclosure	(see appended table 14)	Pass
	Material of printed circuit boards on which the available power exceeds 15 W at a voltage >400 V (peak) a.c. or d.c. meets V-0 to IEC 60707		N/A
20.1.4	Components and parts not covered by 20.1.1, 20.1.2 and 20.1.3 (other than fire enclosures) mounted nearer to a potential ignition source than the distances in Table 21 comply with the relevant flammability category in Table 21	(see appended table 14)	Pass
	Components and parts as above but shielded from a potential ignition source, with the barrier area in accordance with Table 21 and fig. 13		N/A
	Apparatus with voltages > 4 kV under normal operating conditions and distances to the enclosure exceed those specified in Table 21, flammability classification HB40 or better is required for the enclosure		N/A
20.2	Fire enclosure		N/A
20.2.1	Potential ignition sources with open circuit voltage > 4 kV (peak) a.c. or d.c. contained in a fire enclosure to V-1		N/A
20.2.2	Internal fire enclosures with openings not exceeding 1 mm in width and with openings for wires completely filled		N/A
20.2.3	Requirements of 20.2.1 and 20.2.2 met by an		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict
	internal fire enclosure		
A	**ANNEX A, ADDITIONAL REQUIREMENTS FOR APPARATUS WITH PROTECTION AGAINST SPLASHING WATER**		N/A
A.5	Markings and instructions		N/A
A.5.1	j) Marked with IPX4 (IEC 60529), 5.4.1 a) does not apply		N/A
A.10	Insulation requirements		N/A
A.10.2	Splash and humidity treatment		N/A
A.10.2.1	Enclosure provides protection against splashing water		N/A
A.10.2.2	Humidity treatment carried out for 7 days		N/A
B	**ANNEX B, APPARATUS TO BE CONNECTED TO THE TELECOMMUNICATION NETWORKS**		N/A
	Complies with IEC 62151 clause 1		N/A
	Complies with IEC 62151 clause 2		N/A
	Complies with IEC 62151 clause 3 but with 3.5.4 modified to 2.4.10 of this standard		N/A
	Complies with IEC 62151 clause 4 but with 4.1.2, 4.1.3 and 4.2.1.2 modified in accordance with annex B of this standard		N/A
	Complies with IEC 62151 cause 5 but with 5.3.1 modified in accordance with annex B of this standard		N/A
	Complies with IEC 62151 clause 6		N/A
	Complies with IEC 62151 clause 7		N/A
	Complies with IEC 62151 annex A, B and C		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
L	**ANNEX L, ADDITIONAL REQUIREMENTS FOR ELECTRONIC FLASH APPARATUS FOR PHOTOGRAPHIC PURPOSES**		N/A
L.5	Marking and instructions		N/A
L.5.4	Instructions for battery chargers and supply apparatus indicating type or model number of flash apparatus with which it is to be used		N/A
	Instructions for flash apparatus indicating type of model number of battery chargers or supply apparatus with which it is to be used		N/A
L.7	Heating under normal operating conditions		N/A
L.7.1.5 and L.11.2.6	Lithium batteries meet permissible temp rises in Table 3, unless comply with 6.2.2.1 or 6.2.2.2 of IEC 60086-4		N/A
L.9	Electric shock hazard under normal operating conditions		N/A
L.9.1.1	Terminals to connection to synchroniser not HAZARDOUS live		N/A
L.10	Insulation requirements		N/A
L.10.3.2	High frequency pulse ignition		N/A
L.12	Mechanical strength		N/A
L.12.1.3	Windows for flash tubes are excluded from steel ball impact test		N/A
L.14	Components		N/A
L.14.6.6	Mains switch characteristics appropriate to its function under normal conditions		N/A
L.20	Resistance to fire		N/A
L.20.1c	Trigger coil for discharge purpose is not considered to be a POTENTIAL IGNITION SOURCE		N/A

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

14	**TABLE: list of critical components**				Pass
object/part or Description	manufacturer/ trademark	type/model	technical data	standard (Edition/ year)	mark(s) of conformity[1])
Power plug(Optional)	Korea KDK Co., Ltd.	KKP-4819R	250 V / 16 A	IEC 60884-1	-, VDE(40018535)
Power cord(Optional)	Korea KDK Co., Ltd.	H05VV-F	3 X 0.75 ㎟	IEC 60227	-, VDE(101928)
Power connector(Optional)	Korea KDK Co., Ltd.	KKS-16A	250 V / 10A	IEC 60320-1	-, VDE(40020018)
Top/Sides/Rear/ Bottom Enclosure (Fire/Elec./Mech.)	Interchangeable	Metal	Overall Approximately, 482 by 280 by 88 mm, Min 1.0 mm thick. See Enclosure for details.	IEC60065	-, Tested in equipment
Appliance Inlet with Fuse	DONG IL TECHNOLOGY, LTD	DAC-13	250 V, 10 A, 85degree C	EN60320-1	UL (E176163), NEMKO(199807137)
Fuse in Appliance Inlet	Littelfuse Inc	216xxxE* or 216xxxSP* or 216*	250 Vac, T1.25AH	UL248-1/CSA C22.2 NO. 248.1-00, IEC 60127-2	UL (E10480), VDE (40013496)
Fuse(F401) for DC Input	Littelfuse Inc	216xxxE* or 216xxxSP* or 216*	250 Vac, T1.25AH	UL248-1/CSA C22.2 NO. 248.1-00, IEC60127-2	UL (E10480), VDE (40013496)
Fuse Holder	GEO YOUNG IND. CO.	GF-205B	250V, 10A, 85 degree C	UL4248-1, IEC60127-6	UL(E164123), TUV (J50060831)
Power Transformer	Hanyang Trans Co.	PV-632	Class A, core size: 57.20 by 48.20 by 25.24 mm, See enclosure for more details.	IEC 60065	-, Tested in equipment
Bridge Diode(BD401)	PAN JIT INTERNATIONAL INC	2KBP02M	Max. reverse 200 V, Max.Surge Overload rating : 60 A, secured soldering.	UL 1557	UL(E228882), -
Tube (for AC wire Terminal pin)	YOUNGCHANG SILICONE CO.,LTD	Y-SRGT	Max. 600Vac, 150 degree C	UL1441	UL(E141626), -
Internal wiring(Secondary)	Interchangeable	Interchangeable	Min. 60V, Min. 80 degree C, Marked	UL 758	UL, -

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

14	**TABLE: list of critical components**				Pass
object/part or Description	manufacturer/ trademark	type/model	technical data	standard (Edition/ year)	mark(s) of conformity[1])
			VW-1		
Protective Bonding Conductor	Interchangeable	Interchangeable	Min. 300 V, min. 105 deg. C, min. 18 AWG, marked VW-1. The green/yellow earthing conductor is mechanically secured and soldered to the grounding tab of appliance inlet and other end is mechanically secured to the metal chassis by a dedicated screw with star washer or spring washer.	UL 758	UL, -
Printed Wiring Board	Interchangeable	Interchangeable	Min. V-1, 105 deg C	UL 94,UL 796	UL, -
Protector IC for USB	MONOLITH IC POWER SYSTEMS	MP62055	2.7 to 5.5 V, Cont. Current: 0.5A, Prot. Current: 1.1A	UL Subject 2367	UL(E322138), -
Supplementary information: [1]) Provided evidence ensures the agreed level of compliance. See OD-CB2039.					
The CBTL has verified the component information.					

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

7.1	**TABLE: temperature rise measurements**							Pass
	Power consumption in the OFF/Stand-by						-	N/A
	Position of the functional switch (W) :						-	-
Cond.	Un (V)	Hz	In (A)	Pn (W)	U out (V)	Pout (W)	Operating Condition / Status	
-	-	-	-	-	-	-	Original, Ref.No. E487915-A1-CB-1	
1	198Vac	60	0.074	12.2	-	-	a. The apparatus was playing a sound source. USB Load(0.5A)	
	220Vac	60	0.070	12.7	-	-	a. The apparatus was playing a sound source. USB Load(0.5A)	
	240Vac	60	0.069	13.2	-	-	a. The apparatus was playing a sound source. USB Load(0.5A)	
	264Vac	60	0.068	14.0	-	-	a. The apparatus was playing a sound source. USB Load(0.5A)	
2	198Vac	60	0.076	12.7	-	-	b. The apparatus was recording a sound source. USB Load(0.5A)	
	220Vac	60	0.072	13.1	-	-	b. The apparatus was recording a sound source. USB Load(0.5A)	
	240Vac	60	0.071	13.6	-	-	b. The apparatus was recording a sound source. USB Load(0.5A)	
	264Vac	60	0.070	14.4	-	-	b. The apparatus was recording a sound source. USB Load(0.5A)	
3	198Vac	60	0.070	11.5	-	-	c. No Signal. Switch ON. USB Load(0.5A)	
	220Vac	60	0.067	11.9	-	-	c. No Signal. Switch ON. USB Load(0.5A)	
	240Vac	60	0.065	12.4	-	-	c. No Signal. Switch ON. USB Load(0.5A)	
	264Vac	60	0.064	13.3	-	-	c. No Signal. Switch ON. USB Load(0.5A)	
4	24Vdc	N/A	0.235	5.6	-	-	d. DC Input. The apparatus was recording a sound source. USB Load(0.5A)	
-	-	-	-	-	-	-	-	
1-1	198Vac	50	0.073	12.0	-	-	a. The apparatus was playing a sound source. USB Load(0.5A)	
	220Vac	50	0.070	12.5	-	-	a. The apparatus was playing a sound source. USB Load(0.5A)	
	240Vac	50	0.068	13.0	-	-	a. The apparatus was playing a sound source. USB Load(0.5A)	
	264Vac	50	0.066	13.9	-	-	a. The apparatus was playing a sound source. USB Load(0.5A)	
2-1	198Vac	50	0.074	12.7	-	-	b. The apparatus was recording a sound source. USB Load(0.5A)	
	220Vac	50	0.071	13.0	-	-	b. The apparatus was recording a sound source. USB Load(0.5A)	
	240Vac	50	0.070	13.4	-	-	b. The apparatus was recording a sound source. USB Load(0.5A)	
	264Va	50	0.068	14.1	-	-	b. The apparatus was recording a sound	

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Clause	Requirement + Test	Result - Remark	Verdict

	c						source. USB Load(0.5A)
3-1	198Vac	50	0.069	11.4	-	-	c. No Signal. Switch ON. USB Load(0.5A)
	220Vac	50	0.067	11.5	-	-	c. No Signal. Switch ON. USB Load(0.5A)
	240Vac	50	0.064	12.1	-	-	c. No Signal. Switch ON. USB Load(0.5A)
	264Vac	50	0.062	13.1	-	-	c. No Signal. Switch ON. USB Load(0.5A)

	Loudspeaker impedance (ohm) :	-	-
	Several loudspeaker systems:	-	N/A
	Marking of loudspeaker terminals:	-	N/A

Temperature Rise dT of Part	dT (K)			Limit max dT (K)	
Test Condition No.	No. _1_ 198 Vac/ 60 Hz	No. _2_ 240 Vac/ 60 Hz	No. _3_ 264Vac/ 60Hz		
Original, Ref.No. E487915-A1-CB-1	-	-	-	-	
AC Inlet Body	5.8	6.6	7.2	40	
Main Transformer Core	21.4	23.5	25.7	75	
Main Transformer Coil	18.8	20.7	20	75	
Primary Wire	9.5	10.4	11.4	70	
CN401 Body	13.5	14.4	15.4	70	
BD401 Body	26.6	25.7	26.1	70	
C401 Body	17.1	17.5	18.4	70	
PC401 Body	9.4	12.8	13.5	70	
L403 Body	27.7	32.5	35	75	
IC314 Body	10	11.3	12	70	
IC304 Body	8.5	9.3	9.8	70	
IC301 Body	12.3	13.1	13.5	70	
PCB near C451<SD Card Board>	9.8	11	11.9	70	
PCB near IC106 <Audio Bus Board>	8.1	8	9	70	
PCB near IC502 <Front Board>	15.3	18.5	18.8	70	
Front Button	3	3.1	3.3	50	
Top Enclosure near Transformer	4.6	5	5.5	40	
Front Panel	2.8	3.1	3.4	50	
Rear Enclosure	3.7	4.1	4.8	40	
Ambient	23.1	23.0	23.3	N/A	
Test Duration	4hr 42min	4hr 5min	4hr 5min	N/A	
Winding temperature rise measurements					
Ambient temperature t1 (°C)	23.4	23.1	23.1	--	
Ambient temperature t2 (°C) :	23.1	23.0	23.3	--	

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Clause	Requirement + Test	Result - Remark	Verdict

Temperature rise dT of winding: dT = (R2-R1)/R1 x (234.5+t1) - (t2-t1)	R1 (ohm)	R2 (ohm)	dT (K)	Limit max dT (K)	Insulation class
Original, Ref.No. E487915-A1-CB-1	-	-	-	-	-
Main Transformer (198V)–Primary	163.7	174.2	16.84	75	A
Main Transformer (198V)–Secondary	1.992	2.116	16.35	75	A
Main Transformer (240V)–Primary	163.6	175.6	18.99	75	A
Main Transformer (240V)–Secondary	1.999	2.142	18.52	75	A
Main Transformer (264V)–Primary	164.2	175.4	17.37	75	A
Main Transformer (264V)–Secondary	2.010	2.152	19.28	75	A
supplementary information:					

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

10.3	**TABLE: insulation resistance measurements**		Pass
Insulation resistance R between:	R (Mohm)	Required R (Mohm)	
Between mains poles (primary fuse disconnected)	More than 200Mohm	Min 2	
Between parts separated by basic or supplementary insulation	More than 200Mohm	Min 2	
Between parts separated by double or reinforced insulation	More than 200Mohm	Min 4	
Supplementary information:			
Test has been conducted immediately after the humidity treatment			

10.3	**TABLE: electric strength measurements**		Pass
Test voltage applied between:	Test voltage (V)	Breakdown	
Mains poles (primary fuse disconnected)	1500Vac	No	
Between parts separated by basic or supplementary insulation	1500Vac	No	
Between parts separated by double or reinforced insulation	3000Vac	No	
1 layer insulation tape of Power transformer	3000Vac	No	
Supplementary information:			
Test has been conducted immediately after the humidity treatment			

11.2	**TABLE: summary of fault condition tests**		Pass
	Voltage (V) 0.9 or 1.1 times rated voltage :	264 Vac (1.1 times rated voltage)	-
	Frequency (Hz) :	60	-

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

	Ambient temperature (°C) :			15-35	-
No.	Component	Fault	dT (K) / Component	Other results (include description and test duration)	
<Mainboard>	-	-	-	Original, Ref.No. E487915-A1-CB-1	
1-1	BD401(+,~)	SC	-	Component damaged(Transformer), NCD, No hazard(Test Date:2016-09-23)(Sample No : 1/2)	
1-2	BD401(+,~)	SC	-	Component damaged(Transformer), NCD, No hazard(Test Date:2016-09-23) (Sample No : 1/2, B-1/3)	
1-3	BD401(+,~)	SC	-	Component damaged(Transformer), NCD, No hazard(Test Date:2016-09-23) (Sample No : 1/2, B-2/3)	
2-1	BD401(-,~)	SC	-	Component damaged(Transformer), NCD, No hazard (Test Date:2016-09-23) (Sample No : 1/2, B-3/3)	
2-2	BD401(-,~)	SC	-	Component damaged(Transformer), NCD, No hazard(Test Date:2016-09-23) (Sample No : 1/2, A-1/4)	
2-3	BD401(-,~)	SC	-	Component damaged(Transformer), NCD, No hazard(Test Date:2016-09-23) (Sample No : 1/2, A-2/4)	
3	D204	SC	-	Normal operated, NCD. No hazard(Test Date:2016-09-23) (Sample No : 2/2)	
4	C197	SC	-	Protection circuit operated on main board immediately. NCD. No hazard (Test Date:2016-09-23) (Sample No : 2/2)	
<SD Card Board>	-	-	-	-	
1	C451	SC	-	Protection circuit operated on main board immediately. NCD. No hazard (Test Date:2016-09-23) (Sample No : 2/2)	
-	-	-	-	-	
1	USB	O/L	-	Normal operation. Main Transformer Core 50.3 degree, Main Transformer Coil 45.0 degree, BD401 Body 59.1 degree, L403 Body 59.1 degree, Ambient 23.6 degree, FI: 0.082A, Duration: 7hr 20min	
	Winding temperature rise measurements				Pass

IEC 60065			
Clause	Requirement + Test	Result - Remark	Verdict

	Ambient temperature t1 (°C) :	15-35	-
	Ambient temperature t2 (°C) :	15-35	-
Supplementary information:			
S/C: Short-Circuit, FI: Final Input			

13	**TABLE: clearances and creepage distances**						Pass
Rated supply voltage (V)	240Vac	Pollution degree:	2	Material Group:	IIIa or IIIb		
2 N force on internal parts applied:			Pass				
30 N force on outside of conductive enclosure applied:			Pass				
Location		Working Voltage		Clearance (mm)		Creepage (mm)	
Circuits conductively connects to the mains (use Tables 8, 9, and 11): see note below		V rms	V peak	Min	Actual	Min	Actual
Primary (ac) to Earth (B)		240V	340V	2.0	7.0	2.5	7.0
Primary (+dc) to Earth max (B)		N/A	N/A	N/A	N/A	N/A	N/A
Primary (-dc) to Earth max (B)		N/A	N/A	N/A	N/A	N/A	N/A
Across mains fuse F__ (B)		N/A	N/A	N/A	N/A	N/A	N/A
Across primary directly connected to the mains (B)		240V	340V	2.0	8.0	2.5	8.0
Hazardous live secondary to Earth (B)		N/A	N/A	N/A	N/A	N/A	N/A
Optocoupler input to output (R)		N/A	N/A	N/A	N/A	N/A	N/A
Primary to Seconday (R)		251V	356V	4.0	8.0	5.1	8.0
Primary to accessible conductive parts (R)		N/A	N/A	N/A	N/A	N/A	N/A
Hazardous live secondary to non-hazardous live secondary (R)		N/A	N/A	N/A	N/A	N/A	N/A
Hazardous live secondary to unearthed conductive enclosure (R)		N/A	N/A	N/A	N/A	N/A	N/A
Notes: 1. Secondary circuits of Class II apparatus which have connector terminals that could be earthed (e.g. antenna signal input), are subjected to the requirements for circuits conductively connected to the mains in Tables 8 and 9. 2. Floating secondary circuits of Class I apparatus which have connector terminals that could be earthed (e.g. antenna signal input), are subjected to the requirements for circuits conductively connected to the mains in Tables 8 and 9 unless the floating secondary circuit is separated from the primary circuits by an earthed metal screen (e.g. in the power transformer), or the floating secondary circuit is connected to earth via a component such as a capacitor. 3. For insufficient clearances and creepage distances from secondary to secondary circuits and from secondary circuits to earth, see Cl. 4.3.1, 4.3.2 and 11.2. 4. If the minimum creepage distance in Table 11 is less than the minimum required clearance in Tables 8, 9 or 10 as required, then the value for clearance is used as the minimum creepage distance. "Min" = minimum required "Actual" = actual dimensions measured							
supplementary information:							

Enclosure

National Differences

Group
Korea

* No National Differences Declared
** Only Group Differences

IEC 60065			
SubClause	Difference + Test	Result - Remark	Verdict
Group - Differences to IEC 60065:2001(Seventh Edition) + A1:2005 + A2:2010			
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.		Pass
4.1.1	Replace the text of the note by: NOTE For ROUTINE TEST reference is made to EN 50333.		N/A
5.3	Delete all "country" notes. For special national conditions, see Annex ZB.		N/A
5.4.1	Delete all "country" notes. For special national conditions, see Annex ZB.		N/A
6.1	6.1 Ionizing radiation Equipment that might produce ionizing radiation is checked by measuring the amount of radiation. The amount of radiation is determined by means of a radiation monitor of the ionizing chamber type with an effective area of 1 000 mm2 or by measuring equipment of other types giving equivalent results. Measurements are made with the equipment on		N/A

IEC 60065			
SubClause	Difference + Test	Result - Remark	Verdict
	test operating at the most unfavourable supply voltage (see 4.2) and with operator controls and service controls adjusted so as to give maximum radiation whilst maintaining the equipment operative for normal use. Internal preset controls not intended to be adjusted during the lifetime of the equipment are not considered to be service controls. At any point 100 mm from the surface of the operator access area, the dose-rate shall not exceed1 µSv/h (0,1 mR/h) (see Note). Account shall be taken of the background level. NOTE These values appear in Directive 96/29/Euratom.		
13.3.1	Delete note 4.		N/A
14	Delete note 4 and note 5.		N/A
15.1.1	Delete note 1 and note 2.		N/A
15.2	Delete note 2.		N/A
16.1	Delete note 1.		N/A
16.2	Delete the note.		N/A
20	Delete note 2.		N/A
20	Delete all "country" notes. For special national conditions, see Annex ZB.		N/A
B	Replace note 1 by: In the CENELEC countries listed in IEC 62151, special national conditions apply.		N/A
G	Delete the note.		N/A
J.2	Delete the notes of Table J.1.		N/A
N	Add after the introduction: For ROUTINE TEST reference is made to EN 50333.		N/A
Z1	Resistance to candle flame ignition A television set shall be so designed that the likelihood of ignition and the spread of fire caused by a candle flame is reduced. NOTE 1 An apparatus with a viewing screen is not regarded to be a television set if it is declared not to be so by the manufacturer.		N/A

IEC 60065			
SubClause	Difference + Test	Result - Remark	Verdict
	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 fulfill 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.		
Zx	PROTECTION AGAINST EXCESSIVE SOUND PRESSURE FROM PERSONAL MUSIC PLAYERS		N/A
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		N/A

IEC 60065			
SubClause	Difference + Test	Result - Remark	Verdict
	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.		
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 LAeq,T is ≤ 85 dBA measured while playing the fixed "programme simulation noise" as described in EN 50332-1; and -a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured as described in EN 50332-2, while		N/A

IEC 60065			
SubClause	Difference + Test	Result - Remark	Verdict
	playing the fixed “programme simulation noise” as described in EN 50332-1. NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level LAeq,T is meant. See also Zx.5 and Annex Zx. All other equipment shall: a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and b) have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; and c) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and NOTE 2 Examples of means include visual or audible signals. Action from the user is always required. NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off. d) have a warning as specified in Zx.3; and e) not exceed the following: 1) equipment provided as a package (player with its listening device), the acoustic output shall be ≤ 100 dBA measured while playing the fixed “programme simulation noise” described in EN 50332-1; and 2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be ≤ 150 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” described in EN 50332-1.		
Zx.2	For music where the average sound pressure (long term LAeq,T) measured over the duration of the song is lower than the average produced by the programme simulation noise, the warning does not need to be given as long as the average sound		N/A

IEC 60065			
SubClause	Difference + Test	Result - Remark	Verdict
	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 LAeq,T) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the song and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. For example, if the player is set with the programme simulation noise to 85 dBA, but the average music level of the song is only 65 dBA, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dBA.		
Zx.3	The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following: -the symbol of Figure 1 with a minimum height of 5 mm; and -the following wording, or similar: “To prevent possible hearing damage, do not listen at high volume levels for long periods.” Figure 1 – Warning label (IEC 60417-6044) Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.		N/A
Zx.4.1	Wired listening devices with analogue input With 94 dBA sound pressure output LAeq,T, the input voltage of the fixed “programme simulation noise” described in EN 50332-2 shall be ≥ 75 mV. This requirement is applicable in any mode where the headphones can operate (active or passive), including any available setting (for example built-in volume level control). NOTE The values of 94 dBA – 75 mV correspond with 85dBA – 27 mV and 100 dBA – 150 mV		N/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		N/A

IEC 60065			
SubClause	Difference + Test	Result - Remark	Verdict
	acoustic output LAeq,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.		
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 LAeq,T of the listening device shall be ≤ 100 dBA. NOTE An example of a wireless listening device is a Bluetooth headphone		N/A
Zx.5	Measurement methods Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable. Unless stated otherwise, the time interval T shall be 30 s. NOTE Test method for wireless equipment provided without listening device should be defined.		N/A

IEC 60065			
SubClause	Difference + Test	Result - Remark	Verdict

Korea - Differences to IEC 60065:2001(Seventh Edition) + A1:2005 + A2:2010			
5.101	Other Marking: Wording or an information regulated in IEC Publication 417 giving high voltage warning to layman shall be marked, if apparatus contains a part more than 600 V.		N/A
15.1.1	Plugs for the connection of the apparatus to the supply mains and socket outlets for providing mains power to other apparatus shall comply with the Korean requirement (KSC8300 and KSC8305).		Pass
31	Radio frequency interference - The apparatus shall comply with the relevant CISPR requirements (EMC=EMI+EMS)		N/A

Enclosures

Type	Supplement Id	Description
Photographs	3-01	Front View
Photographs	3-02	Rear View
Photographs	3-03	Bottom View
Photographs	3-04	Side View
Photographs	3-05	Internal View
Photographs	3-06	Mainboard Top View
Photographs	3-07	Mainboard Bottom View
Photographs	3-08	SD Card Board Top View
Photographs	3-09	SD Card Board Bottom View
Photographs	3-10	Audio Sub Board Top View
Photographs	3-11	Audio Sub Board Bottom View
Photographs	3-12	Transformer wire view
Miscellaneous	7-01	Transformer Spec

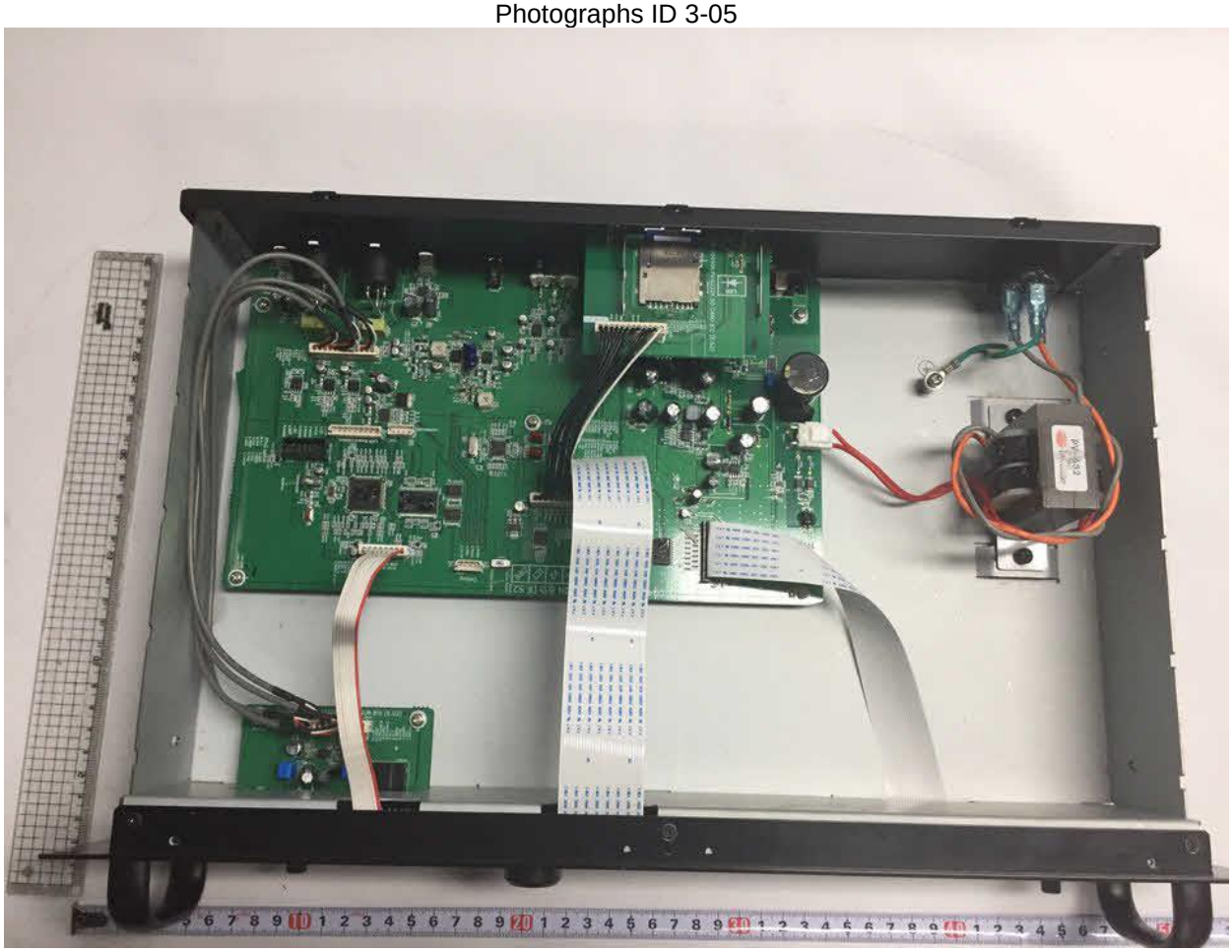
Photographs ID 3-01

Photographs ID 3-02

Photographs ID 3-03

Photographs ID 3-04

Photographs ID 3-05



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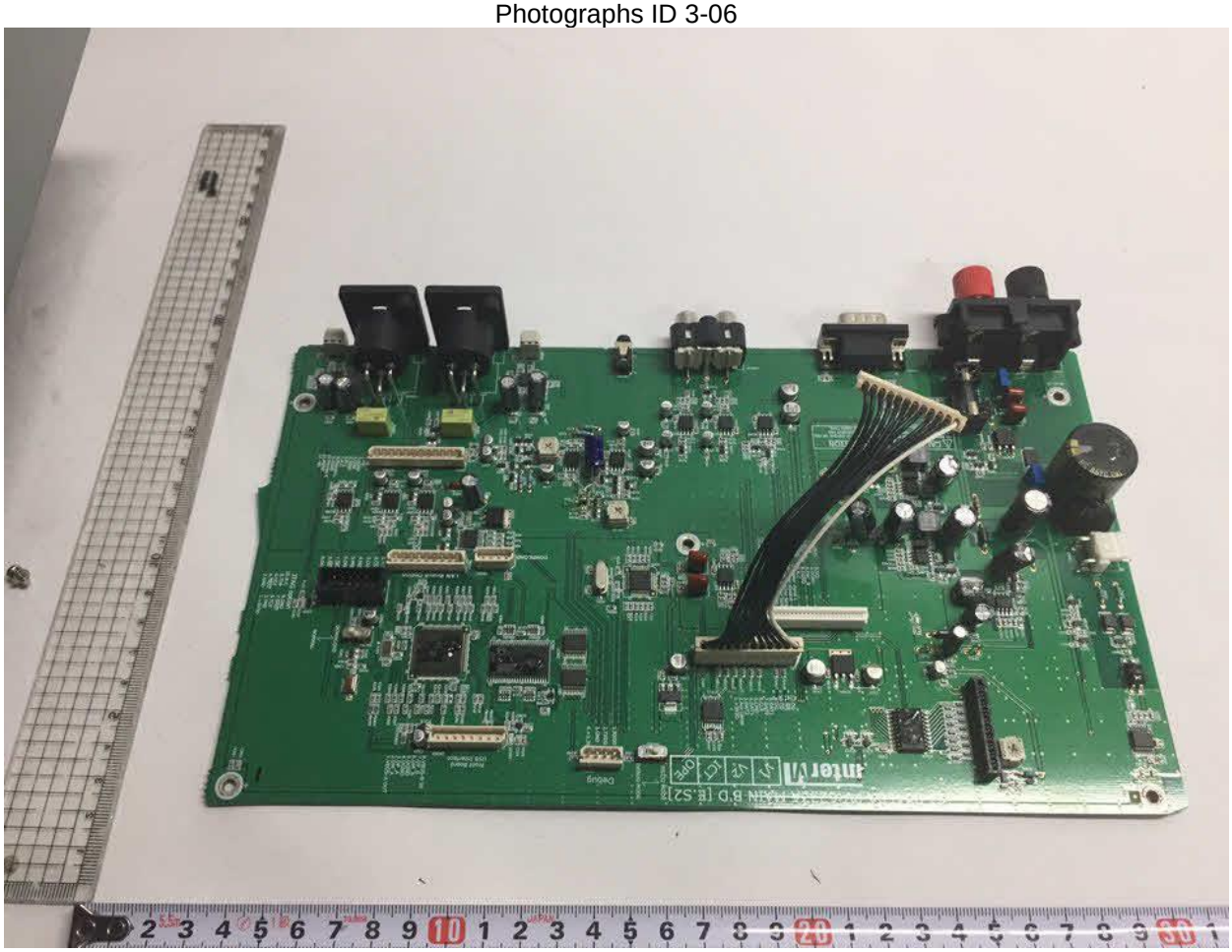

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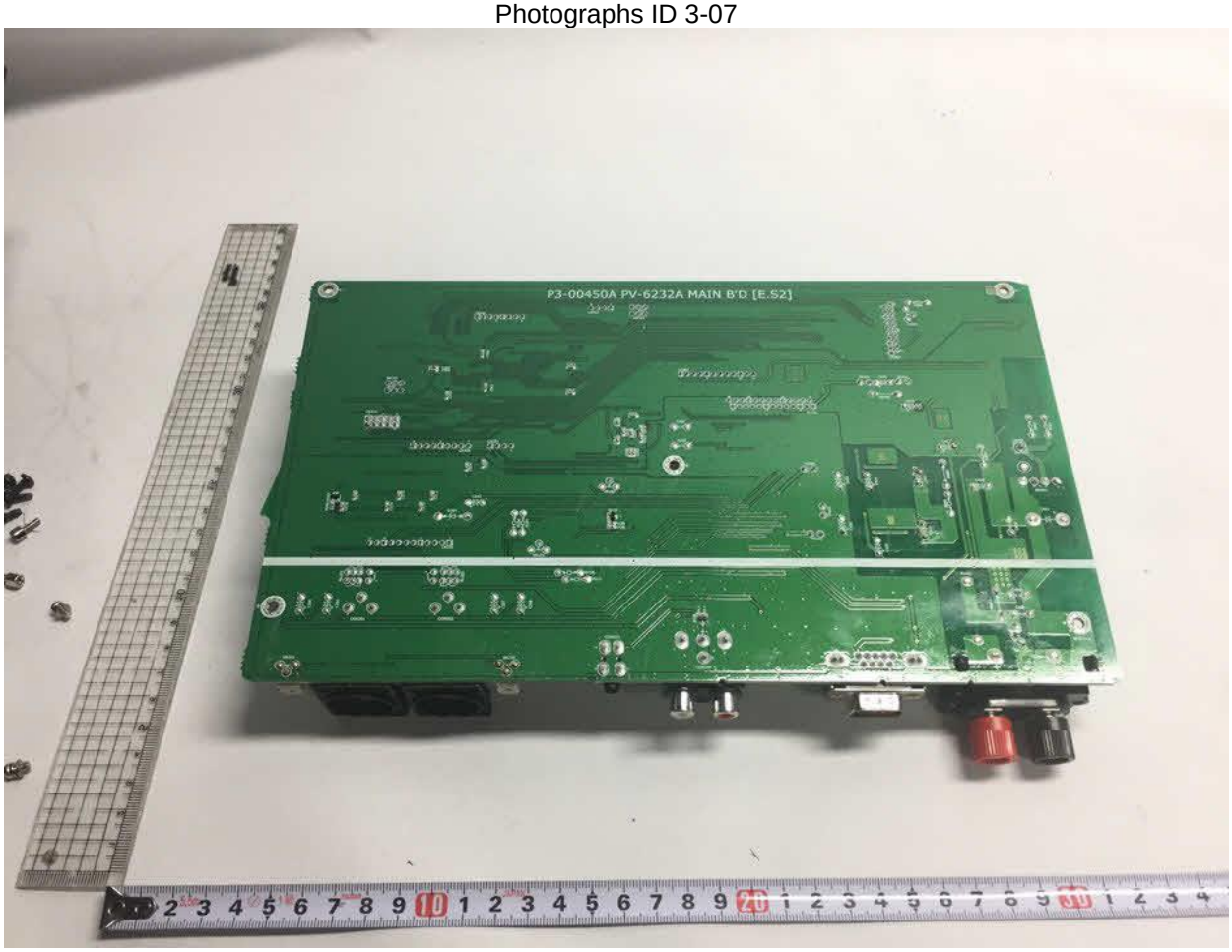

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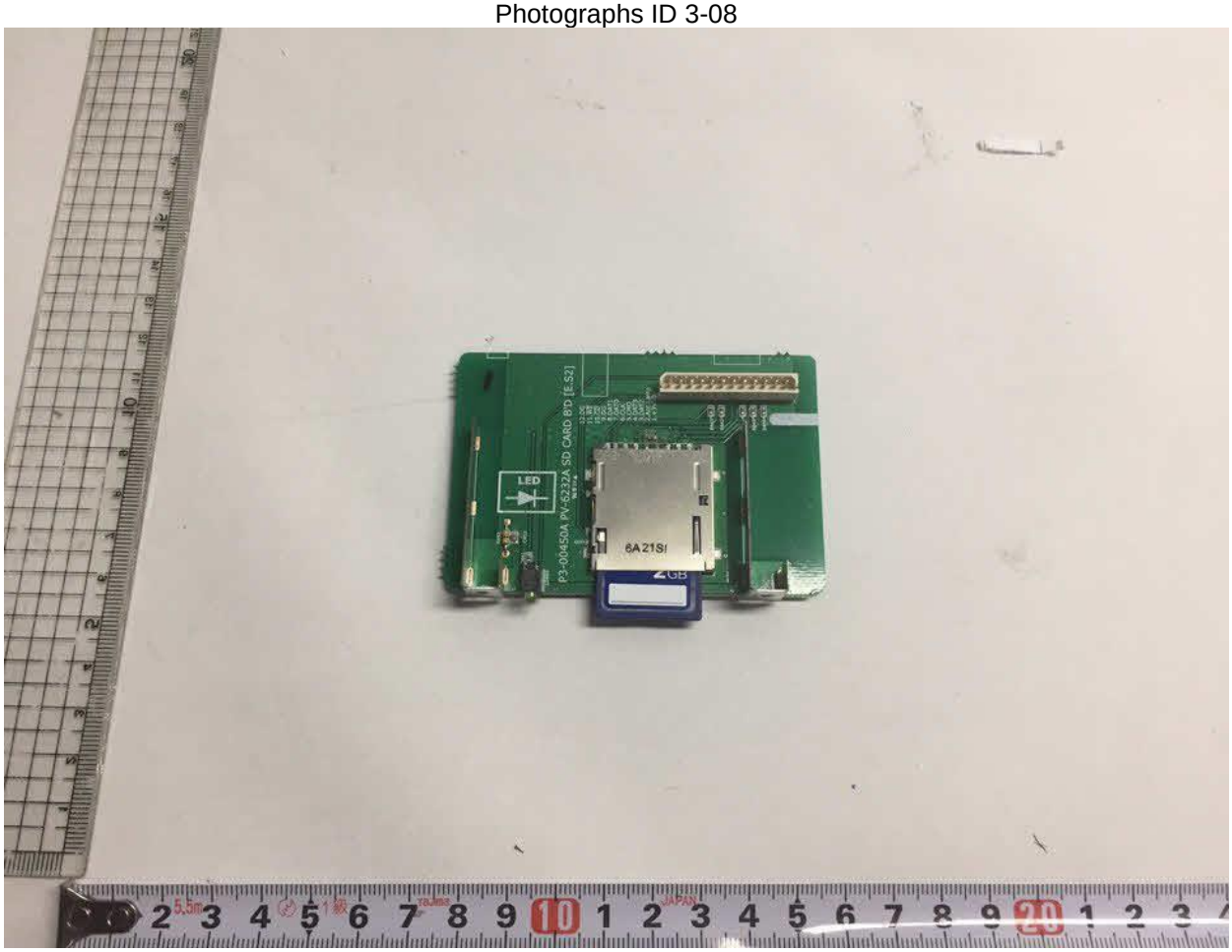

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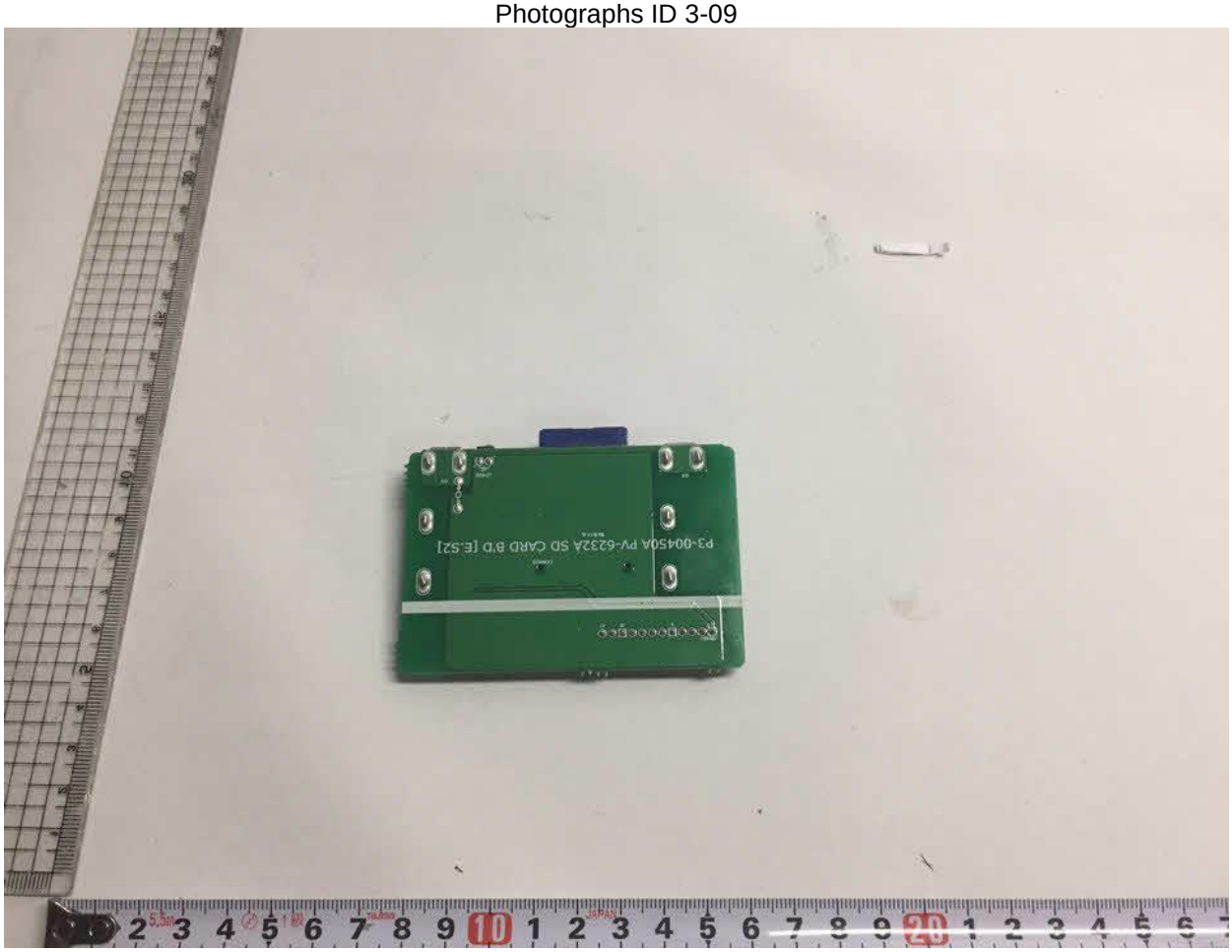

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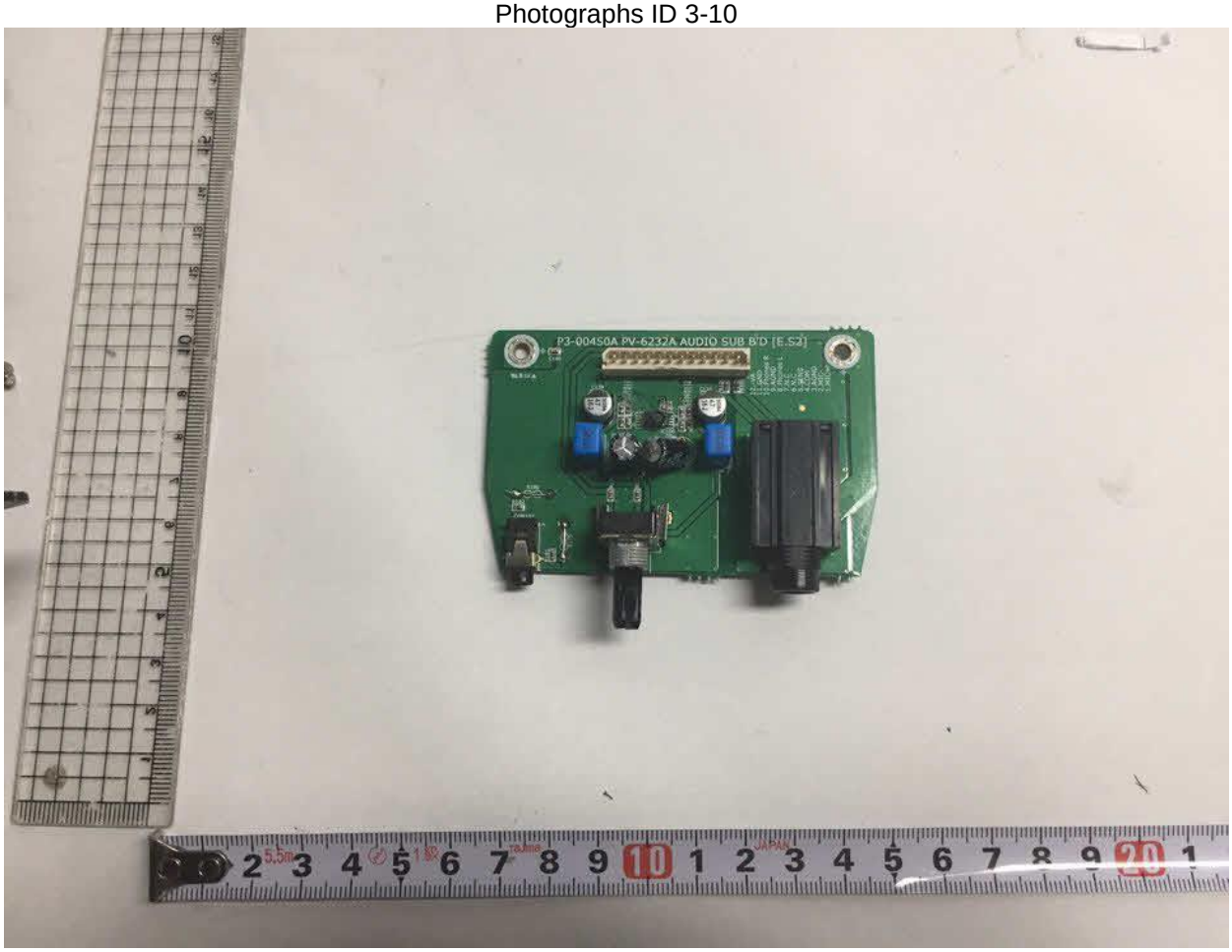
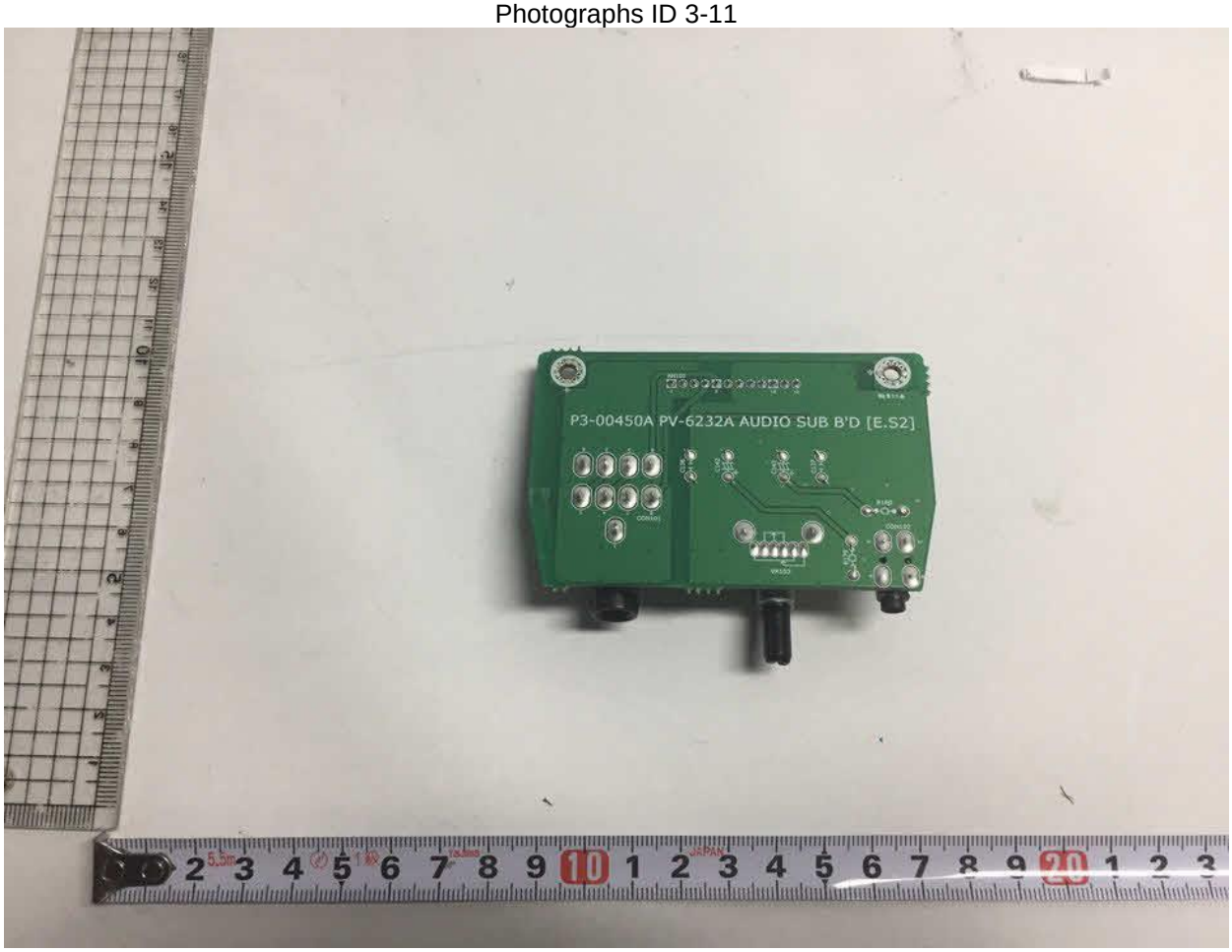


Photographs ID 3-11



Photographs ID 3-12

Enclosures

Misc ID 7-01

TO : INTER M CORPORATION DATE 2016. 09.28

This parts should not contain any hazardous substances which are specified in INTER-M CORPORATION Eco-Standard

APPLICATION FOR APPROVAL

DESCRIPTION : POWER TRANSFORMER

SIZE : 57x25mm

PART NO : PV-632 (240V)
140548

APPROVED BY

HANYANG TRANS CO.
111,MOOKHYUN-RI,WHADO-EUP,NAMYANGJU-SI,KYUNGKI-DO,472-846,KOREA
TEL : (031)594-0245 FAX : (031)511-0259

Enclosures

Misc ID 7-01

1. SCOPE

This specification applies to part number 140548 for use in PV-632 appliance which is supplied for INTER-M CORPORATION

2. APPEARANCE & MECHANICAL

2-1 Appearance : Transformer shall be generally free from such deficiency as deformation cracker rust in appearance.

2-2 Terminal strength : Terminal shall withstand without breaking or loosening when a static load of 2 Kg is applied in a drawing direction for 30+/-5 seconds to the terminal.

2-3 Dimension & Construction & Marking : See below Fig-2 and Fig-3.

2-4 Quality of lead wire & Length & Reactiving circuit : See below Fig-1 and Table-2

2-5 Core size : EI-57 mm

3. ELECTRICAL SPECIFICATION

3-1 Rated primary voltage & frequency : 240 V 50/60 Hz

3-2 Secondary voltage & voltage regulation : See below Table-1

(Table - 1)

Lead Wire	Color	Rating(V)	Rating(A)	Regulation	No Load(V)	Tolerance
3	RED	DC 27.5	DC 0.8	AC15 % Max	AC 25.3	± 5 %
4	RED					
				% Max		± 5 %
				% Max		± 5 %
				% Max		± 5 %

3-3 No load current : 60 mA maximum at 60 Hz 240 V input on the 240 V tap.

3-4 No load wattage loss :

3-5 Unbalanced voltage : of the winding having center tap shall be within 2%.

3-6 Directric strength : 3.0 KV AC primary to secondary and primary to core applied for a period of one minute(sec-sec,sec-core 1.0 KV at current sensitivity 5 mA)

3-7 Induced Voltage : 15 seconds, operation from source delivering 480 V at 400Hz on the 240 V tap,during this test secondary winding shall be unloaded.

3-8 Insulation resistance : between each winding and core and each winding shall be more than 100 megohms measured with 500V DC before load.

3-9 Temperature rise : each winding and core of the transformer with full load shall be less than 60 degree (winding shall be measured by resistance method and that of core measured thermometer)

HANYANG TRANS CO.				
	DRAWN BY		DATE	. . 2016
	CHECKED BY		DATE	06. 20. 2016
	APPROVED BY		DATE	. . 2016

Enclosures

Misc ID 7-01

4. ENVIRONMENTAL PERFORMANCE

4-1 Ambient operating temperature : -10 degree to + 50 degree

4-2 Heat resistant : (5 hours maintained 100 +/-2 degree ambient temperature) Confirm with the above para 3-7 and insulation resistance shall be more than 10 megohms

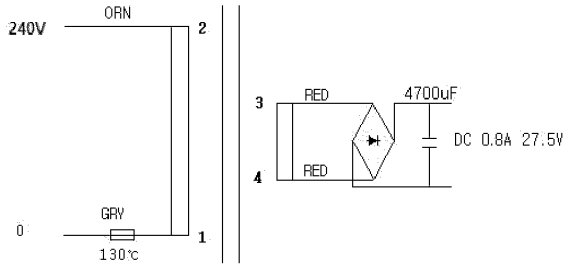
4-3 Moisture resistant : (48 hours maintained at 40+/-2 degree ambient temperature and 90-95% relative humidity)Confirm with the above para 3-7 and insulation reistance shall be more than 10 megohms

5. SAFETY STANDARD : KS,CCC,IEC65

6. OTHERS

6-1 Buzzing : Transformer shall have no buzzing when the transformer was operated at normal condition

REACTIVING CIRCUIT (Fig - 1)



QUALITY OF LEAD WIRE & LENGTH (Table - 2)

No	Color	Length	Treatment	Remarks	No	Color	Length	Treatment	Remarks
1	GRY	180±10	250T&SLEEVE	UL1617 #22					
2	ORN	"	"	"					
3	RED	160±10	YH396-03V	UL1015 #22					
4	RED	"	"	"					

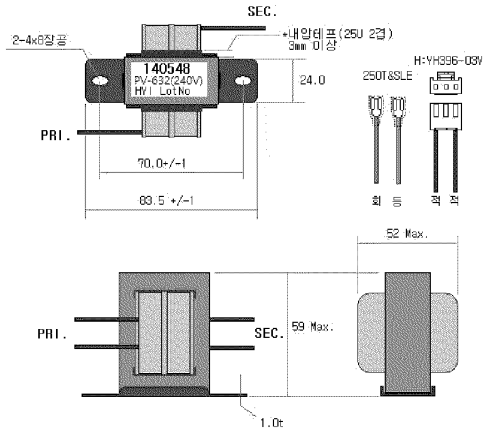
HANYANG TRANS CO.

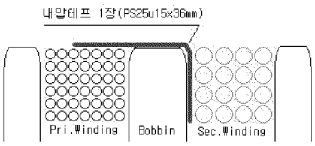
DRAWN BY		DATE	. . 2016
CHECKED BY		DATE	06. 22. 2016
APPROVED BY		DATE	. . 2016

Enclosures

Misc ID 7-01

DIMENSIONS (Fig -2)





* Lot No표기

H Y T 6 0 6 205

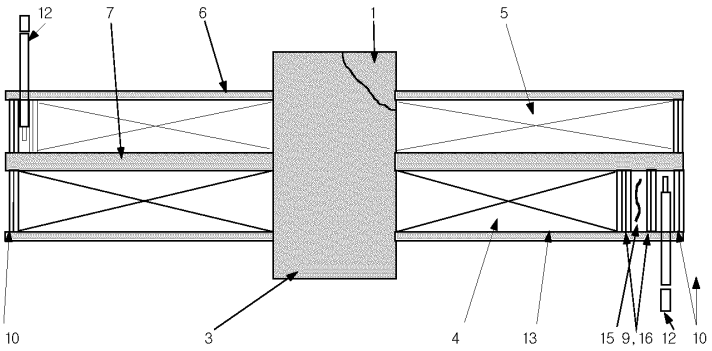
Hanyang Trans Year Month Day

HANYANG TRANS CO.				
	DRAWN BY		DATE	. . 2016
	CHECKED BY		DATE	09. 28. 2016
	APPROVED BY		DATE	. . 2016

Enclosures

Misc ID 7-01

CONSTRUCTION (FIG - 3)



(* : USED ONLY)

NO	PARTS NAME		MATERIALS	MANUFACTURERS	UL NO
1	Core	*	0.5t Coldrolled silicon steel	POSCO SHIN NIPPON STEEL CO.,LTD.	
2	Enclosure		t Coldrolled steel	POSCO	
3	Bracket	*	1.0t Coldrolled steel	POSCO	
4	Primary winding	*	Polyurethane enameled copper wire(UEW(B),B130℃)	LG CABLE CO.,LTD SHINHWA ELECTRIC CO.,LTD DONGYANG ELECTRIC IND CO.,LLTD	E84441
			Polyester enameled copper wire (PEW,F155℃)		
5	Secondary winding	*	Polyurethane enameled copper wire(UEW(B),B130℃)	LG CABLE CO.,LTD SHINHWA ELECTRIC CO.,LTD DONGYANG ELECTRIC IND CO.,LLTD	E84441
			Polyester enameled copper wire (PEW,F155℃)		
6	Coil form(Bobbin)		t Pressed board(120℃)	SUNGWON ELECTRIC CO.,INC	
			t Polyester film insulating tape(DTS-204,B130℃)(turn)	DUCKSUNG HITECH CO.,LTD.	E105147
		*	66-Nylon(94V2,B130℃)	E.I. DU PONT & CO.,INC(Zytel101) ASAHI CHEMICAL INC.CO.,LTD.(1402S)	E41938 E48285
			Polybuthylene terephthalate(PBT) (94Vo,140℃)	LG CHEMICAL,LTD(LUPOX-GP2306F) SAMYANG CO.,LTD(1500GN-30NA)	E67171 E121254
			Polyethylene terephthalate(PET) (94Vo,140℃)	SAMYANG CO.,LTD(2550GN30) E.I.DUPONT & CO.,INC(FR-530)	E121254 E41938
7	Pri. winding to sec. winding		t Kraft paper(turns)	SUNGWON ELECTRIC CO.,INC	
			t Polyester film insulating tape(DTS-204,B130℃)(turn)	DUCKSUNG HITECH CO.,LTD.	E105147
		*	Bobbin(66-Nylon(94V2,B130℃))		

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Enclosures

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NO	PARTS NAME		MATERIALS	MANUFACTURERS	UL NO
8	Insulation of core		t Polyester film insulating tape(DTS-204,B130℃)(turn)	DUCKSUNG HITECH CO.,LTD.	E105147
9	Pri.terminal to winding	*	0.25t Pressedboard(120℃)(1sheet)	SUNGWON ELECTRIC CO.,INC	
		*	0.025t Polyester film insulating tape(DTS-204,B130℃)(1½turn)	DUCKSUNG HITECH CO.,LTD.	E105147
10	Insulation from outerwrap	*	Bobbin(66-Nylon(94V2,B130℃))		
		*	0.025t Polyester film insulating tape(DTS-204,B130℃)(1½turns)	DUCKSUNG HITECH CO.,LTD.	E105147
11	Winding to winding		t Kraft paper(turn)	SUNGWON ELECTRIC CO.,INC	
			t Polyester film insulating tape(DTS-204,B130℃)(turn)	DUCKSUNG HITECH CO.,LTD.	E105147
12	Pri.lead wire	*	UL 1617 AWG#22(VW-1,105℃600V)	SHINHWA ELECTRIC WIRE CO.,LTD KYUNG SHIN CABLE CO.,LTD. LS CABLE LTD. KUK JE TONGSHIN CO.,LTD. DAE CHANG ELECCOM CO.,LTD DAE YOUNG WIRE CO.,LTD KKDK CO.,LTD. DHLM	E97577 E222037 E52853 E84133 E178622 E139338 E58071 E115621
	Sec.lead wire	*	UL 1015 AWG#22(VW-1,105℃300V)		
13	Crossover insulation		t Acetate cloth insulating tape(DTS-230,A105℃)(sheet)	DUCKSUNG HITECH CO.,LTD.	E105147
		*	0.025t Polyester film insulating tape(DTS-204,B130℃)(1 sheet)	DUCKSUNG HITECH CO.,LTD.	E105147
			mm Silicone rubber tube (Y-SRGT 150℃600V)	YOUNGCHANG SILICONE CO.,LTD.	E141626
14	Impregnation	*	Varnished	E-WEON CHEMTECH CO.,LTD (EVD/EH3200)	
15	Thermal Protector(Fuse)	*	A4(130℃,250V 1A)	AUPO ELECTRONICS LTD.	E140847
			ST-22(150℃,250V5A)	SEKI CONTROLS CO.,LTD.	E162183
			17AM037A5-4(150℃,250V9A)	SENSATA TECHNOLOGIES	E34618
16	Insulation of Termal Fuse	*	0.025t Polyester film insulating tape(DTS-204,B130℃)(1 sheet)	DUCKSUNG HITECH CO.,LTD.	E105147
			t Polyethylene terephthalate (PET)film(94V2,B130℃)(sheet)	SKC CO., LTD.(SR-55)	E74359
17	Lead Reinforce	*	0.025t Polyester film insulating tape(DTS-204,B130℃)(1½turns)	DUCKSUNG HITECH CO.,LTD.	E105147
		*	0.5t Pressedboard(120℃)(1sheet)	SUNGWON ELECTRIC CO.,INC	
18	Short-Ring		t Copper(turn)	POONGSAN METAL IND CO.,LTD.	
19	Shielr-Ring		t Copper(turn)	POONGSAN METAL IND CO.,LTD.	
20	Core-Ring		t Coldroiled silicon steel (turns)	POSCO	
21	Shield-Case		t Coldroiled silicon steel (turns)	POSCO	

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