



Test Report issued under the responsibility of:



**TEST REPORT
IEC 62368-1**

**Audio/video, information and communication technology equipment
Part 1: Safety requirements**

Report Number..... : CN25WRJN 001

Date of issue : 2025-08-01

Total number of pages..... : 91

Name of Testing Laboratory

preparing the Report..... : TÜV Rheinland (Guangdong) Ltd.

Applicant's name : Dongguan Jingheng Electron Co., Ltd.

Address : Room 101, Building 1, No.15, Shenle 1st Road, Hengli Town,
Dongguan City, 523465 Guangdong P.R. China

Test specification:

Standard..... : IEC 62368-1: 2018

Test procedure..... : CB Scheme

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

TRF template used..... : IECEE OD-2020-F1:2021, Ed.1.4

Test Report Form No. : IEC62368_1E

Test Report Form(s) Originator : UL(US)

Master TRF..... : Dated 2022-04-14

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

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Test item description	LINE ARRAY SPEAKER SYSTEMS	
Trade Mark(s)	 (TOPP PRO) or  (SHOW)	
Manufacturer	Same as applicant	
Model/Type reference	1) L-ARRAY 18SA, FLX 18SA, L-ARRAY 28HA, FLX 28HA, 2) L-ARRAY 18S, FLX 18S, L-ARRAY 28H, FLX 28H	
Ratings	1) AC MAINS input: 100-240V~, 50/60Hz, 11A Max AC LINK output: 100-240V~, 50/60Hz, 9A Max 2) N/A	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input type="checkbox"/>	CB Testing Laboratory:	TÜV Rheinland (Guangdong) Ltd.
Testing location/ address		No.199 Kezhu Road, Guangzhou Science City Guangzhou 510663 China
Tested by (name, function, signature)		
Approved by (name, function, signature) ..		
<input checked="" type="checkbox"/>	Testing procedure: CTF Stage 1:	Dongguan Jingheng Electron Co., Ltd.
Testing location/ address		No.15, Shenle 1st Road, Hengli Town, Dongguan City, 523465 Guangdong, P.R. China
Tested by (name, function, signature)		Kevin He (Project Engineer) 
Approved by (name, function, signature) ..		Susan Zheng (Reviewer) 
<input type="checkbox"/>	Testing procedure: CTF Stage 2:	
Testing location/ address		
Tested by (name, signature)		
Witnessed by (name, function, signature) . :		
Approved by (name, function, signature) .. :		
<input type="checkbox"/>	Testing procedure: CTF Stage 3:	
<input type="checkbox"/>	Testing procedure: CTF Stage 4:	
Testing location/ address		
Tested by (name, function, signature)		
Witnessed by (name, function, signature) . :		
Approved by (name, function, signature) .. :		
Supervised by (name, function, signature) :		

List of Attachments (including a total number of pages in each attachment): - Attachment 1: National difference (51 pages) - Attachment 2: other national difference (2 pages) - Attachment 3: Photo documentation (45 pages)																																									
Summary of testing:																																									
Tests performed (name of test and test clause): <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr><td style="width: 15%;">5.2</td><td>Electrical energy source classifications</td></tr> <tr><td>5.3.2</td><td>Accessibility to electrical energy sources and safeguards (Accessibility test)</td></tr> <tr><td>5.4.1.4 B.2.6</td><td>Maximum operating temperatures for materials, components and systems</td></tr> <tr><td>5.4.1.8</td><td>Determination of working voltage</td></tr> <tr><td>5.4.1.10.3</td><td>Ball pressure test</td></tr> <tr><td>5.4.8</td><td>Humidity conditioning</td></tr> <tr><td>5.4.9</td><td>Electric strength test</td></tr> <tr><td>5.5.2.2</td><td>Capacitance discharge test</td></tr> <tr><td>5.6.6.2</td><td>Ground continuity test</td></tr> <tr><td>5.7.4</td><td>Unearthed accessible conductive current test</td></tr> <tr><td>6.2.2</td><td>Electrical power sources (PS) measurements for classification</td></tr> <tr><td>8.6</td><td>Stability</td></tr> <tr><td>B.2.5</td><td>Input tests</td></tr> <tr><td>B.3</td><td>Simulated Abnormal operating condition tests</td></tr> <tr><td>B.4</td><td>Simulated single fault conditions</td></tr> <tr><td>F.3.9</td><td>Durability, legibility and permanence of markings</td></tr> <tr><td>G.5.3.3</td><td>Transformer overload</td></tr> <tr><td>T.2</td><td>Steady force test, 10 N</td></tr> <tr><td>T.5</td><td>Steady force test, 250N</td></tr> <tr><td>T.6</td><td>Impact test</td></tr> </table> <p style="margin-top: 20px;">Remark: The models L-ARRAY 28HA, L-ARRAY 18SA, L-ARRAY 28H were selected for all tests.</p>	5.2	Electrical energy source classifications	5.3.2	Accessibility to electrical energy sources and safeguards (Accessibility test)	5.4.1.4 B.2.6	Maximum operating temperatures for materials, components and systems	5.4.1.8	Determination of working voltage	5.4.1.10.3	Ball pressure test	5.4.8	Humidity conditioning	5.4.9	Electric strength test	5.5.2.2	Capacitance discharge test	5.6.6.2	Ground continuity test	5.7.4	Unearthed accessible conductive current test	6.2.2	Electrical power sources (PS) measurements for classification	8.6	Stability	B.2.5	Input tests	B.3	Simulated Abnormal operating condition tests	B.4	Simulated single fault conditions	F.3.9	Durability, legibility and permanence of markings	G.5.3.3	Transformer overload	T.2	Steady force test, 10 N	T.5	Steady force test, 250N	T.6	Impact test	Testing location: All tests as described in Test Case and Measurement Sections were performed at the laboratory described on page 2.
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Summary of compliance with National Differences (List of countries addressed):

EU Group Differences, EU Special National Conditions,
CA, US, SA, AU, NZ, KR.

Explanation of used codes: CA=Canada, US=United State of America, SA= Saudi Arabia, AU=Australia, NZ=New Zealand, KR= Korea, Republic of

For National Differences see attachment 1 of this test report.

For other national difference see attachment 2 of this test report.

- ☒ The product fulfils the requirements of EN IEC 62368-1:2020+A11:2020.
- ☒ The product fulfils the requirements of CSA/UL 62368-1:2019.
- ☒ The product fulfils the requirements of National standard SASO-IEC 62368-1:2020.
- ☒ The product fulfils the requirements of AS/NZS 62368.1:2022.
- ☒ The product fulfils the requirements of KC 62368-1(2021-08).
- ☒ The product fulfils the requirements of GB 4943.1-2022.
- ☒ The product fulfils the requirements of Special National Conditions.

Use of uncertainty of measurement for decisions on conformity (decision rule) :

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").

☐ Other:... (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)

Information on uncertainty of measurement:

The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.

IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

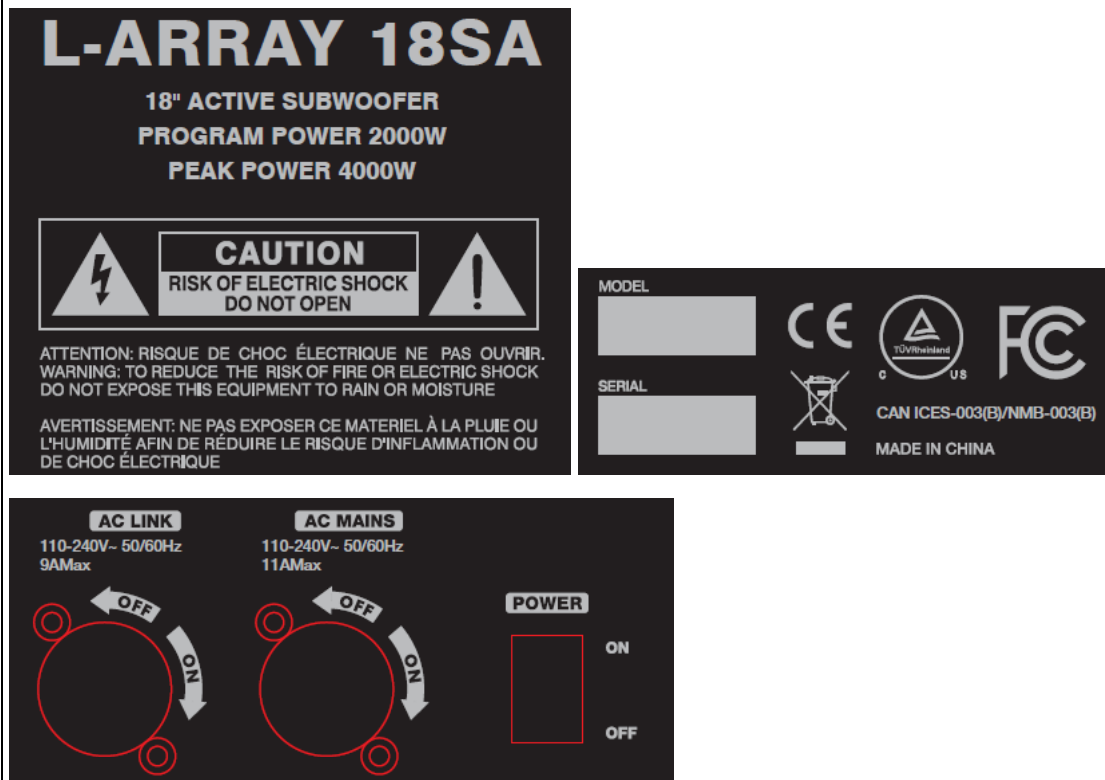
Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

Copy of marking plate:

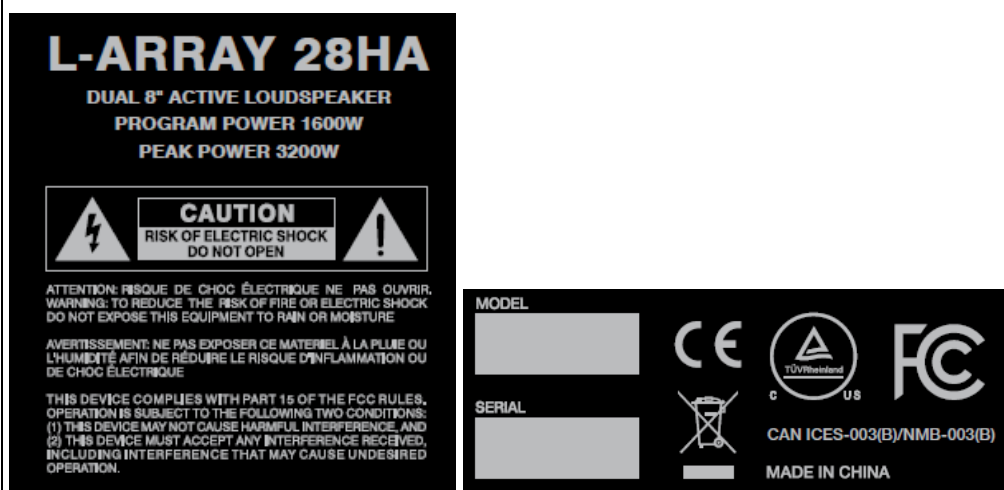
Trade mark for all models

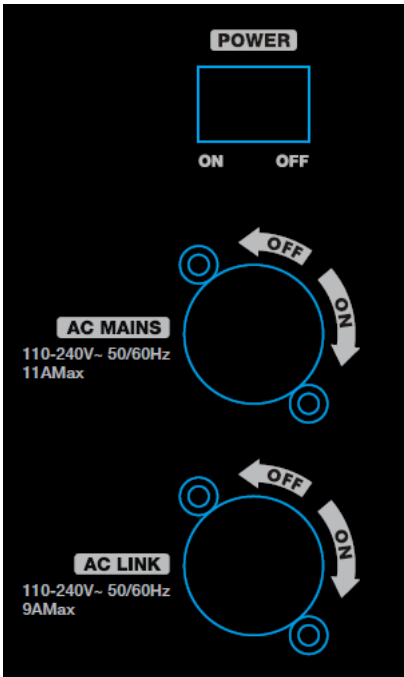


Label for model L-ARRAY 18SA



Label for L-ARRAY 20HA

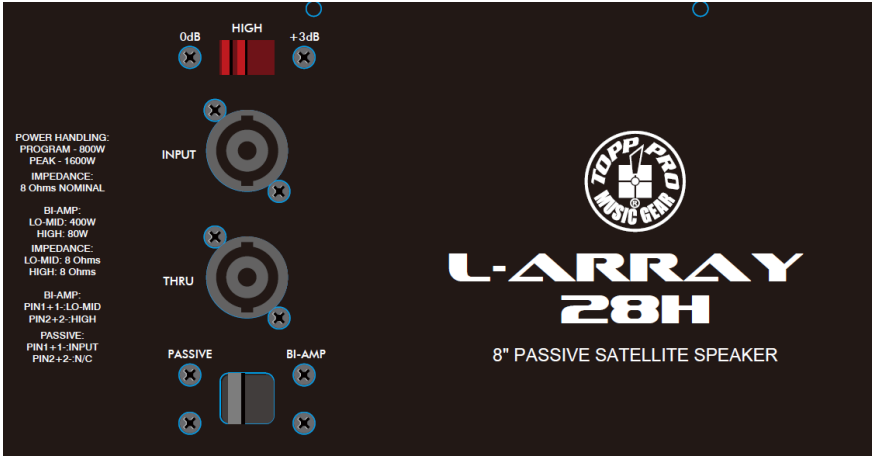




Label for L-ARRAY 18S



Label for L-ARRAY 28H



Remark:

1. The above markings are the minimum requirements required by the safety standard. For the final production, the additional markings which do not give rise to misunderstanding may be added.
2. The height dimension of CE mark should not be less than 5mm, the height dimension of WEEE symbol should not be less than 7mm.
3. According to the EU directives which have been aligned with EU NLF (new legislative framework), both of manufacturer and importer's name and address shall be affixed on the product or, where that is not possible, on its packaging or in a document accompanying the product before the product is placed on the EU market.

Test item particulars:			
Product group	<input checked="" type="checkbox"/> end product	<input type="checkbox"/> built-in component	
Classification of use by	<input checked="" type="checkbox"/> Ordinary person	<input type="checkbox"/> Children likely present	
	<input type="checkbox"/> Instructed person		
	<input type="checkbox"/> Skilled person		
Supply connection	<input checked="" type="checkbox"/> AC mains	<input type="checkbox"/> DC mains	
	<input type="checkbox"/> not mains connected:		
	<input type="checkbox"/> ES1	<input type="checkbox"/> ES2	<input type="checkbox"/> ES3
Supply tolerance	<input checked="" type="checkbox"/> +10%/-10%		
	<input type="checkbox"/> +20%/-15%		
	<input type="checkbox"/> + %/ - %		
	<input type="checkbox"/> None		
Supply connection – type	<input checked="" type="checkbox"/> pluggable equipment type A -		
	<input type="checkbox"/> non-detachable supply cord		
	<input checked="" type="checkbox"/> appliance coupler		
	<input type="checkbox"/> direct plug-in		
	<input type="checkbox"/> pluggable equipment type B -		
	<input type="checkbox"/> non-detachable supply cord		
	<input type="checkbox"/> appliance coupler		
	<input type="checkbox"/> permanent connection		
	<input type="checkbox"/> mating connector		
	<input type="checkbox"/> other:		
Considered current rating of protective device	<input checked="" type="checkbox"/> 16 A (20A for US and CA, 13A for UK);		
	Location: <input checked="" type="checkbox"/> building	<input type="checkbox"/> equipment	
	<input checked="" type="checkbox"/> N/A		
Equipment mobility	<input checked="" type="checkbox"/> movable	<input type="checkbox"/> hand-held	<input type="checkbox"/> transportable
	<input type="checkbox"/> direct plug-in	<input type="checkbox"/> stationary	<input type="checkbox"/> for building-in
	<input type="checkbox"/> wall/ceiling-mounted	<input type="checkbox"/> SRME/rack-mounted	
	<input type="checkbox"/> other:		
Overvoltage category (OVC)	<input type="checkbox"/> OVC I	<input checked="" type="checkbox"/> OVC II	<input type="checkbox"/> OVC III
	<input type="checkbox"/> OVC IV	<input type="checkbox"/> other:	
Class of equipment	<input checked="" type="checkbox"/> Class I	<input type="checkbox"/> Class II	<input type="checkbox"/> Class III
	<input type="checkbox"/> Not classified		
Special installation location	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> restricted access area	
	<input type="checkbox"/> outdoor location		
Pollution degree (PD)	<input type="checkbox"/> PD 1	<input checked="" type="checkbox"/> PD 2	<input type="checkbox"/> PD 3
Manufacturer's specified T_{ma}	40°C		
	<input type="checkbox"/> Outdoor: minimum °C		
IP protection class	<input checked="" type="checkbox"/> IPX0	<input type="checkbox"/> IP__	
Power systems	<input checked="" type="checkbox"/> TN	<input type="checkbox"/> TT	<input type="checkbox"/> IT - V _{L-L}
	<input type="checkbox"/> not AC mains		
Altitude during operation (m)	<input checked="" type="checkbox"/> 2000 m or less	<input type="checkbox"/>	m
Altitude of test laboratory (m)	<input checked="" type="checkbox"/> 2000 m or less	<input type="checkbox"/>	m
Mass of equipment (kg)	See model difference		

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 of receipt of test item : 2025-06-05 Date (s) of performance of tests..... : 2025-06-05 to 2025-07-08	
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 <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator. <input type="checkbox"/> This Test Report Form contains requirements according to IEC/ISO Standard dated and includes Corrigendum dated (Note: The above text maybe removed if not applicable)	
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 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..... :	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies)..... : Dongguan Jingheng Electron Co., Ltd. <div style="text-align: right; margin-top: 5px;"> No.15, Shenle 1st Road, Hengli Town, Dongguan City, 523465 Guangdong, P.R. China </div>	
General product information and other remarks: <ol style="list-style-type: none"> 1. This product is LINE ARRAY SPEAKER SYSTEMS for IT/AV use, constructed with four modules, L-ARRAY 18SA, L-ARRAY 28HA are active speaker L-ARRAY 28H, L-ARRAY 18S are passive speaker. 2. All electrical components were housed in wooden enclosure and metal rear panel, which was considered to be electrical, mechanical and fire enclosure; 3. The wooden enclosure was fixed together by nail; 4. The metal rear panel was reliably connect to earth; 5. The mains supply plug on the power supply cord is used as disconnect device; 6. The suitable and approved power supply cord will be provided, evaluated and used when national approval/market. 7. As client required, only trade mark TOPP PRO showed in certification. 	

Model difference:

L-ARRAY 18SA, L-ARRAY 28HA are active speaker

L-ARRAY 28H, L-ARRAY 18S are passive speaker.

The models L-Array 28HA and FLX 28HA are same as each other except for model name.

The models L-Array 18SA and FLX 18SA are same as each other except for model name.

The models L-Array 28H and FLX 28H are same as each other except for model name.

The models L-Array 18S and FLX 18S are same as each other except for model name.

Model	AMP	EMI	Transformer	Woofer	DRIVER	Size (H*W*D)(mm)	Weight
L-Array 28HA FLX 28HA	HK20097 500W+500W-DIP	Same	TC00648	HK13858*2 8inch, 150W 16Ω	HG00756*2 40W/16Ω	292*594*420	21.5kg
L-Array 18SA FLX 18SA	HK21306 500W+500W-DIP		TC00665	HK08996*1 18inch, 700W 8Ω	N/A	692*594*766	68.8kg
L-Array 28H FLX 28H	--	--	--	HK13858*2 8inch, 150W 16Ω	HG00756*2 40W/16Ω	292*594*420	19.9kg
L-Array 18S FLX 18S	--	--	--	HK08996*1 18inch, 700W 8Ω	N/A	692*594*766	68.0kg

OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS				
Clause	Possible Hazard			
5	Electrically-caused injury			
Class and Energy Source (e.g. ES3: Primary circuit)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
ES3: Primary circuit	Ordinary	N/A	N/A	Enclosure, Insulated Transformer, Y capacitor
ES1: Transformer T1 secondary winding output circuit & All secondary terminals	Ordinary	N/A	N/A	N/A
6	Electrically-caused fire			
Class and Energy Source (e.g. PS2: 100 Watt circuit)	Material part (e.g. Printed board)	Safeguards		
		B	1 st S	2 nd S
PS3: > 100 Watt circuit (All circuit except for accessible terminals)	Combustible materials within equipment fire barrier	Equipment safeguards (no ignition occurs, no high temperature occurs)	See 6.4.6	N/A
PS1: < 15 Watt circuit (secondary terminals, only input terminal provided, Audio link and data link is directly data output terminal)	Combustible materials within equipment fire barrier	Equipment safeguards (no ignition occurs, no high temperature occurs)	Equipment safeguards (materials of audio signal output terminals V- 0)	N/A
7	Injury caused by hazardous substances			
Class and Energy Source (e.g. Ozone)	Body Part (e.g., Skilled)	Safeguards		
		B	S	R
N/A	N/A	N/A	N/A	N/A
8	Mechanically-caused injury			
Class and Energy Source (e.g. MS3: Plastic fan blades)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
MS1: Edges and corners	Ordinary	N/A	N/A	N/A
MS3: Mass of the unit (models L-Array 28HA, FLX 28HA, L- Array 28H, FLX 28H)	Ordinary	N/A	N/A	See clause 8.6
MS3: Mass of the unit (models L-Array 18SA, FLX 18SA, L- Array 18S, FLX 18S)	Ordinary	N/A	N/A	See clause 8.6
9	Thermal burn			

Class and Energy Source (e.g. TS1: Keyboard caps)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
TS3: Internal parts/circuits	Ordinary	N/A	N/A	Enclosure
TS1: External enclosure surface	Ordinary	N/A	N/A	N/A
10	Radiation			
Class and Energy Source (e.g. RS1: PMP sound output)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
RS1: LED indicating light	Ordinary	N/A	N/A	N/A
Supplementary Information:				
“B” – Basic Safeguard; “S” – Supplementary Safeguard; “R” – Reinforced Safeguard				

ENERGY SOURCE DIAGRAM
<p>Optional. Manufacturers are to provide the energy sources diagram identify declared energy sources and identifying the demarcations are between power sources. Recommend diagram be provided included in power supply and multipart systems.</p> <p>Insert diagram below. Example diagram designs are; Block diagrams; image(s) with layered data; mechanical drawings</p>
<p>See “OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS” for details.</p> <p> <input checked="" type="checkbox"/> ES <input checked="" type="checkbox"/> PS <input checked="" type="checkbox"/> MS <input checked="" type="checkbox"/> TS <input checked="" type="checkbox"/> RS </p>

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS		P
4.1.1	Acceptance of materials, components and subassemblies	See appended table 4.1.2	P
4.1.2	Use of components	Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment.	P
4.1.3	Equipment design and construction	Equipment is adequately designed and constructed, no accessible part which could cause injury.	P
4.1.4	Specified ambient temperature for outdoor use (°C) :	For indoor use only.	N/A
4.1.5	Constructions and components not specifically covered	No such construction.	N/A
4.1.8	Liquids and liquid filled components (LFC)		N/A
4.1.15	Markings and instructions		P
4.4.3	Safeguard robustness		P
4.4.3.1	General		P
4.4.3.2	Steady force tests		P
4.4.3.3	Drop tests	Moveable equipment.	N/A
4.4.3.4	Impact tests		P
4.4.3.5	Internal accessible safeguard tests		N/A
4.4.3.6	Glass impact tests		N/A
4.4.3.7	Glass fixation tests		N/A
	Glass impact test (1J)		N/A
	Push/pull test (10 N)		N/A
4.4.3.8	Thermoplastic material tests	Metal and wooden enclosure	N/A
4.4.3.9	Air comprising a safeguard		P
4.4.3.10	Accessibility, glass, safeguard effectiveness		P
4.4.4	Displacement of a safeguard by an insulating liquid		N/A
4.4.5	Safety interlocks	No such component used.	N/A
4.5	Explosion		P
4.5.1	General	No explosion occurs during normal/abnormal operation and single fault conditions.	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.5.2	No explosion during normal/abnormal operating condition		P
	No harm by explosion during single fault conditions		P
4.6	Fixing of conductors		P
	Fix conductors not to defeat a safeguard		P
	Compliance is checked by test..... :		P
4.7	Equipment for direct insertion into mains socket-outlets		N/A
4.7.2	Mains plug part complies with relevant standard .. :	Not direct plug-in equipment.	N/A
4.7.3	Torque (Nm)..... :		N/A
4.8	Equipment containing coin/button cell batteries		N/A
4.8.1	General	No such component provided.	N/A
4.8.2	Instructional safeguard..... :		N/A
4.8.3	Battery compartment door/cover construction		N/A
	Open torque test		N/A
4.8.4.2	Stress relief test		N/A
4.8.4.3	Battery replacement test		N/A
4.8.4.4	Drop test		N/A
4.8.4.5	Impact test		N/A
4.8.4.6	Crush test		N/A
4.8.5	Compliance		N/A
	30N force test with test probe		N/A
	20N force test with test hook		N/A
4.9	Likelihood of fire or shock due to entry of conductive object		P
4.10	Component requirements		P
4.10.1	Disconnect Device		P
4.10.2	Switches and relays		P

5	ELECTRICALLY-CAUSED INJURY		P
5.2	Classification and limits of electrical energy sources		P
5.2.2	ES1, ES2 and ES3 limits		P
5.2.2.2	Steady-state voltage and current limits	(See appended table 5.2.2.2)	P
5.2.2.3	Capacitance limits	(See appended table 5.2.2.3)	P
5.2.2.4	Single pulse limits.....		N/A
5.2.2.5	Limits for repetitive pulses.....		N/A
5.2.2.6	Ringing signals		N/A
5.2.2.7	Audio signals		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.3	Protection against electrical energy sources		P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		P
5.3.1 a)	Accessible ES1/ES2 derived from ES2/ES3 circuits		P
5.3.1 b)	Skilled persons not unintentional contact ES3 bare conductors		P
5.3.2.1	Accessibility to electrical energy sources and safeguards		P
	Accessibility to outdoor equipment bare parts		P
5.3.2.2	Contact requirements		P
	Test with test probe from Annex V		—
5.3.2.2 a)	Air gap – electric strength test potential (V)..... :		N/A
5.3.2.2 b)	Air gap – distance (mm) :		P
5.3.2.3	Compliance		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material		P
5.4.1.3	Material is non-hygroscopic		P
5.4.1.4	Maximum operating temperature for insulating materials..... :	(See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6)	P
5.4.1.5	Pollution degrees :	2	P
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling test		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage :	(See appended table 5.4.1.8)	P
5.4.1.9	Insulating surfaces		P
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		P
5.4.1.10.2	Vicat test..... :		N/A
5.4.1.10.3	Ball pressure test..... :	(See appended table 5.4.1.10.3)	P
5.4.2	Clearances		P
5.4.2.1	General requirements		P
	Clearances in circuits connected to AC Mains, Alternative method		N/A
5.4.2.2	Procedure 1 for determining clearance		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Temporary overvoltage :	2,000	—
5.4.2.3	Procedure 2 for determining clearance		P
5.4.2.3.2.2	a.c. mains transient voltage :	2500 Vpk considered for Overvoltage Cat. II	—
5.4.2.3.2.3	d.c. mains transient voltage :	Not d.c. mains.	—
5.4.2.3.2.4	External circuit transient voltage..... :	No such transient	—
5.4.2.3.2.5	Transient voltage determined by measurement :	N/A	—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test :		N/A
5.4.2.5	Multiplication factors for clearances and test voltages :	(See appended tables)	P
5.4.2.6	Clearance measurement :	(See appended table 5.4.2.2, 5.4.2.4 and 5.4.3)	P
5.4.3	Creepage distances		P
5.4.3.1	General		P
5.4.3.3	Material group :	IIIb	—
5.4.3.4	Creepage distances measurement..... :	(See appended table 5.4.2.2, 5.4.2.4 and 5.4.3)	P
5.4.4	Solid insulation		P
5.4.4.1	General requirements		P
5.4.4.2	Minimum distance through insulation :	See table 5.4.4.2	P
5.4.4.3	Insulating compound forming solid insulation		P
5.4.4.4	Solid insulation in semiconductor devices		P
5.4.4.5	Insulating compound forming cemented joints		N/A
5.4.4.6	Thin sheet material		P
5.4.4.6.1	General requirements		P
5.4.4.6.2	Separable thin sheet material		P
	Number of layers (pcs) :	Three layers of insulation tape are used between primary and secondary winding in T1. Each two layers meets electric strength.	P
5.4.4.6.3	Non-separable thin sheet material		P
	Number of layers (pcs) :	min. 3 lays used for transformer	P
5.4.4.6.4	Standard test procedure for non-separable thin sheet material..... :		N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.9	Solid insulation at frequencies >30 kHz, E_P , K_R , d , V_{PW} (V)		N/A
	Alternative by electric strength test, tested voltage (V), K_R		N/A
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
5.4.5.3	Insulation resistance ($M\Omega$)		N/A
	Electric strength test		N/A
5.4.6	Insulation of internal wire as part of supplementary safeguard		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		P
	Relative humidity (%), temperature ($^{\circ}C$), duration (h)	93%, 40 $^{\circ}C$, 120h	—
5.4.9	Electric strength test		P
5.4.9.1	Test procedure for type test of solid insulation.....	(See appended table 5.4.9)	P
5.4.9.2	Test procedure for routine test		N/A
5.4.10	Safeguards against transient voltages from external circuits		N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test		N/A
5.4.10.2.3	Steady-state test.....		N/A
5.4.10.3	Verification for insulation breakdown for impulse test		N/A
5.4.11	Separation between external circuits and earth		N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	SPDs bridge separation between external circuit and earth		N/A
	Rated operating voltage U_{op} (V).....		—
	Nominal voltage U_{peak} (V)		—
	Max increase due to variation ΔU_{sp}		—
	Max increase due to ageing ΔU_{sa}		—
5.4.11.3	Test method and compliance		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.12	Insulating liquid		N/A
5.4.12.1	General requirements		N/A
5.4.12.2	Electric strength of an insulating liquid		N/A
5.4.12.3	Compatibility of an insulating liquid		N/A
5.4.12.4	Container for insulating liquid		N/A
5.5	Components as safeguards		P
5.5.1	General		P
5.5.2	Capacitors and RC units	Approved X and Y capacitors provided.	P
5.5.2.1	General requirement		P
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector.....	(See appended table 5.5.2.2)	P
5.5.3	Transformers		P
5.5.4	Optocouplers	(See sub-clause 5.4 or Annex G.12)	P
5.5.5	Relays		N/A
5.5.6	Resistors		N/A
5.5.7	SPDs		N/A
5.5.8	Insulation between the mains and an external circuit consisting of a coaxial cable		N/A
5.5.9	Safeguards for socket-outlets in outdoor equipment		N/A
	RCD rated residual operating current (mA)		—
5.6	Protective conductor		P
5.6.2	Requirement for protective conductors		P
5.6.2.1	General requirements		P
5.6.2.2	Colour of insulation		P
5.6.3	Requirement for protective earthing conductors		P
	Protective earthing conductor size (mm ²)	Approve inlet used.	—
	Protective earthing conductor serving as a reinforced safeguard		N/A
	Protective earthing conductor serving as a double safeguard		P
5.6.4	Requirements for protective bonding conductors		P
5.6.4.1	Protective bonding conductors	See the following details.	P
	Protective bonding conductor size (mm ²).....	0.75 mm ² (18 AWG) for protective bonding conductor.	—
5.6.4.2	Protective current rating (A)	≤ 25 A.	P
5.6.5	Terminals for protective conductors		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.6.5.1	Terminal size for connecting protective earthing conductors (mm)..... :	Approve inlet used.	P
	Terminal size for connecting protective bonding conductors (mm) :	Min. 3.5mm	P
5.6.5.2	Corrosion		P
5.6.6	Resistance of the protective bonding system		P
5.6.6.1	Requirements		P
5.6.6.2	Test Method :	(See appended table 5.6.6)	P
5.6.6.3	Resistance (Ω) or voltage drop :	(See appended table 5.6.6)	P
5.6.7	Reliable connection of a protective earthing conductor		P
5.6.8	Functional earthing		N/A
	Conductor size (mm ²)..... :		N/A
	Class II with functional earthing marking :		N/A
	Appliance inlet cl & cr (mm) :		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		P
5.7.2	Measuring devices and networks		P
5.7.2.1	Measurement of touch current		P
5.7.2.2	Measurement of voltage		P
5.7.3	Equipment set-up, supply connections and earth connections		P
5.7.4	Unearthed accessible parts..... :	(See appended table 5.2)	P
5.7.5	Earthed accessible conductive parts :	(See appended table 5.2)	P
5.7.6	Requirements when touch current exceeds ES2 limits		N/A
	Protective conductor current (mA)..... :		N/A
	Instructional Safeguard :		N/A
5.7.7	Prospective touch voltage and touch current associated with external circuits		N/A
5.7.7.1	Touch current from coaxial cables		N/A
5.7.7.2	Prospective touch voltage and touch current associated with paired conductor cables		N/A
5.7.8	Summation of touch currents from external circuits		N/A
	a) Equipment connected to earthed external circuits, current (mA)..... :		N/A
	b) Equipment connected to unearthed external circuits, current (mA)..... :		N/A
5.8	Backfeed safeguard in battery backed up supplies		N/A
	Mains terminal ES :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Air gap (mm)		N/A

6	ELECTRICALLY- CAUSED FIRE		P
6.2	Classification of PS and PIS		P
6.2.2	Power source circuit classifications	see ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS	See table 6.2.3.1	P
6.2.3.2	Resistive PIS	See table 6.2.3.2	P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials.....	No ignition and no such temperature attained within the equipment. (See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6)	P
	Combustible materials outside fire enclosure		N/A
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard method	Method by control of fire spread applied.	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	Supplementary safeguards		N/A
6.4.3.2	Single Fault Conditions.....		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		P
6.4.5	Control of fire spread in PS2 circuits		N/A
6.4.5.2	Supplementary safeguards		P

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.6	Control of fire spread in PS3 circuits	Compliance detailed as follows: - Printed board: rated V-0 - Wire insulation (tubing): complying with Clause 6 (See Table 4.1.2 for tubing used). - All other components: at least V-2 except for mounted on min. V-1 material or small parts of combustible material. - Isolating transformer: complying with G.5.3. Fire enclosure provided	P
6.4.7	Separation of combustible materials from a PIS	- If the distance from PIS less than specified in the Figure 37, Figure 38, Figure 39, min. V-1 materials used. - Fire enclosure provided.	N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers		P
6.4.8.2	Fire enclosure and fire barrier material properties		P
6.4.8.2.1	Requirements for a fire barrier	No such fire barrier as control of fire spread	N/A
6.4.8.2.2	Requirements for a fire enclosure	Wooden enclosure and metal rear panel	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier	Wooden enclosure and metal rear panel	P
6.4.8.3.1	Fire enclosure and fire barrier openings		P
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top openings and properties	No openings	N/A
	Openings dimensions (mm) :		N/A
6.4.8.3.4	Bottom openings and properties		N/A
	Openings dimensions (mm) :		N/A
	Flammability tests for the bottom of a fire enclosure		N/A
	Instructional Safeguard..... :		N/A
6.4.8.3.5	Side openings and properties	Side opening in model L-ARRAY 28HA, No electrical component within 5°	P
	Openings dimensions (mm) :		P

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.3.6	Integrity of a fire enclosure, condition met: a), b) or c)..... :	No such construction.	N/A
6.4.8.4	Separation of a PIS from a fire enclosure and a fire barrier distance (mm) or flammability rating..... :	Wooden enclosure and metal panel.	P
6.4.9	Flammability of insulating liquid..... :	No such components used.	N/A
6.5	Internal and external wiring		P
6.5.1	General requirements	VW-1 wires used, which considered to equivalent to IEC/TS 60695-11-21.	P
6.5.2	Requirements for interconnection to building wiring :		N/A
6.5.3	Internal wiring size (mm ²) for socket-outlets :		N/A
6.6	Safeguards against fire due to the connection to additional equipment		P

7	INJURY CAUSED BY HAZARDOUS SUBSTANCES		N/A
7.2	Reduction of exposure to hazardous substances		N/A
7.3	Ozone exposure		N/A
7.4	Use of personal safeguards or personal protective equipment (PPE)		N/A
	Personal safeguards and instructions..... :		—
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010)..... :		—
7.6	Batteries and their protection circuits		N/A

8	MECHANICALLY-CAUSED INJURY		P
8.2	Mechanical energy source classifications		P
8.3	Safeguards against mechanical energy sources		P
8.4	Safeguards against parts with sharp edges and corners		P
8.4.1	Safeguards		P
	Instructional Safeguard..... :		N/A
8.4.2	Sharp edges or corners		P
8.5	Safeguards against moving parts		N/A
8.5.1	Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts	No moving parts used, except for DC fan.	N/A
	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
	Moving MS3 parts only accessible to skilled person		N/A
8.5.2	Instructional safeguard :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.4	Special categories of equipment containing moving parts		N/A
8.5.4.1	General		N/A
8.5.4.2	Equipment containing work cells with MS3 parts		N/A
8.5.4.2.1	Protection of persons in the work cell		N/A
8.5.4.2.2	Access protection override		N/A
8.5.4.2.2.1	Override system		N/A
8.5.4.2.2.2	Visual indicator		N/A
8.5.4.2.3	Emergency stop system		N/A
	Maximum stopping distance from the point of activation (m) :		N/A
	Space between end point and nearest fixed mechanical part (mm)..... :		N/A
8.5.4.2.4	Endurance requirements		N/A
	Mechanical system subjected to 100 000 cycles of operation		N/A
	- Mechanical function check and visual inspection		N/A
	- Cable assembly :		N/A
8.5.4.3	Equipment having electromechanical device for destruction of media		N/A
8.5.4.3.1	Equipment safeguards		N/A
8.5.4.3.2	Instructional safeguards against moving parts :		N/A
8.5.4.3.3	Disconnection from the supply		N/A
8.5.4.3.4	Cut type and test force (N)..... :		N/A
8.5.4.3.5	Compliance		N/A
8.5.5	High pressure lamps		N/A
	Explosion test..... :		N/A
8.5.5.3	Glass particles dimensions (mm) :		N/A
8.6	Stability of equipment		P
8.6.1	General	Equipment mass: classified as MS3.	P
	Instructional safeguard :		N/A
8.6.2	Static stability		P
8.6.2.2	Static stability test..... :		P
8.6.2.3	Downward force test		N/A
8.6.3	Relocation stability		N/A
	Wheels diameter (mm) :		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Tilt test		N/A
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test..... :		N/A
8.7	Equipment mounted to wall, ceiling or other structure		N/A
8.7.1	Mount means type..... :	Not for wall mounted.	N/A
8.7.2	Test methods		N/A
	Test 1, additional downwards force (N)..... :		N/A
	Test 2, number of attachment points and test force (N)..... :		N/A
	Test 3 Nominal diameter (mm) and applied torque (Nm)..... :		N/A
8.8	Handles strength		N/A
8.8.1	General		N/A
8.8.2	Handle strength test		N/A
	Number of handles..... :		—
	Force applied (N)..... :		—
8.9	Wheels or casters attachment requirements		N/A
8.9.2	Pull test		N/A
8.10	Carts, stands and similar carriers		N/A
8.10.1	General	No carts, stands or similar carriers	N/A
8.10.2	Marking and instructions..... :		N/A
8.10.3	Cart, stand or carrier loading test		N/A
	Loading force applied (N)..... :		N/A
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Force applied (N)..... :		—
8.10.6	Thermoplastic temperature stability		N/A
8.11	Mounting means for slide-rail mounted equipment (SRME)		N/A
8.11.1	General	Not such equipment	N/A
8.11.2	Requirements for slide rails		N/A
	Instructional Safeguard..... :		N/A
8.11.3	Mechanical strength test		N/A
8.11.3.1	Downward force test, force (N) applied..... :		N/A
8.11.3.2	Lateral push force test		N/A
8.11.3.3	Integrity of slide rail end stops		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.11.4	Compliance		N/A
8.12	Telescoping or rod antennas		N/A
	Button/ball diameter (mm)..... :		—

9	THERMAL BURN INJURY		P
9.2	Thermal energy source classifications		P
9.3	Touch temperature limits		P
9.3.1	Touch temperatures of accessible parts :	The accessible surfaces and internal are classified as TS1.	P
9.3.2	Test method and compliance		P
9.4	Safeguards against thermal energy sources		P
9.5	Requirements for safeguards		P
9.5.1	Equipment safeguard		P
9.5.2	Instructional safeguard :		N/A
9.6	Requirements for wireless power transmitters		N/A
9.6.1	General		N/A
9.6.2	Specification of the foreign objects		N/A
9.6.3	Test method and compliance :		N/A

10	RADIATION		P
10.2	Radiation energy source classification		P
10.2.1	General classification	LED used for indicating light, classify RS1 classification	P
	Lasers :	No such part	—
	Lamps and lamp systems :	No such part	—
	Image projectors..... :	No such part	—
	X-Ray :	No such part	—
	Personal music player..... :	No such part	—
10.3	Safeguards against laser radiation		N/A
	The standard(s) equipment containing laser(s) comply :		N/A
10.4	Safeguards against optical radiation from lamps and lamp systems (including LED types)		P
10.4.1	General requirements	LED used as indicating lights. RS1 classification.	P
	Instructional safeguard provided for accessible radiation level needs to exceed		N/A
	Risk group marking and location :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Information for safe operation and installation		N/A
10.4.2	Requirements for enclosures		N/A
	UV radiation exposure		N/A
10.4.3	Instructional safeguard.....		N/A
10.5	Safeguards against X-radiation		N/A
10.5.1	Requirements		N/A
	Instructional safeguard for skilled persons.....		—
10.5.3	Maximum radiation (pA/kg)		—
10.6	Safeguards against acoustic energy sources		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output $L_{Aeq,T}$, dB(A)		N/A
	Unweighted RMS output voltage (mV).....		N/A
	Digital output signal (dBFS)		N/A
10.6.3	Requirements for dose-based systems		N/A
10.6.3.1	General requirements		N/A
10.6.3.2	Dose-based warning and automatic decrease		N/A
10.6.3.3	Exposure-based warning and requirements		N/A
	30 s integrated exposure level (MEL30)		N/A
	Warning for MEL ≥ 100 dB(A)		N/A
10.6.4	Measurement methods		N/A
10.6.5	Protection of persons		N/A
	Instructional safeguards.....		N/A
10.6.6	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.6.1	Corded listening devices with analogue input		N/A
	Listening device input voltage (mV).....		N/A
10.6.6.2	Corded listening devices with digital input		N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A)		N/A
10.6.6.3	Cordless listening devices		N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A)		N/A
B	NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS		P
B.1	General		P

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Clause	Requirement + Test	Result - Remark	Verdict
B.1.5	Temperature measurement conditions	(See appended table B.1.5)	P
B.2	Normal operating conditions		P
B.2.1	General requirements	See summary of testing and appended tables.	P
	Audio Amplifiers and equipment with audio amplifiers	(See Annex E)	P
B.2.3	Supply voltage and tolerances		P
B.2.5	Input test	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General		P
B.3.2	Covering of ventilation openings	(See appended table B.3, B.4)	P
	Instructional safeguard.....		N/A
B.3.3	DC mains polarity test		N/A
B.3.4	Setting of voltage selector	(See appended table B.3, B.4)	P
B.3.5	Maximum load at output terminals		N/A
B.3.6	Reverse battery polarity	No user replaceable batteries.	N/A
B.3.7	Audio amplifier abnormal operating conditions	(See appended table B.3, B.4)	P
B.3.8	Safeguards functional during and after abnormal operating conditions	All safeguards remained effective.	P
B.4	Simulated single fault conditions		P
B.4.1	General		P
B.4.2	Temperature controlling device		N/A
B.4.3	Blocked motor test	Fan locked.	P
B.4.4	Functional insulation		P
B.4.4.1	Short circuit of clearances for functional insulation		P
B.4.4.2	Short circuit of creepage distances for functional insulation		P
B.4.4.3	Short circuit of functional insulation on coated printed boards		N/A
B.4.5	Short-circuit and interruption of electrodes in tubes and semiconductors		P
B.4.6	Short circuit or disconnection of passive components		P
B.4.7	Continuous operation of components		N/A
B.4.8	Compliance during and after single fault conditions	No change to circuits classified.	P
B.4.9	Battery charging and discharging under single fault conditions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
C	UV RADIATION		N/A
C.1	Protection of materials in equipment from UV radiation		N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus..... :		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure test		N/A
C.2.4	Xenon-arc light-exposure test		N/A
D	TEST GENERATORS		N/A
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
E	TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS		P
E.1	Electrical energy source classification for audio signals		P
	Maximum non-clipped output power (W)..... :	See table B.2.5 for detail	—
	Rated load impedance (Ω)..... :	See table B.2.5 for detail	—
	Open-circuit output voltage (V)..... :	See table B.2.5 for detail	—
	Instructional safeguard..... :	No safeguard necessary	—
E.2	Audio amplifier normal operating conditions		P
	Audio signal source type..... :	pink noise signal	—
	Audio output power (W)..... :	See table B.2.5 for detail	—
	Audio output voltage (V)..... :	See table B.2.5 for detail	—
	Rated load impedance (Ω)..... :	See table B.2.5 for detail	—
	Requirements for temperature measurement		P
E.3	Audio amplifier abnormal operating conditions		P
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General		P
	Language..... :	English version user manual was provided.(version in other language will be provided when submitted for national approval)	—
F.2	Letter symbols and graphical symbols		P

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Clause	Requirement + Test	Result - Remark	Verdict
F.2.1	Letter symbols according to IEC60027-1	Letter symbols for quantities and units are complied with IEC 60027-1.	P
F.2.2	Graphic symbols according to IEC, ISO or manufacturer specific	Graphical symbols are complied with IEC 60417, ISO 3864-2, ISO 7000 or ISO 7010.	P
F.3	Equipment markings		P
F.3.1	Equipment marking locations		P
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification	See page 2 for details.	P
F.3.2.2	Model identification	See page 2 for details.	P
F.3.3	Equipment rating markings		P
F.3.3.1	Equipment with direct connection to mains		P
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of the supply voltage	See page 2 for details.	P
F.3.3.4	Rated voltage	See page 2 for details.	P
F.3.3.5	Rated frequency	See page 2 for details.	P
F.3.3.6	Rated current or rated power	See page 2 for details.	P
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device		N/A
F.3.5	Terminals and operating devices		N/A
F.3.5.1	Mains appliance outlet and socket-outlet markings		N/A
F.3.5.2	Switch position identification marking	See copy of marking plate.	P
F.3.5.3	Replacement fuse identification and rating markings		N/A
	Instructional safeguards for neutral fuse.....		N/A
F.3.5.4	Replacement battery identification marking		N/A
F.3.5.5	Neutral conductor terminal		N/A
F.3.5.6	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification		P
F.3.6.1	Class I equipment		P
F.3.6.1.1	Protective earthing conductor terminal	Comply with IEC 60417-5019 (2006-08).	P
F.3.6.1.2	Protective bonding conductor terminals	need not be identified.	P
F.3.6.2	Equipment class marking	Class I	P
F.3.6.3	Functional earthing terminal marking.....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.7	Equipment IP rating marking :	This equipment is classified as IPX0.	P
F.3.8	External power supply output marking :	No power supply output used.	N/A
F.3.9	Durability, legibility and permanence of marking	Marking is considered to be legible and easily discernible. See also the following details.	P
F.3.10	Test for permanence of markings	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 sec. And then again for 15 sec. With the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade. There was no curling and lifting of the label edge. After each test, the marking remained legible.	P
F.4	Instructions		P
	a) Information prior to installation and initial use	Provided in user's manual.	P
	b) Equipment for use in locations where children not likely to be present		N/A
	c) Instructions for installation and interconnection		P
	d) Equipment intended for use only in restricted access area		N/A
	e) Equipment intended to be fastened in place	The voltage less than 70V r.m.s, ES1 audio equipment terminals used.	N/A
	f) Instructions for audio equipment terminals		N/A
	g) Protective earthing used as a safeguard		P
	h) Protective conductor current exceeding ES2 limits		N/A
	i) Graphic symbols used on equipment		P
	j) Permanently connected equipment not provided with all-pole mains switch		N/A
	k) Replaceable components or modules providing safeguard function		N/A
	l) Equipment containing insulating liquid		N/A
	m) Installation instructions for outdoor equipment		N/A
F.5	Instructional safeguards		P

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Clause	Requirement + Test	Result - Remark	Verdict
G	COMPONENTS		P
G.1	Switches		P
G.1.1	General	VDE approved. 10000 operating cycles; normal pollution situation, level 3; and flammability material of plastic material V-0, UL approved.	P
G.1.2	Ratings, endurance, spacing, maximum load	(see appended table 4.1.2)	N/A
G.1.3	Test method and compliance		N/A
G.2	Relays		N/A
G.2.1	Requirements	No relay used.	N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supplying power to other equipment		N/A
G.2.4	Test method and compliance		N/A
G.3	Protective devices		P
G.3.1	Thermal cut-offs	Approved thermal cut off used.	P
	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		P
	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Test method and compliance		N/A
G.3.2	Thermal links		N/A
G.3.2.1	a) Thermal links tested separately according to IEC 60691 with specifics	No thermal link used.	N/A
	b) Thermal links tested as part of the equipment		N/A
G.3.2.2	Test method and compliance		N/A
G.3.3	PTC thermistors		N/A
G.3.4	Overcurrent protection devices	Current fuse complying with IEC 60127 as overcurrent protection device.	P
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.4		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions		N/A
G.4	Connectors		P

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Clause	Requirement + Test	Result - Remark	Verdict
G.4.1	Spacings	No such connector with insulated surfaces accessible within the EUT	N/A
G.4.2	Mains connector configuration		N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely	No mismatch of mains socket-outlets or appliance coupler.	P
G.5	Wound components		P
G.5.1	Wire insulation in wound components		P
G.5.1.2	Protection against mechanical stress		P
G.5.2	Endurance test		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Test time (days per cycle)		—
	Test temperature (°C)		—
G.5.2.3	Wound components supplied from the mains		N/A
G.5.2.4	No insulation breakdown		N/A
G.5.3	Transformers		P
G.5.3.1	Compliance method	The transformer meets the requirements given in G.5.3.2 and G.5.3.3	P
	Position	See table 4.1.2	P
	Method of protection	By protection circuit	P
G.5.3.2	Insulation	Primary windings to secondary windings are separated by double insulation.	P
	Protection from displacement of windings	By insulating tape	—
G.5.3.3	Transformer overload tests	(See appended table B.3 & B.4)	P
G.5.3.3.1	Test conditions	Tested in the complete equipment.	P
G.5.3.3.2	Winding temperatures	(See appended table B.3 & B.4)	P
G.5.3.3.3	Winding temperatures - alternative test method		N/A
G.5.3.4	Transformers using FIW	No FIW used.	N/A
G.5.3.4.1	General		N/A
	FIW wire nominal diameter		—
G.5.3.4.2	Transformers with basic insulation only		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.3.4.3	Transformers with double insulation or reinforced insulation		N/A
G.5.3.4.4	Transformers with FIW wound on metal or ferrite core		N/A
G.5.3.4.5	Thermal cycling test and compliance		N/A
G.5.3.4.6	Partial discharge test		N/A
G.5.3.4.7	Routine test		N/A
G.5.4	Motors		P
G.5.4.1	General requirements		P
G.5.4.2	Motor overload test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4.2	Locked-rotor overload test		N/A
	Test duration (days)		—
G.5.4.5	Running overload test for DC motors	DC fan was locked.	P
G.5.4.5.2	Tested in the unit		P
G.5.4.5.3	Alternative method		N/A
G.5.4.6	Locked-rotor overload test for DC motors		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature		N/A
G.5.4.6.3	Alternative method		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage		—
G.6	Wire Insulation		P
G.6.1	General	No triple insulation wire used.	P
G.6.2	Enamelled winding wire insulation	Solvent-based enamel is not considered to provide basic insulation, supplementary insulation or reinforced insulation.	N/A
G.7	Mains supply cords		P
G.7.1	General requirements	Approved appliance inlet used.	P
	Type	See table 4.1.2 for details	—
G.7.2	Cross sectional area (mm ² or AWG)	See table 4.1.2 for details	P
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N) :		N/A
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm)..... :		N/A
G.7.3.2.4	Strain relief and cord anchorage material		N/A
G.7.4	Cord Entry		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Test method and compliance		N/A
	Overall diameter or minor overall dimension, D (mm)..... :		—
	Radius of curvature after test (mm) :		—
G.7.6	Supply wiring space		N/A
G.7.6.1	General requirements		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Requirements		N/A
G.7.6.2.2	Test with 8 mm strand		N/A
G.8	Varistors		N/A
G.8.1	General requirements	No VDR used.	N/A
G.8.2	Safeguards against fire		N/A
G.8.2.1	General		N/A
G.8.2.2	Varistor overload test		N/A
G.8.2.3	Temporary overvoltage test		N/A
G.9	Integrated circuit (IC) current limiters		N/A
G.9.1	Requirements	No such components.	N/A
	IC limiter output current (max. 5A)..... :		—
	Manufacturers' defined drift :		—
G.9.2	Test Program		N/A
G.9.3	Compliance		N/A
G.10	Resistors		N/A
G.10.1	General	No such construction.	N/A
G.10.2	Conditioning		N/A
G.10.3	Resistor test		N/A
G.10.4	Voltage surge test		N/A
G.10.5	Impulse test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.10.6	Overload test		N/A
G.11	Capacitors and RC units		P
G.11.1	General requirements	Capacitors used in accordance with their rating and complied with subclasses of IEC 60384-14. Approved capacitor used.	P
G.11.2	Conditioning of capacitors and RC units	At least 21 days at 40 ± 2 °C and 93 ± 3 % R.H.	P
G.11.3	Rules for selecting capacitors	The selection followed with tables G.9 and G.12.	P
G.12	Optocouplers		P
	Optocouplers comply with IEC 60747-5-5 with specifics	(see appended table 4.1.2) The optocoupler complied with standard IEC/EN 60747-5-5.	P
	Type test voltage $V_{ini,a}$	(See appended table 4.1.2)	—
	Routine test voltage, $V_{ini,b}$	(see appended table 4.1.2)	—
G.13	Printed boards		P
G.13.1	General requirements	See the following details.	P
G.13.2	Uncoated printed boards		P
G.13.3	Coated printed boards	No coated printed board or multilayer board applied for within the equipment.	N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs)		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2	Test method and compliance		N/A
G.14	Coating on components terminals		N/A
G.14.1	Requirements	No coating on component terminals considered to affect creepage or clearances.	N/A
G.15	Pressurized liquid filled components		N/A
G.15.1	Requirements	No such device provided within the equipment.	N/A
G.15.2	Test methods and compliance		N/A
G.15.2.1	Hydrostatic pressure test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.15.2.2	Creep resistance test		N/A
G.15.2.3	Tubing and fittings compatibility test		N/A
G.15.2.4	Vibration test		N/A
G.15.2.5	Thermal cycling test		N/A
G.15.2.6	Force test		N/A
G.15.3	Compliance		N/A
G.16	IC including capacitor discharge function (ICX)		N/A
G.16.1	Condition for fault tested is not required	No such components.	N/A
	ICX with associated circuitry tested in equipment		N/A
	ICX tested separately		N/A
G.16.2	Tests		N/A
	Smallest capacitance and smallest resistance specified by ICX manufacturer for impulse test..... :		—
	Mains voltage that impulses to be superimposed on :		—
	Largest capacitance and smallest resistance for ICX tested by itself for 10000 cycles test :		—
G.16.3	Capacitor discharge test :		N/A
H	CRITERIA FOR TELEPHONE RINGING SIGNALS		N/A
H.1	General		N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringing signal	No RINGING SIGNALS.	N/A
H.3.1.1	Frequency (Hz) :		—
H.3.1.2	Voltage (V) :		—
H.3.1.3	Cadence; time (s) and voltage (V) :		—
H.3.1.4	Single fault current (mA): :		—
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V)..... :		N/A
J	INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION		N/A
J.1	General		N/A
	Winding wire insulation :		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Solid round winding wire, diameter (mm)..... :		N/A
	Solid square and rectangular (flatwise bending) winding wire, cross-sectional area (mm ²) :		N/A
J.2/J.3	Tests and Manufacturing		—

K	SAFETY INTERLOCKS		N/A
K.1	General requirements		N/A
	Instructional safeguard..... :	No safety interlock.	N/A
K.2	Components of safety interlock safeguard mechanism		N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
K.5.1	Under single fault condition		N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Test method and compliance :		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements		N/A
	In circuit connected to mains, separation distance for contact gaps (mm)..... :		N/A
	In circuit isolated from mains, separation distance for contact gaps (mm)..... :		N/A
	Electric strength test before and after the test of K.7.2..... :		N/A
K.7.2	Overload test, Current (A)..... :		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A

L	DISCONNECT DEVICES		P
L.1	General requirements	The appliance coupler is considered as disconnect device.	P
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized	When the equipment is disconnected from mains, no remaining parts at hazardous voltage in the equipment.	P
L.4	Single-phase equipment	The disconnect device disconnects both poles simultaneously.	P

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Clause	Requirement + Test	Result - Remark	Verdict
L.5	Three-phase equipment	Single phase.	N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A
L.8	Multiple power sources		N/A
	Instructional safeguard..... :		N/A

M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		N/A
M.1	General requirements		N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Batteries and their cells comply with relevant IEC standards	No battery.	N/A
M.3	Protection circuits for batteries provided within the equipment		N/A
M.3.1	Requirements		N/A
M.3.2	Test method		N/A
	Overcharging of a rechargeable battery		N/A
	Excessive discharging		N/A
	Unintentional charging of a non-rechargeable battery		N/A
	Reverse charging of a rechargeable battery		N/A
M.3.3	Compliance		N/A
M.4	Additional safeguards for equipment containing a portable secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Requirements		N/A
M.4.2.2	Compliance		N/A
M.4.3	Fire enclosure..... :		N/A
M.4.4	Drop test of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation and procedure for the drop test		N/A
M.4.4.3	Drop, Voltage on reference and dropped batteries (V); voltage difference during 24 h period (%): :		N/A
M.4.4.4	Check of the charge/discharge function		N/A
M.4.4.5	Charge / discharge cycle test		N/A
M.4.4.6	Compliance		N/A
M.5	Risk of burn due to short-circuit during carrying		N/A
M.5.1	Requirement		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
M.5.2	Test method and compliance		N/A
M.6	Safeguards against short-circuits		N/A
M.6.1	External and internal faults		N/A
M.6.2	Compliance		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
	Calculated hydrogen generation rate..... :		N/A
M.7.2	Test method and compliance		N/A
	Minimum air flow rate, Q (m ³ /h)..... :		N/A
M.7.3	Ventilation tests		N/A
M.7.3.1	General		N/A
M.7.3.2	Ventilation test – alternative 1		N/A
	Hydrogen gas concentration (%)..... :		N/A
M.7.3.3	Ventilation test – alternative 2		N/A
	Obtained hydrogen generation rate..... :		N/A
M.7.3.4	Ventilation test – alternative 3		N/A
	Hydrogen gas concentration (%)..... :		N/A
M.7.4	Marking :		N/A
M.8	Protection against internal ignition from external spark sources of batteries with aqueous electrolyte		N/A
M.8.1	General		N/A
M.8.2	Test method		N/A
M.8.2.1	General		N/A
M.8.2.2	Estimation of hypothetical volume V_z (m ³ /s)..... :		—
M.8.2.3	Correction factors :		—
M.8.2.4	Calculation of distance d (mm) :		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse		N/A
	Instructional safeguard..... :		N/A
N	ELECTROCHEMICAL POTENTIALS		P
	Material(s) used..... :	Complied, the combined electrochemical potential < 0.6 V.	—

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Clause	Requirement + Test	Result - Remark	Verdict

O	MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		P
	Value of X (mm)..... :	Considered.	—

P	SAFEGUARDS AGAINST CONDUCTIVE OBJECTS		P
P.1	General		P
P.2	Safeguards against entry or consequences of entry of a foreign object		P
P.2.1	General		N/A
P.2.2	Safeguards against entry of a foreign object		N/A
	Location and Dimensions (mm) :	No opening.	—
P.2.3	Safeguards against the consequences of entry of a foreign object	Side opening in model L-ARRAY 28HA, no PIS within 5°	P
P.2.3.1	Safeguard requirements		P
	The ES3 and PS3 keep-out volume in Figure P.3 not applicable to transportable equipment		P
	Transportable equipment with metalized plastic parts :	Not Transportable equipment.	N/A
P.2.3.2	Consequence of entry test :		N/A
P.3	Safeguards against spillage of internal liquids		N/A
P.3.1	General		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Compliance		N/A
P.4	Metallized coatings and adhesives securing parts		N/A
P.4.1	General		N/A
P.4.2	Tests		N/A
	Conditioning, T _c (°C)..... :		—
	Duration (weeks) :		—

Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		N/A
Q.1	Limited power sources	No such consideration.	N/A
Q.1.1	Requirements		N/A
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A
	c) Regulating network limited output		N/A
	d) Overcurrent protective device limited output		N/A
	e) IC current limiter complying with G.9		N/A
Q.1.2	Test method and compliance :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Current rating of overcurrent protective device (A)		N/A
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A)		N/A
	Current limiting method		—

R	LIMITED SHORT CIRCUIT TEST		N/A
R.1	General		N/A
R.2	Test setup		N/A
	Overcurrent protective device for test		—
R.3	Test method		N/A
	Cord/cable used for test		—
R.4	Compliance		N/A

S	TESTS FOR RESISTANCE TO HEAT AND FIRE		P
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material	Wooden enclosure and metal rear panel.	—
	Wall thickness (mm)		—
	Conditioning (°C)		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (°C)		—
S.3	Flammability test for the bottom of a fire enclosure		N/A
S.3.1	Mounting of samples		N/A
S.3.2	Test method and compliance		N/A
	Mounting of samples		—
	Wall thickness (mm)		—
S.4	Flammability classification of materials	Min 6mm Wooden enclosure was considered to be V-1.	P

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Clause	Requirement + Test	Result - Remark	Verdict
S.5	Flammability test for fire enclosure materials of equipment with a steady state power exceeding 4 000 W		N/A
	Samples, material..... :		—
	Wall thickness (mm) :		—
	Conditioning (°C) :		—

T	MECHANICAL STRENGTH TESTS		P
T.1	General		P
T.2	Steady force test, 10 N :	10 N applied to all components other than the parts serving as an enclosure.	P
T.3	Steady force test, 30 N :		N/A
T.4	Steady force test, 100 N :		N/A
T.5	Steady force test, 250 N :	(See appended table T.5)	P
T.6	Enclosure impact test		P
	Fall test		P
	Swing test		P
T.7	Drop test :		N/A
T.8	Stress relief test..... :	The enclosure was wooden and metal.	N/A
T.9	Glass Impact Test..... :		N/A
T.10	Glass fragmentation test		N/A
	Number of particles counted :		N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm) :		N/A

U	MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N/A
U.1	General		N/A
	Instructional safeguard :	No CRT provided.	N/A
U.2	Test method and compliance for non-intrinsically protected CRTs		N/A
U.3	Protective screen		N/A

V	DETERMINATION OF ACCESSIBLE PARTS		P
V.1	Accessible parts of equipment		P
V.1.1	General	No live parts can be accessible.	P

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Clause	Requirement + Test	Result - Remark	Verdict
V.1.2	Surfaces and openings tested with jointed test probes		P
V.1.3	Openings tested with straight unjointed test probes		N/A
V.1.4	Plugs, jacks, connectors tested with blunt probe		N/A
V.1.5	Slot openings tested with wedge probe		N/A
V.1.6	Terminals tested with rigid test wire		N/A
V.2	Accessible part criterion		P

X	ALTERNATIVE METHOD FOR DETERMINING CLEARANCES FOR INSULATION IN CIRCUITS CONNECTED TO AN AC MAINS NOT EXCEEDING 420 V PEAK (300 V RMS)		N/A
	Clearance		N/A

Y	CONSTRUCTION REQUIREMENTS FOR OUTDOOR ENCLOSURES		N/A
Y.1	General	Not for outdoor use.	N/A
Y.2	Resistance to UV radiation		N/A
Y.3	Resistance to corrosion		N/A
Y.3	Resistance to corrosion		N/A
Y.3.1	Metallic parts of outdoor enclosures are resistant to effects of water-borne contaminants by		N/A
Y.3.2	Test apparatus		N/A
Y.3.3	Water – saturated sulphur dioxide atmosphere		N/A
Y.3.4	Test procedure		N/A
Y.3.5	Compliance		N/A
Y.4	Gaskets		N/A
Y.4.1	General		N/A
Y.4.2	Gasket tests		N/A
Y.4.3	Tensile strength and elongation tests		N/A
	Alternative test methods		N/A
Y.4.4	Compression test		N/A
Y.4.5	Oil resistance		N/A
Y.4.6	Securing means		N/A
Y.5	Protection of equipment within an outdoor enclosure		N/A
Y.5.1	General		N/A
Y.5.2	Protection from moisture		N/A
	Relevant tests of IEC 60529 or Y.5.3		N/A
Y.5.3	Water spray test		N/A
Y.5.4	Protection from plants and vermin		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Y.5.5	Protection from excessive dust		N/A
Y.5.5.1	General		N/A
Y.5.5.2	IP5X equipment		N/A
Y.5.5.3	IP6X equipment		N/A
Y.6	Mechanical strength of enclosures		N/A
Y.6.1	General		N/A
Y.6.2	Impact test..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

5.2	TABLE: Classification of electrical energy sources						P
Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
			U (V)	I (mA)	Type ¹⁾	Additional Info ²⁾	
264	Input circuit	Normal	--	--	--	--	ES3
model L-ARRAY 18SA							
264	Transformer pin10-11	Normal	83.7Vrms	--	--	75.6KHz	ES2
264	Transformer pin10-11 After diode BD2	Normal	89.0V DC	--	--	DC	ES2
264	Transformer pin8-9	Normal	21.1Vrms	--	--	75.6 KHz	ES1
264	Transformer pin8-9 After diode D18	Normal	27.1V DC	--	--	DC KHz	ES1
264	Speaker output	Max-non clapped output	32.5Vrms	--	--	40 Hz	ES1
264	L/N to Secondary terminals	Normal & single fault	--	1.0μApk	--	60 Hz	ES1
264	Plastic/Wooden enclosure to earth	Normal & single fault	--	2.6μApk	--	60 Hz	ES1
model L-ARRAY 28HA							
264	Transformer pin10-11	Normal	83.8Vrms	--	--	75.6KHz	ES1
264	Transformer pin10-11 After diode BD2	Normal	89.4V DC	--	--	DC	ES1
264	Transformer pin8-9	Normal	21.3Vrms	--	--	75.6 KHz	ES1
264	Transformer pin8-9 After diode D18	Normal	19.6V DC	--	--	DC KHz	ES1
264	Speaker output to earth	Max-non clapped output	52.5Vrms	--	--	40 Hz	ES1
264	Secondary terminals to earth	Normal & single fault	--	1.0μApk	--	60 Hz	ES1
264	Plastic/Wooden enclosure to earth	Normal & single fault	--	3.2μApk	--	60 Hz	ES1
Supplementary information:							

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Clause	Requirement + Test	Result - Remark	Verdict

1) Type: Steady state (SS), Capacitance (CP), Single pulse (SP), Repetitive pulses (RP), etc.

2) Additional Info: Frequency, Pulse duration, Pulse off time, Capacitance value, etc.

SC= short circuit; OC= open circuit.

5.4.1.8	TABLE: Working voltage measurement			P
Location	RMS voltage (V)	Peak voltage (V)	Frequency (Hz)	Comments
L-ARRAY 18SA				
T1 pin1 to pin8	231	368	75.7k	
T1 pin1 to pin9	210	352	75.6k	
T1 pin1 to pin10	274	440	75.7k	Max. Vrms, Max. Vpeak
T1 pin1 to pin11,12,15,17	211	348	75.6k	
T1 pin1 to pin13	152	260	75.7k	
T1 pin1 to pin14	227	368	75.6k	
T1 pin1 to pin16	220	360	75.6k	
T1 pin1 to pin18	200	332	75.6k	
T1 pin2 to pin8	131	196	60	
T1 pin2 to pin9	129	174	60	
T1 pin2 to pin10	150	256	75.7k	
T1 pin2 to pin11,12,15,17	121	176	60	
T1 pin2 to pin13	136	264	75.6k	
T1 pin2 to pin14	130	187	60	
T1 pin2 to pin16	130	188	60	
T1 pin2 to pin18	123	185	60	
T1 pin3 to pin8	131	224	75.7k	
T1 pin3 to pin9	131	196	60	
T1 pin3 to pin10	156	280	75.7k	
T1 pin3 to pin11,12,15,17	130	196	60	
T1 pin3 to pin13	140	236	75.7K	
T1 pin3 to pin14	133	214	75.7K	
T1 pin3 to pin16	131	208	60	
T1 pin3 to pin18	123	188	60	
T1 pin4 to pin8	131	198	60	
T1 pin4 to pin9	121	174	60	
T1 pin4 to pin10	151	256	75.7K	

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Clause	Requirement + Test		Result - Remark	Verdict

T1 pin4 to pin11,12,15,17	121	172	60	
T1 pin4 to pin13	149	256	75.7K	
T1 pin4 to pin14	130	189	75.7K	
T1 pin4 to pin16	129	183	60	
T1 pin4 to pin18	129	182	60	
T1 pin5 to pin8	131	196	60	
T1 pin5 to pin9	121	172	60	
T1 pin5 to pin10	151	256	75.7K	
T1 pin5 to pin11,12,15,17	121	172	60	
T1 pin5 to pin13	151	256	75.7K	
T1 pin5 to pin14	130	190	75.7K	
T1 pin5 to pin16	129	182	60	
T1 pin5 to pin18	129	182	60	
Opto-coupler U9 pin1-3	136	184	60	
Opto-coupler U9 pin1-4	136	180	60	
Opto-coupler U9 pin2-3	136	180	60	
Opto-coupler U9 pin2-4	136	180	60	
Y-cap C10	238	356	60	
Y-cap C12	121	172	60	
L-ARRAY 28HA				
T1 pin1 to pin8	259	432	75.6K	
T1 pin1 to pin9	244	432	75.6K	
T1 pin1 to pin10	258	440	75.6K	Max. Vpeak
T1 pin1 to pin11,12,15,17	247	392	75.6K	
T1 pin1 to pin13	156	272	75.6K	
T1 pin1 to pin14	230	384	75.6K	
T1 pin1 to pin16	224	368	75.6K	
T1 pin1 to pin18	195	326	75.6K	
T1 pin2 to pin8	161	272	60	
T1 pin2 to pin9	157	264	60	
T1 pin2 to pin10	151	256	75.6K	
T1 pin2 to pin11,12,15,17	133	196	60	
T1 pin2 to pin13	155	272	75.6K	
T1 pin2 to pin14	130	189	60	
T1 pin2 to pin16	131	192	60	

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Clause	Requirement + Test		Result - Remark	Verdict
T1 pin2 to pin18	132	196	60	
T1 pin3 to pin8	135	308	75.6K	
T1 pin3 to pin9	164	286	60	
T1 pin3 to pin10	271	336	75.6K	Max. Vrms,
T1 pin3 to pin11,12,15,17	129	208	60	
T1 pin3 to pin13	141	236	75.6K	
T1 pin3 to pin14	132	228	75.6K	
T1 pin3 to pin16	136	228	75.6K	
T1 pin3 to pin18	130	180	60	
T1 pin4 to pin8	141	280	60	
T1 pin4 to pin9	151	264	60	
T1 pin4 to pin10	274	436	75.6K	
T1 pin4 to pin11,12,15,17	134	184	60	
T1 pin4 to pin13	153	264	75.6K	
T1 pin4 to pin14	132	196	60	
T1 pin4 to pin16	132	196	60	
T1 pin4 to pin18	130	190	75.6K	
T1 pin5 to pin8	164	280	60	
T1 pin5 to pin9	153	264	60	
T1 pin5 to pin10	140	272	75.6K	
T1 pin5 to pin11,12,15,17	132	178	60	
T1 pin5 to pin13	148	264	75.6K	
T1 pin5 to pin14	132	200	60	
T1 pin5 to pin16	132	200	60	
T1 pin5 to pin18	130	190	75.6K	
Opto-coupler U9 pin1-3	145	180	60	
Opto-coupler U9 pin1-4	145	180	60	
Opto-coupler U9 pin2-3	145	176	60	
Opto-coupler U9 pin2-4	145	176	60	
Y-cap C10	255	344	60	
Y-cap C12	132	178	60	
Supplementary information: Input 240V/60Hz				

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics			N/A
Method..... :			ISO 306 / B50	—
Object/ Part No./Material	Manufacturer/trademark	Thickness (mm)	T softening (°C)	
--	--	--	--	
Supplementary information: N/A				

5.4.1.10.3	TABLE: Ball pressure test of thermoplastics					N/A
Allowed impression diameter (mm)..... :					≤ 2 mm	—
Object/Part No./Material	Manufacturer/trademark	Thickness (mm)	Test temperature (°C)	Impression diameter (mm)		
Supplementary information:						

5.4.2, 5.4.3	TABLE: Minimum Clearances/Creepage distance							P
Clearance (cl) and creepage distance (cr) at/of/between:	U _p (V)	U _{rms} (V)	Freq ¹⁾ (Hz)	Required cl (mm)	cl (mm)	E.S. ²⁾ (V)	Required cr (mm)	cr (mm)
Two poles of main fuse in appliance inlet(BI)	420	250	60	1.5	7.5	--	2.5	7.5
Primary circuit (inlet pins) to metal enclosure (BI)	420	250	60	1.5	7.6	--	2.5	7.6
Primary circuit (PCB layout under AC connector J3)	420	250	60	1.5	6.3	--	2.5	6.3
Primary circuit (X cap C3) to metal screw (BI)	420	250	60	1.5	4.2	--	2.5	4.2
PCB trace under Y-capacitor (C4, C5) (BI)	420	250	60	1.5	6.2	--	2.5	6.2
PCB trace under Y-capacitor (C6, C7) (BI)	420	250	60	1.5	6.2	--	2.5	6.2
PCB trace under Y-capacitor (C8) (BI)	420	250	60	1.5	5.5	--	2.5	5.5
Primary circuit (Q1, Q3) to earthed metal heat sink (BI)	420	250	60	1.5	2.2	--	2.5	3.4
PCB layout under transformer T1 (RI)	420	250	110.6K	3.0	11.8	--	5.0	11.8
For model L-ARRAY 18SA								

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Clause	Requirement + Test				Result - Remark			Verdict

Primary winding to secondary winding in transformer T1 (RI)	440	274	75.7k	3.0	6.4	--	5.6	6.4
Primary winding to core in transformer T1(BI)	440	274	75.7k	1.5	3.2	--	2.8	3.2
Secondary winding to core in transformer T1 (SI)	440	274	75.7k	1.5	3.2	--	2.8	3.2
Core to primary winding pins exits (BI)	440	274	75.7k	1.5	4.4	--	2.8	4.4
Core to secondary winding pins exits (SI)	440	274	75.7k	1.5	4.3'	--	2.8	4.3

For model L-ARRAY 28HA

Primary winding to secondary winding in transformer T1 (RI)	440	259	75.6k	3.0	6.4	--	5.6	6.4
Primary winding to core in transformer T1(BI)	440	259	75.6k	1.5	3.2	--	2.6	3.2
Secondary winding to core in transformer T1 (SI)	440	259	75.6k	1.5	3.2	--	2.6	3.2
Core to primary winding pins exits (BI)	440	259	75.6k	1.5	4.4	--	2.6	4.4
Core to secondary winding pins exits (SI)	440	259	75.6k	1.5	4.3'	--	2.6	4.3

Supplementary information:

- 1) Only for frequency above 30 kHz
- 2) Complete Electric Strength voltage (E.S. (V) when 5.4.2.4 applied)
F=Functional insulation; B=Basic insulation; R=Reinforced insulation; S=Supplementary insulation
3. Metal panel was earthed.
4. The secondary wires were well fixed to avoided touch primary circuit.
5. One layer of insulation sheet used under power board.

5.4.4.2	TABLE: Minimum distance through insulation				P
Distance through insulation (DTI) at/of	Peak voltage (V)	Insulation	Required DTI (mm)	Measured DTI (mm)	
T1 bobbin	420	Reinforce	0.4	1)	
Supplementary information:					
1) See appended Table 4.1.2 for details.					

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.4.9	TABLE: Solid insulation at frequencies >30 kHz					N/A
Insulation material	E_P	Frequency (kHz)	K_R	Thickness d (mm)	Insulation	V_{PW} (Vpk)
--	--	--	--	--	--	--
Supplementary information:						

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:		Voltage shape (Surge, Impulse, AC, DC, etc.)	Test voltage (V)	Breakdown Yes / No
Basic/supplementary:				
L and N (Main Fuse open)		AC	2500	No
L, N and metal enclosure		AC	2500	No
T1 primary winding to core of the transformer		AC	2500	No
T1 secondary winding to core of the transformer		AC	2500	No
Reinforced:				
L, N and accessible terminals		AC	4000	No
L, N and wooden enclosure with metal foil (model L-ARRAY 18SA and L-ARRAY 28HA)		AC	4000	No
T1 primary and secondary		AC	4000	No
Two layers of insulation tape (between primary and secondary winding)		AC	4000	No
Supplementary information:				
Supplementary information:				
1. Considered for all sources of manufacturer, see 4.1.2 for details.				
2. The testing have been also conducted after humidity test for all sources of mains transformer.				
3. T1 core was considered as middle circuit.				

5.5.2.2	TABLE: Stored discharge on capacitors				P
Location	Supply voltage (V)	Operating and fault condition ¹⁾	Switch position	Measured voltage (Vpk)	ES Class
L-ARRAY 18SA					
Inlet pins (L-N)	264/60Hz	normal operation	On	32	ES1
Inlet pins (L-N)	264/60Hz	normal operation	OFF	8	ES1
Inlet pins (L-N)	264/60Hz	S (R5 opened)	On	36	ES1
Inlet pins (L-N)	264/60Hz	S (R5 opened)	OFF	8	ES1

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

X-capacitors installed for testing: See table 4.1.2 for details

[X] bleeding resistor rating: See table 4.1.2 for details

[] ICX:

1) Normal operating condition (e.g., normal operation, or open fuse), SC= short circuit, OC= open circuit

5.6.6	TABLE: Resistance of protective conductors and terminations				P
Location	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)	
L-ARRAY 18SA					
Between ground pin and farthest point on metal chassis	40	2	0.6	0.015	
Between ground pin and farthest point on metal chassis	32	2	0.448	0.014	
L-ARRAY 28HA					
Between ground pin and farthest point on metal chassis	40	2	0.6	0.015	
Between ground pin and farthest point on metal chassis	32	2	0.448	0.014	
Supplementary information: N/A					

5.7.4	TABLE: Unearthed accessible parts					P
Location	Operating and fault conditions	Supply Voltage (V)	Parameters			ES class
			Voltage (V_{rms} or V_{pk})	Current (A_{rms} or A_{pk})	Freq. (Hz)	
Accessible terminals (See table 5.2 for details)	--	--	--	--	--	--
Accessible wooden enclosure (with metal foil) (See table 5.2 for details)	--	--	--	--	--	ES1
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit						

5.7.5	TABLE: Earthed accessible conductive part			P
Supply voltage (V).....:	264V/50Hz			—
Phase(s)	[X] Single Phase; [] Three Phase: [] Delta [] Wye			
Power Distribution System	[X] TN [] TT [] IT			

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Clause	Requirement + Test	Result - Remark	Verdict

Location	Fault Condition No in IEC 60990 clause 6.2.2	Touch current (mA)	Comment
L-ARRAY 18SA			
Metal enclosure	1	2.32mA peak	--
L-ARRAY 28HA			
Metal enclosure	1	1.18mA peak	
Supplementary Information: Not exceed ES2 limit. 5 mA RMS, 7,07 mA peak			

5.8	TABLE: Backfeed safeguard in battery backed up supplies					N/A
Location	Supply voltage (V)	Operating and fault condition	Time (s)	Open-circuit voltage (V)	Touch current (A)	ES Class
--	--	--	--	--	--	--
Supplementary information: Abbreviation: SC= short circuit, OC= open circuit						

6.2.2	TABLE: Power source circuit classifications					P
Location	Operating and fault condition	Voltage (V)	Current (A)	Max. Power ¹⁾ (W)	Time (S)	PS class
Primary circuit	--	--	--	--	--	PS3 (as client claimed)
Direct output	--	--	--	--	--	PS3 (as client claimed)
Model L-ARRAY 18SA						
Transformer pin10-11 After diode BD2	Normal	79.8	6.0	478.8	5s	PS3
Transformer pin8-9 After diode D18	Normal	15.7	4.0	62.8	5s	PS2
Model L-ARRAY 28HA						
Transformer pin10-11 After (SC BD2)	--	80.2	6.0	481.2	5s	PS3
Transformer pin8-9 After diode D18	--	19.2	2.5	48.0	5s	PS1
Supplementary information: Abbreviation: SC= short circuit; OC= open circuit						

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Clause	Requirement + Test	Result - Remark	Verdict

- 1) Measured after 3 s for PS1 and measured after 5 s for PS2 and PS3.
 2) Port DIRECT output is direct output for Input port.

6.2.3.1	TABLE: Determination of Arcing PIS				P
Location		Open circuit voltage after 3 s (Vpk)	Measured r.m.s current (A)	Calculated value	Arcing PIS? Yes / No
All internal circuits/components		--	--	--	Yes (declaration)
Supplementary information:					

6.2.3.2	TABLE: Determination of resistive PIS			P
Location		Operating and fault condition	Dissipate power (W)	Resistive PIS? Yes / No
All internal circuits/components		--	--	Yes (declaration)
Supplementary information:				
Abbreviation: SC= short circuit; OC= open circuit				

8.5.5	TABLE: High pressure lamp				N/A
Lamp manufacturer	Lamp type	Explosion method	Longest axis of glass particle (mm)	Particle found beyond 1 m Yes / No	
--	--	--	--	--	
Supplementary information:					

9.6	TABLE: Temperature measurements for wireless power transmitters							N/A
Supply voltage (V)..... :				—				
Max. transmit power of transmitter (W)..... :				—				
Foreign objects	w/o receiver and direct contact		with receiver and direct contact		with receiver and at distance of 2 mm		with receiver and at distance of 5 mm	
	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)
--	--	--	--	--	--	--	--	--
Supplementary information:								

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.1.4, 9.3, B.1.5, B.2.6	TABLE: Temperature measurements			P
Supply voltage (V)..... :		See below	See below	—
Ambient temperature during test T_{amb} (°C) :		See below	See below	—
Maximum measured temperature T of part/at:		T (°C)		Allowed T_{max} (°C)
Model L-ARRAY 18SA				
--	264V, 50Hz	99V, 50Hz	--	
AC Inlet	49.0	47.7	80	
AC Outlet	47.9	46.7	80	
AC Lead wire	49.3	47.7	80	
Power switch	46.9	44.1	85	
X-cap C3 (EMI board)	48.5	47.4	100	
Line choke L1 (EMI board)	46.8	46.6	130	
Y-cap C6 (EMI board)	49.8	47.4	85	
PCB near Bridge diode D7	58.8	57.6	130	
E-cap C20	45.5	44.5	85	
Transformer T1 winding	53.5	50.7	130	
Transformer T1 core	52.3	49.6	--	
PCB near MOSFET Q1	59.0	54.3	130	
Y-cap C10	56.3	56.5	85	
Body of U9 (Opto Coupler)	56.5	52.5	115	
DC FAN winding	55.5	49.3	130	
PCB near IC4 (Main board)	56.0	53.9	130	
Ambient	40.0	40.0	--	
At room temperature				
Power Cord	32.3	29.5	65	
Metal rear panel	35.2	30.9	60	
Wooden enclosure	28.1	27.3	107	
Ambient	25.0	25.0	--	
Test time (Hours)	2H0Min	1H57Min	--	
Model L-ARRAY 28HA				
--	264V, 50Hz	99V, 50Hz	--	
AC Inlet	51.8	51.5	80	
AC Outlet	53.2	53.2	80	

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Clause	Requirement + Test	Result - Remark	Verdict
AC Lead wire	52.8	52.8	80
Power switch	49.1	48.1	85
X-cap C3 (EMI board)	52.3	51.8	100
Line choke L1 (EMI board)	52.2	51.7	130
Y-cap C6 (EMI board)	53.6	52.0	85
PCB near Bridge diode D7	74.2	61.0	130
E-cap C20	49.3	49.3	85
Transformer T1 winding	56.9	55.5	130
Transformer T1 core	55.0	54.0	--
PCB near MOSFET Q1	63.1	59.3	130
Y-cap C10	57.5	56.9	85
Body of U9 (Opto Coupler)	62.4	59.8	115
DC FAN winding	63.4	55.7	130
PCB near IC4 (Main board)	59.6	59.6	130
Ambient	40.0	40.0	--
At room temperature			
Power Cord	35.0	34.5	65
Metal rear panel	35.4	33.1	60
Plastic housing	26.6	27.3	77
Ambient	25.0	25.0	--
Test time (Hours)	1H40Min	1H30Min	--
Model L-ARRAY 28H, tested with passive speaker			
Lead wire	43.4	--	80
Line choke L1	50.7	--	130
cap C1	48.4	--	85
Resistors R1 PCB	52.6	--	130
Line choke L2	45.1	--	130
cap C3	46.5	--	85
Resistors R4 PCB	51.1	--	130
Ambient	40.0	--	--
(At room temperature)			
Plastic housing	26.1	--	77
Metal rear panel	27.1	--	60
Ambient	25	--	--
Test time (Hours)	2H10Min	--	--

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Clause	Requirement + Test	Result - Remark	Verdict

Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
--	--	--	--	--	--	--	--
<p>Note 1: The apparatus was submitted and evaluated for maximum manufacturer's recommended ambient (T_{ma}). Therefore the maximum temperatures measured are recalculated as follows: T + (T_{ma} – T_{amb}), where T is the maximum temperature measured during test and T_{amb} is the ambient temperature during the test.</p> <p>Note 2: The temperatures were measured under the worse case normal mode defined in clause B.2.5.</p> <p>Note 3. Temperature limits are calculated as follows: Winding components providing safety isolation: Class B → T_{max} = 120 – 10=110 °C</p> <p>* Temperature limit for TS1 of accessible enclosure according to Table 38. The external enclosure, power cord, plastic switch was occasionally for short periods (>1s and <10s).</p> <p>Test condition: Pink noise signal input, tone controls set to their mid position, volume control adjust to max position. 1/8 Max non-clipped output power to output.</p> <p>Low Speaker: 4Ω, High Speaker: 8Ω</p>							

B.2.5		TABLE: Input test						P
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
L-ARRAY 18SA, Max. non clapped output								
99	50	12.93	--	1231	--	Main fuse	12.93	Audio Input Pink noise signal used, volume control adjust to max. position. AC directly output: 9A Low Speaker: 8Ω 64.5V
99	60	12.91	--	1225	--	Main fuse	12.91	
110	50	12.55	--	1330	--	Main fuse	12.55	
110	60	12.56	--	1323	--	Main fuse	12.56	
240	50	10.58	--	2498	--	Main fuse	10.58	
240	60	10.55	--	2490	--	Main fuse	10.55	
264	50	10.43	--	2723	--	Main fuse	10.43	
264	60	10.43	--	2722	--	Main fuse	10.43	
L-ARRAY 18SA, 1/8 Max. non clapped output								
99	50	9.68	11	964	--	Main fuse	9.68	Audio Input Pink noise signal used, volume control adjust to max. position. AC directly output: 9A Low Speaker: 8Ω 32.5V
99	60	9.70	11	961	--	Main fuse	9.70	
110	50	9.65	11	1061	--	Main fuse	9.65	
110	60	9.66	11	1058	--	Main fuse	9.66	
240	50	9.35	11	2244	--	Main fuse	9.35	
240	60	9.36	11	2241	--	Main fuse	9.36	
264	50	9.33	11	2468	--	Main fuse	9.33	
264	60	9.35	11	2468	--	Main fuse	9.35	

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Clause	Requirement + Test	Result - Remark	Verdict

L-ARRAY 28HA, Max. non clapped output								
99	50	11.79	--	1144	--	Main fuse	11.79	Audio Input Pink noise signal used, tone controls set to their mid position, volume control adjust to max. position. AC directly output: 9A Low Speaker: 8Ω, MAX 52.0V High Speaker: 8Ω, MAX 18.2V
99	60	11.80	--	1141	--	Main fuse	11.80	
110	50	12.21	--	1301	--	Main fuse	12.21	
110	60	12.21	--	1295	--	Main fuse	12.21	
240	50	10.75	--	2542	--	Main fuse	10.75	
240	60	10.72	--	2530	--	Main fuse	10.72	
264	50	10.90	--	2820	--	Main fuse	10.90	
264	60	10.85	--	2811	--	Main fuse	10.85	
L-ARRAY 28HA, 1/8 Max. non clapped output								
99	50	9.52	--	952	--	Main fuse	9.52	Audio Input Pink noise signal used, tone controls set to their mid position, volume control adjust to max. position. AC directly output: 9A Low Speaker: 8Ω, MAX 18.4V High Speaker: 8Ω, MAX 4.4V
99	60	9.56	--	950	--	Main fuse	9.56	
110	50	9.56	11	1055	--	Main fuse	9.56	
110	60	9.58	11	1050	--	Main fuse	9.58	
240	50	9.36	11	2245	--	Main fuse	9.36	
240	60	9.39	11	2258	--	Main fuse	9.39	
264	50	9.39	--	2480	--	Main fuse	9.39	
264	60	9.35	--	2466	--	Main fuse	9.35	
Supplementary information:								
Supplementary information:								
The maximum measured current under rated voltage did not exceed 110% of the rated power.								

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Clause	Requirement + Test	Result - Remark	Verdict

B.3, B.4		TABLE: Abnormal operating and fault condition tests					P						
Ambient temperature T _{amb} (°C).....					25°C, if not specified		—						
Power source for EUT: Manufacturer, model/type, outputrating.....					--		—						
Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation							
For model L-ARRAY 18SA													
Unit	Max non-clipped output	264V	1H36Min	--	10.12	Observation: Unit normal operation, no hazard, pass.							
						Parts	T max (°C)						
						AC Inlet	52.7						
						AC Outlet	50.2						
						AC Lead wire	52.8						
						Power switch	51.8						
						X-cap C3 (EMI board)	56.4						
						Line choke L1 (EMI board)	55.3						
						Y-cap C6 (EMI board)	55.1						
						PCB near Bridge diode D7	73.8						
						E-cap C20	48.1						
						Transformer T1 winding	63.2						
						Transformer T1 core	57.6						
						PCB near MOSFET Q1	67.9						
						Y-cap C10	66.6						
						Body of U9 (Opto Coupler)	63.5						
						DC FAN winding	64.6						
						PCB near IC4 (Main board)	59.6						
						Ambient	Shift to 40.0						
						Power Cord	33.5						
						Metal rear panel	40.3						
						Wooden enclosure	30.0						
						Ambient	Shift to 25.0						
						Load condition: Low Speaker: 16Ω; AC directly output: 9A							
						Unit	Speaker SC	264V	1H31Min	--	9.16	Observation: Unit normal operation, no hazard, pass.	
												Parts	T max (°C)
												AC Inlet	47.8
AC Outlet	46.8												
AC Lead wire	48.0												
Power switch	45.2												
X-cap C3 (EMI board)	46.5												
Line choke L1 (EMI board)	44.9												
Y-cap C6 (EMI board)	47.8												
PCB near Bridge diode D7	54.4												
E-cap C20	44.2												
Transformer T1 winding	51.5												
PCB near MOSFET Q1	55.6												
Y-cap C10	52.2												

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Clause	Requirement + Test	Result - Remark	Verdict

						<table><tr><td>Body of U9 (Opto Coupler)</td><td>53.1</td></tr><tr><td>DC FAN winding</td><td>52.8</td></tr><tr><td>PCB near IC4 (Main board)</td><td>52.7</td></tr><tr><td>Ambient</td><td>Shift to 40.0</td></tr><tr><td>Power Cord</td><td>30.9</td></tr><tr><td>Metal rear panel</td><td>32.3</td></tr><tr><td>Wooden enclosure</td><td>27.2</td></tr><tr><td>Ambient</td><td>Shift to 25.0</td></tr></table> <p>Load condition: Low Speaker: 16Ω; AC directly output: 9A</p>	Body of U9 (Opto Coupler)	53.1	DC FAN winding	52.8	PCB near IC4 (Main board)	52.7	Ambient	Shift to 40.0	Power Cord	30.9	Metal rear panel	32.3	Wooden enclosure	27.2	Ambient	Shift to 25.0																										
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Metal rear panel	32.3																																															
Wooden enclosure	27.2																																															
Ambient	Shift to 25.0																																															
Unit	DC fan locked	264V	1H56Min	--	9.32	<p>Observation: Unit normal operation, no hazard, pass.</p> <table><tr><td>Parts</td><td>T max (°C)</td></tr><tr><td>AC Inlet</td><td>49.0</td></tr><tr><td>AC Outlet</td><td>48.4</td></tr><tr><td>AC Lead wire</td><td>48.8</td></tr><tr><td>Power switch</td><td>44.8</td></tr><tr><td>X-cap C3 (EMI board)</td><td>48.8</td></tr><tr><td>Line choke L1 (EMI board)</td><td>47.2</td></tr><tr><td>Y-cap C6 (EMI board)</td><td>49.9</td></tr><tr><td>PCB near Bridge diode D7</td><td>77.3</td></tr><tr><td>E-cap C20</td><td>70.5</td></tr><tr><td>Transformer T1 winding</td><td>79.9</td></tr><tr><td>PCB near MOSFET Q1</td><td>78.6</td></tr><tr><td>Y-cap C10</td><td>67.3</td></tr><tr><td>Body of U9 (Opto Coupler)</td><td>79.3</td></tr><tr><td>DC FAN winding</td><td>121.1</td></tr><tr><td>PCB near IC4 (Main board)</td><td>68.0</td></tr><tr><td>Ambient</td><td>Shift to 40.0</td></tr><tr><td>Power Cord</td><td>32.9</td></tr><tr><td>Metal rear panel</td><td>41.9</td></tr><tr><td>Wooden enclosure</td><td>30.9</td></tr><tr><td>Ambient</td><td>Shift to 25.0</td></tr></table> <p>Load condition: Low Speaker: 16Ω; AC directly output: 9A</p>	Parts	T max (°C)	AC Inlet	49.0	AC Outlet	48.4	AC Lead wire	48.8	Power switch	44.8	X-cap C3 (EMI board)	48.8	Line choke L1 (EMI board)	47.2	Y-cap C6 (EMI board)	49.9	PCB near Bridge diode D7	77.3	E-cap C20	70.5	Transformer T1 winding	79.9	PCB near MOSFET Q1	78.6	Y-cap C10	67.3	Body of U9 (Opto Coupler)	79.3	DC FAN winding	121.1	PCB near IC4 (Main board)	68.0	Ambient	Shift to 40.0	Power Cord	32.9	Metal rear panel	41.9	Wooden enclosure	30.9	Ambient	Shift to 25.0
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Power Cord	32.9																																															
Metal rear panel	41.9																																															
Wooden enclosure	30.9																																															
Ambient	Shift to 25.0																																															
Unit	Block Ventilation Hole	264V	1H48Min	--	9.30	<p>Observation: Unit normal operation, no hazard, pass.</p> <table><tr><td>Parts</td><td>T max (°C)</td></tr><tr><td>AC Inlet</td><td>50.5</td></tr><tr><td>AC Outlet</td><td>49.3</td></tr><tr><td>AC Lead wire</td><td>50.5</td></tr><tr><td>Power switch</td><td>48.8</td></tr><tr><td>X-cap C3 (EMI board)</td><td>50.2</td></tr><tr><td>Line choke L1 (EMI board)</td><td>48.8</td></tr><tr><td>Y-cap C6 (EMI board)</td><td>51.2</td></tr><tr><td>PCB near Bridge diode D7</td><td>60.0</td></tr><tr><td>E-cap C20</td><td>47.3</td></tr><tr><td>Transformer T1 winding</td><td>55.0</td></tr><tr><td>PCB near MOSFET Q1</td><td>60.7</td></tr><tr><td>Y-cap C10</td><td>57.3</td></tr><tr><td>Body of U9 (Opto Coupler)</td><td>58.2</td></tr></table>	Parts	T max (°C)	AC Inlet	50.5	AC Outlet	49.3	AC Lead wire	50.5	Power switch	48.8	X-cap C3 (EMI board)	50.2	Line choke L1 (EMI board)	48.8	Y-cap C6 (EMI board)	51.2	PCB near Bridge diode D7	60.0	E-cap C20	47.3	Transformer T1 winding	55.0	PCB near MOSFET Q1	60.7	Y-cap C10	57.3	Body of U9 (Opto Coupler)	58.2														
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Clause	Requirement + Test	Result - Remark	Verdict

						<table><tr><td>DC FAN winding</td><td>56.1</td></tr><tr><td>PCB near IC4 (Main board)</td><td>57.4</td></tr><tr><td>Ambient</td><td>Shift to 40.0</td></tr><tr><td>Power Cord</td><td>32.0</td></tr><tr><td>Metal rear panel</td><td>36.1</td></tr><tr><td>Wooden enclosure</td><td>28.8</td></tr><tr><td>Ambient</td><td>Shift to 25.0</td></tr></table> <p>Load condition: Low Speaker: 16Ω; AC directly output: 9A</p>	DC FAN winding	56.1	PCB near IC4 (Main board)	57.4	Ambient	Shift to 40.0	Power Cord	32.0	Metal rear panel	36.1	Wooden enclosure	28.8	Ambient	Shift to 25.0																												
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Ambient	Shift to 25.0																																															
Unit	Transformer pin10-11 Overload	264V	10H52Min	--	13.22	<p>Observation: The transformer is overloaded to 9.3A, and the equipment is shut down for protection. No danger, pass</p> <table><tr><td>Parts</td><td>T max (°C)</td></tr><tr><td>AC Inlet</td><td>61.7</td></tr><tr><td>AC Outlet</td><td>55.6</td></tr><tr><td>AC Lead wire</td><td>60.5</td></tr><tr><td>Power switch</td><td>64.3</td></tr><tr><td>X-cap C3 (EMI board)</td><td>85.7</td></tr><tr><td>Line choke L1 (EMI board)</td><td>88.7</td></tr><tr><td>Y-cap C6 (EMI board)</td><td>66.4</td></tr><tr><td>PCB near Bridge diode D7</td><td>112.8</td></tr><tr><td>E-cap C20</td><td>53.2</td></tr><tr><td>Transformer T1 winding</td><td>121.5</td></tr><tr><td>PCB near MOSFET Q1</td><td>81.7</td></tr><tr><td>Y-cap C10</td><td>79.0</td></tr><tr><td>Body of U9 (Opto Coupler)</td><td>71.7</td></tr><tr><td>DC FAN winding</td><td>78.3</td></tr><tr><td>PCB near IC4 (Main board)</td><td>61.4</td></tr><tr><td>Ambient</td><td>Shift to 40.0</td></tr><tr><td>Power Cord</td><td>36.0</td></tr><tr><td>Metal rear panel</td><td>41.3</td></tr><tr><td>Wooden enclosure</td><td>31.5</td></tr><tr><td>Ambient</td><td>Shift to 25.0</td></tr></table> <p>Load condition: Low Speaker: 16Ω; AC directly output: 9A</p>	Parts	T max (°C)	AC Inlet	61.7	AC Outlet	55.6	AC Lead wire	60.5	Power switch	64.3	X-cap C3 (EMI board)	85.7	Line choke L1 (EMI board)	88.7	Y-cap C6 (EMI board)	66.4	PCB near Bridge diode D7	112.8	E-cap C20	53.2	Transformer T1 winding	121.5	PCB near MOSFET Q1	81.7	Y-cap C10	79.0	Body of U9 (Opto Coupler)	71.7	DC FAN winding	78.3	PCB near IC4 (Main board)	61.4	Ambient	Shift to 40.0	Power Cord	36.0	Metal rear panel	41.3	Wooden enclosure	31.5	Ambient	Shift to 25.0
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Ambient	Shift to 25.0																																															
Transformer pin10-11	SC	264	10min	Main fuse	9.0	Unit shutdown immediately, no damaged, no hazards.																																										
Bridge diode D7 AC-DC	SC	264V	1s	Main fuse	9.0	AC fuse opened immediately, no hazards.																																										
E-cap (C20)	SC	264V	1s	Main fuse	9.0	AC fuse opened immediately, no hazards.																																										
Q1 D-S	SC	264	1s	Main fuse	9.0	AC fuse opened immediately, Q1 is damaged, the unit is shut down immediately, no danger, pass																																										
Q1 G-S	SC	264	1s	Main fuse	9.0	AC fuse opened immediately, U4 is damaged, the unit is shut down immediately, no danger, pass																																										
Q1 D-G	SC	264	1s	Main	9.0	AC fuse opened immediately, Q1 and U4 is																																										

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				fuse		damaged, the unit is shut down immediately, no danger, pass
R36	SC	264V	10min	Main fuse	9.33	Unit normal operation, no hazard, pass.
T2 pin2-4	SC	264V	10min	Main fuse	9.33	Unit normal operation, no hazard, pass.
C65	SC	264V	1s	Main fuse	9.0	current: AC fuse opened immediately, Q1,Q2 and U2 is damaged, the unit is shut down immediately, no danger, pass

For model L-ARRAY 28HA

Unit	Max non-clipped output	264V	1H50Min	--	9.88	Observation: Unit normal operation, no hazard, pass. <table><tr><td>Parts</td><td>T max (°C)</td></tr><tr><td>AC Inlet</td><td>54.5</td></tr><tr><td>AC Outlet</td><td>56.5</td></tr><tr><td>AC Lead wire</td><td>56.1</td></tr><tr><td>Power switch</td><td>52.0</td></tr><tr><td>X-cap C3 (EMI board)</td><td>57.3</td></tr><tr><td>Line choke L1 (EMI board)</td><td>57.4</td></tr><tr><td>Y-cap C6 (EMI board)</td><td>57.4</td></tr><tr><td>PCB near Bridge diode D7</td><td>80.4</td></tr><tr><td>E-cap C20</td><td>52.3</td></tr><tr><td>Transformer T1 winding</td><td>62.5</td></tr><tr><td>PCB near MOSFET Q1</td><td>67.9</td></tr><tr><td>Y-cap C10</td><td>62.7</td></tr><tr><td>Body of U9 (Opto Coupler)</td><td>66.4</td></tr><tr><td>DC FAN winding</td><td>75.2</td></tr><tr><td>PCB near IC4 (Main board)</td><td>62.1</td></tr><tr><td>Ambient</td><td>Shift to 40.0</td></tr><tr><td>Power Cord</td><td>35.9</td></tr><tr><td>Metal rear panel</td><td>36.7</td></tr><tr><td>Plastic housing</td><td>27.2</td></tr><tr><td>Ambient</td><td>Shift to 25.0</td></tr></table> <p>Load condition: Low Speaker: 8Ω; High Speaker: 8Ω; AC directly output: 9A</p>	Parts	T max (°C)	AC Inlet	54.5	AC Outlet	56.5	AC Lead wire	56.1	Power switch	52.0	X-cap C3 (EMI board)	57.3	Line choke L1 (EMI board)	57.4	Y-cap C6 (EMI board)	57.4	PCB near Bridge diode D7	80.4	E-cap C20	52.3	Transformer T1 winding	62.5	PCB near MOSFET Q1	67.9	Y-cap C10	62.7	Body of U9 (Opto Coupler)	66.4	DC FAN winding	75.2	PCB near IC4 (Main board)	62.1	Ambient	Shift to 40.0	Power Cord	35.9	Metal rear panel	36.7	Plastic housing	27.2	Ambient	Shift to 25.0
Parts	T max (°C)																																															
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Plastic housing	27.2																																															
Ambient	Shift to 25.0																																															
Unit	High speaker (8Ω) SC	264V	1H36Min	--	9.36	Observation: Unit normal operation, no hazard, pass. <table><tr><td>Parts</td><td>T max (°C)</td></tr><tr><td>AC Inlet</td><td>53.2</td></tr><tr><td>AC Outlet</td><td>54.7</td></tr><tr><td>AC Lead wire</td><td>54.3</td></tr><tr><td>Power switch</td><td>50.4</td></tr><tr><td>X-cap C3 (EMI board)</td><td>53.7</td></tr><tr><td>Line choke L1 (EMI board)</td><td>53.4</td></tr><tr><td>Y-cap C6 (EMI board)</td><td>55.0</td></tr><tr><td>PCB near Bridge diode D7</td><td>74.6</td></tr></table>	Parts	T max (°C)	AC Inlet	53.2	AC Outlet	54.7	AC Lead wire	54.3	Power switch	50.4	X-cap C3 (EMI board)	53.7	Line choke L1 (EMI board)	53.4	Y-cap C6 (EMI board)	55.0	PCB near Bridge diode D7	74.6																								
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IEC 62368-1																																																
Clause	Requirement + Test				Result - Remark	Verdict																																										
						<table><tr><td>AC Lead wire</td><td>52.3</td></tr><tr><td>Power switch</td><td>46.6</td></tr><tr><td>X-cap C3 (EMI board)</td><td>55.4</td></tr><tr><td>Line choke L1 (EMI board)</td><td>56.0</td></tr><tr><td>Y-cap C6 (EMI board)</td><td>55.3</td></tr><tr><td>PCB near Bridge diode D7</td><td>96.6</td></tr><tr><td>E-cap C20</td><td>86.3</td></tr><tr><td>Transformer T1 winding</td><td>94.9</td></tr><tr><td>PCB near MOSFET Q1</td><td>91.5</td></tr><tr><td>Y-cap C10</td><td>70.3</td></tr><tr><td>Body of U9 (Opto Coupler)</td><td>92.7</td></tr><tr><td>DC FAN winding</td><td>126.2</td></tr><tr><td>PCB near IC4 (Main board)</td><td>62.8</td></tr><tr><td>Ambient</td><td>Shift to 40.0</td></tr><tr><td>Power Cord</td><td>31.0</td></tr><tr><td>Metal rear panel</td><td>37.9</td></tr><tr><td>Plastic housing</td><td>27.5</td></tr><tr><td>Ambient</td><td>Shift to 25.0</td></tr></table> <p>Load condition: Low Speaker: 8Ω; High Speaker: 8Ω; AC directly output: 9A</p>	AC Lead wire	52.3	Power switch	46.6	X-cap C3 (EMI board)	55.4	Line choke L1 (EMI board)	56.0	Y-cap C6 (EMI board)	55.3	PCB near Bridge diode D7	96.6	E-cap C20	86.3	Transformer T1 winding	94.9	PCB near MOSFET Q1	91.5	Y-cap C10	70.3	Body of U9 (Opto Coupler)	92.7	DC FAN winding	126.2	PCB near IC4 (Main board)	62.8	Ambient	Shift to 40.0	Power Cord	31.0	Metal rear panel	37.9	Plastic housing	27.5	Ambient	Shift to 25.0						
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Ambient	Shift to 25.0																																															
Unit	Block Ventilation Hole	264V	1H20Min	--	9.40	<p>Observation: Unit normal operation, no hazard, pass.</p> <table><tr><td>Parts</td><td>T max (°C)</td></tr><tr><td>AC Inlet</td><td>56.1</td></tr><tr><td>AC Outlet</td><td>57.8</td></tr><tr><td>AC Lead wire</td><td>58.3</td></tr><tr><td>Power switch</td><td>51.7</td></tr><tr><td>X-cap C3 (EMI board)</td><td>57.9</td></tr><tr><td>Line choke L1 (EMI board)</td><td>58.0</td></tr><tr><td>Y-cap C6 (EMI board)</td><td>59.4</td></tr><tr><td>PCB near Bridge diode D7</td><td>75.7</td></tr><tr><td>E-cap C20</td><td>56.8</td></tr><tr><td>Transformer T1 winding</td><td>63.0</td></tr><tr><td>PCB near MOSFET Q1</td><td>65.5</td></tr><tr><td>Y-cap C10</td><td>61.9</td></tr><tr><td>Body of U9 (Opto Coupler)</td><td>66.1</td></tr><tr><td>DC FAN winding</td><td>96.9</td></tr><tr><td>PCB near IC4 (Main board)</td><td>63.3</td></tr><tr><td>Ambient</td><td>Shift to 40.0</td></tr><tr><td>Power Cord</td><td>31.6</td></tr><tr><td>Metal rear panel</td><td>34.2</td></tr><tr><td>Plastic housing</td><td>28.8</td></tr><tr><td>Ambient</td><td>Shift to 25.0</td></tr></table> <p>Load condition: Low Speaker: 8Ω; High Speaker: 8Ω; AC directly output: 9A</p>	Parts	T max (°C)	AC Inlet	56.1	AC Outlet	57.8	AC Lead wire	58.3	Power switch	51.7	X-cap C3 (EMI board)	57.9	Line choke L1 (EMI board)	58.0	Y-cap C6 (EMI board)	59.4	PCB near Bridge diode D7	75.7	E-cap C20	56.8	Transformer T1 winding	63.0	PCB near MOSFET Q1	65.5	Y-cap C10	61.9	Body of U9 (Opto Coupler)	66.1	DC FAN winding	96.9	PCB near IC4 (Main board)	63.3	Ambient	Shift to 40.0	Power Cord	31.6	Metal rear panel	34.2	Plastic housing	28.8	Ambient	Shift to 25.0
Parts	T max (°C)																																															
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Clause	Requirement + Test	Result - Remark	Verdict

Unit	Transformer pin10-11 Over load	264V	10H03Min	--	13.14	Observation: The transformer is overloaded to 8.8A, and the equipment is shut down for protection. No danger, pass	
						Parts	T max (°C)
						AC Inlet	62.3
						AC Outlet	67.9
						AC Lead wire	68.5
						Power switch	58.2
						X-cap C3 (EMI board)	91.8
						Line choke L1 (EMI board)	94.5
						Y-cap C6 (EMI board)	71.4
						PCB near Bridge diode D7	116.4
						E-cap C20	62.3
						Transformer T1 winding	144.3
						PCB near MOSFET Q1	89.7
						Y-cap C10	79.3
						Body of U9 (Opto Coupler)	81.3
						DC FAN winding	164.4
						PCB near IC4 (Main board)	67.0
						Ambient	Shift to 40.0
						Power Cord	32.2
						Metal rear panel	36.4
						Plastic housing	29.0
Ambient	Shift to 25.0						
Load condition: Low Speaker: 8Ω; High Speaker: 8Ω; AC directly output: 9A							
Transformer pin10-11	SC	264	10min	Main fuse	9.0	Unit shutdown immediately, no damaged, no hazards.	
Bridge diode D7 AC-DC	SC	264V	1s	Main fuse	9.0	AC fuse opened immediately, no hazards.	
E-cap (C20)	SC	264V	1s	Main fuse	9.0	AC fuse opened immediately, no hazards.	
Q1 D-S	SC	264	1s	Main fuse	9.0	AC fuse opened immediately, Q1 is damaged, the unit is shut down immediately, no danger, pass	
Q1 G-S	SC	264	1s	Main fuse	9.0	AC fuse opened immediately, U4 is damaged, the unit is shut down immediately, no danger, pass	
Q1 D-G	SC	264	1s	Main fuse	9.0	AC fuse opened immediately, Q1 and U4 is damaged, the unit is shut down immediately, no danger, pass	
R36	SC	264V	10min	Main fuse	9.4	Unit normal operation, no hazard, pass.	
T2 pin2-4	SC	264V	10min	Main	9.4	Unit normal operation, no hazard, pass.	

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Clause	Requirement + Test	Result - Remark	Verdict

				fuse		
C65	SC	264V	1s	Main fuse	9.0	AC fuse opened immediately, Q1,Q2 and U2 is damaged, the unit is shut down immediately, no danger, pass

For model L-ARRAY 28H

Unit	Max non-clipped output	264V	1H50Min	--	1.23	Observation: Unit normal operation, no hazard, pass.	
						Parts	T max (°C)
						Lead wire	47.2
						Line choke L1	87.8
						cap C1	56.4
						Resistors R1 PCB	96.3
						Line choke L2	46.8
						cap C3	56.0
						Resistors R4 PCB	51.5
						Ambient	Shift to 40.0
						Plastic housing	26.8
						Metal rear panel	29.3
						Ambient	Shift to 25.0
						Load condition:	
						Low Speaker: 8Ω;	
High Speaker: 8Ω;							
Audio input current consumption: 3A							

Supplementary information:

Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column "Abnormal/Fault." Specify if test condition by indicating "Abnormal" then the condition for a Clause B.3 test or "Single Fault" then the condition for Clause B.4.

1) S-C: Short-circuited; O-C: Open-circuited; O-L: Overloaded; BL: Blocked.

2) The test result shown all safeguards remained effective and didn't lead to a single fault condition during abnormal operating condition; In addition all safeguards complied with applicable requirements in this standard after restoration of normal operating conditions.

3) The test result showed no Class 1 or 2 energy source become Class 3 level during and after single fault condition.

4) The overloaded condition is applied according to annex G.5.3.3.

Winding Limit for Class B: 175-10=165°C

M.3	TABLE: Protection circuits for batteries provided within the equipment		N/A
Is it possible to install the battery in a reverse polarity position?.....:		No	—
Equipment Specification	Charging		
	Voltage (V)	Current (A)	
	--	--	
Manufacturer/type	Battery specification		
	Non-rechargeable batteries	Rechargeable batteries	

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Clause	Requirement + Test	Result - Remark	Verdict

	Discharging current (A)	Unintentional charging current (A)	Charging		Discharging current (A)	Reverse charging current (A)
			Voltage (V)	Current (A)		
--	--	--	--	--	--	--

Note: The tests of M.3.2 are applicable only when above appropriate data is not available.

Specified battery temperature (°C): See below

Component No.	Fault condition	Charge/discharge mode	Test time	Temp. (°C)	Current (A)	Voltage (V)	Observation
--	--	--	--	--	--	--	--

Supplementary information:

Abbreviation: S-C= short circuit; O-C= open circuit NL= no chemical leakage; NS= no spillage of liquid; NE= no explosion; NF= no emission of flame or expulsion of molten metal.

M.4.2	TABLE: Charging safeguards for equipment containing a secondary lithium battery					N/A
Maximum specified charging voltage (V)					--	---
Maximum specified charging current (A)					--	---
Highest specified charging temperature (°C)					--	---
Lowest specified charging temperature (°C)					--	---
Battery manufacturer/type	Operating and fault condition	Measurement			Observation	
		Charging voltage (V)	Charging current (A)	Temp. (°C)		
--	--	--	--	--	--	

Supplementary information:

Abbreviation: SC= short circuit; OC= open circuit; MSCV= maximum specified charging voltage; MSCC= maximum specified charging current; HSCT= highest specified charging temperature; LSCT= lowest specified charging temperature

Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)						N/A
Output Circuit	Condition	U _{oc} (V)	Time (s)	I _{sc} (A)		S (VA)	
				Meas.	Limit	Meas.	Limit
--	--	--	--	--	--	--	--

Supplementary Information:
S-C=Short circuit, O-C=Open circuit

T.2, T.3, T.4, T.5	TABLE: Steady force test						P
Location/Part	Material	Thickness (mm)	Probe	Force (N)	Test Duration (s)	Observation	

IEC 62368-1						
Clause	Requirement + Test			Result - Remark		Verdict
Internal components (according to T.2)	--	--	--	10	5	No hazard.
External enclosure (according to T.5)	Wooden and Metal	See table 4.1.2	--	250	5	No hazard.
Supplementary information:						

T.6, T.9	TABLE: Impact test				P
Location/Part	Material	Thickness (mm)	Height (mm)	Observation	
External enclosure	Wooden and Metal	See table 4.1.2	1300	After the impact test, enclosure remained intact, no cracking/opening developed in the enclosure joint. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	
Supplementary information: 1). See appended table 4.1.2.					
Each source of enclosure in table 4.1.2 was applied and passed the relevant tests.					

T.7	TABLE: Drop test				N/A
Location/part	Material	Thickness (mm)	Height (mm)	Observation	
--	--	--	--	--	
Supplementary information: N/A					

T.8	TABLE: Stress relief test					N/A
Location/Part	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
--	--	--	--	--	--	
Supplementary information:						

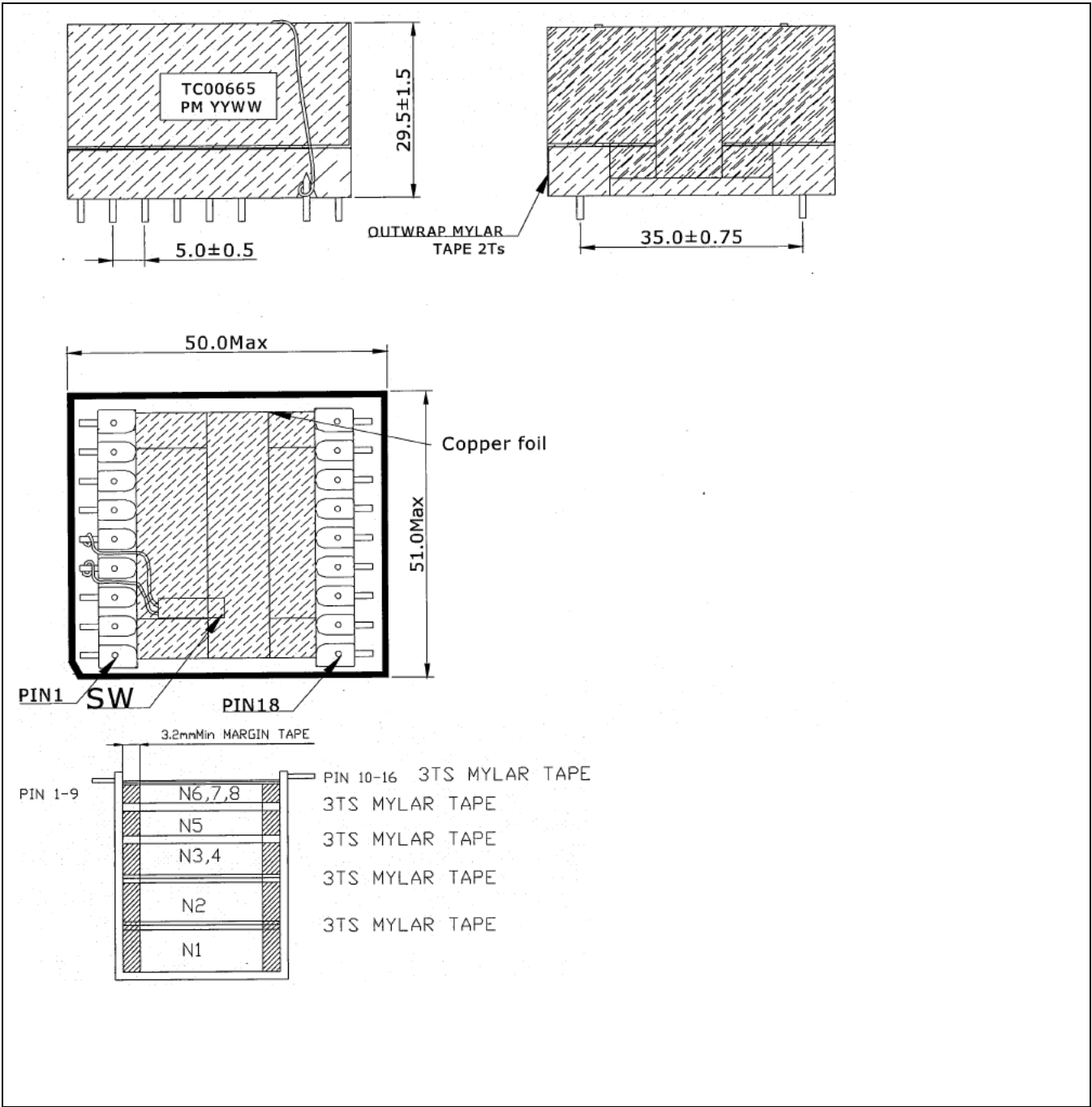
X	TABLE: Alternative method for determining minimum clearances distances			N/A
Clearance distanced between:	Peak of working voltage (V)	Required cl (mm)	Measured cl (mm)	
--	--	--	--	
Supplementary information:				

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Clause	Requirement + Test	Result - Remark	Verdict

Attachment measurement table:

TABLE: transformers Transformer for L-ARRAY 18SA (T1), model TC00665						P	
Loc.	Tested insulation	Working voltage peak / V	Working voltage rms / V	Required electric strength	Required clearance / mm	Required creepage distance / mm	Required distance thr. Insul.
T1	Primary windings to secondary (RI)	440	274	4000Vac	3.0	5.6	2 layers min.
T1	Primary to core (BI)	440	274	2500Vac	1.5	2.8	--
T1	Secondary to core (SI)	440	274	2500Vac	1.5	2.8	--
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. Insul. / mm; number of layers
T1	Primary windings to secondary (RI)			4000Vac	6.4	6.4	Three layers
T1	Primary to core (BI)			2500Vac	3.2	3.2	--
T1	Secondary to core (SI)			2500Vac	3.2	3.2	--
Supplementary information:							
T. T1 core were considered as middle parts .							
Construction:							

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict



IEC 62368-1

Clause	Requirement + Test	Result - Remark	Verdict
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TABLE: transformers Transformer for L-ARRAY 28SA (T1), model TC00648

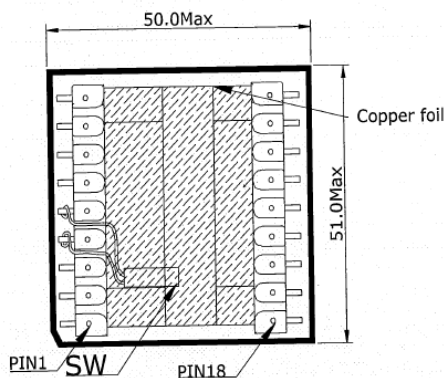
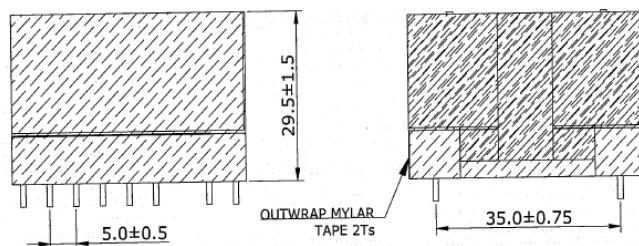
P

Loc.	Tested insulation	Working voltage peak / V	Working voltage rms / V	Required electric strength	Required clearance / mm	Required creepage distance / mm	Required distance thr. Insul.
T1	Primary windings to secondary (RI)	440	259	4000Vac	3.0	5.2	2 layers min.
T1	Primary to core (BI)	440	259	2500Vac	1.5	2.6	--
T1	Secondary to core (SI)	440	259	2500Vac	1.5	2.6	--

Loc.	Tested insulation	Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. Insul. / mm; number of layers
T1	Primary windings to secondary (RI)	4000Vac	6.4	6.4	Three layers
T1	Primary to core (BI)	2500Vac	3.2	3.2	--
T1	Secondary to core (SI)	2500Vac	3.2	3.2	--

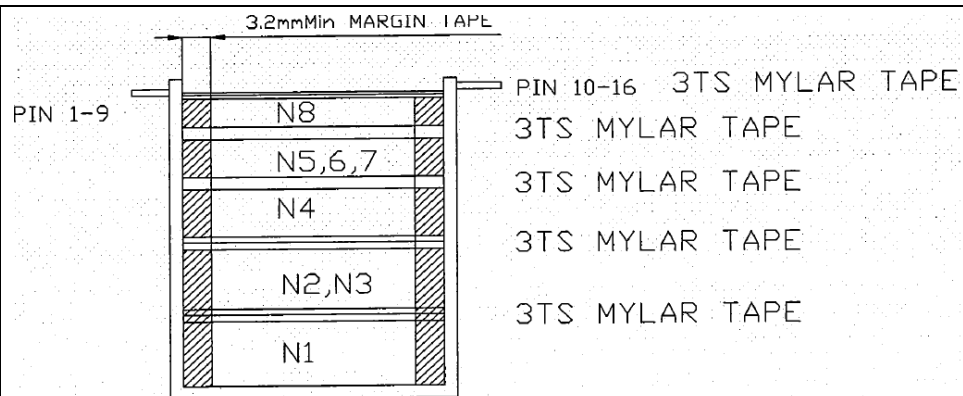
Supplementary information:

T. T1 core were considered as middle parts .

Construction:

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Clause	Requirement + Test	Result - Remark	Verdict
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4.1.2	TABLE: Critical components information					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾	
Metal panel	--	--	Min. thickness: 1.0mm	--	--	
Wooden enclosure	--	--	Min. thickness: 9.0mm	--	--	
Plastic enclosure for L-ARRAY 28HA	Dongguan Fengyue Plastic Industry Co., Ltd	FY1001FR	PP 70°C, min.thickness 3.2mm, black, V-0	UL 94	TUV: AK50484321 0001 report: NN209YQS 001	
(alternative)	RTP CO	RTP 155 A(f3)	PP 110°C, min.thickness 0.75mm, black, V-0	UL 94	UL/cUL E84658	
(alternative)	QING DAO GON TECHNOLOGY CO.,LTD	PP1104Z	PP 65°C, min.thickness 1.5mm, black, V-0	UL 94	UL E330547	
Power plug (for EU)	Lian Dung	LT-312	250Vac, 16A	VDE 0620-2-1	VDE 40014931	
(Alternative)	Lian Dung	LT-322	250Vac, 16A	VDE 0620-2-1	VDE 40014921	
(Alternative)	I-Sheng	SP-022	250Vac, 16A	VDE 0620-2-1	VDE 40013526	
Power cord (for EU)	I-Sheng	05VA5V-F	Min. 0.75mm² x3C	EN 50525-2-11:2011	VDE 098629	
(Alternative)	Tong Yuan	H05VV-F or H03VV-F	Min. 0.75mm² x3C	EN 50525-2-11:2011	VDE 101980	
(Alternative)	Rhythm	H05VV-F or H03VV-F	Min. 0.75mm² x3C	EN 50525-2-11:2011	VDE 094010	
(Alternative)	Lian Dung	H05VV-F or H03VV-F	Min. 0.75mm² x3C	EN 50525-2-11:2011	VDE 098629	
(Alternative)	I-Sheng	H05VV-F or H03VV-F	Min. 0.75mm² x3C	EN 50525-2-11:2011	VDE 40006070	
Cord set (for US)	Lian Dung	LT-202	AC125V, min. 15A with NEMA 5-15P plug	UL 817 C22.2 No. 21	UL/cUL E121791	
(Alternative)	I-Sheng	SP-305B, SP-305, SP-305S	AC125V, min. 10A with NEMA 5-15P plug	UL 817 C22.2 No. 21	UL/cUL E55943	
Power cord (for US)	I-Sheng	SVT, SJT	AC300V, min. 14AWG x 3C, VW-1, min. 65°C	UL 62 C22.2 No. 49	UL/cUL E88265	
(Alternative)	I SHENG MFG	SJT, SVT	AC300V, min. 14AWG x 3C, VW-1, min. 65°C	UL 62 C22.2 No. 49	UL/cUL E315167	

(Alternative)	I SHENG ELECTRONICS	SJT, SVT	AC300V, min. 14AWG x 3C, VW-1, min. 65°C	UL 62 C22.2 No. 49	UL/cUL E314513
(Alternative)	Tong Yuan	SVT, SJT	AC300V, min. 14AWG x 3C, VW-1, min. 65°C	UL 62 C22.2 No. 49	UL/cUL E156136
(Alternative)	Ever United	SVT, SJT	AC300V, min. 14AWG x 3C, VW-1, min. 65°C	UL 62 C22.2 No. 49	UL/cUL E156549
(Alternative)	Rhythm	SJT, SVT	AC300V, min. 14AWG x 3C, VW-1, min. 65°C	UL 62 C22.2 No. 49	UL/cUL E88231
Power plug (for UK)	Lian Dung	LT-328	250Vac, 13A	BS 1363-1:2016+A1:2018	KM 68559
(Alternative)	Lian Dung	LT-318	250Vac, 13A	BS 1363-1:2016+A1:2018	KM 68559
(Alternative)	I-Sheng	SP-022	250Vac, 13A	VDE 0620-2-1	VDE 40013526
Power cord (for UK)	Tong Yuan	H05VV-F or H03VV-F	Min. 0.75mm ² x3C	EN 50525-2-11:2011	VDE 101980
(Alternative)	Rhythm	H05VV-F or H03VV-F	Min. 0.75mm ² x3C	EN 50525-2-11:2011	VDE 094010
(Alternative)	Lian Dung	H05VV-F or H03VV-F	Min. 0.75mm ² x3C	EN 50525-2-11:2011	VDE 098629
(Alternative)	I-Sheng	H05VV-F or H03VV-F	Min. 0.75mm ² x3C	EN 50525-2-11:2011	VDE 40006070
Appliance connector	Neutrik AG	NAC3FXXA	AC250V, 16A	IEC 60320-1:2015 IEC 60320-1:2015/AMD1:2018 DIN EN 60320-1 (VDE 0625-1):2021-08; EN 60320-1:2015+AC:2016+AC:2019+A1:2021 UL 60320-1 CSA C22.2 No.60320-1-19	VDE 40055870 UL/cUL E343813

(Alternative)	Neutrik AG	RCAC3I-G	AC250V, 16A	IEC 60320-1:2015 IEC 60320-1:2015/AMD1:2018 DIN EN 60320-1 (VDE 0625-1):2021-08; EN 60320-1:2015+AC:2016+AC:2019+A1:2021 UL 60320-1 CSA C22.2 No.60320-1-19	VDE 40057441 UL/cUL E527343 cETL 5016204
Appliance inlet	Neutrik AG	NAC3MPXXA	AC250V, 16A	IEC 60320-1:2015 IEC 60320-1:2015/AMD1:2018 DIN EN 60320-1 (VDE 0625-1):2021-08; EN 60320-1:2015+AC:2016+AC:2019+A1:2021 UL 60320-1 CSA C22.2 No.60320-1-19	VDE 40051940 UL/cUL E343813
(Alternative)	Neutrik AG	RRAC3I-G	AC250V, 16A	IEC 60320-1:2015 IEC 60320-1:2015/AMD1:2018 DIN EN 60320-1 (VDE 0625-1):2021-08; EN 60320-1:2015+AC:2016+AC:2019+A1:2021 UL 60320-1 CSA C22.2 No.60320-1-19	VDE 40057441 UL/cUL E527343 cETL 5016204

Appliance outlet	Neutrik AG	RRAC3O-G	AC250V, 16A	IEC 60320-1:2015 IEC 60320-1:2015/AMD1:2018 DIN EN 60320-1 (VDE 0625-1):2021-08; EN 60320-1:2015+AC:2016+AC:2019+A1:2021 UL 60320-1 CSA C22.2 No.60320-1-19	VDE 40057441 UL/cUL E527343 cETL 5016204
(Alternative)	Neutrik AG	NAC3MPXXB	AC250V, 16A	IEC 60320-1:2015 IEC 60320-1:2015/AMD1:2018 DIN EN 60320-1 (VDE 0625-1):2021-08; EN 60320-1:2015+AC:2016+AC:2019+A1:2021 UL 60320-1 CSA C22.2 No.60320-1-19	VDE 40051741 UL/cUL E343813
Power switch	Light country	R5 series	AC250V, 16A, 10E3, T85, Level 3, V-0	IEC/EN 61058-1 UL 1054	VDE 40017298 UL/cUL E104190
(Alternative)	NINGBO HAISHU LIHE ELECTRONIC CO., LTD	RL3-4	AC250V, 6A AC125V, 10A, 10E3, T125, V-0	IEC/EN 61058-1 UL 61058-1 CAN/CSA-C22.2 No. 61058-1 (2009)	ENEC:SE/09 127-14 UL/cUL E208316
(Alternative)	Pronic	R13	AC250V, 6A AC125V, 10A, 10E3, T85, V-0	IEC/EN 61058-1 UL 61058-1 CSA-C22.2 No. 55-M1986	VDE 40027403 UL E105856 CSA No. LR 112904-6
(Alternative)	Light country	R19	AC250V, 6A , 10E3, T85, V-0	IEC/EN 61058-1 UL 61058-1 CAN/CSA-C22.2 No. 61058-1(2009)	VDE 40006923 UL/cUL E104190

(Alternative)	RONG FENG	RF-1003	AC250V, 10A, 10E3, T85, V-0	EN 61058-1:2002+A2 UL 61058-1 CAN/CSA-C22.2 No. 61058-1(2009)	TUV HN 69248433 TUV R 50550957 UL/cUL E94138
Fan	Kaimei	JF0815S1UR-R	DC12V, 0.34A, 80X80X15mm, 41.75CFM	IEC/EN62368-1:2014+a11 UL 507	TUV R 50029788 TUV R 09552030 UL E156480
(Alternative)	CROWN	AGE08015F12 U	DC12V, Max. 0.6A, 80X80X15mm, 41.2CFM	IEC/EN 60950 UL 507	TUV SUD B160676547 007 UL E315824
For EMI Board					
AC fuse (F1)	Conquer Electronics Co., Ltd.	UDA, UDA-A	AC250V, T10AH, Ø5x20mm	IEC/EN 60127-1 IEC/EN 60127-2 UL 248-1 UL 248-14 CSA-C22.2 No. 248-1-00	VDE 40008022 UL/cUL E82636
(Alternative)	SUZHOU WALTER ELECTRONIC CO LTD	TSC	AC250V, T10AH, Ø5x20mm	IEC/EN 60127-1 IEC/EN 60127-2 UL 248-1 UL 248-14 CSA-C22.2 No. 248-1-00	VDE 40016670 UL/cUL E56092
X capacitor (C1, C3, C4)	Farad Electronics	PXK	Min. 250Vac, max. 1.0µF, 110°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE 40014111 UL E247953
(Alternative)	Carli	MPX	Min. 250Vac, max. 1.0µF, min. 100°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE 40008520 UL E120045
(Alternative)	Dain	MPX, MEX, NPX	Min. 250Vac, max. 1.0µF, min. 100°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE 40018798 UL E147776
(Alternative)	Diya	MKP-X2	Min. 250Vac, max. 1.0µF, min. 100°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE 40019857 UL E305002
(Alternative)	Guangzhou Yes Electronic	MPX/MKP	Min. 250Vac, max. 1.0µF, 110°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE 40043020 UL E355933

(Alternative)	Faratronic	MKP62	Min. 250Vac, max. 1.0μF, min. 100°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE 40000358 UL E186600
(Alternative)	Faratronic	MKP65	Min. 250Vac, max. 1.0μF, min. 100°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE 40021925 UL E186600
(Alternative)	Tenta	MEX	Min. 250Vac, max. 1.0μF, 100°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE 119119 UL E222911
(Alternative)	WINDAY	MPX	Min. 250Vac, max. 1.0μF, min. 100°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE 40018071 UL E302125
Y capacitor (C5, C6, C7, C8)	Murata	KX	Min. 250Vac, max. 2200pF, 125°C, Y1 type	IEC/EN 60384-14 UL 60384-14	VDE 40002831 UL E37921
(Alternative)	Zhi Wei	DJ	Min. 250Vac, max. 2200pF, min. 105°C, Y1 type	IEC/EN 60384-14 UL 60384-14	VDE 40032789 UL E330260
(Alternative)	Jyh Chung	JD	Min. 250Vac, max. 2200pF, min. 85°C, Y1 type	IEC/EN 60384-14 UL 60384-14	VDE 137027 UL E187963
(Alternative)	JYH HSU (JEC) ELECTRONICS LTD	JD	Min. 250Vac, max. 2200pF, 125°C, Y1 type	IEC/EN 60384-14 UL 60384-14	VDE 40038642 UL E356696
(Alternative)	Success	SE	Min. 250Vac, max. 2200pF, 125°C, Y1 type	IEC/EN 60384-14 UL 60384-14	VDE 40037211 UL E114280
(Alternative)	Xiamen Wanming	HJ	Min. 250Vac, max. 2200pF, 125°C, Y1 type	IEC/EN 60384-14 UL 60384-14	Demko: 311030-01 UL/cUL E221839
(Alternative)	Murata	KH	Min. 250Vac, max. 2200pF, 125°C, Y2 type	IEC/EN 60384-14 UL 60384-14	VDE 40002796 UL/cUL E37921
(Alternative)	Murata	KY	Min. 250Vac, max. 2200pF, 125°C, Y2 type	IEC/EN 60384-14 UL 60384-14	VDE 40006273 UL/cUL E37921
(Alternative)	Zhi Wei	DY	Min. 250Vac, max. 2200pF, min. 105°C, Y2 type	IEC/EN 60384-14 UL 60384-14	VDE 40032788 UL/cUL E330260
(Alternative)	Success	SF	Min. 250Vac, max. 2200pF, 125°C, Y2 type	IEC/EN 60384-14 UL 60384-14	VDE 40016665 UL/cUL E114280

(Alternative)	Jyh Chung	JY	Min. 250Vac, max. 2200pF, min. 85°C, Y2 type	IEC/EN 60384-14 UL 60384-14	VDE 123326 UL/cUL E187963
Line filter (L1, L2)	Interchangeable	Interchangeable	N1 (Pin1 – Pin4): 0.3 x 1.5mm x 50Ts; N2 (Pin2 – Pin3): 0.3 x 1.5mm x 50Ts; 130°C	--	Tested with appliance
- Bobbin	Chang Chun Plastics Co Ltd	T375HF	Phenolic, V-0, 150°C, min. thickness: 0.43mm	UL 94	UL E59481
(Alternative)	Chang Chun Plastics Co Ltd	T375J(G5)(G6)	Phenolic, V-0, 150°C, min. thickness: 0.45mm	UL 94	UL E59481
(Alternative)	Chang Chun Plastics Co Ltd	4115(50% Regrind) (d), 4115(f1)	PBT, V-0, 120°C, min. Thickness: 0.75 mm	UL 94	UL E59481
(Alternative)	Nan Ya Plastics (Hui Zhou) Corp Ltd	1403G3, 1403G6	PBT, V-0, 130°C, min. Thickness: 0.75 mm	UL 94	UL E235269
Bleeder resistor (R1, R2)	Interchangeable	Interchangeable	470KΩ, 1/4W	--	Tested with appliance
For Power Board					
X capacitor (C11)	Farad Electronics	PXK	Min. 250Vac, max. 0.1μF, 110°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE 40014111 UL E247953
(Alternative)	Carli	MPX	Min. 250Vac, max. 0.1μF, min. 100°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE 40008520 UL E120045
(Alternative)	Dain	MPX, MEX, NPX	Min. 250Vac, max. 0.1μF, min. 100°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE 40018798 UL E147776
(Alternative)	Diya	MKP-X2	Min. 250Vac, max. 0.1μF, min. 100°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE 40019857 UL E305002
(Alternative)	Guangzhou Yes Electronic	MPX/MKP	Min. 250Vac, max. 0.1μF, 110°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE 40043020 UL E355933
(Alternative)	Faratronic	MKP62	Min. 250Vac, max. 0.1μF, min. 100°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE 40000358 UL E186600
(Alternative)	Faratronic	MKP65	Min. 250Vac, max. 0.1μF, min. 100°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE 40021925 UL E186600

(Alternative)	Tenta	MEX	Min. 250Vac, max. 0.1 μ F, 100°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE 119119 UL E222911
(Alternative)	WINDAY	MPX	Min. 250Vac, max. 0.1 μ F, min. 100°C, X2 type	IEC/EN 60384-14 UL 60384-14	VDE 40018071 UL E302125
Y capacitor for L-ARRAY 28HA (C9, C10, C12); for L-ARRAY 18SA(C12)	Murata	KX	Min. 250Vac, max. 2200pF, 125°C, Y1 type	IEC/EN 60384-14 UL 60384-14	VDE 40002831 UL E37921
(Alternative)	Zhi Wei	DJ	Min. 250Vac, max. 2200pF, min. 105°C, Y1 type	IEC/EN 60384-14 UL 60384-14	VDE 40032789 UL E330260
(Alternative)	Jyh Chung	JD	Min. 250Vac, max. 2200pF, min. 85°C, Y1 type	IEC/EN 60384-14 UL 60384-14	VDE 137027 UL E187963
(Alternative)	JYH HSU (JEC) ELECTRONICS LTD	JD	Min. 250Vac, max. 2200pF, 125°C, Y1 type	IEC/EN 60384-14 UL 60384-14	VDE 40038642 UL E356696
(Alternative)	Success	SE	Min. 250Vac, max. 2200pF, 125°C, Y1 type	IEC/EN 60384-14 UL 60384-14	VDE 40037211 UL E114280
(Alternative)	Xiamen Wanming	HJ	Min. 250Vac, max. 2200pF, 125°C, Y1 type	IEC/EN 60384-14 UL 60384-14	Demko: 311030-01 UL/cUL E221839
(Alternative)	Murata	KH	Min. 250Vac, max. 2200pF, 125°C, Y2 type	IEC/EN 60384-14 UL 60384-14	VDE 40002796 UL/cUL E37921
(Alternative)	Murata	KY	Min. 250Vac, max. 2200pF, 125°C, Y2 type	IEC/EN 60384-14 UL 60384-14	VDE 40006273 UL/cUL E37921
(Alternative)	Zhi Wei	DY	Min. 250Vac, max. 2200pF, min. 105°C, Y2 type	IEC/EN 60384-14 UL 60384-14	VDE 40032788 UL/cUL E330260
(Alternative)	Success	SF	Min. 250Vac, max. 2200pF, 125°C, Y2 type	IEC/EN 60384-14 UL 60384-14	VDE 40016665 UL/cUL E114280
(Alternative)	Jyh Chung	JY	Min. 250Vac, max. 2200pF, min. 85°C, Y2 type	IEC/EN 60384-14 UL 60384-14	VDE 123326 UL/cUL E187963

Y capacitor for L-ARRAY 18SA (C9, C10)	Murata	KX	AC250V, 1000pF, 125°C, Y1 type	UL 60384-14 UL 1414 CAN/CSA-E60384-1 (2003)	UL/cUL E37921 VDE 40002831
(Alternative)	Zhi Wei	DJ	AC250V, 1000pF, 105°C, Y1 type	UL 60384-14 UL 1414 CAN/CSA-E60384-1 (2003)	UL/cUL E330260 VDE 40032789
(Alternative)	Jyh Chung	JD	AC250V, 1000pF, min. 85°C, Y1 type	UL 60384-14 UL 1414 CAN/CSA-E60384-1 (2003)	UL/cUL E187963 VDE 137027
(Alternative)	JYH HSU (JEC) ELECTRONICS LTD	JD	AC250V, 1000pF, 125°C, Y1 type	UL 60384-14 UL 1414 CAN/CSA-E60384-1 (2003)	UL/cUL E356696 VDE 40038642
(Alternative)	Success	SE	AC250V, 1000pF, 125°C, Y1 type	UL 60384-14 UL 1414 CAN/CSA-E60384-1 (2003)	UL/cUL E114280 VDE 40037211
(Alternative)	Xiamen Wanming	HJ	AC250V, 1000pF, 125°C, Y1 type	UL 60384-14 UL 1414 CAN/CSA-E60384-1 (2003)	UL/cUL E221839 Demko: 311030-01
(Alternative)	Murata	KH	Min. 250Vac, max. 1000pF, 125°C, Y2 type	IEC/EN 60384-14 UL 60384-14	VDE 40002796 UL/cUL E37921
(Alternative)	Murata	KY	Min. 250Vac, max. 1000pF, 125°C, Y2 type	IEC/EN 60384-14 UL 60384-14	VDE 40006273 UL/cUL E37921
(Alternative)	Zhi Wei	DY	Min. 250Vac, max. 1000pF, min. 105°C, Y2 type	IEC/EN 60384-14 UL 60384-14	VDE 40032788 UL/cUL E330260
(Alternative)	Success	SF	Min. 250Vac, max. 1000pF, 125°C, Y2 type	IEC/EN 60384-14 UL 60384-14	VDE 40016665 UL/cUL E114280

(Alternative)	Jyh Chung	JY	Min. 250Vac, max. 1000pF, min. 85°C, Y2 type	IEC/EN 60384-14 UL 60384-14	VDE 123326 UL/cUL E187963
Opto coupler (U9)	Lite-On	LTV-817	Int. Cr / Ext. Cr / Dti.: 5.3 / 6.3 / 0.5mm, 100°C	IEC/EN 60747-5-5 UL 1577 CSA Component Acceptance Service Notice No. 5A	VDE 40015248 UL/cUL E113898
(Alternative)	Fairchild	H11A817 Series FOD817C Series	Int. Cr / Ext. Cr / Dti.: 5.3 / 6.3 / 0.5mm, 100°C	IEC/EN 60747-5-5 UL 1577 CSA Component Acceptance Service Notice No. 5A	VDE 40026857 UL/cUL E90700
(Alternative)	COSMO	KPC817 Series, K1010 Series	Int. Cr / Ext. Cr / Dti.: 5.3 / 6.3 / 0.5mm, 100°C	IEC/EN 60747-5-5 UL 1577 CSA Component Acceptance Service Notice No. 5A	VDE 101347 UL/cUL E169586
(Alternative)	SHARP	PC817	Int. Cr / Ext. Cr / Dti.: 5.3 / 6.3 / 0.5mm, 100°C	IEC/EN 60747-5-5 UL 1577 CSA Component Acceptance Service Notice No. 5A	VDE 40008087 UL/cUL E64380
(Alternative)	Vishay	SFH6156-1	Int. Cr / Ext. Cr / Dti.: 7.0 / 7.0 / 0.5mm, 100°C	IEC/EN 60747-5-5 UL 1577 CSA Component Acceptance Service Notice No. 5A	VDE 091888 UL/cUL E52744
E-capacitor (C18, C20)	Interchangeable	Interchangeable	Min. 180V, min. 820uF, min. 85°C	--	Tested with appliance
Heat shrinkable tube	Quantai	T-2	600Vac, VW-1, 125°C	UL 224	UL E227336
(Alternative)	shenzhen woer heat-shrinkable material co ltd	RSFR-H	600Vac, VW-1, 125°C	UL 224	UL E203950

(Alternative)	Interchangeable	Interchangeable	Min. 300Vac, VW-1, 125°C	UL 224	UL
Mylar sheet (under the power supply board)	DuPont Specialty Products USA LLC	300MT	V-0, min. 200°C, min. thickness: 0.076mm	UL 94	UL E39505
(Alternative)	E I Dupont De Nemours & Co Inc	FR70G25V0	V-0, min. 65°C, min. thickness: 0.5mm	UL 94	UL E41938
(Alternative)	CHENGDU KANGLONGXIN PLASTICS CO LTD	H KLX FRPC-870B	V-0, 80°C, min. thickness: 0.25mm	UL 94	UL E315185
(Alternative)	Interchangeable	Interchangeable	V-0, 100°C	UL 94	UL
PCB	YUNXIN	YX-D1	V-0, 130°C	UL 796	UL E353820
(Alternative)	BAOYUEJIA	BYJ-3	V-0, 130°C	UL 796	UL E230225
(Alternative)	Interchangeable	Interchangeable	V-0, 130°C	UL 796	UL
Primary lead wire	Fushen	1617 or 1015	Min. 300Vac, 105°C, min. 18AWG	UL 758	UL E218170
(Alternative)	DANYANG	1617 or 1015	Min. 300Vac, 105°C, min. 18AWG	UL 758	UL E332522
(Alternative)	WENCHANG	1617 or 1015	Min. 300Vac, 105°C, min. 18AWG	UL 758	UL E214500
(Alternative)	Interchangeable	Interchangeable	Min. 300Vac, min. 80°C, min. 18AWG	UL 758	UL
Earthing wire	WENCHANG	1015 or 1617	Min. 300Vac, 105°C, min. 18AWG	UL 758	UL E214500
(Alternative)	FU SHEN	1015 or 1617	Min. 300Vac, 105°C, min. 18AWG	UL 758	UL E218170
(Alternative)	DANYANG	1617 or 1015	Min. 300Vac, 105°C, min. 18AWG	UL 758	UL E332522
(Alternative)	Interchangeable	Interchangeable	Min. 300Vac, min. 80°C, min. 18AWG	UL 758	UL

Transformer for L-ARRAY 18SA (T1)	POWERMIND	TC00665, PM-EPC46251202-00	N1(pin3-pin4): Ø0.5mmx1Px3TS; N2(pin1-pin2): Ø0.1mmx90Px25TS; N3(pin11-pin10): Ø0.1mmx120Px12TS; N4(pin13-pin12): Ø0.1mmx120Px12TS; N5(pin9-pin8): Ø0.5mmx1Px3.5TS; N6(pin15-pin14): Ø0.5mmx1Px3TS; N7(pin17-pin16): Ø0.5mmx1Px2TS; N8(pin18-pin17): Ø0.5mmx1Px2TS; Class B	Applicable part of IEC/EN/UL/CSA 62368-1 and IEC/EN 60085	Tested with appliance
Transformer for L-ARRAY 28HA (T1)	POWERMIND	TC00648, PM-EPC46251203-01	N1(Pin1-Pin2): Ø0.1mmx90Px25Ts; N2(Pin11-Pin10): Ø0.1mmx120Px12Ts; N3(Pin13-Pin12): Ø0.1mmx120Px12Ts; N4(Pin9-Pin8): Ø0.5mmx1Px3Ts; N5(Pin15-Pin14): Ø0.5mmx1Px3Ts; N6(Pin17-Pin16): Ø0.5mmx1Px3Ts; N7(Pin18-Pin17): Ø0.5mmx1Px3Ts; N8(Pin3-Pin4): Ø0.5mmx1Px4Ts; CLASS B	Applicable part of IEC/EN/UL/CSA 62368-1 and IEC/EN 60085	Tested with appliance
Parts of in transformer	See below	See below	See below	See below	See below
- Bobbin	Chang Chun Plastics Co Ltd	T375J(G5)(G6)	Phenolic, V-0, 150°C, min. thickness: 0.45mm	UL 94	UL E59481
(Alternative)	Chang Chun Plastics Co Ltd	T375HF	Phenolic, V-0, 150°C, min. thickness: 0.43mm	UL 94	UL E59481
(Alternative)	Chang Chun Plastics Co Ltd	4115(50% Regrind) (d), 4115(f1)	PBT, V-0, 120°C, min. Thickness: 0.75 mm	UL 94	UL E59481
(Alternative)	Nan Ya Plastics (Hui Zhou) Corp Ltd	1403G3, 1403G6	PBT, V-0, 130°C, min. Thickness: 0.75 mm	UL 94	UL E235269

- Winding	Dong Guan Yida Industrial Co Ltd	UEW	130°C	UL 1446	UL E344055
(Alternative)	Ningbo Xinjian New Material Technology Co Ltd	UEW	130°C	UL 1446	UL E197317
(Alternative)	DALIAN FUJI FINE CO LTD	xUEW-U	130°C	UL 1446	UL E193774
(Alternative)	FENG CHING METAL CORP	xUEW-2	130°C	UL 1446	UL E172395
(Alternative)	Pacific	UEW/U@	130°C	UL 1446	UL E201757
(Alternative)	JUNG SHING WIRE CO LTD	UEW-2	130°C	UL 1446	UL E174837
(Alternative)	SUNTEK HOLDINGS LIMITED	xUEW130	130°C	UL 1446	UL E234867
(Alternative)	Interchangeable	Interchangeable	130°C	UL 1446	UL
- Tube	Changyuan Electronics Group Co Ltd	CB-TT-T	200°C	UL 224	UL E180908
(Alternative)	Changyuan Electronics Group Co Ltd	CB-TT-L	200°C	UL 224	UL E180908
(Alternative)	Great Holding Industrial Co Ltd	TFT-201	200°C	UL 224	UL E156256
(Alternative)	Great Holding Industrial Co Ltd	TFL-201	200°C	UL 224	UL E156256
(Alternative)	Shenzhen Woer Heat-Shrinkable Material Co Ltd	WF	200°C	UL 224	UL E203950
(Alternative)	Interchangeable	Interchangeable	200°C	UL 224	UL
- Insulation tape	Jingjiang Yahua Pressure Sensitive Glue Co Ltd	PZ* (b)	130°C	UL 510A	UL E165111
(Alternative)	Jingjiang Fuwei Adhesive Product Co Ltd	FW	130°C	UL 510A	UL E302608
(Alternative)	Jingjiang Jingyi Adhesive Product Co Ltd	JY25-A (b)	130°C	UL 510A	UL E246950
(Alternative)	Interchangeable	Interchangeable	130°C	UL 510A	UL
- Margin tape	Jingjiang Jingyi Adhesive Product Co Ltd	WF310 (a)	130°C, min. width 3.2 mm	UL 510A	UL E246950

(Alternative)	Jingjiang Fuwei Adhesive Product Co Ltd	WF101	130°C, min. width 3.2 mm	UL 510A	UL E302608
(Alternative)	Jingjiang Yahua Pressure Sensitive Glue Co Ltd	WF* (c)(h)	130°C, min. width 3.2 mm	UL 510A	UL E165111
(Alternative)	Interchangeable	Interchangeable	130°C	UL 510A	UL
- Thermal cut-out	SEKI	ST-22	105°C	UL 873 CSA-C22.2 No. 24-15	VDE 40024004 VDE 40010191 VDE 40010189 UL/cUL E162232 UL/cUL E162183

Supplementary information:

¹⁾ Provided evidence ensures the agreed level of compliance. See OD-2039

²⁾ Description line content is optional. Main line description needs to clearly detail the component used for testing.

Note: License available upon request.

List of test equipment used:

A completed list of used test equipment shall be provided in the Test Reports when a Customer's Testing Facility according to CTF stage 1 or CTF stage 2 procedure has been used.

Note: This page may be removed when CTF stage 1 or CTF stage 2 are not used. See also clause 4.8 in OD 2020 for more details.

Clause	Measurement / testing	Testing / measuring equipment / material used	Range used	Calibration date	Calibration due date
5.2	Electrical energy source classifications	Power meter (D21110000007)	AC 0-150V/0-300V	2025.02.14	2026.02.13
		Digital Phosphor Oscilloscope (D20512001252)	Vertical deflection factor: 1kHz 1V/Div 1.1E-02 Horizontal Deflection Factor: 1kHz 1us/Div 4.0E-03	2024.07.29	2025.07.28
		Signal Generator (D20512000667)	Flatness :0.1dB Power Spectrum Density:0.3dB	2024.10.26	2025.10.25
		Oscilloscope Probe (100x) (D20512001252-1)	Attention:100X Input voltage:2000V System bandwidth:100MHz	2024.07.29	2025.07.28
5.4.1.4 B.2.6	Maximum operating temperatures for materials, components and systems	Power meter (D21110000007)	AC 0-150V/0-300V	2025.02.14	2026.02.13
		Digital Phosphor Oscilloscope (D20512001252)	Vertical deflection factor: 1kHz 1V/Div 1.1E-02 Horizontal Deflection Factor: 1kHz 1us/Div 4.0E-03	2024.07.29	2025.07.28
		Signal Generator (D20512000930)	Flatness :0.1dB Power Spectrum Density:0.3dB	2024.10.26	2025.10.25
		Oscilloscope Probe (100x) (D20512001252-1)	Attention:100X Input voltage:2000V System bandwidth:100MHz	2024.07.29	2025.07.28
		Hybrid Recorder (D20512000650)	0.1°C	2024.10.26	2025.10.25
		Stopwatch (H20512001184)	0.1s, 24h	2025.04.09	2026.04.08
5.4.1.8	Determination of working voltage	Power meter (D21110000007)	AC 0-150V/0-300V	2025.02.14	2026.02.13
		Digital Phosphor Oscilloscope (D20512001252)	Vertical deflection factor: 1kHz 1V/Div 1.1E-02 Horizontal Deflection Factor: 1kHz 1us/Div 4.0E-03	2024.07.29	2025.07.28
		Signal Generator (D20512000667)	Flatness :0.1dB Power Spectrum Density:0.3dB	2024.10.26	2025.10.25
		Oscilloscope Probe (100x) (D20512001252-1)	Attention:100X Input voltage:2000V System bandwidth:100MHz	2024.07.29	2025.07.28

5.4.8	Humidity conditioning	Humidity oven (D20512002047)	-40°C -100°C, 0.3°C 30%- 95% RH 5%	2025.04.09	2026.04.08
		Stopwatch (H20512001184)	0.1s, 24h	2025.04.09	2026.04.08
5.4.9	Electric strength test	High-pot tester (D20512000644)	DCV :0.5%, ACV:1%, DCA:0.5%, ACA:0.5%	2025.02.14	2026.02.13
5.5.2.2	Safeguards against capacitance discharge test	Digital Phosphor Oscilloscope (D20512001252)	Vertical deflection factor: 1kHz 1V/Div 1.1E-02 Horizontal Deflection Factor: 1kHz 1us/Div 4.0E-03	2024.07.29	2025.07.28
		Oscilloscope Probe (100x) (D20512001252-1)	Attention:100X Input voltage:2000V System bandwidth:100MHz	2024.07.29	2025.07.28
		Power meter (D21110000007)	AC 0-150V/0-300V	2025.02.14	2026.02.13
5.6.6	Ground continuity test	Ground continuity tester (D20512000645)	AC Resistance: 0.5%	2025.02.14	2026.02.13
		Stopwatch (H20512001184)	0.1s, 24h	2025.04.09	2026.04.08
5.7.2.2, 5.7.4	Earthed accessible conductive part test	Power meter (D21110000007)	AC 0-150V/0-300V	2025.02.14	2026.02.13
		Digital Phosphor Oscilloscope (D20512001252)	Vertical deflection factor: 1kHz 1V/Div 1.1E-02 Horizontal Deflection Factor: 1kHz 1us/Div 4.0E-03	2024.07.29	2025.07.28
		Signal Generator (D20512000667)	Flatness :0.1dB Power Spectrum Density:0.3dB	2024.10.26	2025.10.25
		Oscilloscope Probe (100x) (D20512001252-1)	Attention:100X Input voltage:2000V System bandwidth:100MHz	2024.07.29	2025.07.28
		Leakage current tester (D20512000612)	0-300V 3%	2025.02.14	2026.02.13
5.7.5	Protective conductor current	Leakage current tester (D20512000612)	0-300V 3%	2025.02.14	2026.02.13
6.2.2	Electrical power sources (PS) measurements for classification	Power meter (D21110000007)	AC 0-150V/0-300V	2025.02.14	2026.02.13
		Digital Phosphor Oscilloscope (D20512001252)	Vertical deflection factor: 1kHz 1V/Div 1.1E-02 Horizontal Deflection Factor: 1kHz 1us/Div 4.0E-03	2024.07.29	2025.07.28
		Signal Generator (D20512000667)	Flatness :0.1dB Power Spectrum Density:0.3dB	2024.10.26	2025.10.25
		Oscilloscope Probe (100x)	Attention:100X	2024.07.29	2025.07.28

		(D20512001252-1)	Input voltage:2000V System bandwidth:100MHz		
		Leakage current tester (D20512000612)	0-300V 3%	2025.02.14	2026.02.13
		Multimeter (D20512000649)	0-600V, 1.5A-30A +/-0.5%	2025.02.14	2026.02.13
		Stopwatch (H20512001184)	0.1s, 24h	2025.04.09	2026.04.08
8.6	Stability test	Electric Balance (D20512000646)	Max. 500N	2024.07.29	2025.07.28
		Stability test bench (D21611000014)	Tilt 10 ° , rotate 360 °	2024.10.26	2025.10.25
9.4	Equipment safeguards for thermal burn	Power meter (D21110000007)	AC 0-150V/0-300V	2025.02.14	2026.02.13
		Digital Phosphor Oscilloscope (D20512001252)	Vertical deflection factor: 1kHz 1V/Div 1.1E-02 Horizontal Deflection Factor: 1kHz 1us/Div 4.0E-03	2024.07.29	2025.07.28
		Signal Generator (D20512000667)	Flatness :0.1dB Power Spectrum Density:0.3dB	2024.10.26	2025.10.25
		Oscilloscope Probe (100x) (D20512001252-1)	Attention:100X Input voltage:2000V System bandwidth:100MHz	2024.07.29	2025.07.28
		Hybrid Recorder (D20512000650)	0.1°C	2024.10.26	2025.10.25
B.2.5	Input tests	Power meter (D21110000007)	AC 0-150V/0-300V	2025.02.14	2026.02.13
		Digital Phosphor Oscilloscope (D20512001252)	Vertical deflection factor: 1kHz 1V/Div 1.1E-02 Horizontal Deflection Factor: 1kHz 1us/Div 4.0E-03	2024.07.29	2025.07.28
		Signal Generator (D20512000667)	Flatness :0.1dB Power Spectrum Density:0.3dB	2024.10.26	2025.10.25
		Oscilloscope Probe (100x) (D20512001252-1)	Attention:100X Input voltage:2000V System bandwidth:100MHz	2024.07.29	2025.07.28
B.3	Simulated Abnormal operating condition tests	Power meter (D21110000007)	AC 0-150V/0-300V	2025.02.14	2026.02.13
		Digital Phosphor Oscilloscope (D20512001252)	Vertical deflection factor: 1kHz 1V/Div 1.1E-02 Horizontal Deflection Factor: 1kHz 1us/Div 4.0E-03	2024.07.29	2025.07.28
		Signal Generator (D20512000667)	Flatness :0.1dB Power Spectrum Density:0.3dB	2024.10.26	2025.10.25
		Oscilloscope Probe	Attention:100X	2024.07.29	2025.07.28

		(100x) (D20512001252-1)	Input voltage:2000V System bandwidth:100MHz		
		Hybrid Recorder (D20512000650)	0.1°C	2024.10.26	2025.10.25
B.4	Simulated single fault conditions	Power meter (D21110000007)	AC 0-150V/0-300V	2025.02.14	2026.02.13
		Digital Phosphor Oscilloscope (D20512001252)	Vertical deflection factor: 1kHz 1V/Div 1.1E-02 Horizontal Deflection Factor: 1kHz 1us/Div 4.0E-03	2024.07.29	2025.07.28
		Multimeter (D20512000649)	0-600V 1.5A-30A +/-0.5%	2025.02.14	2026.02.13
		Signal Generator (D20512000667)	Flatness :0.1dB Power Spectrum Density:0.3dB	2024.10.26	2025.10.25
		Oscilloscope Probe (100x) (D20512001252-1)	Attention:100X Input voltage:2000V System bandwidth:100MHz	2024.07.29	2025.07.28
F.3.9	Durability, legibility and permanence of markings	Stopwatch (H20512001184)	0.1s, 24h	2025.04.09	2026.04.08
G.5.3.3	Transformer overload	Power meter (D21110000007)	AC 0-150V/0-300V	2025.02.14	2026.02.13
		Digital Phosphor Oscilloscope (D20512001252)	Vertical deflection factor: 1kHz 1V/Div 1.1E-02 Horizontal Deflection Factor: 1kHz 1us/Div 4.0E-03	2024.07.29	2025.07.28
		Multimeter (D20512000649)	0-600V, 1.5A-30A +/-0.5%	2025.02.14	2026.02.13
		Signal Generator (D20512000667)	Flatness :0.1dB Power Spectrum Density:0.3dB	2024.10.26	2025.10.25
		Oscilloscope Probe (100x) (D20512001252-1)	Attention:100X Input voltage:2000V System bandwidth:100MHz	2024.07.29	2025.07.28
T.2	Steady force test, 10 N	Push Pull Scale (D20512000646)	Max. 500N	2024.07.29	2025.07.28
		Stopwatch (H20512001184)	0.1s, 24h	2025.04.09	2026.04.08
T.3, 4.4.3.2	Steady force test, 30N	Push Pull Scale (D20512000646)	Max. 500N	2024.07.29	2025.07.28
		Stopwatch (H20512001184)	0.1s, 24h	2025.04.09	2026.04.08
T.5	Steady force test, 250N	Push Pull Scale (D20512000646)	Max. 500N	2024.07.29	2025.07.28
		Stopwatch (H20512001184)	0.1s, 24h	2025.04.09	2026.04.08

T.6	Impact test	Steel Ball (D21611000024)	500g	2024.10.26	2025.10.25
		Tape (H20512001185)	5m	2024.07.29	2025.07.28
		Callipers (K20512000102)	0-200mm	2024.07.29	2025.07.28
		Stopwatch (H20512001184)	0.1s, 24h	2025.04.09	2026.04.08

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment - Part 1: Safety requirements)		
Differences according to: EN IEC 62368-1:2020+A11:2020		
Attachment Form No.: EU_GD_IEC62368_1E		
Attachment Originator: UL(Demko)		
Master Attachment: 2021-02-04		
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	CENELEC COMMON MODIFICATIONS (EN)	P
	Clause numbers in the cells that are shaded light grey are clause references in EN IEC 62368-1:2020+A11:2020. All other clause numbers in that column, except for those in the paragraph below, refers to IEC 62368-1:2018. Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2018 are prefixed "Z".	P
	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords	P
1	Modification to Clause 3 .	N/A
3.3.19	Sound exposure <i>Replace 3.3.19 of IEC 62368-1 with the following definitions:</i>	N/A


IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
3.3.19.1	momentary exposure level, MEL metric for estimating 1 s sound exposure level from the HD 483-1 S2 test signal applied to both channels, based on EN 50332-1:2013, 4.2. Note 1 to entry: MEL is measured as A-weighted levels in dB. Note 2 to entry: See B.3 of EN 50332-3:2017 for additional information.	Not such equipment	N/A
3.3.19.3	sound exposure, E A-weighted sound pressure (p) squared and integrated over a stated period of time, T Note 1 to entry: The SI unit is $\text{Pa}^2 \text{ s}$. $E = \int_0^T p(t)^2 dt$		N/A
3.3.19.4	sound exposure level, SEL logarithmic measure of sound exposure relative to a reference value, E_0 , typically the 1 kHz threshold of hearing in humans. Note 1 to entry: SEL is measured as A-weighted levels in dB. $SEL = 10 \lg \left(\frac{E}{E_0} \right) \text{ dB}$ Note 2 to entry: See B.4 of EN 50332-3:2017 for additional information.		N/A
3.3.19.5	digital signal level relative to full scale, dBFS levels reported in dBFS are always r.m.s. Full scale level, 0 dBFS, is the level of a dc-free 997-Hz sine wave whose undithered positive peak value is positive digital full scale, leaving the code corresponding to negative digital full scale unused Note 1 to entry: It is invalid to use dBFS for non-r.m.s. levels. Because the definition of full scale is based on a sine wave, the level of signals with a crest factor lower than that of a sine wave may exceed 0 dBFS. In particular, square wave signals may reach +3,01 dBFS.		N/A
2	Modification to Clause 10		N/A
10.6	Safeguards against acoustic energy sources Replace 10.6 of IEC 62368-1 with the following:		N/A
10.6.1.1	Introduction	Not such equipment	N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Safeguard requirements for protection against long-term exposure to excessive sound pressure levels from personal music players closely coupled to the ear are specified below.</p> <p>Requirements for earphones and headphones intended for use with personal music players are also covered. A personal music player is a portable equipment intended for use by an ordinary person, that:</p> <ul style="list-style-type: none"> – is designed to allow the user to listen to audio or audiovisual content / material; and – uses a listening device, such as headphones or earphones that can be worn in or on or around the ears; and – has a player that can be body worn (of a size suitable to be carried in a clothing pocket) and is intended for the user to walk around with while in continuous use (for example, on a street, in a subway, at an airport, etc.). <p>EXAMPLES Portable CD players, MP3 audio players, mobile phones with MP3 type features, PDAs or similar equipment.</p> <p>Personal music players shall comply with the requirements of either 10.6.2 or 10.6.3.</p> <p>NOTE 1 Protection against acoustic energy sources from telecom applications is referenced to ITU-T P.360.</p> <p>NOTE 2 It is the intention of the Committee to allow the alternative methods for now, but to only use the dose measurement method as given in 10.6.5 in future. Therefore, manufacturers are encouraged to implement 10.6.5 as soon as possible.</p> <p>Listening devices sold separately shall comply with the requirements of 10.6.6.</p> <p>These requirements are valid for music or video mode only.</p> <p>The requirements do not apply to:</p> <ul style="list-style-type: none"> – professional equipment; <p>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.</p> <ul style="list-style-type: none"> – hearing aid equipment and other devices for assistive listening; – the following type of analogue personal music 		

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Clause	Requirement + Test	Result - Remark	Verdict
	<p>players:</p> <ul style="list-style-type: none"> • long distance radio receiver (for example, a multiband radio receiver or world band radio receiver, an AM radio receiver), and • cassette player/recorder; <p>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.</p> <p>– a player while connected to an external amplifier that does not allow the user to walk around while in use.</p> <p>For equipment that is clearly designed or intended primarily for use by children, the limits of the relevant toy standards may apply.</p> <p>The relevant requirements are given in EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.</p>		
10.6.1.2	<p>Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz</p> <p>The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz).</p> <p>For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body mounted devices, attention is drawn to EN 50360 and EN 50566.</p>		N/A
10.6.2	Classification of devices without the capacity to estimate sound dose		N/A
10.6.2.1	<p>General</p> <p>This standard is transitioning from short-term based (30 s) requirements to long-term based (40 hour) requirements. These clauses remain in effect only for devices that do not comply with sound dose estimation as stipulated in EN 50332-3.</p> <p>For classifying the acoustic output $L_{Aeq,T}$, measurements are based on the A-weighted</p>	Not such equipment	N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>equivalent sound pressure level over a 30 s period.</p> <p>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, measurements may be done over the duration of the complete song. In this case, T becomes the duration of the song.</p> <p>NOTE Classical music, acoustic music and broadcast 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 content 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 does not exceed the required limit.</p> <p>For example, if the player is set with the programme simulation noise to 85 dB, but the average music level of the song is only 65 dB, 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 dB.</p>		
10.6.2.2	<p>RS1 limits (to be superseded, see 10.6.3.2)</p> <p>RS1 is a class 1 acoustic energy source that does not exceed the following:</p> <ul style="list-style-type: none"> – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 85 dB when playing the fixed “programme simulation noise” described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 27 mV (analogue interface) or -25 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1. – The RS1 limits will be updated for all devices as per 10.6.3.2. 		N/A
10.6.2.3	<p>RS2 limits (to be superseded, see 10.6.3.3)</p> <p>RS2 is a class 2 acoustic energy source that does not exceed the following:</p> <ul style="list-style-type: none"> – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or when the combination of player and 		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	<p>listening device is known by other means such as setting or automatic 130 detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 100 dB(A) when playing the fixed "programme simulation noise" as described in EN 50332-1.</p> <p>– for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 150 mV (analogue interface) or -10 dBFS (digital interface) when playing the fixed "programme simulation noise" as described in EN 50332-1.</p>		
10.6.2.4	<p>RS3 limits</p> <p>RS3 is a class 3 acoustic energy source that exceeds RS2 limits.</p>		N/A
10.6.3	Classification of devices (new)		N/A
10.6.3.1	<p>General</p> <p>Previous limits (10.6.2) created abundant false negative and false positive PMP sound level warnings. New limits, compliant with The Commission Decision of 23 June 2009, are given below.</p>	Not such equipment	N/A
10.6.3.2	<p>RS1 limits (new)</p> <p>RS1 is a class 1 acoustic energy source that does not exceed the following:</p> <p>– for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 80 dB when playing the fixed "programme simulation noise" described in EN 50332-1.</p> <p>– for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 15 mV (analogue interface) or -30 dBFS (digital interface) when playing the fixed "programme simulation noise" described in EN 50332-1.</p>		N/A
10.6.3.3	<p>RS2 limits (new)</p> <p>RS2 is a class 2 acoustic energy source that does not exceed the following:</p> <p>– for equipment provided as a package (player</p>		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the weekly sound exposure level, as described in EN 50332-3, shall be ≤ 80 dB when playing the fixed "programme simulation noise" described in EN 50332-1.</p> <p>– for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output level, integrated over one week, as described in EN50332-3, shall be ≤ 15 mV (analogue interface) or -30 dBFS (digital interface) when playing the fixed "programme simulation noise" described in EN 50332-1.</p>		
10.6.4	Requirements for maximum sound exposure		N/A
10.6.4.1	<p>Measurement methods</p> <p>All volume controls shall be turned to maximum during tests.</p> <p>Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable.</p>	Not such equipment	N/A
10.6.4.2	<p>Protection of persons</p> <p>Except as given below, protection requirements for parts accessible to ordinary persons, instructed persons and skilled persons are given in 4.3.</p> <p>NOTE 1 Volume control is not considered a safeguard.</p> <p>Between RS2 and an ordinary person, the basic safeguard may be replaced by an instructional safeguard in accordance with Clause F.5, except that the instructional safeguard shall be placed on the equipment, or on the packaging, or in the instruction manual.</p> <p>Alternatively, the instructional safeguard may be given through the equipment display during use.</p> <p>The elements of the instructional safeguard shall be as follows:</p> <p>– element 1a: the symbol , IEC 60417-6044 (2011-01)</p> <p>– element 2: "High sound pressure" or equivalent</p>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	<p>wording</p> <ul style="list-style-type: none"> – element 3: “Hearing damage risk” or equivalent wording – element 4: “Do not listen at high volume levels for long periods.” or equivalent wording <p>An equipment safeguard shall prevent exposure of an ordinary person to an RS2 source without intentional physical action from the ordinary person and shall automatically return to an output level not exceeding what is specified for an RS1 source when the power is switched off.</p> <p>The equipment shall provide a means to actively inform the user of the increased sound level when the equipment is operated with an output exceeding RS1. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an output exceeding RS1. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time.</p> <p>NOTE 2 Examples of means include visual or audible signals. Action from the user is always needed.</p> <p>NOTE 3 The 20 h listening time is the accumulative listening time, independent of how often and how long the personal music player has been switched off.</p> <p>A skilled person shall not be unintentionally exposed to RS3.</p>		
10.6.5	Requirements for dose-based systems		N/A
10.6.5.1	<p>General requirements</p> <p>Personal music players shall give the warnings as provided below when tested according to EN 50332-3, using the limits from this clause.</p> <p>The manufacturer may offer optional settings to allow the users to modify when and how they wish to receive the notifications and warnings to promote a better user experience without defeating the safeguards. This allows the users to be informed in a method that best meets their physical capabilities and device usage needs. If such optional settings are offered, an administrator (for example, parental restrictions, business/educational administrators, etc.) shall be able to lock any optional settings into a specific configuration.</p>	Not such equipment	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	<p>The personal music player shall be supplied with easy to understand explanation to the user of the dose management system, the risks involved, and how to use the system safely. The user shall be made aware that other sources may significantly contribute to their sound exposure, for example work, transportation, concerts, clubs, cinema, car races, etc.</p>		
10.6.5.2	<p>Dose-based warning and requirements</p> <p>When a dose of 100 % <i>CSD</i> is reached, and at least at every 100 % further increase of <i>CSD</i>, the device shall warn the user and require an acknowledgement. In case the user does not acknowledge, the output level shall automatically decrease to compliance with class RS1.</p> <p>The warning shall at least clearly indicate that listening above 100 % <i>CSD</i> leads to the risk of hearing damage or loss.</p>		N/A
10.6.5.3	<p>Exposure-based requirements</p> <p>With only dose-based requirements, cause and effect could be far separated in time, defying the purpose of educating users about safe listening practice. In addition to dose-based requirements, a PMP shall therefore also put a limit to the short-term sound level a user can listen at.</p> <p>The exposure-based limiter (EL) shall automatically reduce the sound level not to exceed 100 dB(A) or 150 mV integrated over the past 180 s, based on methodology defined in EN 50332-3.</p> <p>The EL settling time (time from starting level reduction to reaching target output) shall be 10 s or faster.</p> <p>Test of EL functionality is conducted according to EN 50332-3, using the limits from this clause. For equipment provided as a package (player with its listening device), the level integrated over 180 s shall be 100 dB or lower. For equipment provided with a standardized connector, the unweighted level integrated over 180 s shall be no more than 150 mV for an analogue interface and no more than -10 dBFS for a digital interface.</p> <p>NOTE In case the source is known not to be music (or test signal), the EL may be disabled.</p>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10.6.6	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.6.1	Corded listening devices with analogue input With 94 dB L_{Aeq} acoustic pressure output of the listening device, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the input voltage of the listening device when playing the fixed "programme simulation noise" as described in EN 50332-1 shall be ≥ 75 mV. NOTE The values of 94 dB and 75 mV correspond with 85 dB and 27 mV or 100 dB and 150 mV.	Not such equipment	N/A
10.6.6.2	Corded listening devices with digital input With any playing device playing the fixed "programme simulation noise" described in EN 50332-1, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the $L_{Aeq,T}$ acoustic output of the listening device shall be ≤ 100 dB with an input signal of -10 dBFS.		N/A
10.6.6.3	Cordless listening devices In cordless mode, – with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and – respecting the cordless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and – with volume and sound settings in the receiving device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the above mentioned programme simulation noise, the $L_{Aeq,T}$ acoustic output of the listening device shall be ≤ 100 dB with an input signal of -10 dBFS.		N/A
10.6.6.4	Measurement method <i>Measurements shall be made in accordance with EN 50332-2 as applicable.</i>		N/A

IEC62368_1E - ATTACHMENT						
Clause	Requirement + Test			Result - Remark		Verdict
3	Modification to the whole document					P
	Delete all the “country” notes in the reference document according to the following list:					P
	0.2.1	Note 1 and 2	1	Note 4 and 5	3.3.8.1	Note 2
	3.3.8.3	Note 1	4.1.15	Note	4.7.3	Note 1 and 2
	5.2.2.2	Note	5.4.2.3.2.2 Table 12	Note c	5.4.2.3.2.4	Note 1 and 3
	5.4.2.3.2.4 Table 13	Note 2	5.4.2.5	Note 2	5.4.5.1	Note
	5.4.10.2.1	Note	5.4.10.2.2	Note	5.4.10.2.3	Note
	5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3 and 4
	5.6.8	Note 2	5.7.6	Note	5.7.7.1	Note 1 and Note 2
	8.5.4.2.3	Note	10.2.1 Table 39	Note 3 and 4 and 5	10.5.3	Note 2
	10.6.1	Note 3	F.3.3.6	Note 3	Y.4.1	Note
	Y.4.5	Note				
4	Modification to Clause 1					P
1	Add the following note:					P
	NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.					

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5	Modification to 4.Z1		P
4.Z1	<p>Add the following new subclause after 4.9:</p> <p>To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. 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):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for pluggable equipment type B or permanently connected equipment, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for pluggable equipment type A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>	<p>Considered.</p> <p>Complied with item a) for internal fuse used and for parts as described in b) reliance on the protection in the building installation.</p>	P
6	Modification to 5.4.2.3.2.4		N/A
5.4.2.3.2.4	<p>Add the following to the end of this subclause:</p> <p>The requirement for interconnection with external circuit is in addition given in EN 50491-3:2009.</p>	No connection to external circuit.	N/A
7	Modification to 10.2.1		N/A
10.2.1	<p>Add the following to ^{c)} and ^{d)} in table 39:</p> <p>For additional requirements, see 10.5.1.</p>	No such radiation from the equipment.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8	Modification to 10.5.1		N/A
10.5.1	<p>Add the following after the first paragraph:</p> <p>For RS 1 compliance is checked by measurement under the following conditions:</p> <p>In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or pre-sets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.</p> <p>NOTE Z1 Soldered joints and paint lockings are examples of adequate locking.</p> <p>The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus.</p> <p>Moreover, the measurement shall be made under fault conditions causing an increase of the high voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.</p> <p>For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.</p> <p>NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.</p>		N/A
9	Modification to G.7.1		P
G.7.1	<p>Add the following note:</p> <p>NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.</p>	Approved mains cord used (see appended table 4.1.2)	P

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Clause	Requirement + Test	Result - Remark	Verdict
10	Modification to Bibliography		P
	<p>Add the following notes for the standards indicated:</p> <p>IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4. IEC 60664-5 NOTE Harmonized as EN 60664-5. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1 NOTE Harmonized as EN 61508-1. IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6. IEC 61643-1 NOTE Harmonized as EN 61643-1. IEC 61643-21 NOTE Harmonized as EN 61643-21. IEC 61643-311 NOTE Harmonized as EN 61643-311. IEC 61643-321 NOTE Harmonized as EN 61643-321. IEC 61643-331 NOTE Harmonized as EN 61643-331.</p>		P
11	ADDITION OF ANNEXES		--
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		P
4.1.15	<p>Denmark, Finland, Norway and Sweden</p> <p>To the end of the subclause the following is added:</p> <p>Class I pluggable equipment type A intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment shall be connected to an earthed mains socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In Denmark: "Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord." In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In Norway: "Apparatet må tilkoples jordet stikkontakt" In Sweden: "Apparaten skall anslutas till jordat uttag"</p>	Should be evaluated during national approval	—

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Clause	Requirement + Test	Result - Remark	Verdict
4.7.3	<p>United Kingdom</p> <p>To the end of the subclause the following is added:</p> <p>The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex</p>	Use certified plug (see appended table 4.1.2)	P
5.2.2.2	<p>Denmark</p> <p>After the 2nd paragraph add the following:</p> <p>A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.</p>	No high touch current measured.	N/A
5.4.11.1 and Annex G	<p>Finland and Sweden</p> <p>To the end of the subclause the following is added:</p> <p>For separation of the telecommunication network from earth the following is applicable:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> • 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. <p>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 accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), <p>and</p>	No such external circuits.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	<ul style="list-style-type: none"> is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5 kV. <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11; the additional testing shall be performed on all the test specimens as described in EN 60384-14; <p>the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.</p>		
5.5.2.1	<p>Norway</p> <p>After the 3rd paragraph the following is added:</p> <p>Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).</p>	X-capacitors, Y-capacitors rated min. 250V.	N/A
5.5.6	<p>Finland, Norway and Sweden</p> <p>To the end of the subclause the following is added:</p> <p>Resistors used as basic safeguard or bridging basic insulation in class I pluggable equipment type A shall comply with G.10.1 and the test of G.10.2.</p>	No such resistors.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.6.1	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. <i>Justification:</i> In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N/A
5.6.4.2.1	Ireland and United Kingdom After the indent for pluggable equipment type A , the following is added: – the protective current rating is taken to be 13 A, this being the largest rating of fuse used in the mains plug.	Use certified plug (see appended table 4.1.2)	P
5.6.4.2.1	France After the indent for pluggable equipment type A , the following is added: – in certain cases, the protective current rating of the circuit supplied from the mains is taken as 20 A instead of 16 A.		N/A
5.6.5.1	To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm ² to 1,5 mm ² in cross-sectional area.	Use certified plug (see appended table 4.1.2)	P
5.6.8	Norway To the end of the subclause the following is added: Equipment connected with an earthed mains plug is classified as class I equipment . See the Norway marking requirement in 4.1.15. The symbol IEC 60417-6092, as specified in F.3.6.2, is accepted.		N/A
5.7.6	Denmark To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the protective conductor current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.2	<p>Denmark</p> <p>To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .</p>		N/A
5.7.7.1	<p>Norway and Sweden</p> <p>To the end of the subclause the following is added: The screen of the television 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 needs to be isolated from the screen of a cable distribution system.</p> <p>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example.</p> <p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in:</p> <p>“Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)”</p> <p>NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>“Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV</p>	Not such system.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	<p>nett, kan förårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.”</p> <p>Translation to Swedish: ”Apparater 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 apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”.</p>		
8.5.4.2.3	<p>United Kingdom</p> <p>Add the following after the 2nd dash bullet in 3rd paragraph:</p> <p>An emergency stop system complying with the requirements of IEC 60204-1 and ISO 13850 is required where there is a risk of personal injury.</p>	No external circuits.	N/A
B.3.1 and B.4	<p>Ireland and United Kingdom</p> <p>The following is applicable:</p> <p>To protect against excessive currents and short-circuits in the primary circuit of direct plug-in equipment, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the direct plug-in equipment, until the requirements of Annexes B.3.1 and B.4 are met</p>	Not direct plug-in equipment	N/A
G.4.2	<p>Denmark</p> <p>To the end of the subclause the following is added:</p> <p>Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules</p>	Not exceed 13A	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	<p>shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a polyphase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.</p> <p>Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a.</p> <p>Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.</p> <p>Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a</p> <p><i>Justification:</i> Heavy Current Regulations, Section 6c</p>		
G.4.2	<p>United Kingdom</p> <p>To the end of the subclause the following is added:</p> <p>The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.</p>	Not direct plug-in equipment	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.7.1	<p>United Kingdom</p> <p>To the first paragraph the following is added:</p> <p>Equipment 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 shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc. (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations.</p> <p>NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>	Approved mains cord used (see appended table 4.1.2)	P
G.7.1	<p>Ireland</p> <p>To the first paragraph the following is added:</p> <p>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. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard</p>	Should be evaluated during national approval	—
G.7.2	<p>Ireland and United Kingdom</p> <p>To the first paragraph the following is added:</p> <p>A power supply cord with a conductor of 1,25 mm² is allowed for equipment which is rated over 10 A and up to and including 13 A.</p>	Should be evaluated during national approval	—

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Clause	Requirement + Test	Result - Remark	Verdict
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		N/A
10.5.2	<p>Germany</p> <p>The following requirement applies:</p> <p>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.</p> <p><i>Justification:</i></p> <p>German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM.</p> <p>NOTE Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int+49-531-592-6320, Internet: http://www.ptb.de</p>	No CRT within the equipment.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

ZD	IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS (EN)		P					
	<table><tr><th rowspan="2">Type of flexible cord</th><th colspan="2">Code designations</th></tr><tr><th>IEC</th><th>CENELEC</th></tr></table>		Type of flexible cord	Code designations		IEC	CENELEC	P
	Type of flexible cord	Code designations						
		IEC	CENELEC					
	PVC insulated cords							
	Flat twin tinsel cord	60227 IEC 41	H03VH-Y					
	Light polyvinyl chloride sheathed flexible cord	60227 IEC 52	H03VV-F H03VVH2-F					
	Ordinary polyvinyl chloride sheathed flexible cord	60227 IEC 53	H05VV-F H05VVH2-F					
	Rubber insulated cords							
	Braided cord	60245 IEC 51	H03RT-F					
	Ordinary tough rubber sheathed flexible cord	60245 IEC 53	H05RR-F					
	Ordinary polychloroprene sheathed flexible cord	60245 IEC 57	H05RN-F					
	Heavy polychloroprene sheathed flexible cord	60245 IEC 66	H07RN-F					
	Cords having high flexibility							
	Rubber insulated and sheathed cord	60245 IEC 86	H03RR-H					
	Rubber insulated, crosslinked PVC sheathed cord	60245 IEC 87	H03RV4-H					
	Crosslinked PVC insulated and sheathed cord	60245 IEC 88	H03V4V4-H					
	Cords insulated and sheathed with halogen-free thermoplastic compounds							
	Light halogen-free thermoplastic insulated and sheathed flexible cords		H03Z1Z1-F H03Z1Z1H2-F					
Ordinary halogen-free thermoplastic insulated and sheathed flexible cords		H05Z1Z1-F H05Z1Z1H2-F						

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Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1 U.S.A. AND CANADA NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment – Part 1: Safety requirements)			
Differences according to: CSA/UL 62368-1:2019			
TRF template used:: IECEE OD-2020-F3, Ed. 1.1			
Attachment Form No.: US_CA_ND_IEC62368_1E			
Attachment Originator: UL(US)			
Master Attachment: Dated 2022-03-04			
Copyright © 2022 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.			
IEC 62368-1 - US and Canadian National Differences Special National Conditions based on Regulations and Other National Differences			
1 (1DV.1) (1.3)	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part 1, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, for such equipment marked or otherwise identified, installation is allowed per the Standard for the Protection of Information Technology Equipment, ANSI/NFPA 75.	Must be considered when marketing in U.S.A.	—
1 (1DV.2.1)	This standard includes additional requirements for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities. See Annex DVB.		N/A
1 (1DV.2.2)	This standard includes additional requirements for equipment intended for mounting under cabinets. See Annex DVC.		N/A
1 (1DV.2.3)	IEC 62368-3 clause 5 for DC power transfer at ES1 or ES2 voltage levels is considered informative. IEC 62368-3 clause 6 for remote power feeding telecommunication (RFT) circuits is considered normative (see ITU K.50). Alternatively, equipment with RFT circuits are given in either UL 2391 or CSA/UL 60950-21. RFT-C circuits are not permitted unless the RFT-C circuit complies with RFT-V limits ($\leq 200V$ per conductor to earth).		N/A
1 (1DV.3)	For protection against direct lightning strikes, reference is made to NFPA 780 and CAN/CSA-B72 for additional requirements.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
1 (DV.5)	Additional requirements apply to some forms of power distribution equipment, including sub-assemblies.		N/A
4.1 (4.1.17)	<i>For lengths exceeding 3.05 m, external interconnecting cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the NEC.</i>		N/A
	<i>For lengths 3.05 m or less, external interconnecting cable assemblies that are not types specified in the NEC generally are required to have special construction features and identification markings.</i>		N/A
4.6 (4.6.2)	Wire-wrap terminals have special construction and performance requirements.		N/A
4.8 (4.8.3, 4.8.4.5, 4.8.5)	Coin / button cell batteries have modified special construction and performance requirements.		N/A
5.4.2.3.2 (5.4.2.3.2.1)	<i>Surge Arrestors and Transient Voltage Surge Suppressors installed external to the equipment are required to comply with the appropriate NEC and CEC requirements.</i>		N/A
5.5.9	Receptacles, rated 125-V, single phase, 15- or 20-A accessible to either ordinary, instructed, or skilled persons are required to be provided with GFCI Protection for Personnel if the equipment containing the receptacles is installed outdoors. The protection devices are required to comply with UL 943, and CAN/CSA C22.2 No.144.		N/A
5.6.3	Protective earthing conductors comply with the minimum conductor sizes in Table G.7, except as required by Table G.7ADV.1 for cord connected equipment, or Annex DVH for permanently connected equipment.		P
5.7.8 (5.7.8.1)	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.		N/A
6.5.1	PS3 wiring outside a fire enclosure is required to comply with single fault testing in B.4, or be current limited per one of the permitted methods.	No PS3 wiring outside a fire enclosure	N/A
Annex F (F.3.3.9)	Output terminals provided for supply of other equipment, except mains supply, are required to be marked with a maximum rating or reference to equipment permitted to be connected.		P
Annex F (F.3.7)	Outdoor Enclosures are required to be classified and marked in accordance with UL 50 or 50E, or CAN/CSA C22.2 No. 94.1 or 94.2.		N/A
Annex G (G.7)	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.	Not permanent connection.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.		N/A
	Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.		N/A
	Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Power supply cords are required to be no longer than 4.5 m in length if used in ITE Rooms.	Must be considered when marketing in U.S.A.	—
	Power supply cords for outdoor equipment are required to be suitable outdoor use type as required by Section 400.4 of the NEC and Rule 4-012 of the CEC, i.e., marked "W."	Not outdoor equipment.	N/A
Annex H.2	Continuous ringing signals under normal operating conditions up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.		N/A
Annex H.4	For circuits with other than ringing signals and with voltages exceeding 42.4 V _{peak} or 60 V _{d.c.} , the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.		N/A
Annex Q (Q.3)	Equipment with paired conductor and/or coax communications cables/wiring connected to building wiring are required to have special voltage, current, power and marking requirements.		N/A
Annex DVA (1)	Equipment that is designed such that it may be powered from a separate electrical service, is required to meet applicable requirements for service equipment for control and protection of services and their installation and complies with Article 230 of the National Electrical Code (NEC), NFPA 70 and Section 6 of the Canadian Electrical Code, Part I, CSA C22.1.		P
	Equipment intended for use in spaces used for environmental air (plenums) are subjected to special flammability requirements for heat and visible smoke release.		N/A
	For ITE room applications, automated information storage systems with combustible media greater than 0.76 m ³ (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Consumer products designed or intended primarily for children 12 years of age or younger are subject to additional requirements in accordance with U.S. and Canadian Regulations.		N/A
	Baby monitors are required to additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.		N/A
	Storage batteries and battery management equipment, other than associated with lead-acid batteries, and including battery backup systems that are not an integral part of stationary AV and ICT equipment, such as provided in separate cabinets, are required to be certified (listed) to the appropriate standard(s) for such storage batteries and equipment.		N/A
Annex DVA (5.6)	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.		P
Annex DVA (6.3)	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.		N/A
Annex DVA (6.4.8)	For ITE room applications, enclosures with combustible material measuring greater than 0.9 m ² (10 sq ft) or a single dimension greater than 1.8 m (6 ft) are required to have a flame spread rating of 50 or less. For equipment with the same dimensions for other applications, an external surface that is not a fire enclosure requires a minimum flammability classification of V-1.		N/A
Annex DVA (10.3)	Equipment with lasers is required to meet the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
Annex DVA (10.5)	Equipment that produces ionizing radiation is required to comply with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
Annex DVA (F.3.3.4)	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. Additional considerations apply for voltage ratings that exceed the attachment cap rating or that are lower than the "Normal Operating Condition" in Table 2 of CAN/CSA C22.2 No. 235."	One phase.	N/A
Annex DVA (F.3.3.6)	Equipment identified for ITE (computer) room installation is required to be marked with the rated current.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (G.1)	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position, where mounted in an enclosure, vertically mounted disconnect switches and circuit breakers with vertical operating means extending outside the enclosure are required to indicate in a location visible when accessing the external operating means whether the switch or circuit breaker is in the open (off) or closed (on) position.		N/A
Annex DVA (G.3.4)	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.	No standard outlet.	N/A
	Where a fuse is used to provide Class 2 or Class 3 current limiting, it is not operator-accessible unless it is non- interchangeable.		N/A
Annex DVA (G.4.2)	Equipment with isolated ground (earthing) receptacles is required to comply with NEC 250.146(D) and CEC 10-400 and 10-612.	No isolated ground.	N/A
Annex DVA (G.4.3)	Interconnection of units by conductors supplied by a limited power source, or a Class 2 circuit defined in the NEC/CEC may have field wiring connections other than specified in DVH.3, such as wire-wrap and crimp-on types, if the limited power source and Class 2 circuits are separated from all other circuits by barriers, routing or fixing.		N/A
Annex DVA (G.5.3)	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.		N/A
Annex DVA (G.5.4)	Motor control devices are required for cord-connected equipment with a mains-connected motor if the equipment is rated more than 12 A, or if the equipment has a nominal voltage rating greater than 120 V, or if the motor is rated more than 1/3 hp (locked rotor current over 43 A).		N/A
Annex DVA (G.7)	Flexible cords used outdoors are required to have the suffix "W" marked on the flexible cord.		N/A
Annex DVA (M)	For ITE room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the ITE room remote power-off circuit.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (Q)	If applicable per NEC 725.121(C), some limited power sources supplied from AV/ICT equipment are required to have a label indicating the maximum voltage and rated current output for per conductor for each connection point. Where multiple connection points have the same rating, a single label is permitted to be used.		N/A
	Wiring terminals intended to supply Class 2 outputs in accordance with the NEC or CEC Part 1 are required to be marked with the voltage rating and "Class 2" or equivalent. The marking is located adjacent to the terminals and visible during wiring.		N/A
	Applicable parts of Chapter 8 of the NEC, and Rules 54 and 60 of the CEC, may be applicable to ITE installed outdoors with connections to communication systems.		N/A
Annex DVB (1)	Additional requirements apply for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities.		N/A
Annex DVC (1)	Additional requirements apply for equipment intended for mounting under kitchen cabinets.		N/A
Annex DVE (4.1.1)	Some equipment, components, sub-assemblies and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. These equipment and components include: appliance couplers, attachment plugs, battery backup systems, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultracapacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), ground-fault current interrupters, interconnecting cables, modular data centres, power supply cords, some power distribution equipment, printed wiring, protectors for communications circuits, receptacles, surge protective devices, vehicle battery adapters, wire connectors, and wire and cables.	Critical components are IEC or UL certified. See list of critical components in main CB report (See table 4.1.2).	P
Annex DVH	Equipment for permanent connection to the mains supply is subjected to additional requirements.		N/A
Annex DVH (DVH.1)	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains are required to be in accordance with the NEC/CEC.	Mains plug used	P

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Clause	Requirement + Test	Result - Remark	Verdict
Annex DVH (DVH.2.1)	For safe and reliable connection to a mains, permanently connected equipment is to be provided.		N/A
Annex DVH (DVH.2.2)	Additional considerations for D.C. mains.		N/A
Annex DVH (DVH.3.2.1)	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified.		N/A
Annex DVH (DVH.3.2.3)	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).		N/A
Annex DVH (DVH.3.2.4)	All associated mains supply terminals are located in proximity to each other and to the main protective earthing terminal, if any.		P
Annex DVH (DVH.3.2.5)	Terminals are located, guarded or insulated so that, should a strand of a conductor escape when the conductor is fitted, there is no likelihood of accidental contact between such a strand and accessible conductive parts or unearthed conductive parts separated from accessible conductive parts by supplementary insulation only.		N/A
Annex DVH (DVH.3.3)	When field connection to an external circuit is via wires (example, free conductors), the wires are not smaller than 18 AWG (0.82 mm ²) and the free length of the wire inside an outlet box or wiring compartment is 150 mm or more.		N/A
Annex DVH (DVH.3.4)	Size of protective earthing conductors and terminals	(See sub-clause 5.6.5)	P
Annex DVH (DVH.4)	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.	Not permanently connected equipment.	N/A
Annex DVH (DVH.4.1)	Wire bending space		N/A
Annex DVH (DVH.4.2)	Volume of wiring compartment		N/A
Annex DVH (DVH.4.3)	Separation of circuits		N/A
Annex DVH (DVH.5)	Equipment markings and instructional safeguards		P
Annex DVH (DVH.5.1)	Identification of protective earthing terminal		P
Annex DVH (DVH.5.2)	Identification of terminal for earthed conductor (neutral)		N/A
Annex DVH (DVH.5.3)	Identification of terminals for aluminium conductors		N/A
Annex DVH (DVH.5.4)	Wire temperature ratings		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Annex DVH (DVH 5.5)	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation instruction requirements.	Not for connection to a DC mains supply.	N/A
Annex DVI (6.7)	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses.	No telephone ringing signal.	N/A
Annex DVJ (10.6.1)	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1 (AUSTRALIA / NEW ZEALAND) NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment)			
Differences according to: AS/NZS 62368.1:2022			
TRF template used:: IEC EE OD-2020-F3, Ed. 1.1			
Attachment Form No.: AU_NZ_ND_IEC62368_1E			
Attachment Originator: JAS-ANZ			
Master Attachment: 2022-07-01			
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	National Differences		--
Appendix ZZ	Variations to IEC 62368-1:2018 (ED. 3.0) for Australia and New Zealand		P
ZZ1 Scope	This Appendix lists the normative variations to IEC 62368-1:2018 (ED. 3.0)		P
ZZ2 Variations	The following modifications are required for Australian/New Zealand conditions:		N/A
2	<p>After the first paragraph, <i>add</i> the following:</p> <p>The Australian or Australian/New Zealand Standards listed below are modified adoptions of, or not equivalent to, the IEC normative references and are required for the application of this Standard. All references in the source text to those IEC normative references shall be replaced by references to the corresponding Australian or Australian/New Zealand Standards. Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably</p> <p>-AS/NZS 3112, <i>Approval and test specification—Plugs and socket-outlets</i></p> <p>-AS/NZS 3123, <i>Approval and test specification—Plugs, socket-outlets and couplers for general industrial application</i></p> <p>-AS/NZS 3191, <i>Electric flexible cords</i></p> <p>-AS/NZS 60884.1, <i>Plugs and socket-outlets for household and similar purposes, Part 1: General requirements</i></p> <p>-IEC 60086-2 <i>Primary batteries — Part 2: Physical and electrical specifications</i></p> <p>-AS/NZS 60065, <i>Audio, video and similar electronic apparatus—Safety requirements (IEC 60065:2015 (ED.8.0) MOD)</i></p> <p>-AS/NZS 60320.1, <i>Appliance couplers for</i></p>	Not intended to plug directly into a wall socket-outlet.	N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p><i>household and similar general purposes, Part 1: General requirements (IEC 60320-1, Ed.2.1 (2007) MOD)</i></p> <p><i>-AS/NZS 60320.2.2, Appliance couplers for household and similar general purposes Part 2.2: Interconnection couplers for household and similar equipment (IEC 60320-2- 2, Ed.2.0 (1998) MOD)</i></p> <p><i>-AS/NZS 60695.2.11, Fire hazard testing, Part 2.11: Glowing/hot wire based test methods— Glow-wire flammability test method for end- products</i></p> <p><i>-AS/NZS 60695.11.5, Fire hazard testing, Part 11.5: Test flames—Needle-flame test method— Apparatus, confirmatory test arrangement and guidance</i></p> <p><i>-AS/NZS 60695.11.10, Fire hazard testing, Part 11.10: Test flames—50 W horizontal and vertical flame test methods</i></p> <p><i>-AS/NZS 60884.1, Plugs and socket-outlets for household and similar purposes, Part 1: General requirements</i></p> <p><i>-AS/NZS 60950.1, Information technology equipment—Safety, Part 1: General requirements (IEC 60950-1, Ed.2.2 (2013), MOD)</i></p> <p><i>IEC 61032:1997, Protection of persons and equipment by enclosures—Probes for verification</i></p> <p><i>-AS/NZS 61558.1, Safety of Power Transformers, Power Supplies, Reactors and Similar Products, Part 1: General requirements and tests (IEC 61558-1 Ed 3, MOD)</i></p> <p><i>-AS/NZS 61558.2.16, Safety of transformers, reactors, power supply units and similar products for voltages up to 1 100 V, Part 2.16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units.</i></p>		

IEC62368_1E - ATTACHMENT				
Clause	Requirement + Test		Result - Remark	Verdict
4.7.2	Requirements <i>Delete</i> the text of the second paragraph and <i>replace</i> with the following: Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet conforming to AS/NZS 3112, shall conform to the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets. Conformity is checked by inspection and, if necessary, by the tests in AS/NZS 3112. NOTE: Equipment with plug portions for use in countries other than Australia and New Zealand will need to conform to other countries' requirements Note Additional AS/NZS 3112 Appendix J,TRF is appended to end of this TRF.			N/A
4.7.3	Compliance Criteria <i>Delete</i> this clause			N/A
4.8.1	General After second list, <i>add</i> the following: NOTE: Refer to the Consumer Goods (Products Containing Button/Coin Batteries) Safety Standard 2020 and Consumer Goods (Products Containing Button/Coin Batteries) Information Standard 2020 for more information on button cell batteries in Australia.			P
5.4.10.2.1	General <i>Delete</i> the first paragraph and <i>replace</i> with the following: In Australia, the separation is checked by the test given in both Clause 5.4.10.2.2 and Clause 5.4.10.2.3. In New Zealand, the separation is checked by the test given in either 5.4.10.2.2 or 5.4.10.2.3.			N/A
Table 28	<i>Delete</i> Table 28 and <i>replace</i> with the following:			N/A
Parts	Impulse test		Steady state test	
	New Zealand	Australia	New Zealand	Australia
Parts indicated in Clause 5.4.10.1 a) ^a	2.5 kV	7.0 kV for hand-held telephones and headsets, 2.5 kV for other equipment.	1.5 kV	3 kV
Parts indicated in Clause 5.4.10.1 b) and c) ^b	1.5 kV ^c		1.0 kV	1.5 kV
^a Surge suppressors shall not be removed. ^b Surge suppressors may be removed, provided that such devices pass the impulse test of Clause 5.4.10.2.2 when tested as components outside the equipment. ^c During this test, it is allowed for a surge suppressor to operate and for a sparkover to occur in a GDT.				

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.10.2.2	<i>Delete</i> "NOTE" and <i>replace</i> with "NOTE 1". After NOTE 1, <i>add</i> the following: NOTE 2: For Australia, the 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines. NOTE 3: For Australia, the value of 2.5 kV for Clause 5.4.10.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.		N/A
5.4.10.2.3	<i>Delete</i> "NOTE" and <i>replace</i> with "NOTE 1". After NOTE 1, <i>add</i> the following: NOTE 2: For Australia, where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used. NOTE 3: The 3 kV and 1.5 kV values for Australia have been determined considering the low frequency induced voltages from the power supply distribution system.		N/A
6	Electrically-caused fire		P
6.6	After Clause 6.6, <i>add</i> the new Clauses 6.201 as follows: 6.201 External power supplies, docking stations and other similar devices (see special national conditions)		P
8.6	Stability of equipment		N/A
Table 36	Footnote ^a , after first sentence, <i>add</i> the following: Equipment having displays with moving images shall include "television sets and display devices".		N/A
8.6.1	After Clause 8.6.1 <i>add</i> the following new clauses: 8.6.201 Restraining Device fixing point (see special national conditions) 8.6.202 Restraining device (see special national conditions)		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex F Paragraph F.3.3.4	Rated Voltage Delete "NOTE" and <i>replace</i> with NOTE1" After NOTE 1, <i>add</i> the following Equipment that is intended for connection to the supply mains in Australia and New Zealand shall be marked with: (a) A rated voltage of: <ul style="list-style-type: none"> • 230 V for single phase equipment • 400 V for poly phase equipment Or (b) A rated voltage range that includes: <ul style="list-style-type: none"> • 230 V for single phase equipment • 400 V for poly phase equipment NOTE 2: equipment that is not rated as above is not suitable for direct connection to the supply mains in Australia or new Zealand.		P
Annex F.3.3.5	After the list, <i>add</i> the following Equipment that is intended for connection to supply mains in Australia or New Zealand shall be marked with a rated frequency of 50 Hz or a rated frequency range or nominal value which includes 50Hz		P
Annex F.3.8	After "The DC output of an external power supply", insert "or docking stations and other similar external devices"		N/A
Annex G Paragraph G.4.2	Mains connectors 1 After "IEC 60320", insert "or AS/NZS 60320 series". 2 After "IEC 60906-1", insert "or AS/NZS 3123" 3 <i>After</i> first paragraph <i>add</i> the following: 10 A or 15 A 250 V flat pin plugs for the connection of equipment to mains-powered socket-outlets for household or similar general use shall comply with AS/NZS 3112 or AS/NZS 60884.1.	Should be evaluated during national approval	—
Paragraph G.5.3.1	Transformers, General 1 Third dashed point <i>replace</i> 'IEC 61558-1 and the relevant parts of IEC 61558-2' with 'AS/NZS 61558-1 and the relevant parts of AS/NZS 61558.2' 2 Fourth dashed point <i>replace</i> 'IEC 61558-2-16' with 'AS/NZS 61558.2.16'.		N/A
Annex G.7.1	Mains supply cords, General Fourth dashed paragraph, <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'	Should be evaluated during national approval	—

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Table G.7	Sizes of conductors 1 First column, second row, <i>delete</i> "6" and <i>replace</i> with "7.5" 2 Second column, second row, <i>delete</i> '0,75' and <i>replace</i> with '0.75 ^b 3 <i>Delete</i> NOTE 1. 4 <i>Replace</i> 'NOTE 2' with 'NOTE:'. 5 <i>Delete</i> 'Footnote b' and <i>replace</i> with the following: ^b This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug does not exceed 2 m (0.5 mm ² three-core supply flexible cords are not permitted; see AS/NZS 3191). 6 Footnote c <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1' 7 Footnote d <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'		N/A
Annex M M 2.1	Add "IEC 60086-2" to the list		—
Annex M Paragraph M.3.2	Test method Delete "NOTE" and replace with "NOTE 1" After NOTE 1 <i>add</i> the following: NOTE 2: In cases where the voltage source is provided by power from an unassociated power source, consideration should be given to the effects of possible single fault conditions in the unassociated equipment. If the power source is unknown then it should be assumed that the maximum limit of ES1 may be applied to the source input under assumed single fault conditions in the source when assessing the charging circuit in the equipment under test.		N/A
	Special national conditions (if any)		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
6.201	<p>External power supplies, docking stations and other similar devices</p> <p>For external power supplies, docking stations and other similar devices, during and after abnormal operating conditions and during single fault conditions the output voltage—</p> <p>(a) at all ES1 outlets or connectors shall not increase by more than 10 % of the output rated voltage under normal operating conditions, measured after 3 s of introducing a single fault condition and after 3 s of introducing abnormal operating conditions; and</p> <p>(b) of a USB outlet or connector shall not increase by more than 3 V or 10 % of the output rated voltage under normal operating conditions, whichever is higher, measured after 3 seconds of introducing a single fault condition and after 3 s of introducing abnormal operating conditions</p> <p>For equipment with multiple rated voltages at the output, the requirements apply with the equipment configured for each output rated voltage in turn</p> <p>NOTE: This is intended to reduce the possibility of battery fire or explosion in attached equipment or accessories when charging secondary lithium batteries. The 3 s measurement delay is based on IEC document 108/742/INF, <i>TC 108, Standards Interpretation Panel Question 15 — Output voltage</i>, in relation to similar requirements in IEC 62368-3:2017.</p> <p>Conformity shall be checked by measurement, taking into account the abnormal operating conditions of Annex B.3 and the simulated single fault conditions of Annex B.4.</p>	<p>Normal operating conditions: HDBT OUT output: 47.85VDC;</p> <p>Abnormal operating conditions: HDBT OUT output: 47.85VDC max.</p> <p>Single fault conditions: HDBT OUT output: 47.64VDC max.</p>	P

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Clause	Requirement + Test	Result - Remark	Verdict
8.6.201	<p>Restraining device fixing point Freestanding-capable MS2 and MS3 television sets and display devices shall be provided with a fixing point to facilitate the anchoring of the equipment from toppling</p> <p>The fixing point shall conform to Clause 8.7 where the fixing point uses a wall, ceiling or other structure mount. Alternatively, the fixing point shall be capable of withstanding a pull equal to the mass of the equipment in all directions without damage</p> <p>Instructions for installation or instructions for use shall be provided to specify correct use of the fixing point</p>		N/A
8.6.202	<p>Restraining device MS2 and MS3 television sets and display devices shall be provided with a restraining device and associated hardware to attach to the television set or display device.</p> <p>The restraining device shall be capable of withstanding a pull equal to the mass of the equipment in all directions.</p> <p>Instructions for installation or instructions for use shall be provided to specify correct use of the fixing point.</p>		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1:2018 JAPAN NATIONAL DIFFERENCES Audio/video, information and communication technology equipment – Part 1: Safety requirements			
Differences according to: J62368-1(2023)			
TRF template used:: IEC EE OD-2020-F3:2022, Ed. 1.2			
Attachment Form No.: JP_ND_IEC62368_1E			
Attachment Originator: UL Solutions (JP)			
Master Attachment: Dated 2023-05-12			
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	National Differences		—
4.1.2	Where the component, or a characteristic of a component, is a safeguard or a part of a safeguard, components shall comply with the requirements of this document or, where specified in a requirements clause, with the safety aspects of the relevant JIS component standards or IEC component standards, or components shall have properties equivalent to or better than these.		P
5.6.1	Mains socket-outlet and interconnection coupler shall comply with Clause G.4.2A if they are incorporated as part of the equipment.	Not used.	N/A
5.6.2.1	Connection for protective conductor of class 0I equipment provided with instructional safeguard in accordance with Clause F.3.6.1A is considered to make earlier and break later than supply connection. Mains plug having a lead wire for protective earthing connection of class 0I equipment shall comply with all of the following: – Not to be used for equipment having a rated voltage of 150 V or more – Clip is not used for the earthing connection of the lead wire. – The lead wire for earthing is at least 10 cm long If class 0I equipment provides an independent main protective earthing terminal and is intended to be installed by ordinary person, earthing wire shall be provided in the package of the equipment.	No applicable.	N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.6.2.2	Internal earthing conductor of the cord set that is covered by the sheath of mains cord and is formed together with mains plug and appliance connector need not be green-and-yellow.	Must be considered when marketing in Japan.	—
5.6.3	In case of class 0I equipment using power supply cord having two conductors (no earthing conductor), the conductor of protective earthing lead wire shall comply with either of the following: – use of annealed copper wire with 1.6 mm diameter or corrosion-inhibiting metal wire having size and strength that are equivalent to or more than the above copper wire – single core cord or single core cable with 1.25 mm ² or more cross-sectional area	No applicable.	N/A
5.7.3	For class 0I equipment that is provided with mains socket-outlet in the configuration as specified in JIS C 8282 series, JIS C 8300 or JIS C 8303, or that is provided with mains appliance outlet as specified in JIS C 8283 series for the purpose of interconnection, the measurement is conducted on the system of the interconnected equipment having a single connection to the mains.	No applicable.	N/A
5.7.5	In case of class 0I equipment, touch current shall not exceed 1.41 mA peak or for sinusoidal wave, 1.0 mA r.m.s. when measured using the network specified in Figure 4 of IEC 60990:2016.	No applicable.	N/A
6.4.3.2	A fuse complying with JIS C 6575 series or a fuse having equivalent characteristics shall open within 1 s. A fuse having time/current characteristics other than those specified in IEC 60127 shall be tested with the characteristics taken into account. In case of Class A fuse of JIS C 6575, replace “2.1 times” by “1.35 times” and in case of Class B fuse of JIS C 6575, replace “2.1 times” by “1.6 times”.	Must be considered when marketing in Japan.	—
8.5.4.3.1	Only three-phase stationary equipment rated more than AC 200 V can be considered as being for use in locations where children are not likely to be present, when complying with Clause F.4.	No applicable.	N/A
8.5.4.3.2	For equipment installed where children may be present, an instructional safeguard shall be provided by easily understandable wording in accordance with Clause F.5, except that element 3 is optional.	Considered.	P

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
8.5.4.3.4	The media destruction device is tested according to Clause V.1.2 with applicable jointed test probes to the opening. And then the wedge probe per Figure V.4 shall not contact any moving part.	No applicable.	N/A
8.5.4.3.5	The wedge probe of Figure V.4 and applicable jointed test probes specified in Clause V.1.2 shall not contact any moving part. Instructional safeguard shall not be used instead of equipment safeguard for preventing access to hazardous moving parts.	No applicable.	N/A
F.3.5.1	When the mains socket-outlet is configured in accordance with JIS C 8282 series, JIS C 8300 or JIS C 8303, the assigned current or power shall be marked. If the voltage of the socket-outlet is the same as the mains voltage, the voltage need not be marked. Instructional safeguard of Class 0I equipment shall be provided with an instructional safeguard in accordance with Clause F.5 when a mains socket-outlet as specified in JIS C 8282 series, JIS C 8300 or JIS C 8303 to which class I equipment can be connected is provided in accordance with Clause G.4.2A except for the cases where the socket-outlet is accessible only to skilled persons.	No applicable.	N/A
F.3.5.3	If the fuse is necessary for the safeguard function, the symbols indicating pre-arcing time-current characteristic shall be included.	Considered.	P
F.3.6.1A	Marking for class 0I equipment The requirements of Clauses F.3.6.1.1 and F.3.6.1.2 shall be applied to class 0I equipment. For class 0I equipment, a marking of instructions shall be provided regarding the earthing connection. In addition to the above, for class 0I equipment, an instruction to connect earthing before and disconnect earthing after the connection of supply conductors shall be marked on the visible place of the main body or shall be in the text of an accompanying document.	No applicable.	N/A
F.3.6.2	Symbols, IEC 60417-5172 (2003-02) or IEC 60417-6092 (2011-10), shall not be used for class I equipment or class 0I equipment.	Considered.	P

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
F.3.8A	<p>Attention marking for aging deterioration of CRT television</p> <p>Year of manufacture, standard usage period by design according to JIS C 9921-5 and cautionary statement for possible risks of aging deterioration when used beyond the specified period shall be marked on CRT television except for industrial use CRT television.</p>	No CRT television used.	N/A
F.4	<p>For audio equipment with terminals classified as ES3 in accordance with Table E.1, and for other equipment with terminals marked in accordance with F.3.6.1 and F.3.6.1A, the instructions shall require that the external wiring connected to these terminals shall be installed by a skilled person, or shall be connected by means of ready-made leads or cords that are constructed in a way that would prevent contact with any ES3 circuit.</p> <p>For class 0I equipment provided with independent main protective earthing terminal, where the cord for the protective earthing connection is not provided in the package of the equipment, if the protective earthing connection is made by instructed person or skilled person, the suitable installation instruction for the protective earthing connection shall be provided.</p>	No more than ES3	N/A
G.3.2.1	The thermal link when tested as a separate component, shall comply with the requirements of JIS C 6691 or have properties equivalent to or better than that.	No thermal link used.	N/A
G.3.4	<p>Except for devices covered by Clause G.3.5, overcurrent protective devices used as a safeguard shall comply with the applicable JIS or IEC standard in accordance with 4.1.2 or shall have equivalent or better properties.</p> <p>Such a protective device shall have adequate breaking (rupturing) capacity to interrupt the maximum fault current (including short-circuit current) that can flow.</p>		N/A
G.4.1	This requirement does not apply to connectors covered in Clauses G.4.2 and G.4.2A.		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	<p>Mains connectors, mains plugs and socket-outlets shall comply with JIS C 8283 series, JIS C 8285, IEC 60309 series, JIS C 8282 series, JIS C 8300, JIS C 8303, or have equivalent or better properties.</p> <p>A power supply cord set provided with appliance connector that can fit appliance inlet complying with JIS C 8283-1 shall comply with JIS C 8286.</p> <p>Construction shall prevent mechanical stress not to transmit to the soldering part of appliance inlet terminal.</p> <p>When an equipment is rated not more than 125 V and all of the following are met, Type C14 and C18 appliance inlet complying with JIS C 8283-3 can be considered as rated 15 A.</p> <ul style="list-style-type: none"> – The temperature of appliance inlet does not exceed the value specified in JIS C 8283-1 under the most unfavourable normal operating condition as specified in Clause B.2.1. – "Use only designated cord set attached in this equipment" or equivalent text is described in the operating instruction. If the cord set is not provided in the package of the equipment, suitable information regarding to the cord set is described in the operating instruction. 	Must be considered when marketing in Japan.	—
G.4.2A	Mains socket-outlet and interconnection coupler provided with the class II, class I and class 0I equipment respectively	No applicable.	N/A
G.7.1	A mains supply cord need not include the protective earthing conductor for class 0I equipment provided with independent protective earthing conductor.	No applicable.	N/A
G.7.2 Table G.7	Cross-sectional area of equipment rated up to and including 3 A shall be 0.75 mm ² .	Must be considered when marketing in Japan.	—
G.7.6.1 Table G.9	<p>The cross-sectional area of mains cords according to JIS C 3010 may comply with relevant Japanese wiring regulation.</p> <p>For cables other than those complying with JIS C 3662 series or JIS C 3663 series, the terminals shall be suitable for the size of the intended cables.</p>	Must be considered when marketing in Japan.	—

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1:2018 SAUDI ARABIA NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment Part 1: Safety requirements)			
Differences according to : National standard SASO-IEC 62368-1:2020			
TRF template used: : IEC EE OD-2020-F3, Ed. 1.1			
Attachment Form No. : SA_ND_IEC62368_1E			
Attachment Originator : SASO			
Master Attachment : 2022-12-22			
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	National Differences		—
	Plugs used for pluggable equipment comply with standard SASO-2203.	Must be considered when marketing in Saudi Arabia.	—
--	Frequency (Hz)		P
	60 Hz	50/60Hz	P
--	Rated voltage (V)		P
	Single phase 230 V Three phase 400 V	Input 100-240Vac, covering 230Vac	P

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict



ATTACHMENT TO TEST REPORT IEC 62368-1:2018 Republic of Korea NATIONAL DIFFERENCES Audio/video, information and communication technology equipment - Part 1: Safety requirements			
Differences according to: KC 62368-1(2021-08)			
TRF template used: IECEE OD-2020-F3, Ed. 1.2			
Attachment Form No: KR_ND_IEC62368_1E			
Attachment Originator: KTL			
Master Attachment: 2024-09-02			
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	National Differences		—
4.1.1	As of January 1, 2023, internal and external components and subassemblies that comply with IEC 60950-1 or IEC 60065 are not acceptable if those components and subassemblies mandates KC certification.		P
G.4.2	Plugs for the connection of the apparatus to the supply main shall comply with the Korean requirement (KS C 8305 or KC 60884-1 or KC 60799).	Must be considered when marketing in Republic of Korea.	—
	Special national conditions (if any)		—
Voltage	The marking of rated voltage or rated voltage range, for appliances intended to be connected to the supply mains, shall include 110 V, 220 V or 380 V.	Input 100-240Vac, covering 110Vac, 220Vac	P
Frequency	Only appliances having supply frequency of 60 Hz or a frequency range including 60 Hz are accepted.	50/60Hz	P
Instruction	Instruction manuals and appliance marking related safety, including nameplate shall be in Korean	Must be considered when marketing in Republic of Korea.	—

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1:2018 CHINA NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment -Part 1: Safety requirements)			
Differences according to: GB 4943.1-2022			
TRF template used:: IECEE OD-2020-F3, Ed. 1.1			
Attachment Form No.: CN_ND_IEC62368_1E			
Attachment Originator: CQC			
Master Attachment: 2025-02-25			
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	National Differences		--
4.1.2	Use of components Add a paragraph: A component used shall comply with related requirements corresponding altitude of the equipment.		N/A
4.11	Add clause 4.11, as follows: Protection in PRIMARY CIRCUITS against overcurrent short-circuits and earth faults shall be provided as an integral part of the equipment except the device shall meet the all requirement of Fault conditions. If pluggable equipment type B or permanently connected equipment depends on protective devices outside the equipment for protection, this shall be stated in the installation instructions of the equipment, with requirements for short-circuit protection, over-current protection, or both if necessary.		N/A
5.3.2.2	Contact requirements Amend the 2 nd paragraph of table 8 to be: For equipment intended to be used at altitude of 2000m to 5000m, the values in this table are multiplied by the multiplication factor corresponding altitude of 5000m.		N/A


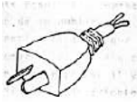
IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.2.5	<p>Multiplication factors for altitudes higher than 2 000 m above sea level</p> <p>Amend the 1st paragraph to be:</p> <p>For equipment to be operated at more than 2000 m above sea level and up to 5000m above sea level, the minimum CLEARANCE in tables 10,11 and 14, and resistance test voltages required in table 15, shall meet the requirements of 5000 m above sea level, this is multiplied by the multiplication factor corresponding altitude of 5000m in table 16.</p> <p>For equipment to be used at equal or less than 2000 m above sea level, the minimum CLEARANCE in tables 10, 11 and 14, and resistance test voltages required in table 15, shall meet the requirements of 2000 m above sea level. This is multiplied by the multiplication factor corresponding altitude of 2000m in table 16.</p> <p>Delete note 2 of Clause 5.4.2.5.</p>		N/A
5.4.5.1	<p>General</p> <p>Delete the 2nd paragraph of Clause 5.4.5.1: This test does not apply to equipment where one antenna terminal on the equipment is connected to earth in accordance with 5.6.7.</p> <p>Add the following:</p> <p>The Insulation resistance between CATV antenna coaxial sockets and protective earth of apparatus shall comply with BASIC INSULATION. If it's possible that CLASS II apparatus with CATV antenna coaxial sockets connect with protective earth of another CLASS I apparatus by other terminals, the insulation resistance between them shall comply with BASIC INSULATION as well.</p> <p>If antenna cable separated from the protective earth before connection to the apparatus, there is no requirements of Insulation resistance between them but F.4 requirements shall be meet.</p> <p>Delete "NOTE" of Clause 5.4.5.1</p>		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.8	<p>Humidity conditioning</p> <p>Amend clause 5.4.8 as follows :</p> <p>The humidity conditioning is conducted for 120 h in a cabinet or room containing air with ambient temperature $(40\pm 2)^\circ\text{C}$ and a relative humidity of $(93\pm 3)\%$. During this conditioning, the component or subassembly is not energized.</p> <p>For equipment not to be operated at tropical climatic conditions, humidity conditioning is conducted for 48 h in a cabinet or room containing air with a relative humidity of $(93\pm 3)\%$. The temperature of the air, at all places where samples can be located, is maintained within 2°C of any convenient value between 20°C and 30°C such that condensation does not occur.</p> <p>Add note: For equipment to be operated at 2000 m - 5000m above sea level, assessment and requirement of humidity conditioning for Insulation material properties are considered.</p> <p>Pre-processing conditions and requirements below 2000m can be used until additional data is available.</p>		N/A
6.4.9 Y.4.3	Delete references to ASTM and NEMA.		N/A
6.5.1	<p>General requirements</p> <p>Delete the text of the Note "Wire complying with UL 2556 VW-1 is considered to comply with these requirements".</p>		N/A
F.1	Amend the second paragraph of annex F.1 to be: Unless symbols are used or otherwise specified, safety related equipment markings, instructions, and instructional safeguards shall be in normative Chinese.		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
F.2.2	<p>After the first paragraph of annex F.2.2 ,add the following:</p> <p>For apparatus intended to be used at altitude not exceeding 2000m, a warning label containing the following or a similar appropriate wording or a symbol shown below shall fixed to the equipment at readily visible place.</p> <p>"Only used at altitude not exceeding 2000m."</p>  <p>For apparatus intended to be used in not-tropical climate regions, a warning label containing the following or a similar appropriate wording or a symbol shown below shall fixed to the equipment at readily visible place.</p> <p>"Only used in not-tropical climate regions."</p>  <p>If only symbol used, the explanation of the symbol shall be contained in the instruction manual.</p> <p>The statements above shall be given in a language acceptable to the regions where the apparatus is intended to be used.</p>		N/A
F.3.3.4	<p>After the last paragraph, Added:</p> <p>...for single rated voltage, "220 V" or three-phase "380V" shall be marked only. For a rating voltage range, 220 V or three-phase 380V shall be covered. For multiple rated voltages, one of them shall be 220 V or three-phase 380V and which default setting from manufacture shall be 220 V or three-phase 380V as well.</p>		N/A
F.3.3.5	<p>After the last paragraph, Added:</p> <p>Rated frequency shall be 50Hz or frequency range shall cover 50Hz.</p>		N/A
F.4	<p>Instructions</p> <p>Added:</p> <p>– For apparatus incorporating antenna coaxial sockets which is non-separated with CATV network, a warning wording or a similar shall be given in the instruction manual: "A CATV cable intended to be connected to apparatus shall be separated with the protective earth of the apparatus, otherwise fire hazard might be caused."</p>		N/A
F.5	<p>Instructional safeguards</p> <p>In table F.2 , change 230V to 220V , change 400Y/230V 3Ø to 380 Y/220 V 3Ø</p>		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	Amend clause G.4.2 as follows : Plugs connected to the MAINS in apparatus shall comply with GB/T 1002,GB/T 1003,GB/T 2099.1 or GB/T11918 (All parts) series. Appliance coupler shall comply with GB/T 17465 (All parts) series or GB/T 11918 (All parts) series.		N/A
	Special national conditions (if any)		P
0.12	Add clause 0.12 Description of relevant information.		P
1	GB 4943.1-2022 applies to equipment used at altitudes not exceeding 5000m above sea level, For apparatus intended to be used at altitude not exceeding 2000m, The requirements can be appropriately reduced, but warning instructions shall be provided.. Revise the sixth paragraph of 1 as: In addition to specified by the manufacturer, this document assumes a maximum altitude of 5000m		N/A
B.2.6.1	Amend T_{ma} as follows: T_{ma} is the maximum ambient temperature permitted by the manufacturer's specification, or 35 °C, whichever is greater. Add note 1: For equipment not to be operated at tropical climatic conditions, T_{ma} is the maximum ambient temperature permitted by the manufacturer's specification, or 25 °C, whichever is greater. Add note 2: For equipment to be operated at 2000m-5000m above sea leave, its temperature test conditions and temperature limits are under consideration. temperature test conditions and temperature limits below 2000m can be used until additional data is available.		P
Annex Z (normative)	Added annex Z: Instructions of the new safety warning labels.		P
Annex AA (informative)	Added annex AA: Illustration relative to safety explanation in normative Chinese, Tibetan, Mongolian, Zhuang Language and Uighur.		N/A

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT IEC 62368-1 ARGENTINA NATIONAL DIFFERENCES Audio/video, information and communication technology equipment - Part 1: Safety requirements			
Differences according to		Special National Conditions	
TRF template used:		IECEE OD-2020-F3:2022, Ed. 1.2	
Attachment Form No.		AR_ND_IEC62368_1_A	
Attachment Originator.....		IRAM – Instituto Argentino de Normalización y Certificación	
Master Attachment		2024-06-06	
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	National Differences		--
	Not applicable		--
	Special national conditions (if any)		P
	- Appliances other than SELV, ratings shall cover 220 VAC - 50 Hz or 3x380 VAC – 50 Hz	Input 100-240Vac, 50/60Hz, covering 220Vac, 50Hz	P
	- Class 0 and Class 0I appliances are not allowed	No applicable.	N/A
	- Safety instructions and manuals shall be written in Spanish language	Must be considered when marketing in ARGENTINA.	—
	- Country of origin shall be shown on the marking plate	Made in china	P
	- Class I appliances provided with plugs shall be provided with the label specified in sheet "Class I" <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p style="text-align: center;">IMPORTANTE PARA EL USUARIO</p> <p>Los aparatos de la Clase I, poseen ficha de 3 espigas planas con toma de tierra, para aumentar su seguridad.</p>  <p>NO LA ELIMINE colocando un adaptador o reemplazando la ficha por otra de 2 espigas.</p> <p>PARA SU SEGURIDAD, su instalación debe estar provista de conductor de tierra. De no ser así, realice la adecuación con personal especializado.</p> </div>	Must be considered when marketing in ARGENTINA.	—

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>- Class II appliances provided with plugs shall be provided with the label specified in sheet "Class II"</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">IMPORTANTE PARA EL USUARIO</p> <p>Los aparatos de la Clase II, que se identifican con el símbolo  poseen ficha de 2 espigas planas sin toma de tierra, pues poseen doble aislación o aislación reforzada en todas sus partes.</p>  <p>NO LA ELIMINE colocando un adaptador o reemplazando la ficha por otra de 2 espigas cilíndricas, ya que la misma es compatible con los tomacorrientes con toma de tierra.</p> <p>PARA SU SEGURIDAD, su instalación debe estar provista de conductor de tierra. De no ser así, realice la adecuación con personal especializado.</p> </div>	Class I equipment	N/A
	- Plugs shall be in conformity with IRAM 2063 Standard for Class II appliances and IRAM 2073 Standard for Class I appliances	Must be considered when marketing in ARGENTINA.	—
	- Appliances with detachable interchangeable plug pins must include with its products, written instructions to inform the customer about the type of interchangeable and detachable plug pins approved and suitable for use in Argentina.	No applicable.	N/A
	- Direct plug-in appliances or appliances provided with integrated plugs shall be according to geometry of IRAM 2063 standard for Class II appliances or IRAM 2073 standard for Class I appliances	No applicable.	N/A
	- Appliances with integrated socket outlet shall be according to geometry of IRAM 2071 standard.	No applicable.	N/A

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



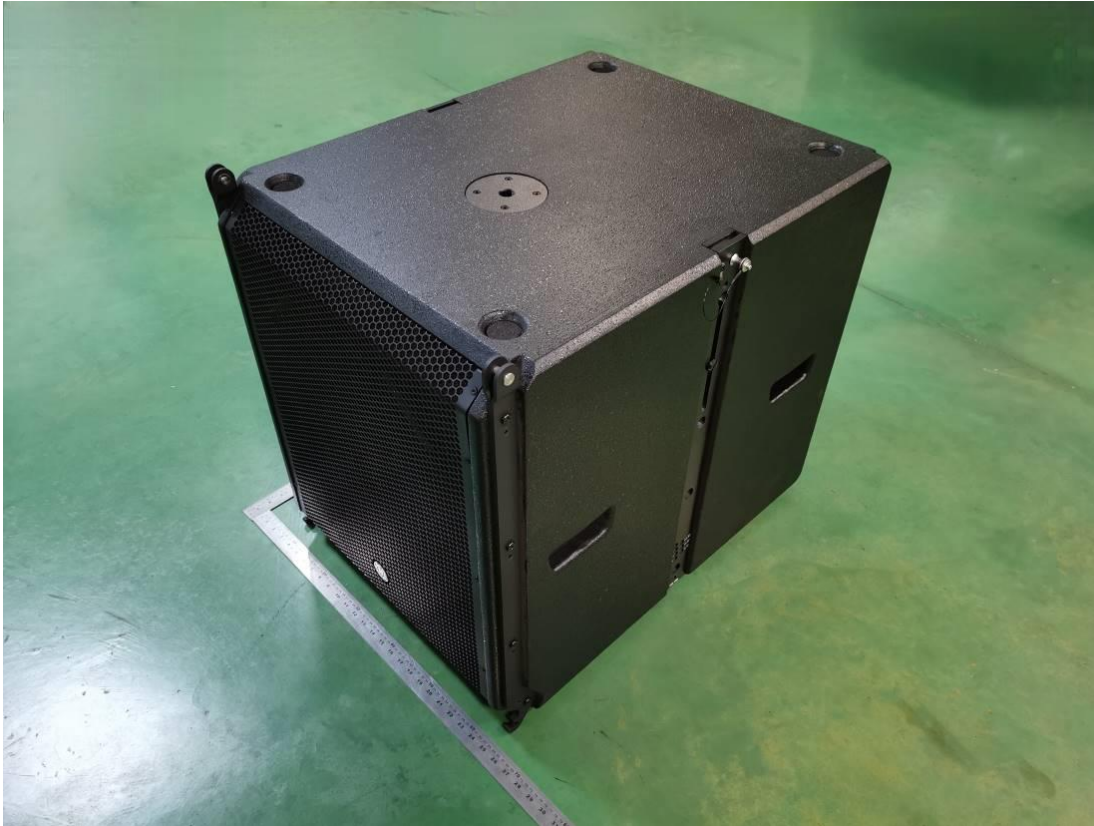
Picture 1. Model L-ARRAY 18SA



Picture 2.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



Picture 3.



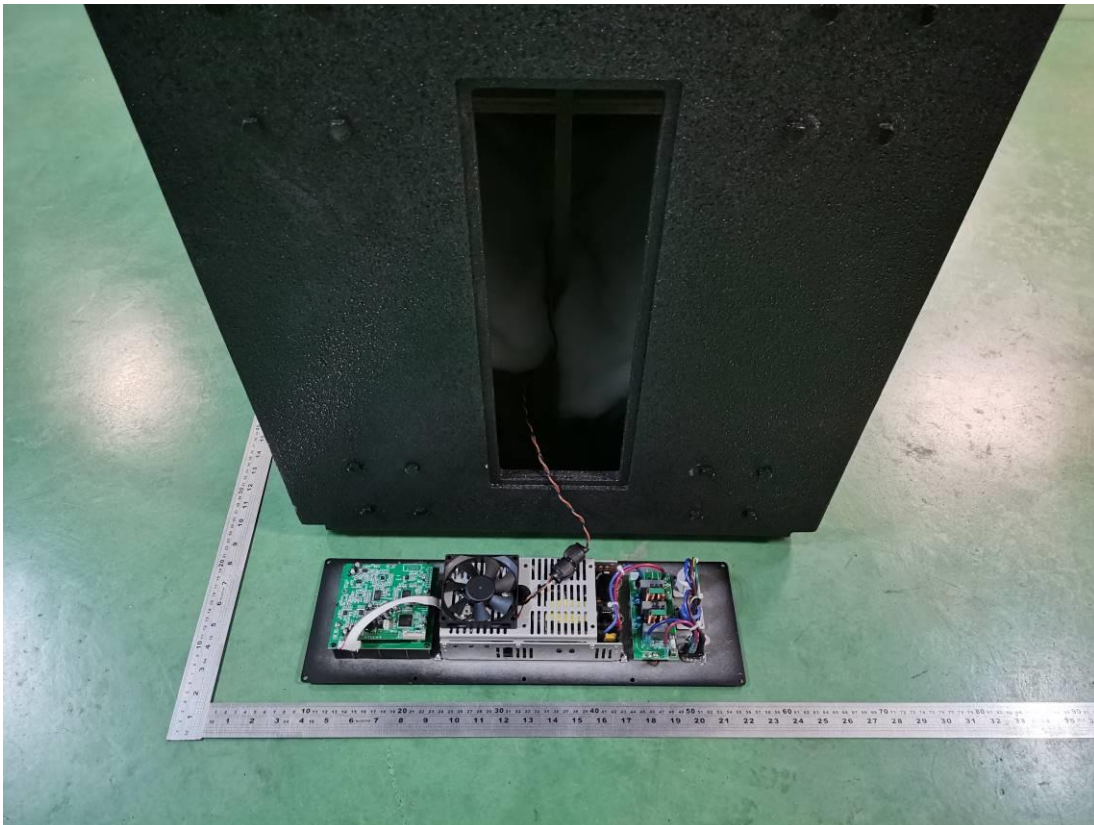
Picture 4.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



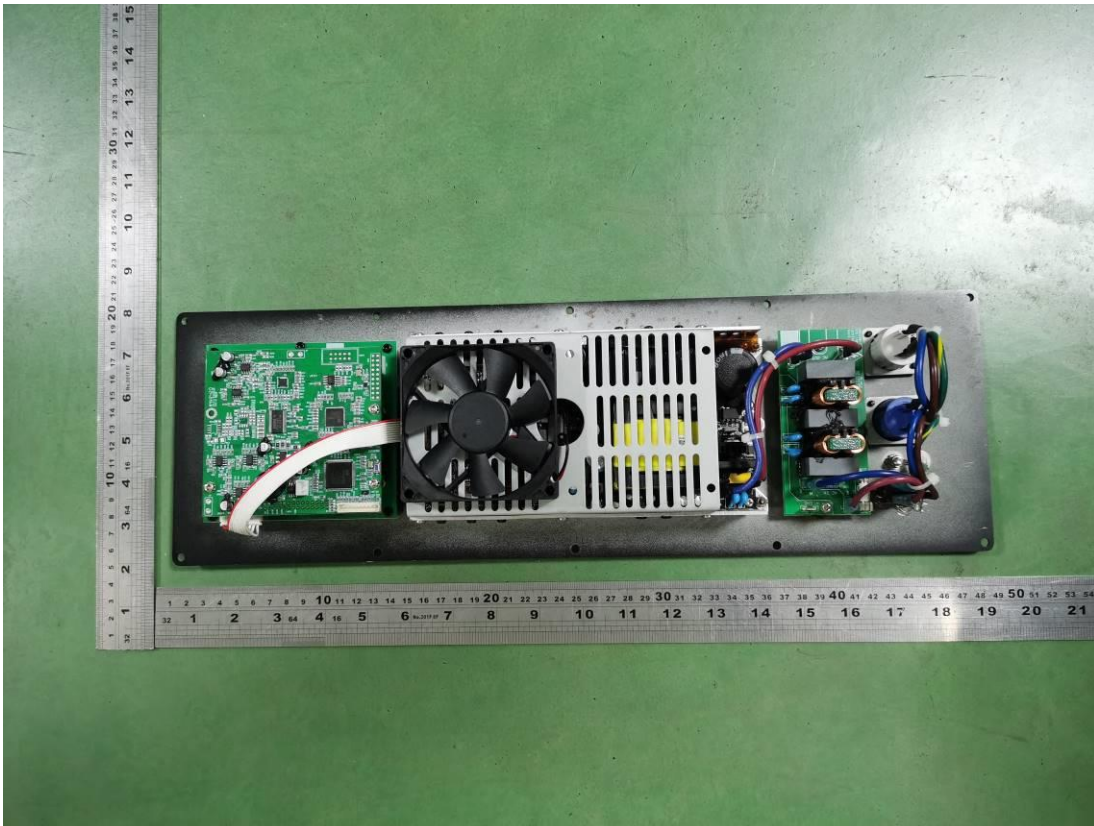
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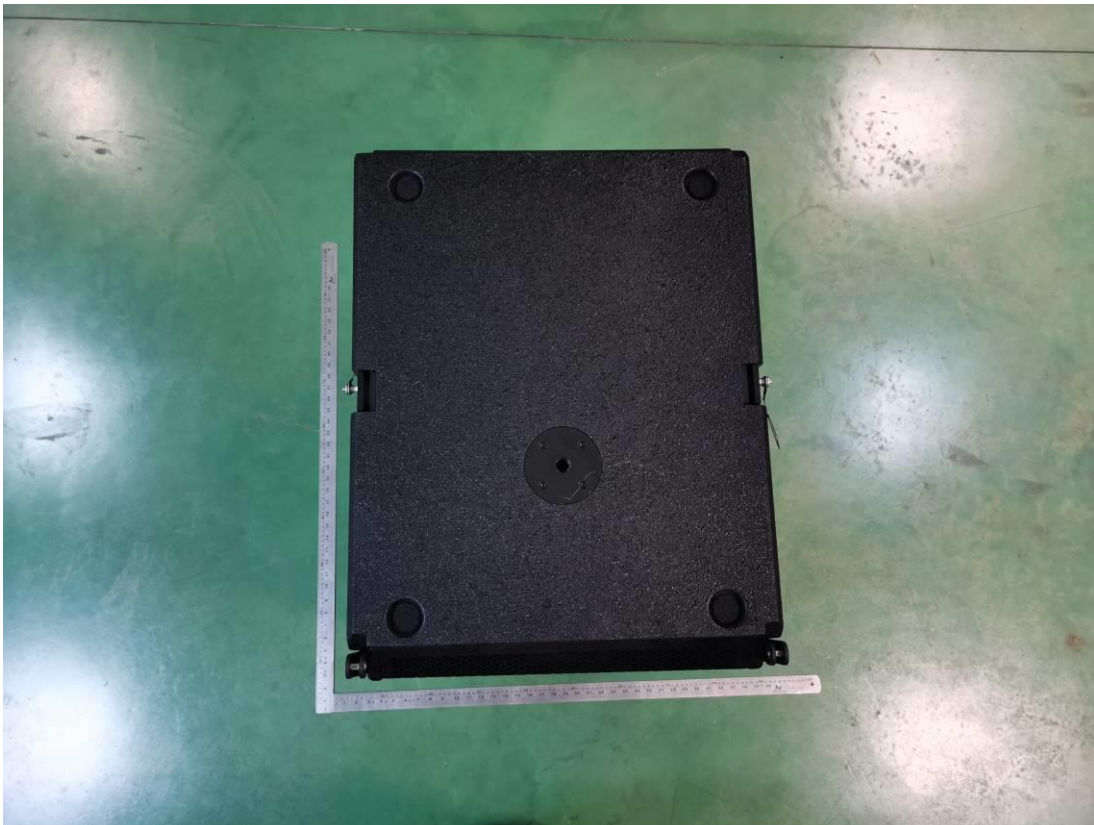
Picture 6.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



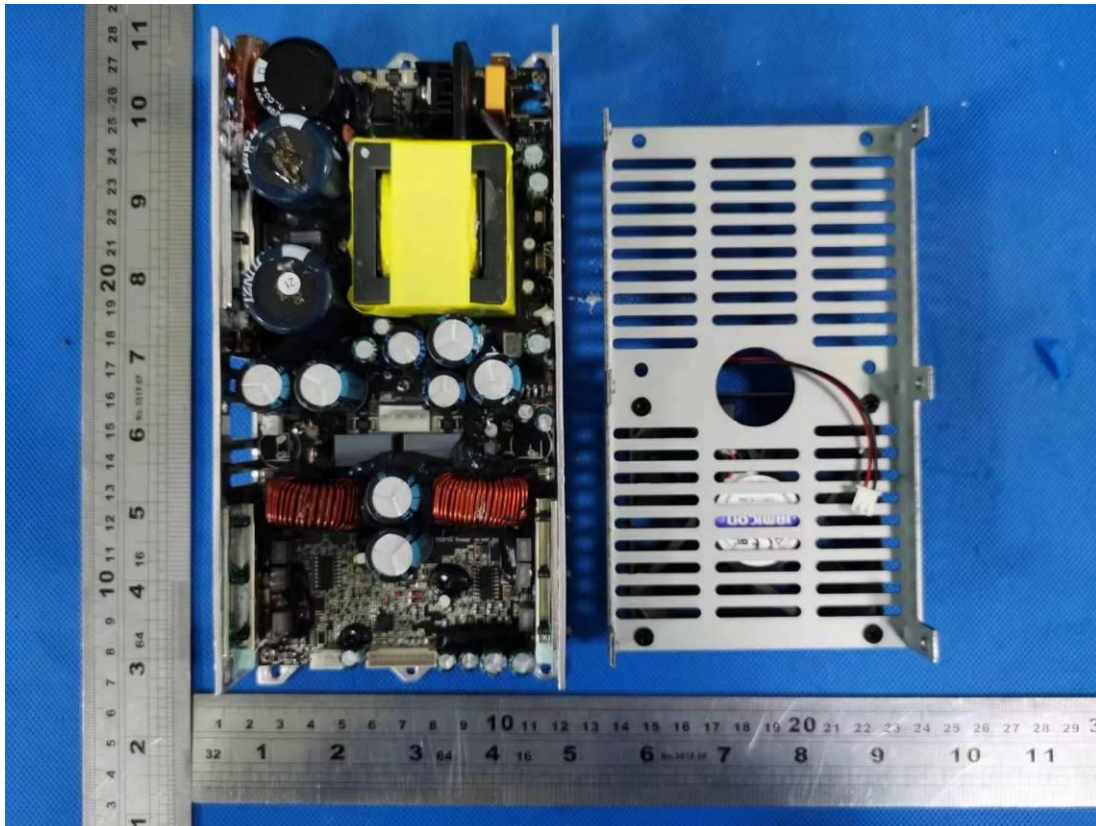
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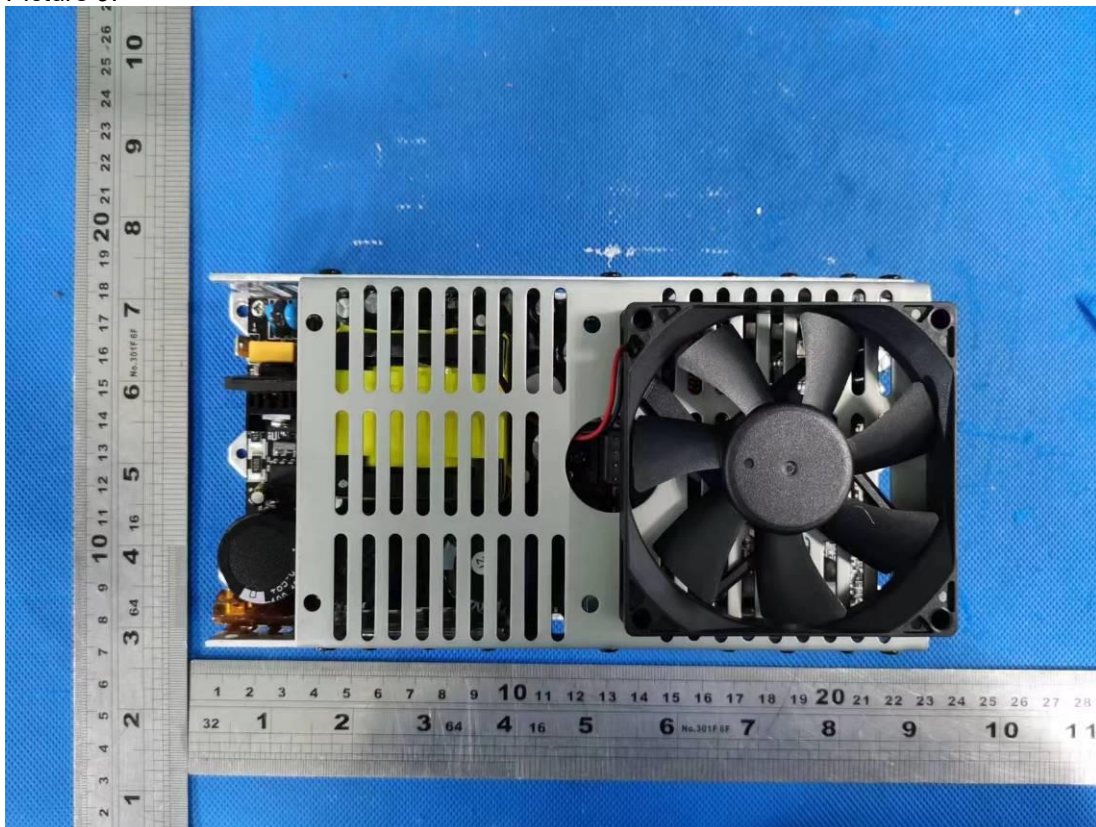
Picture 8.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



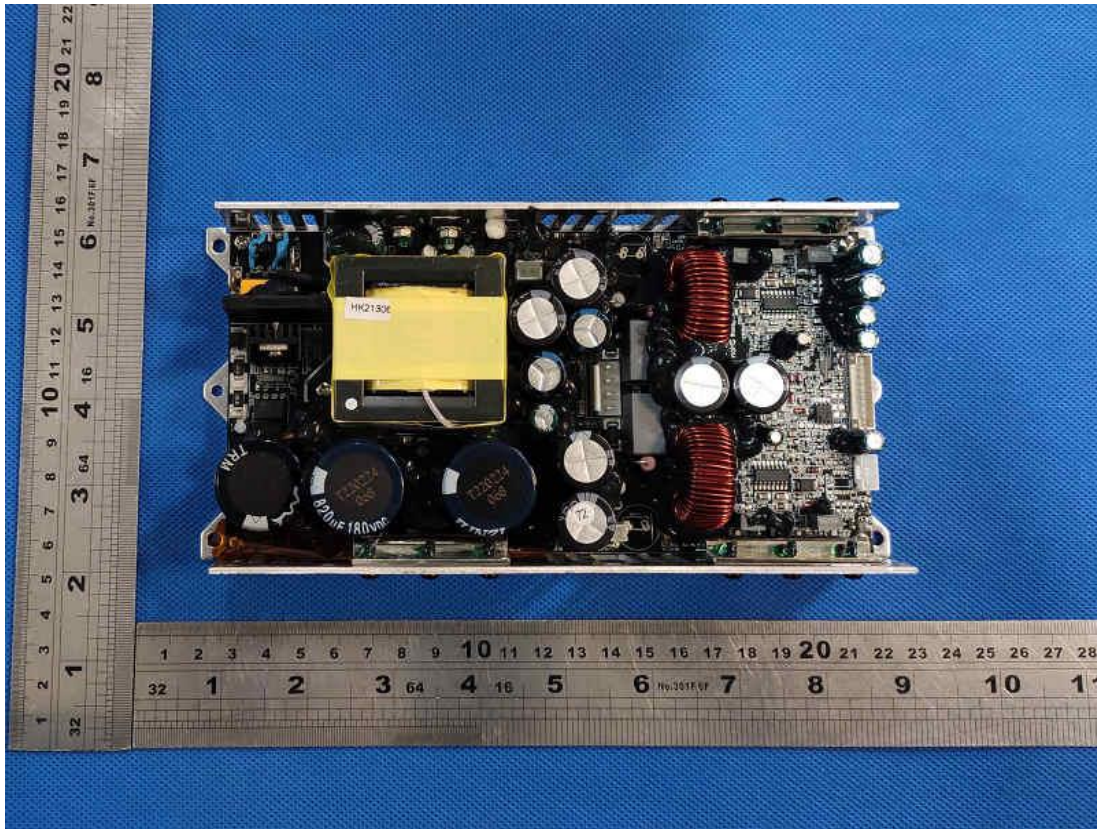
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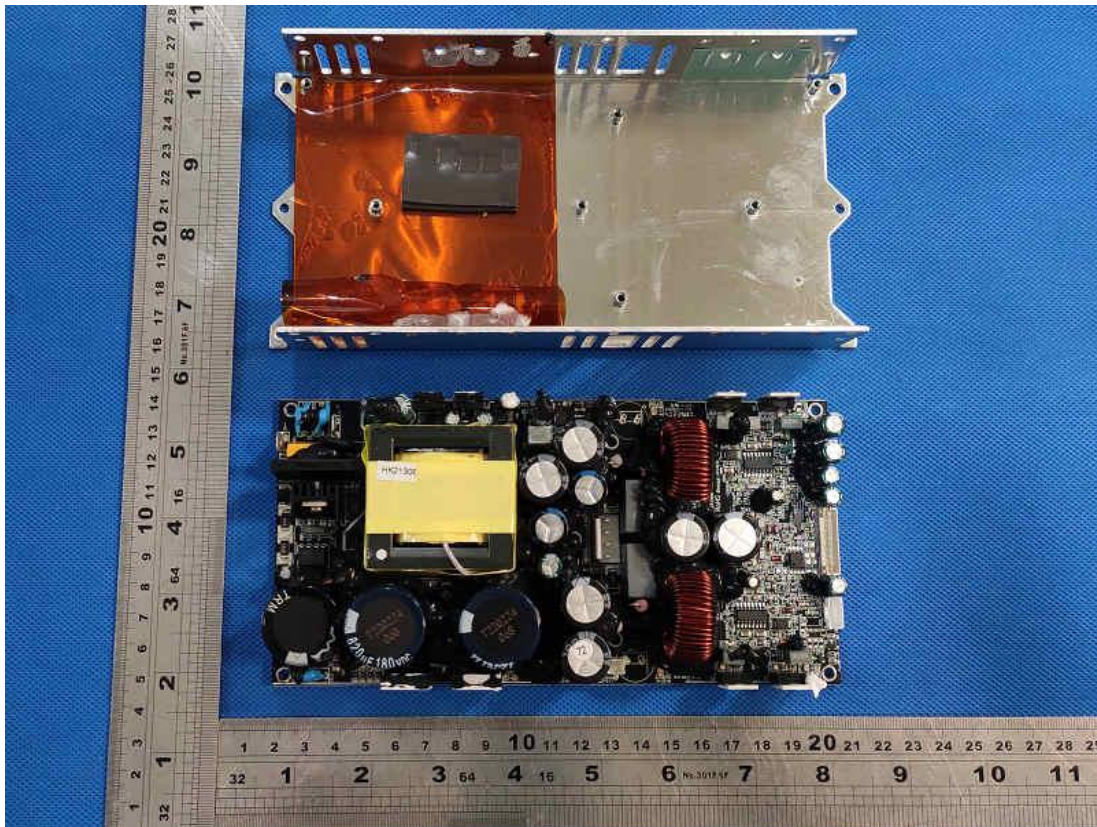
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Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



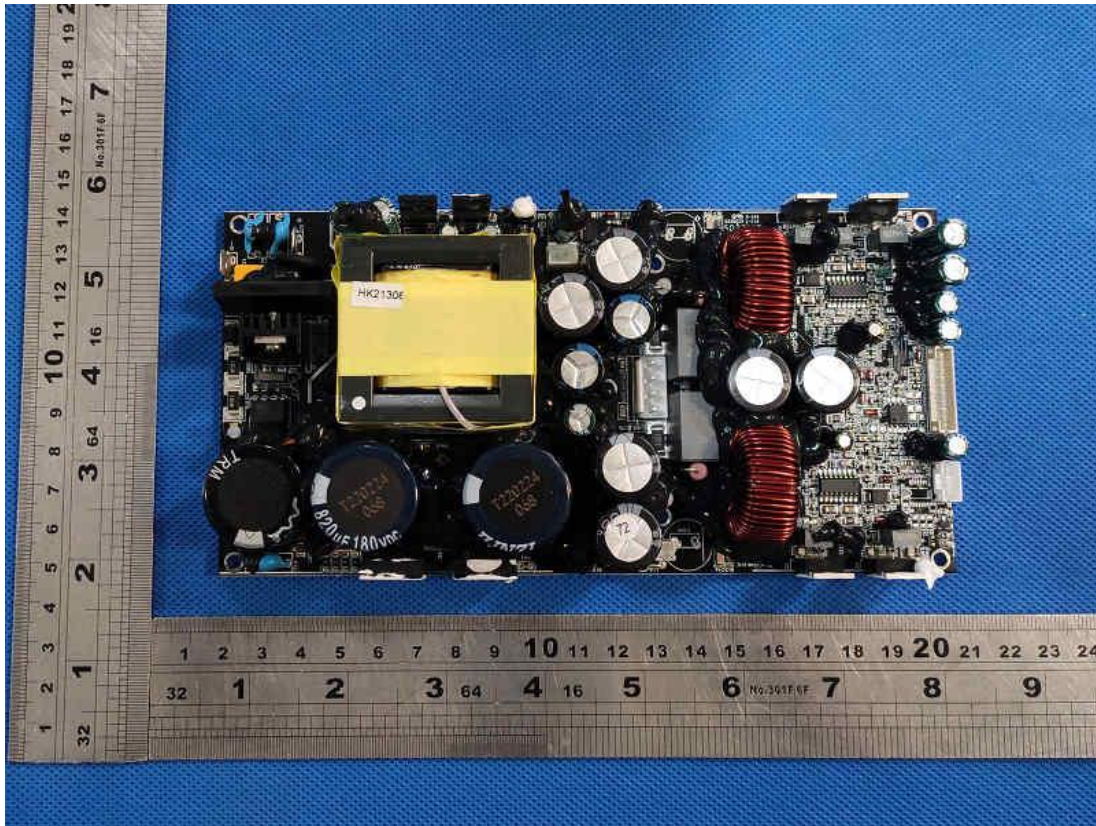
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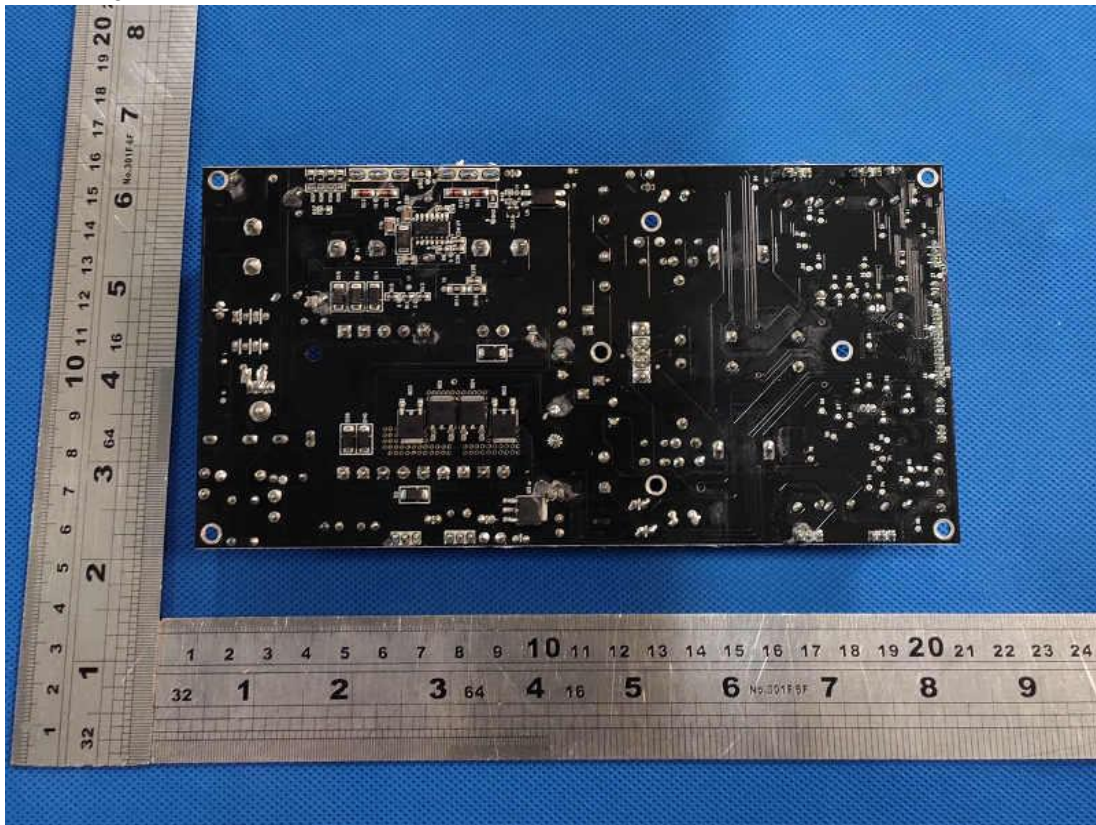
Picture 12.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



Picture 13.



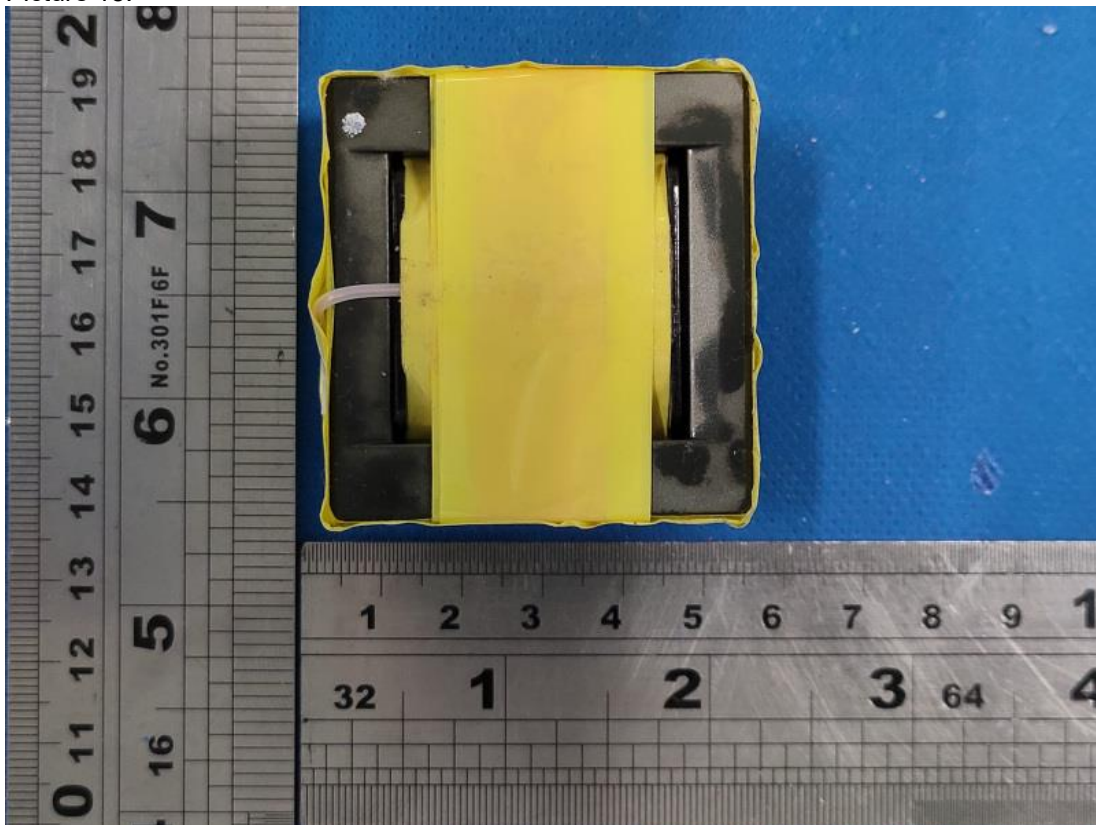
Picture 14.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



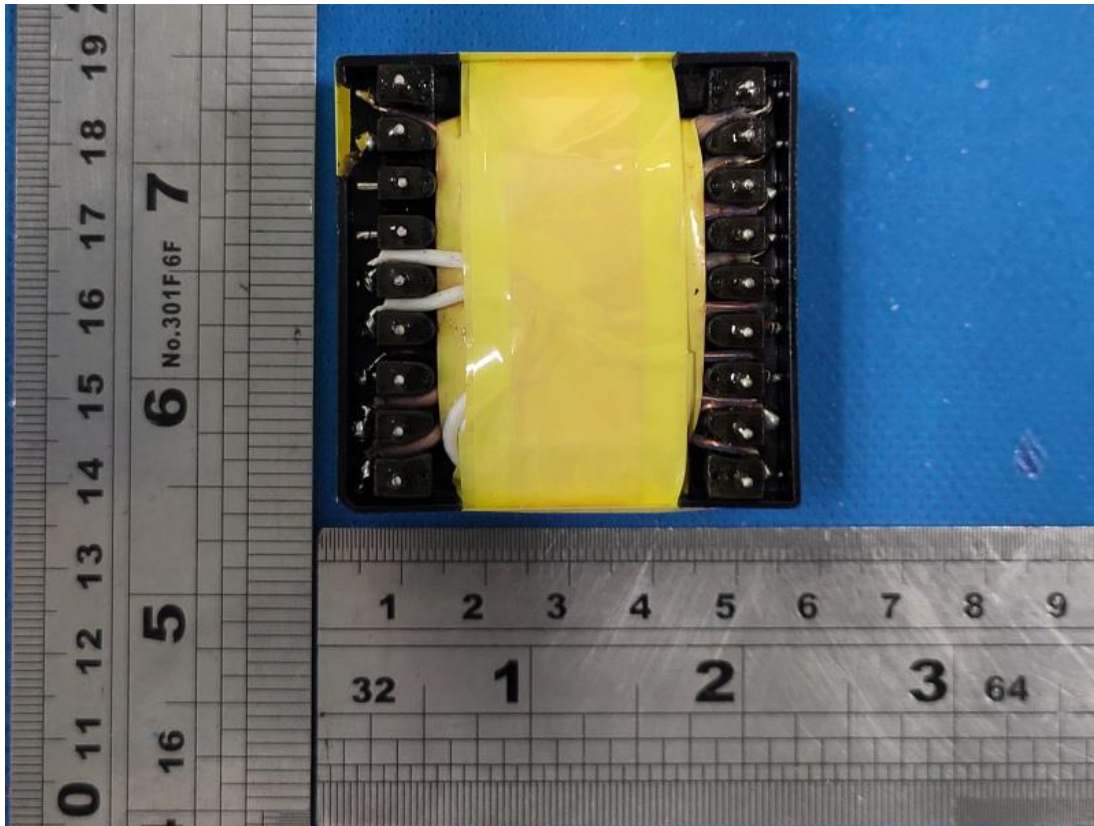
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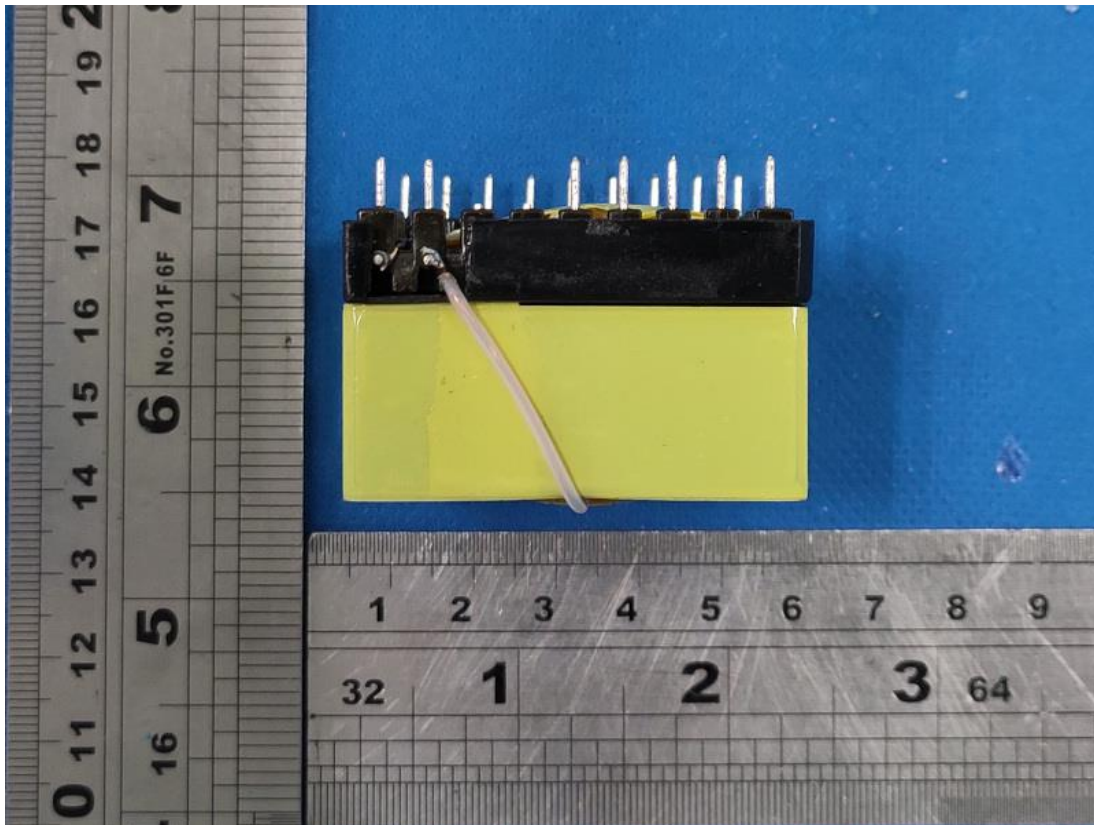
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Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



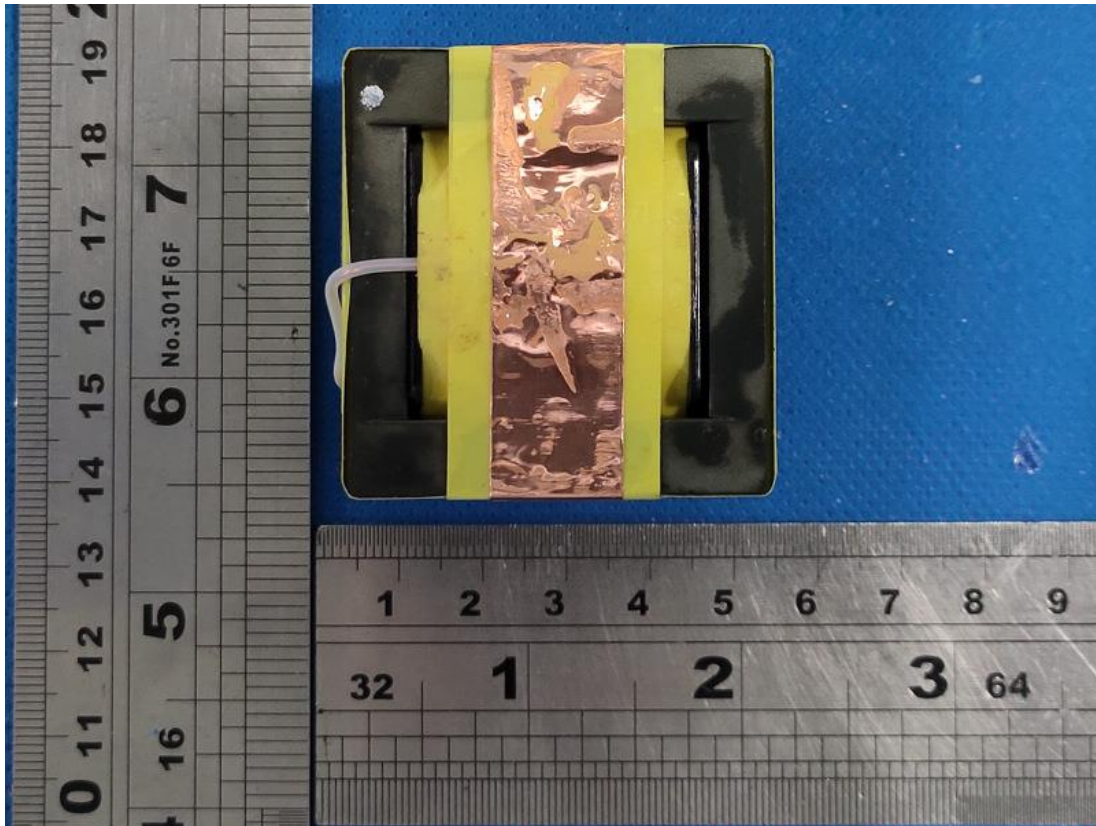
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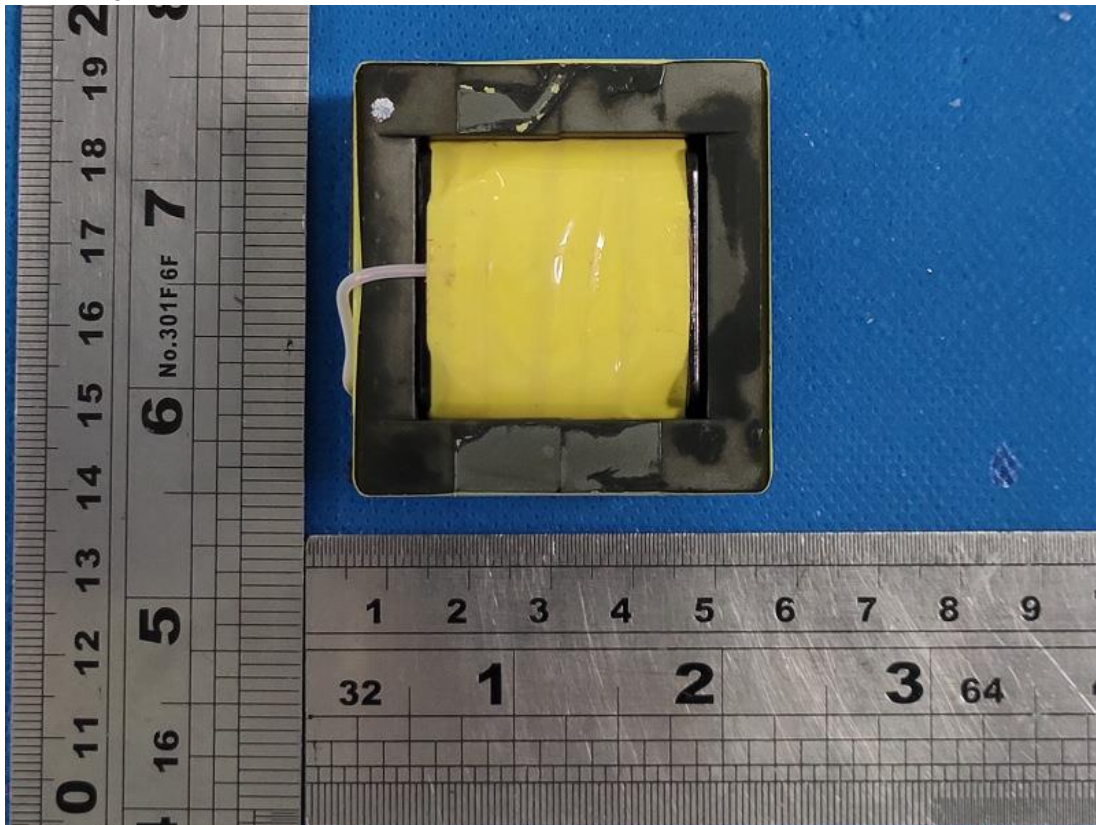
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Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



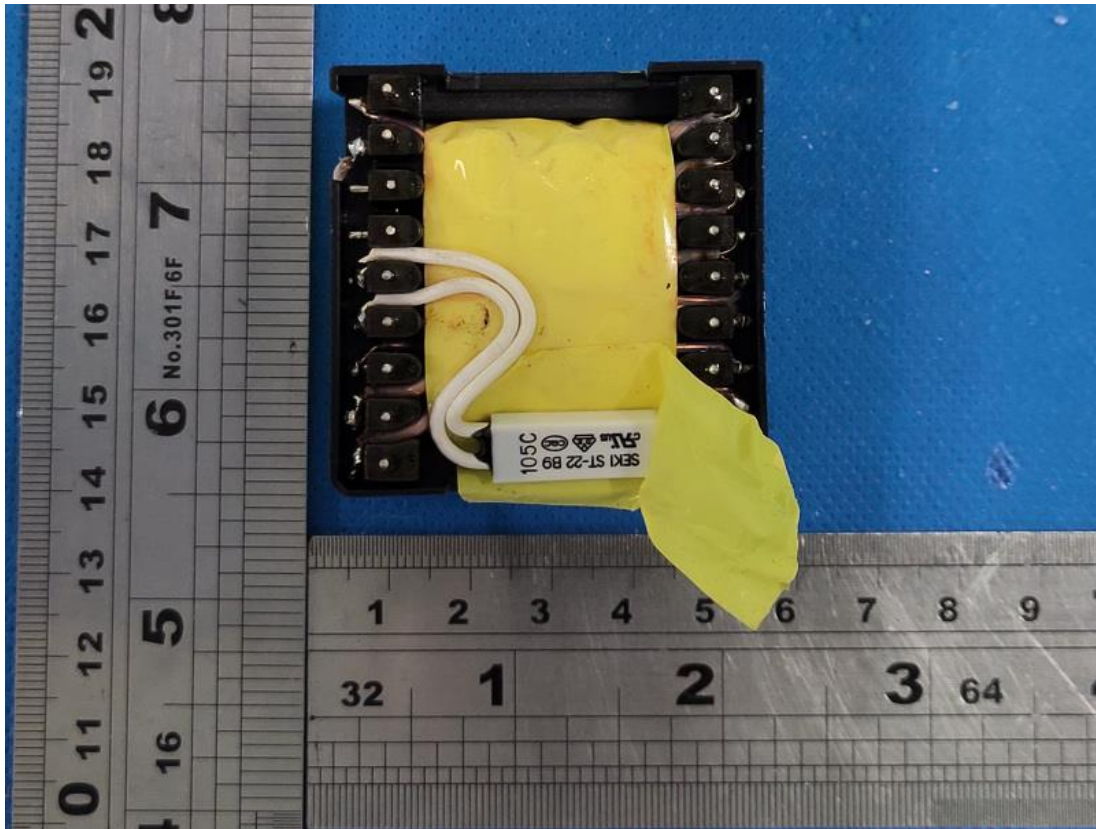
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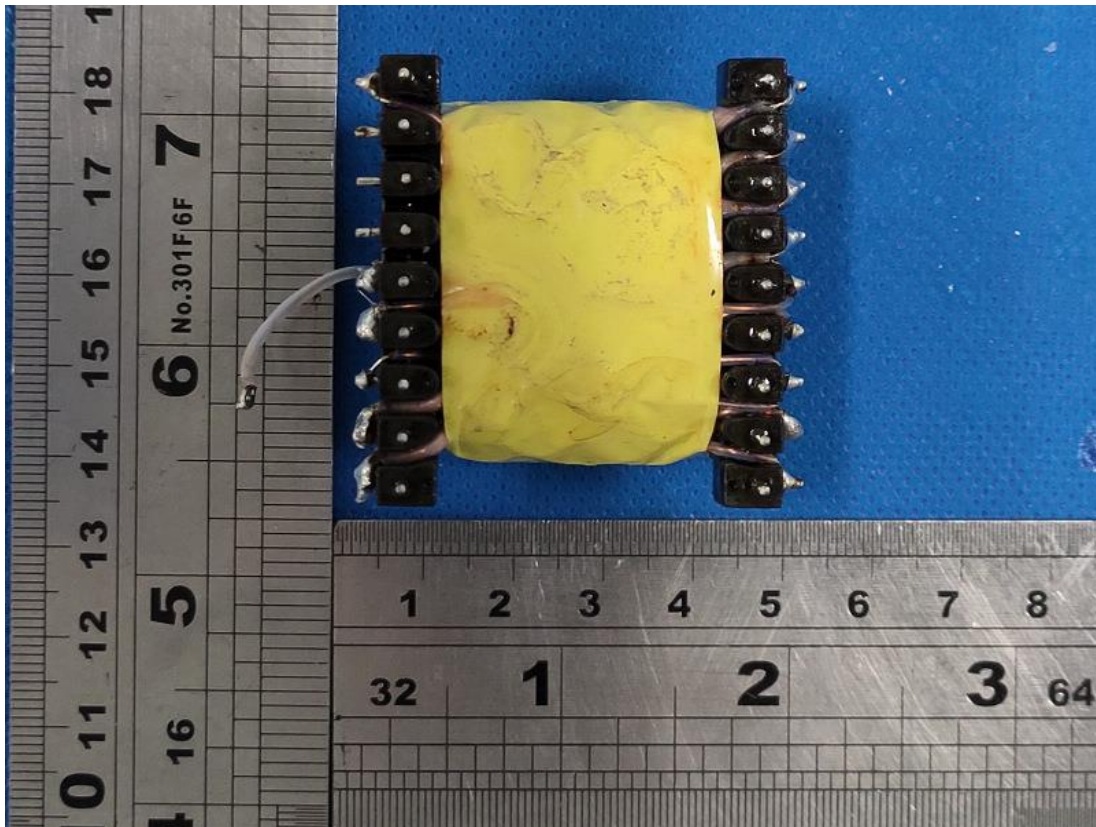
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Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



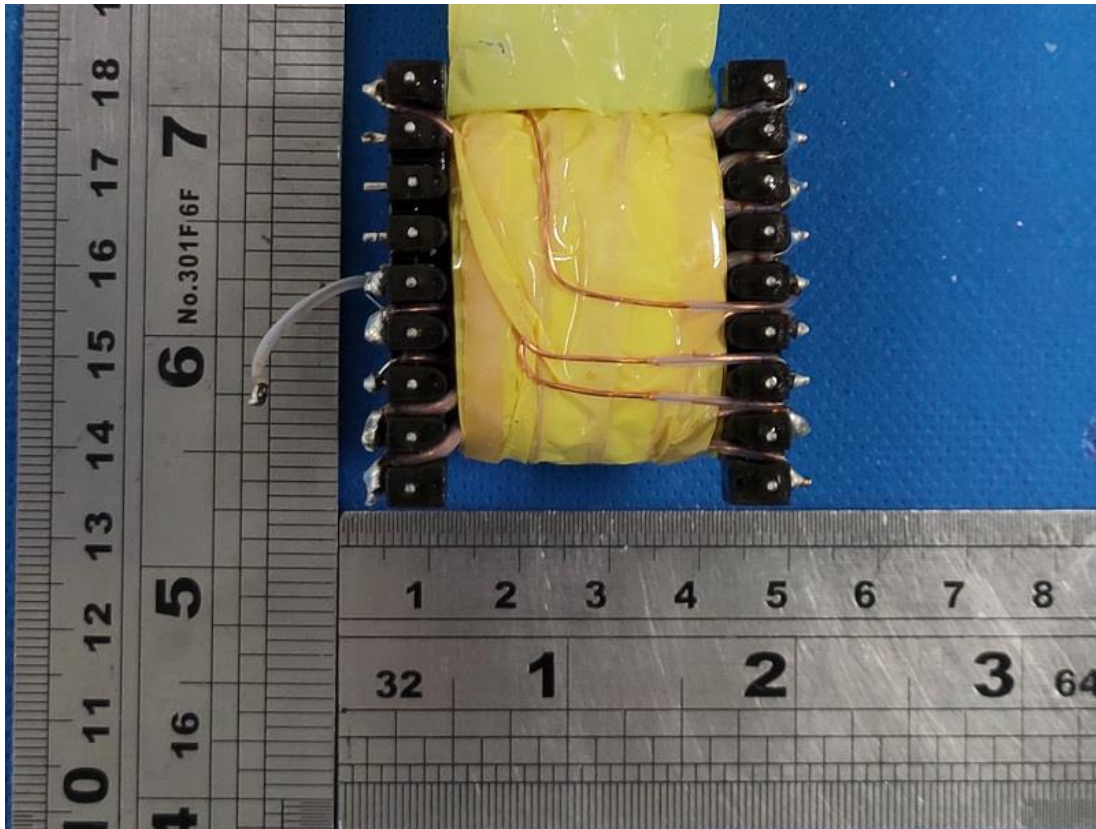
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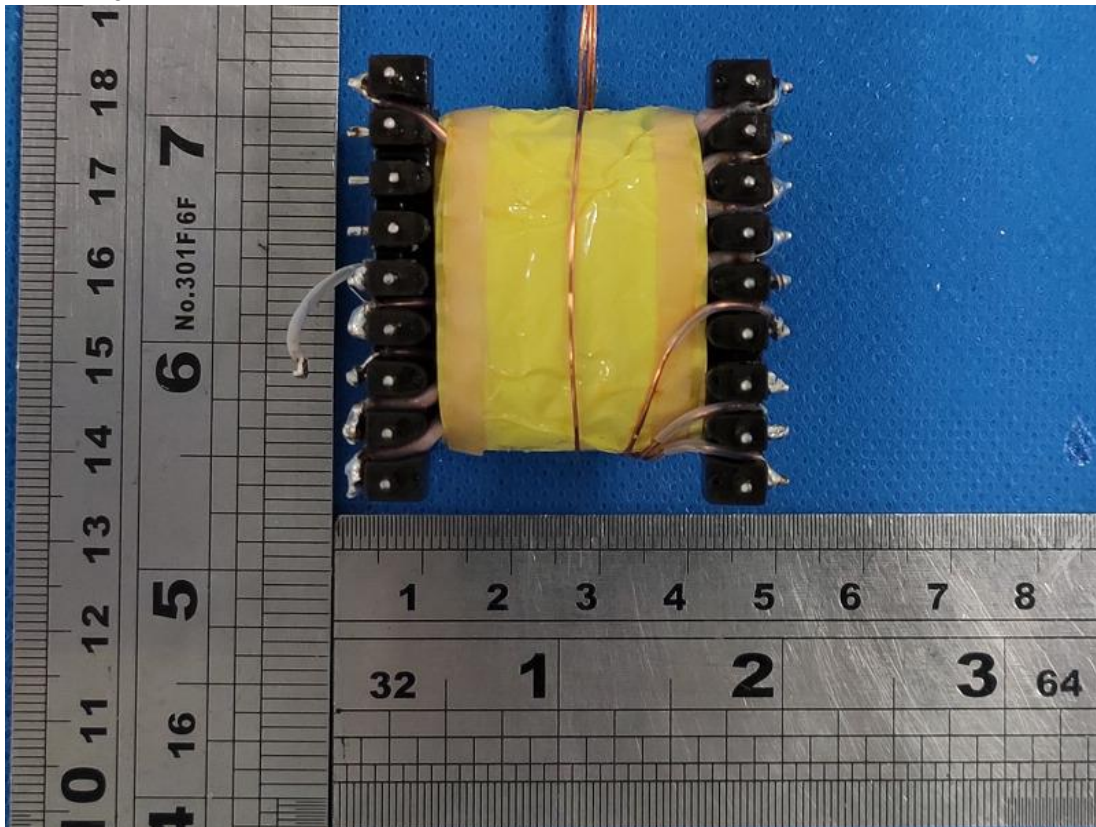
Picture 22.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



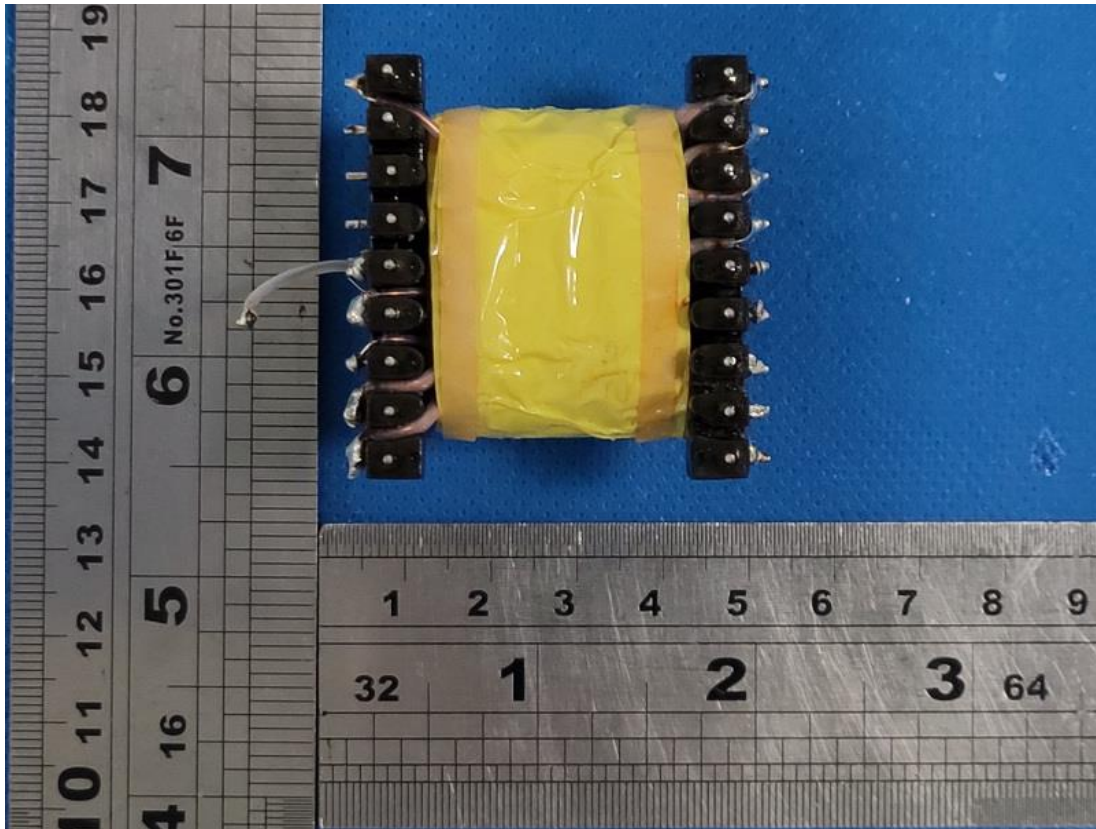
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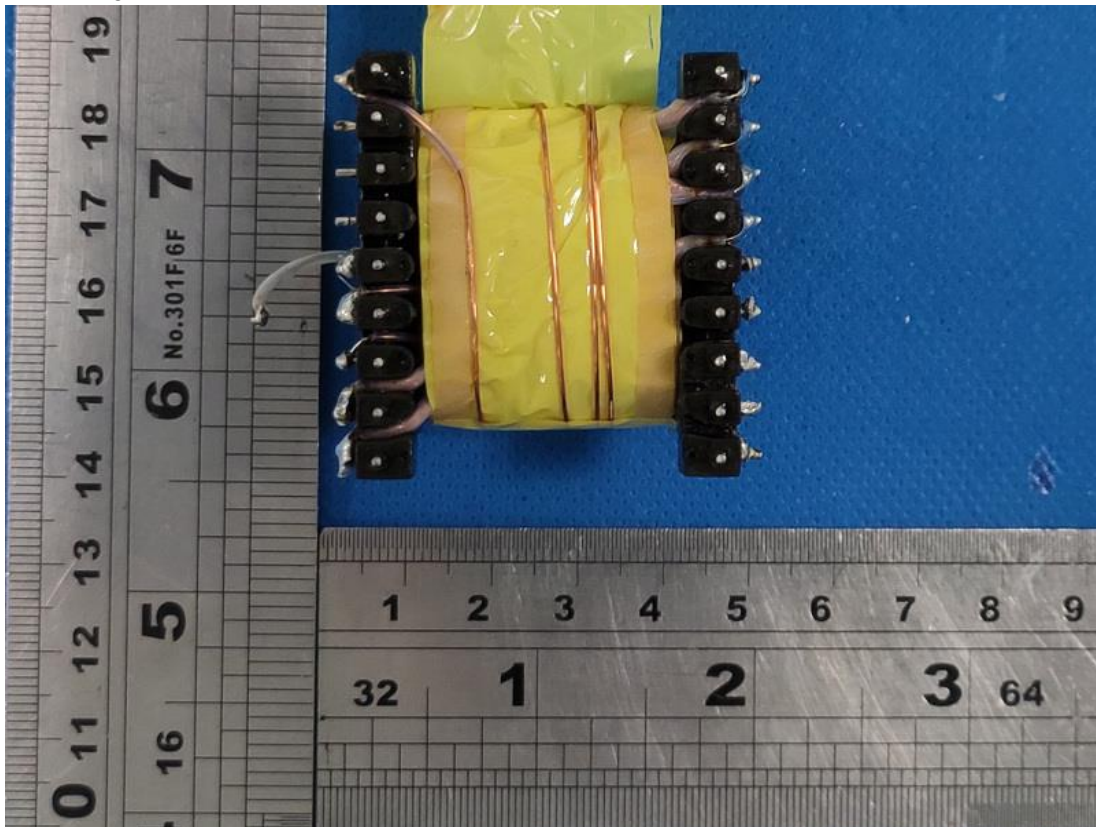
Picture 24.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



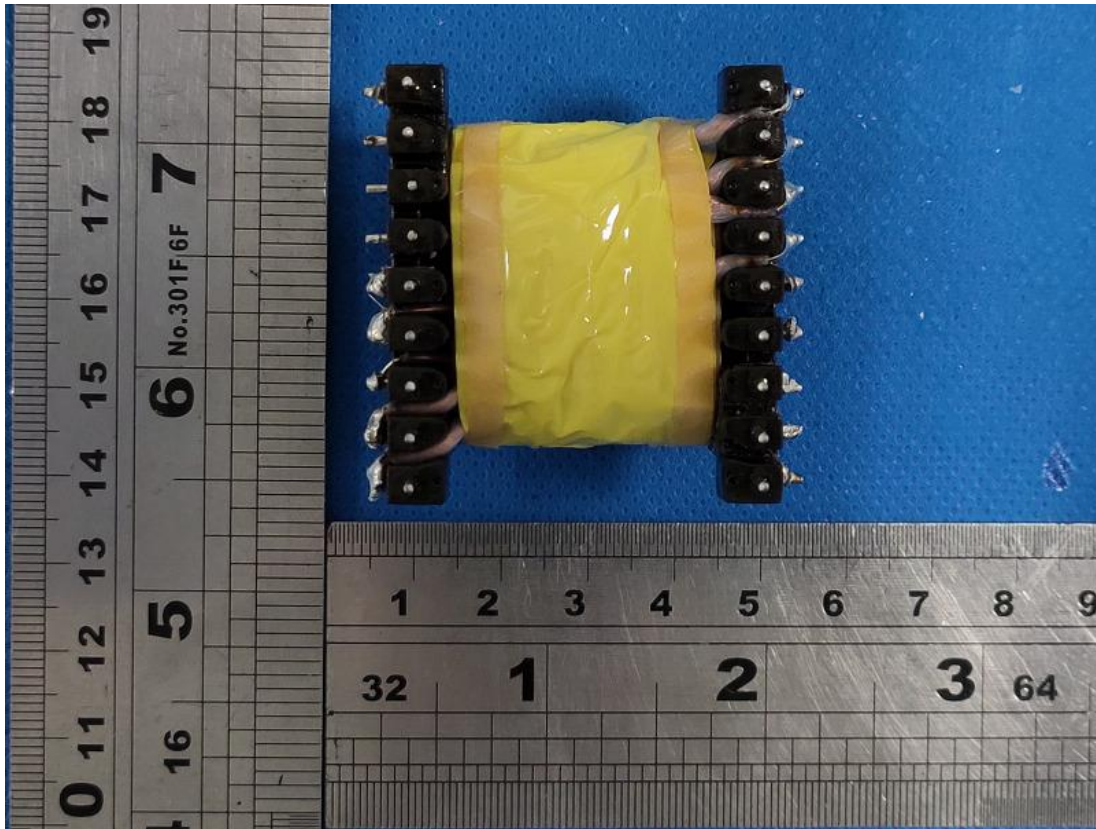
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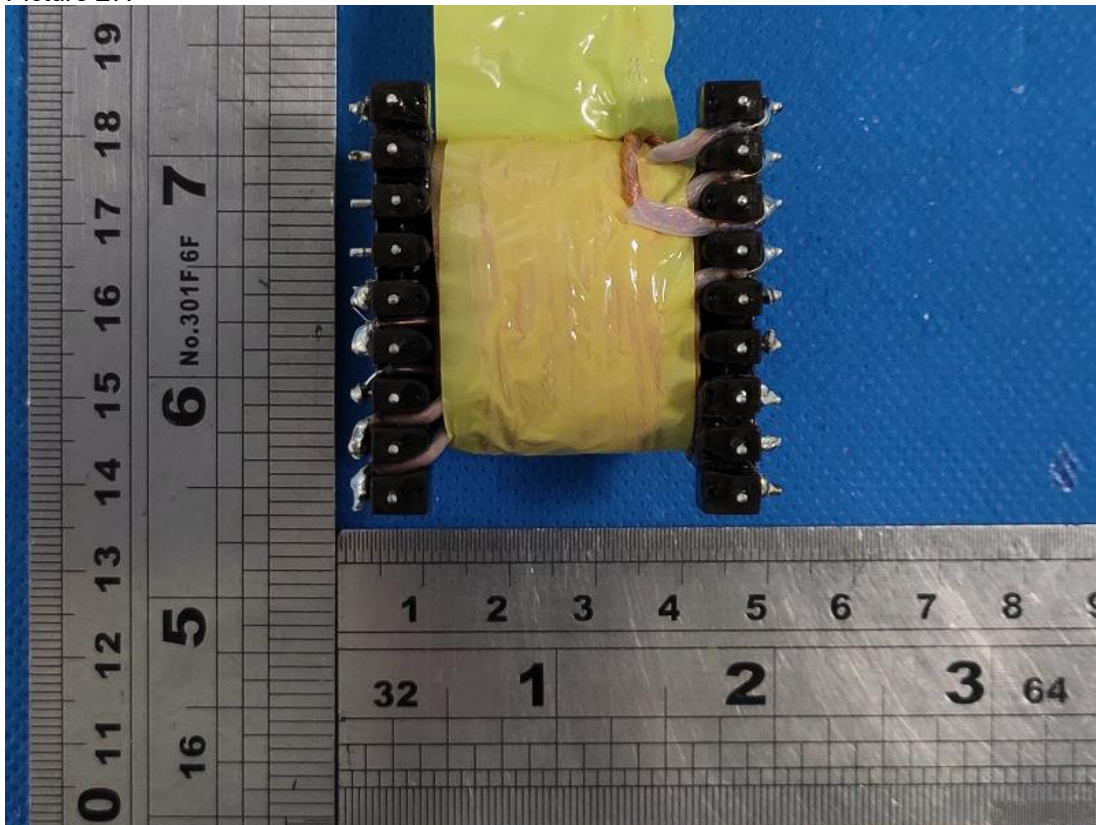
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Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



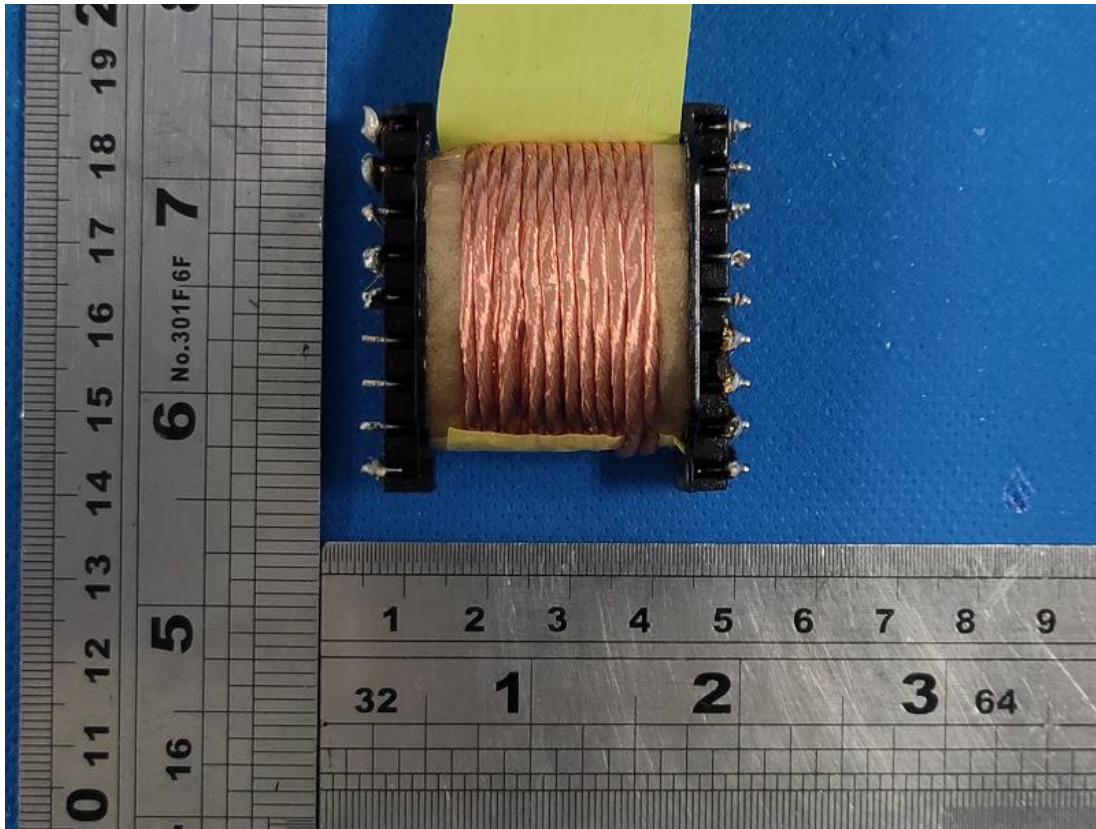
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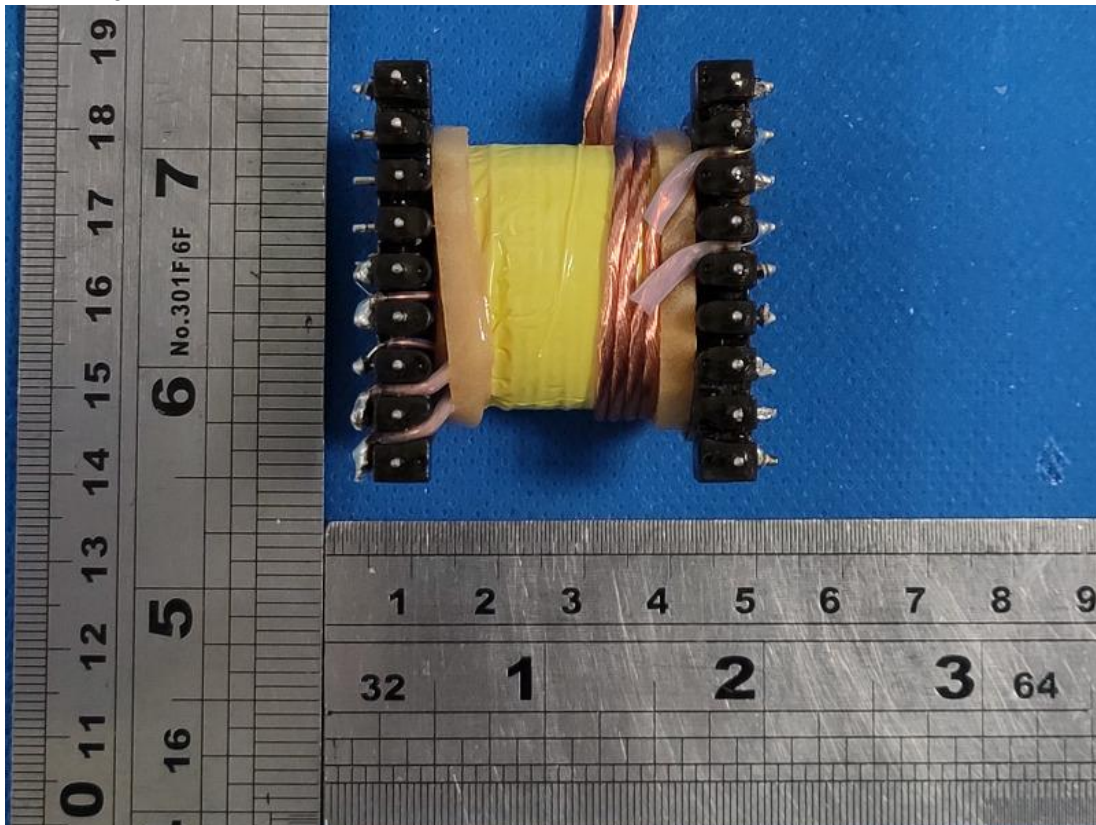
Picture 28.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



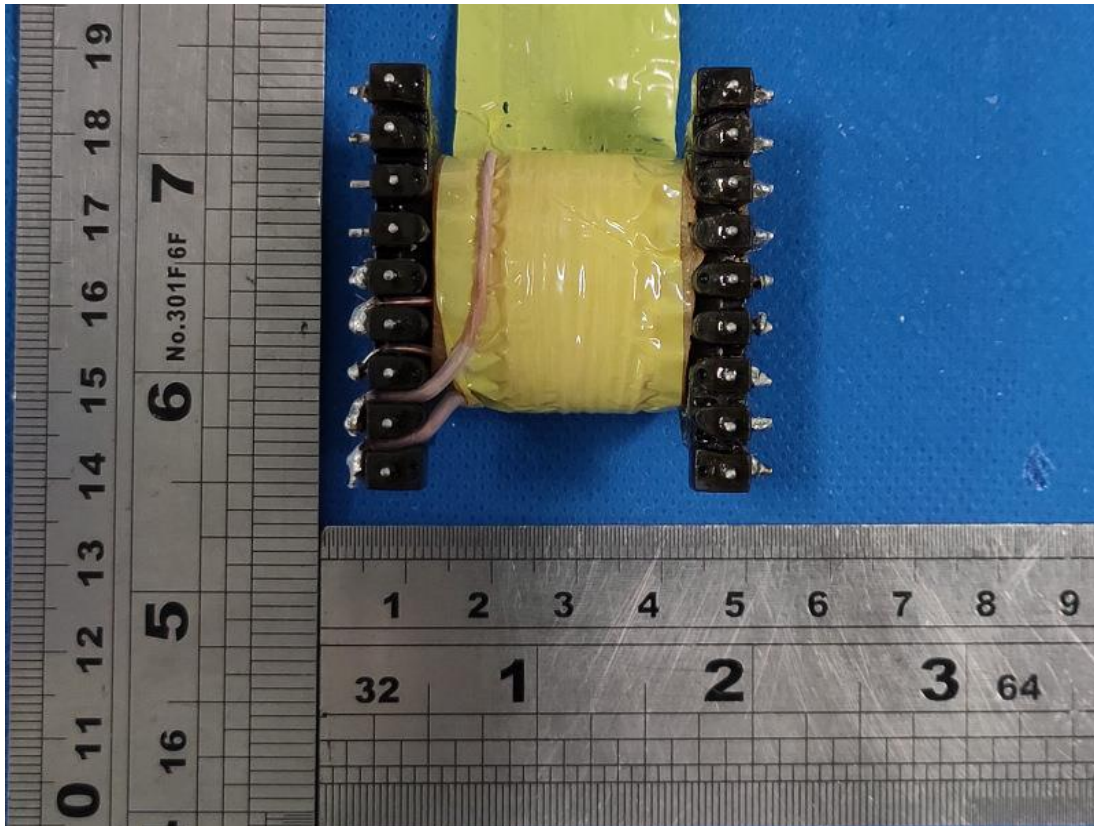
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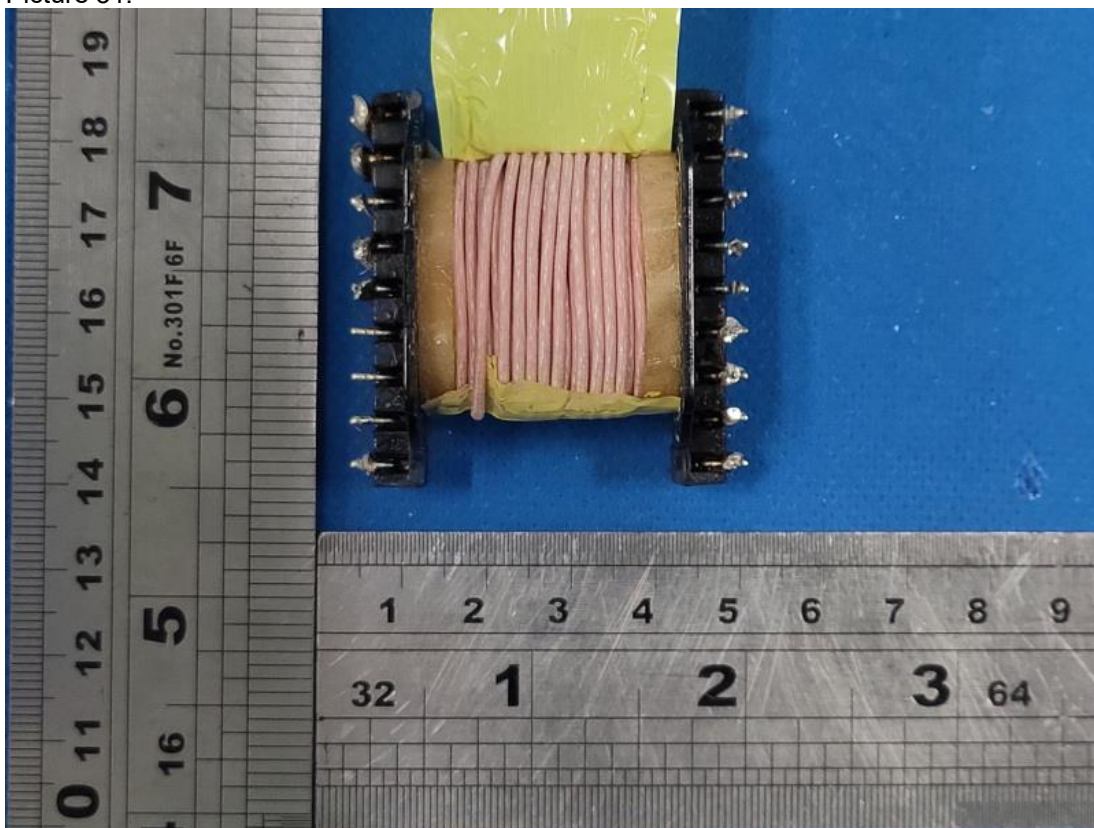
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Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



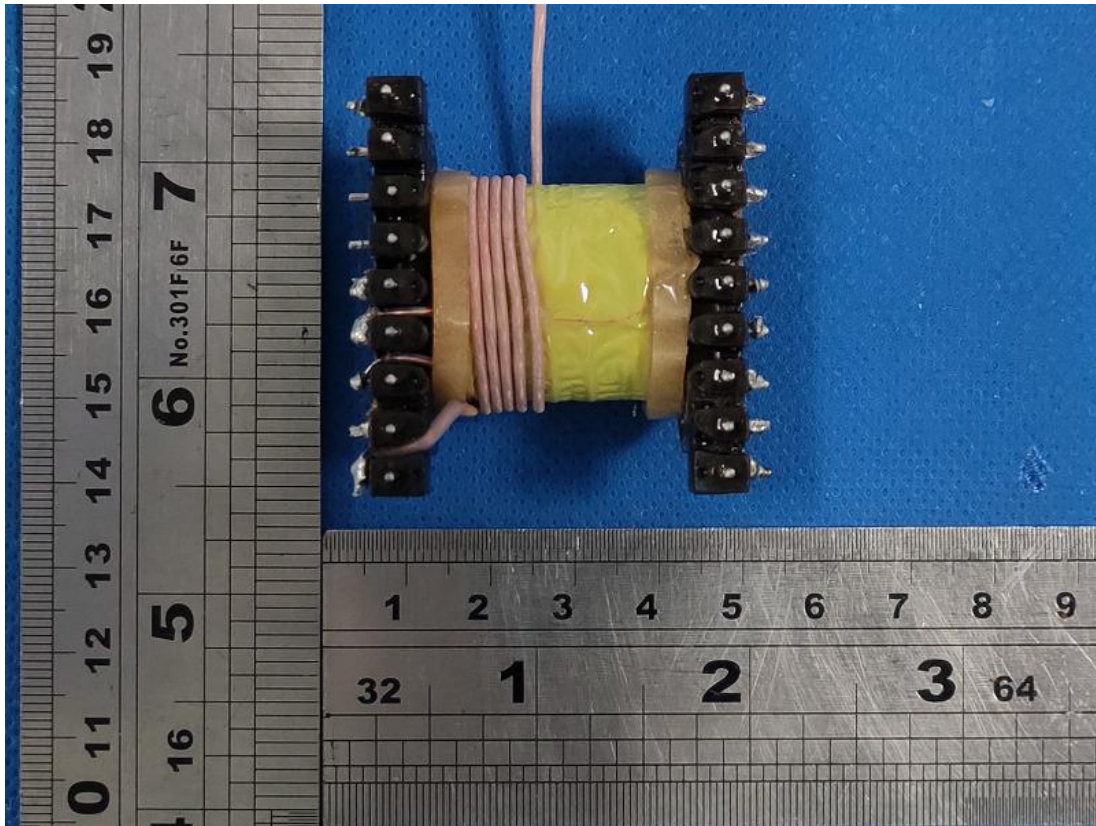
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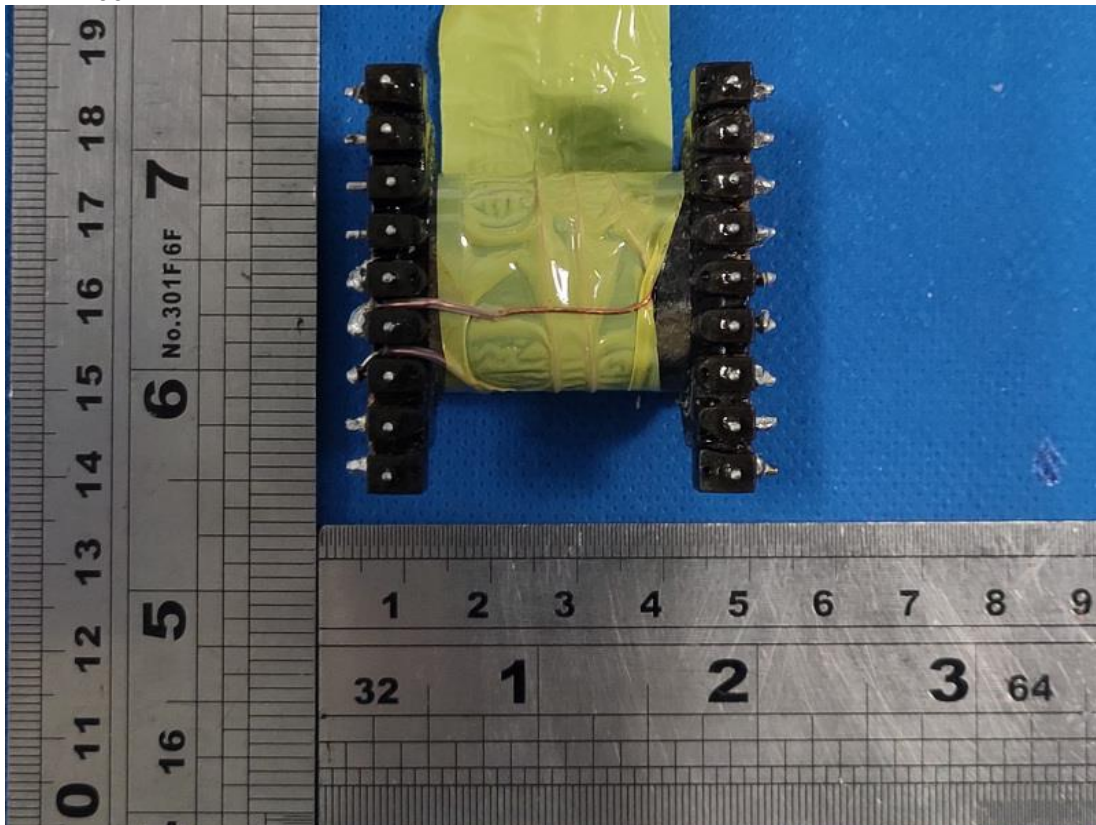
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Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



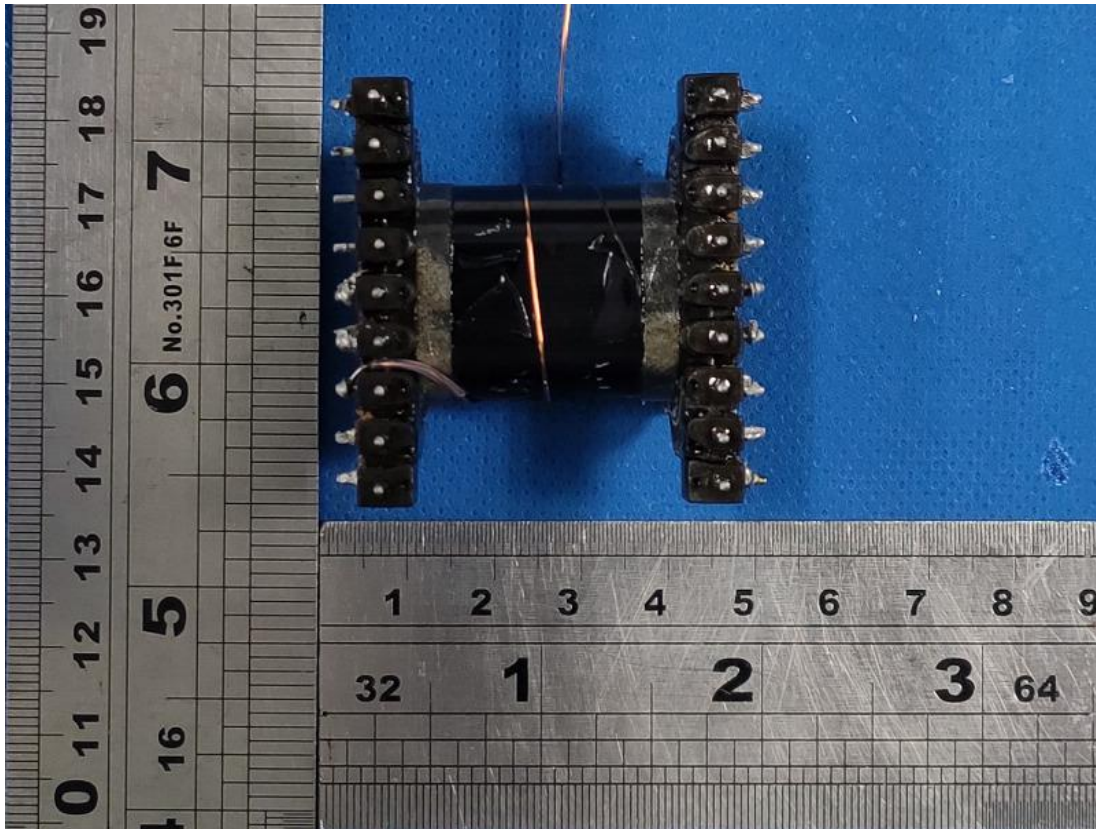
Picture 33.



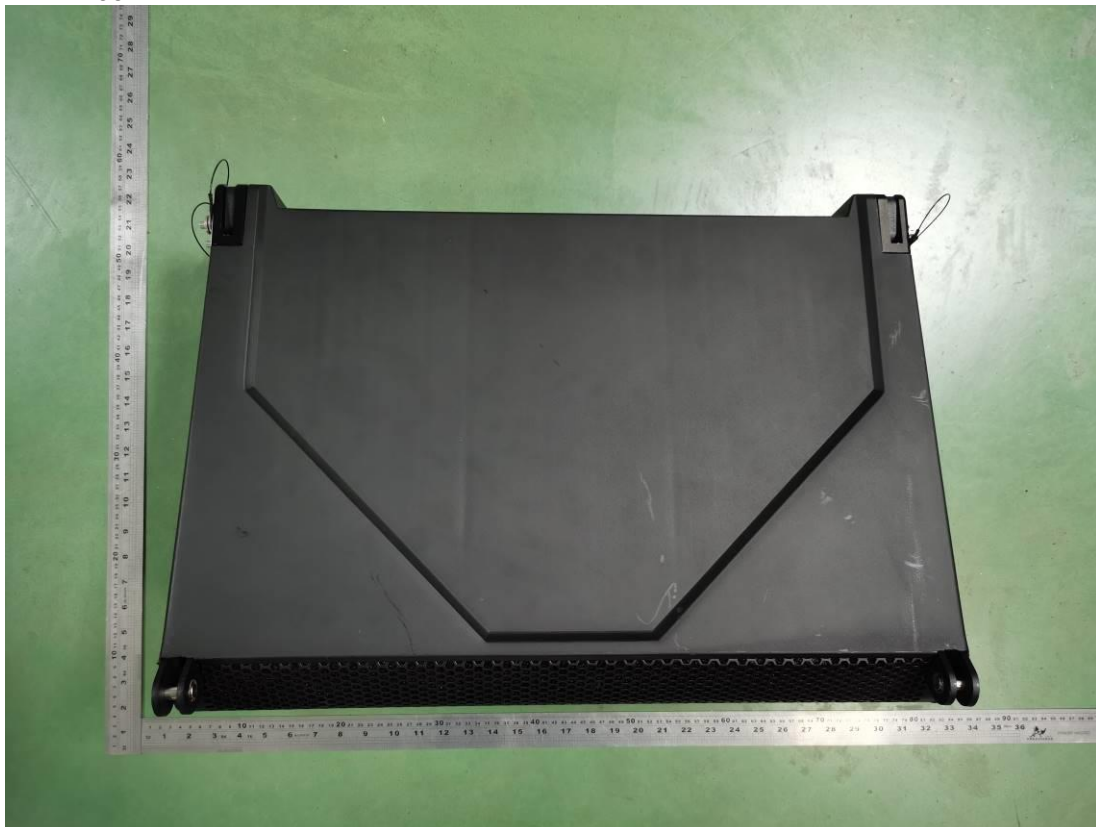
Picture 34.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



Picture 35.



Picture 36. L-ARRAY 28HA

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



Picture 37.



Picture 38.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



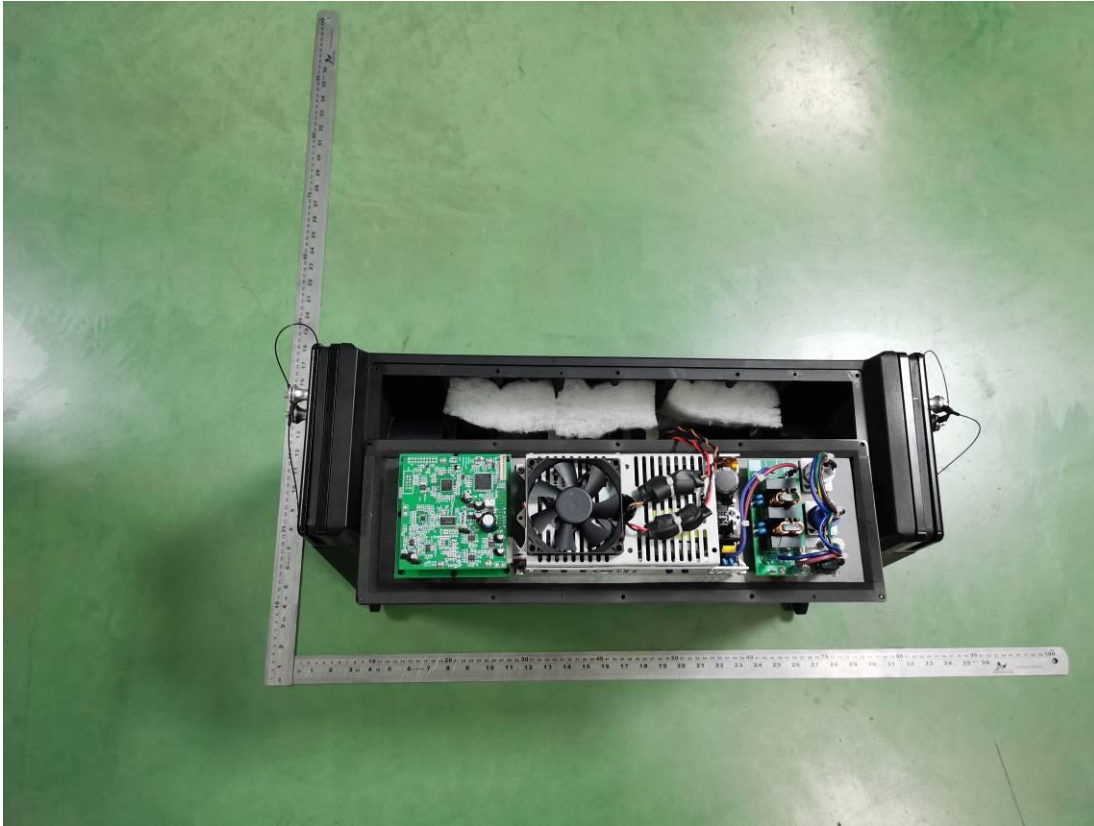
Picture 39.



Picture 40.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



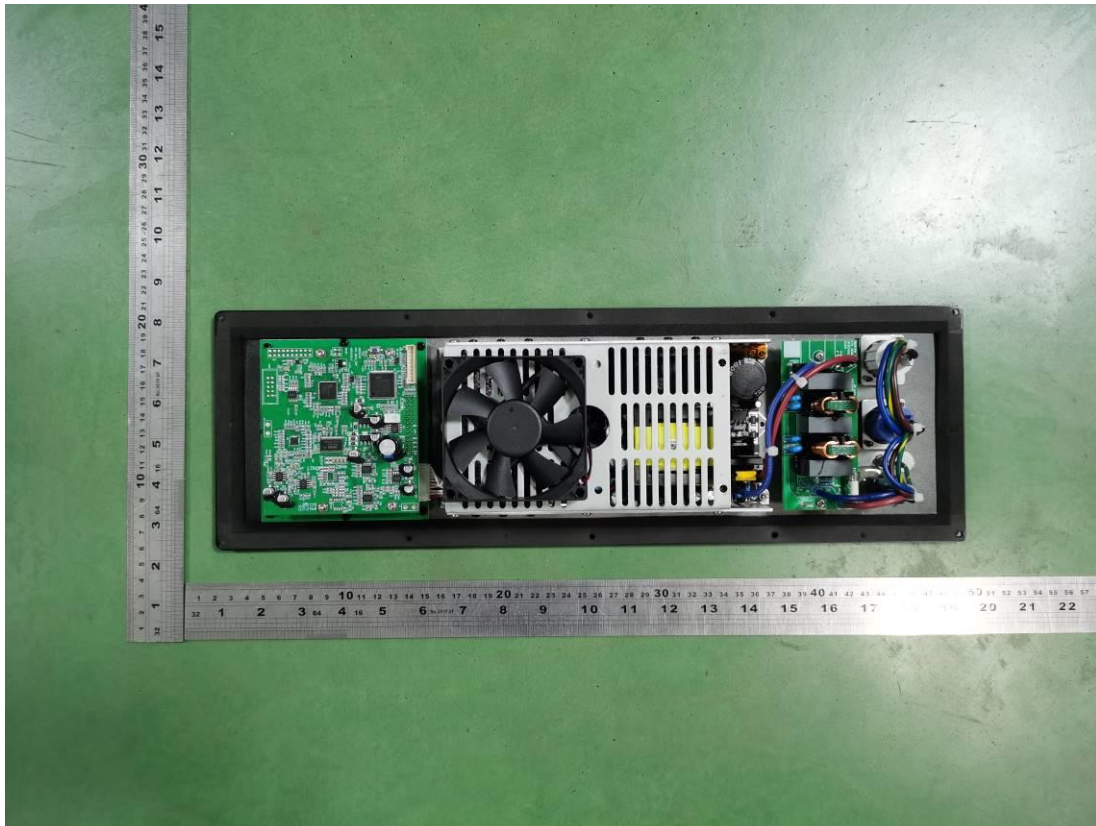
Picture 41.



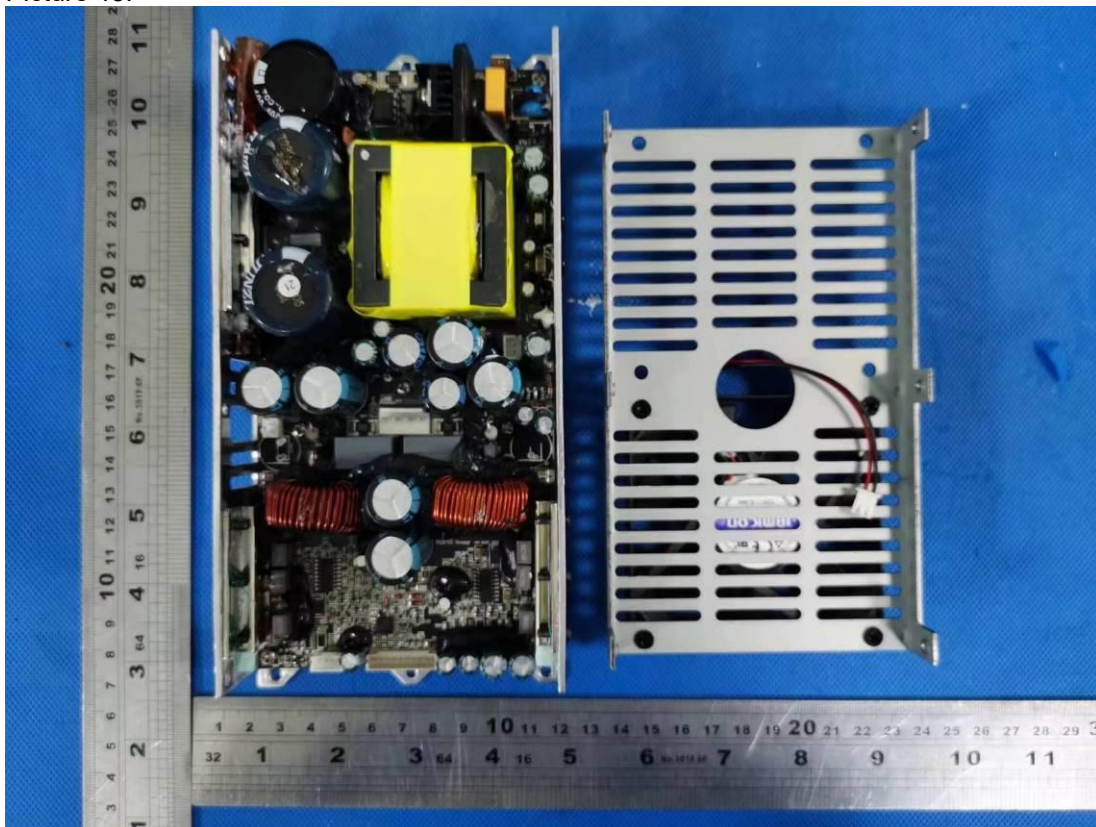
Picture 42.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



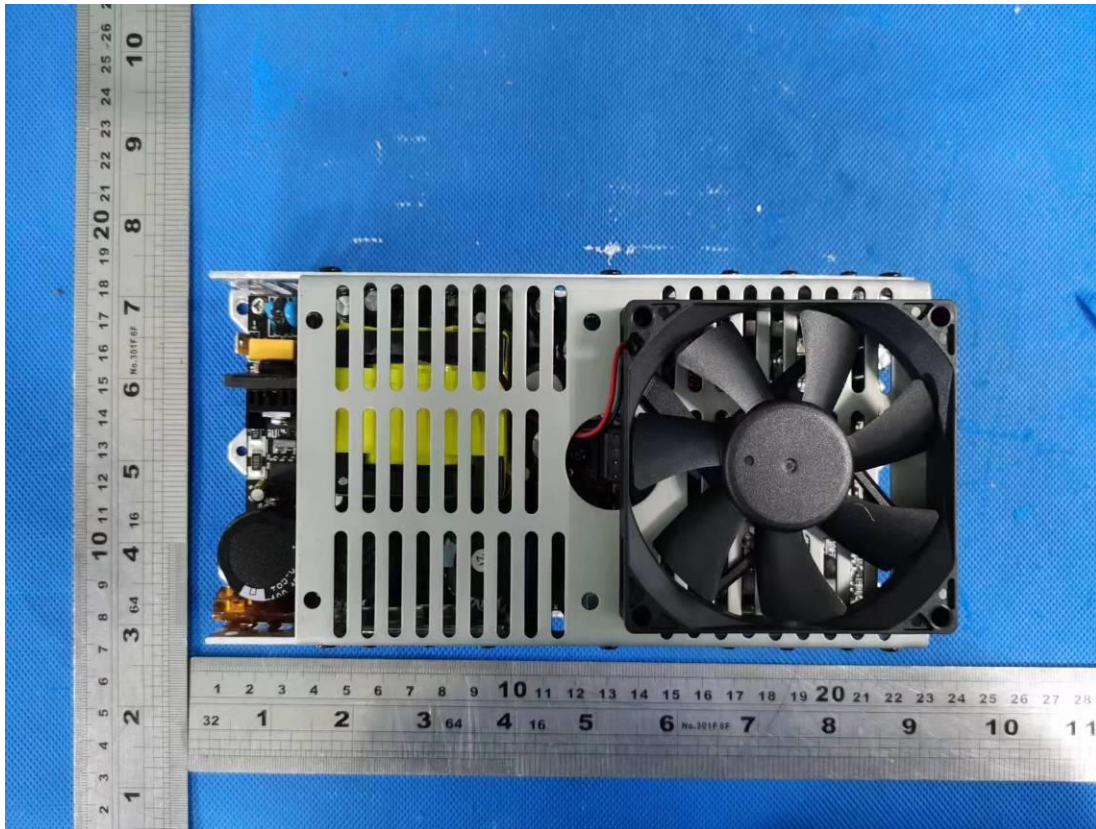
Picture 43.



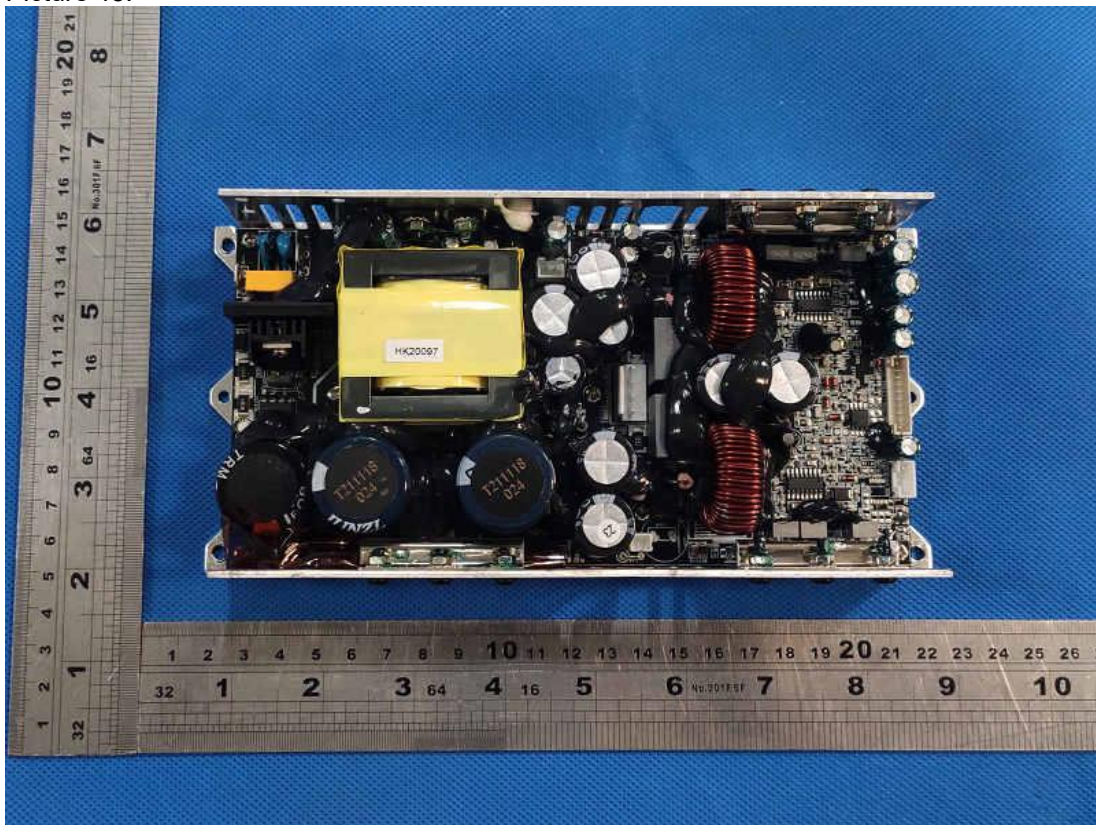
Picture 44.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



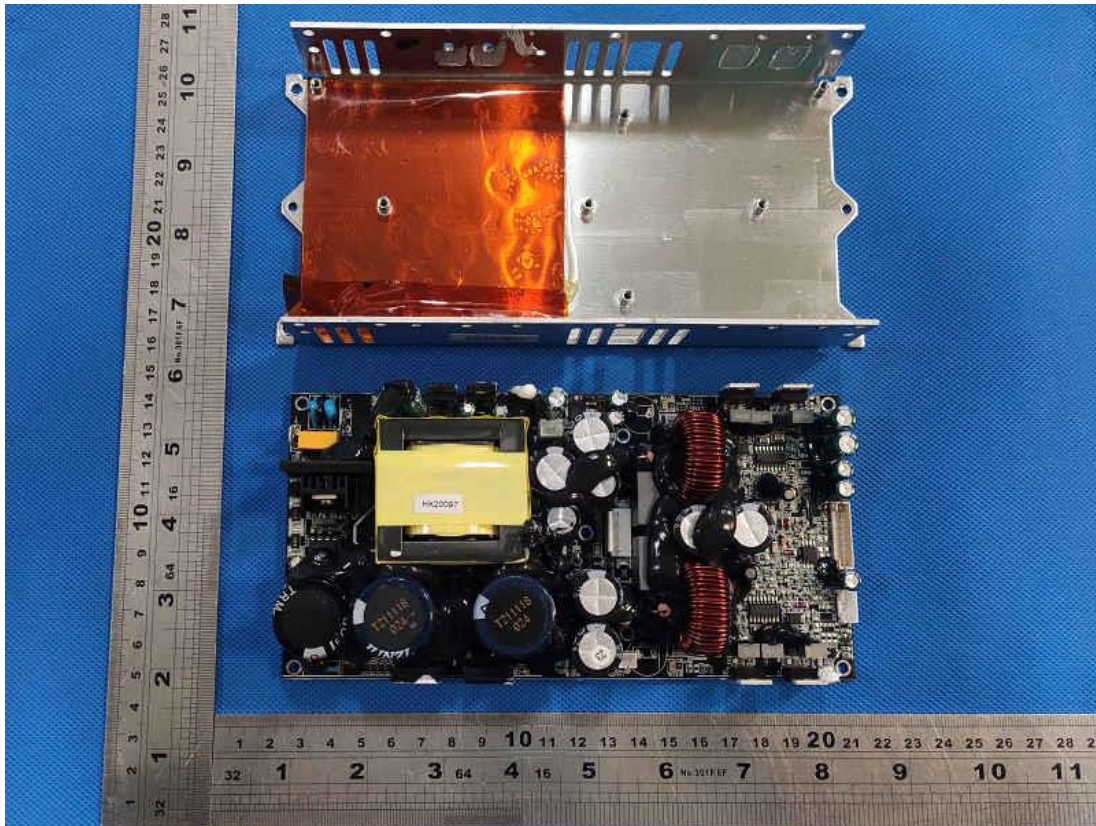
Picture 45.



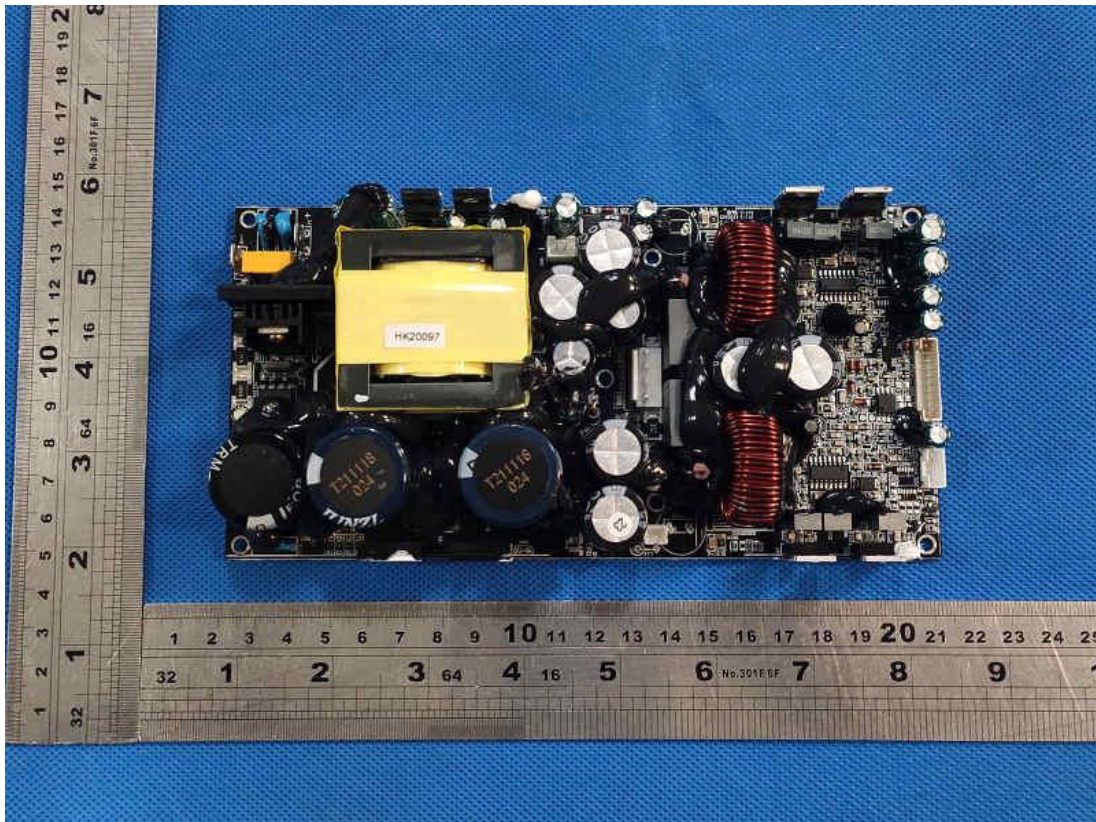
Picture 46.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



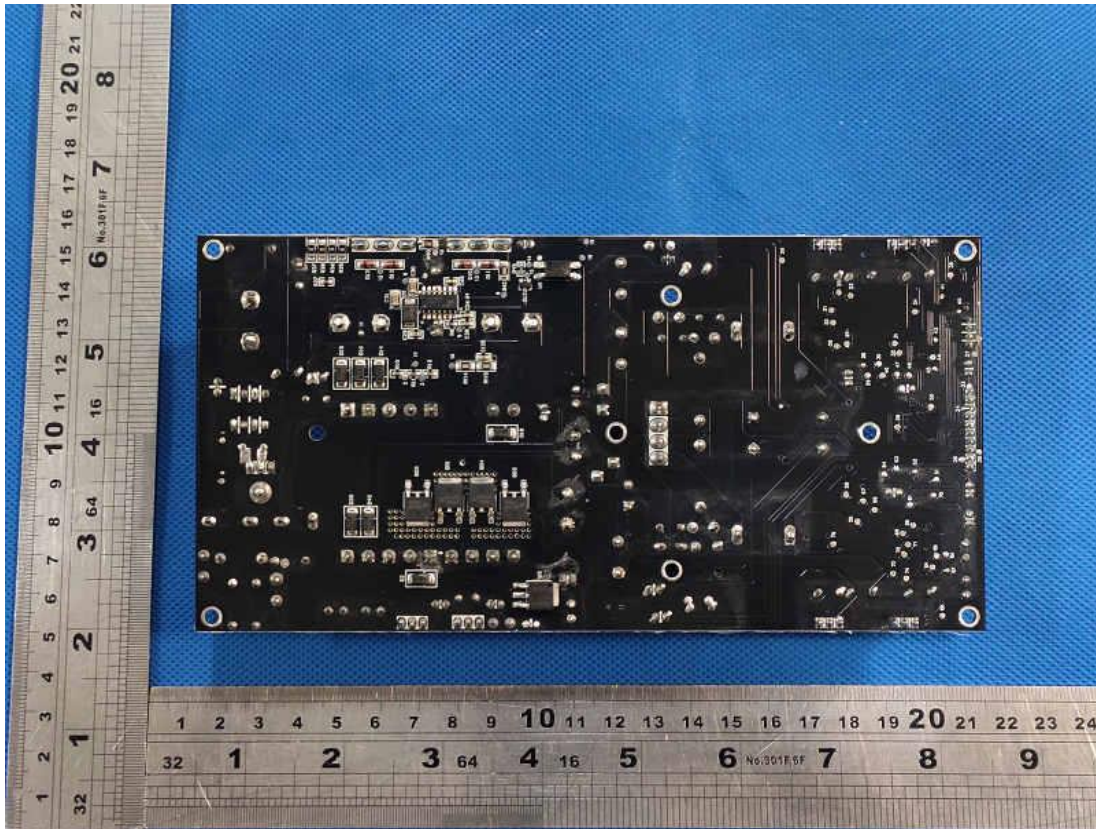
Picture 47.



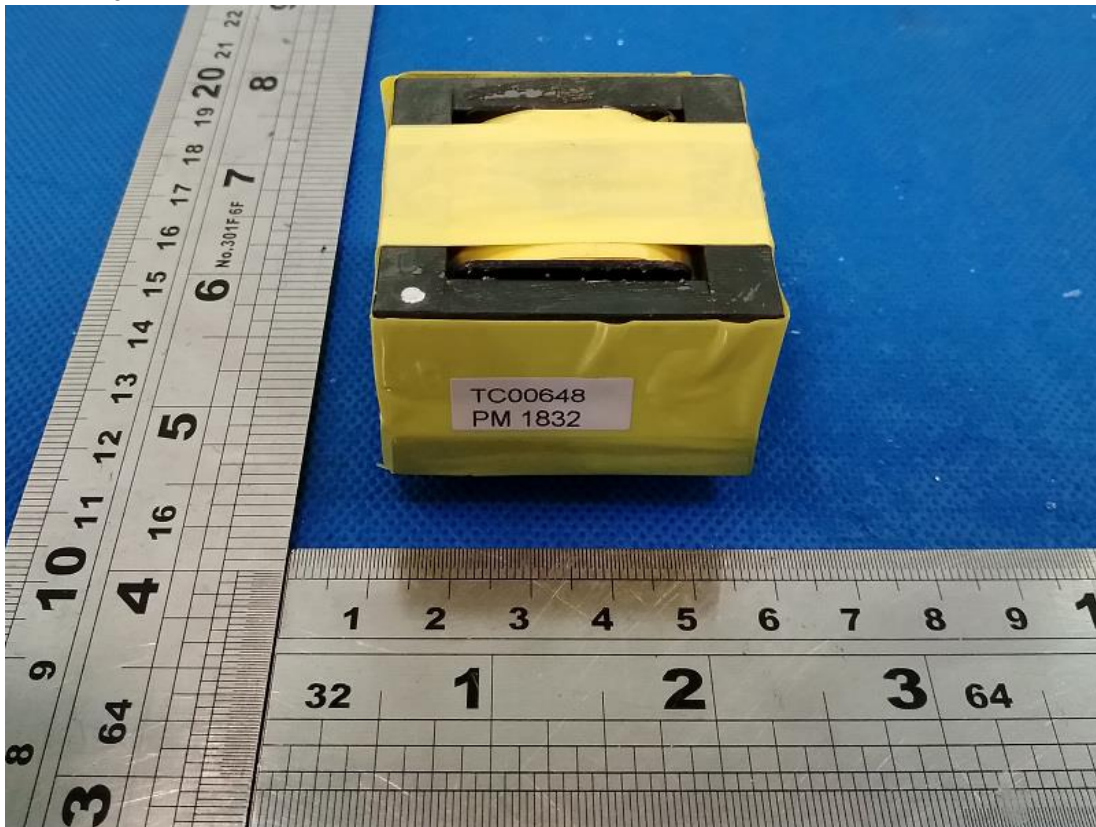
Picture 48.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



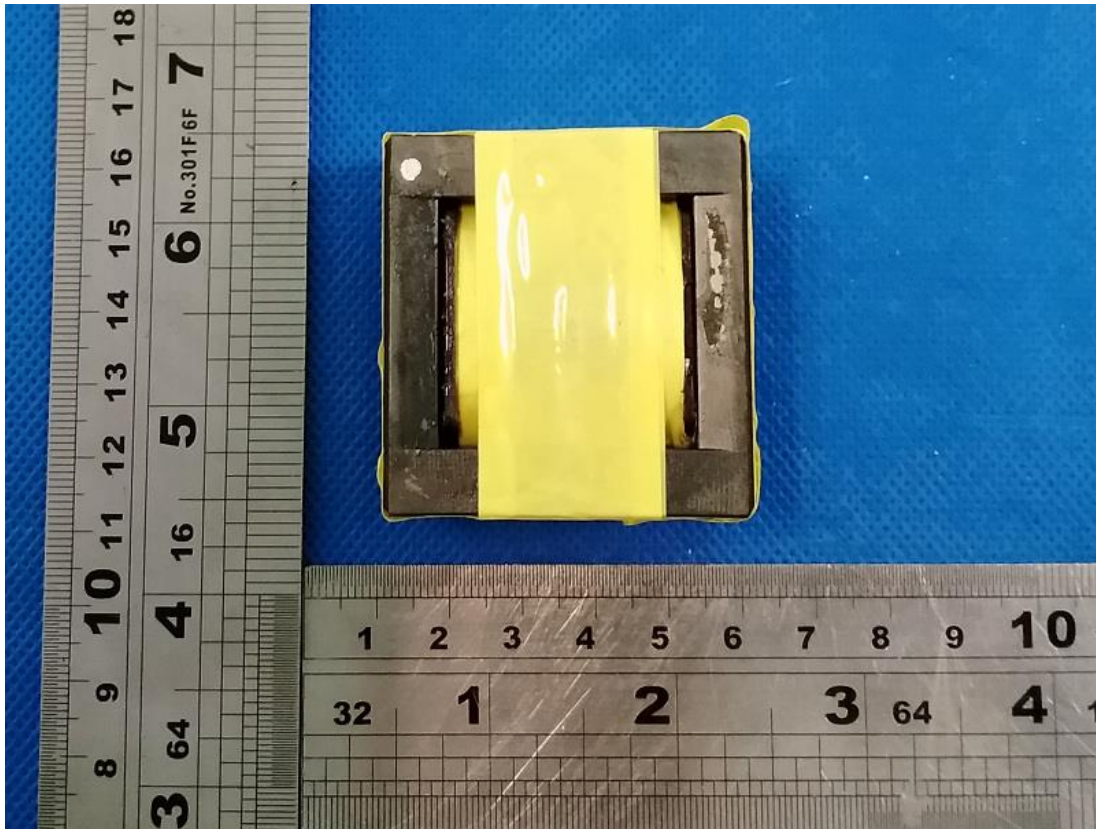
Picture 49.



Picture 50.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



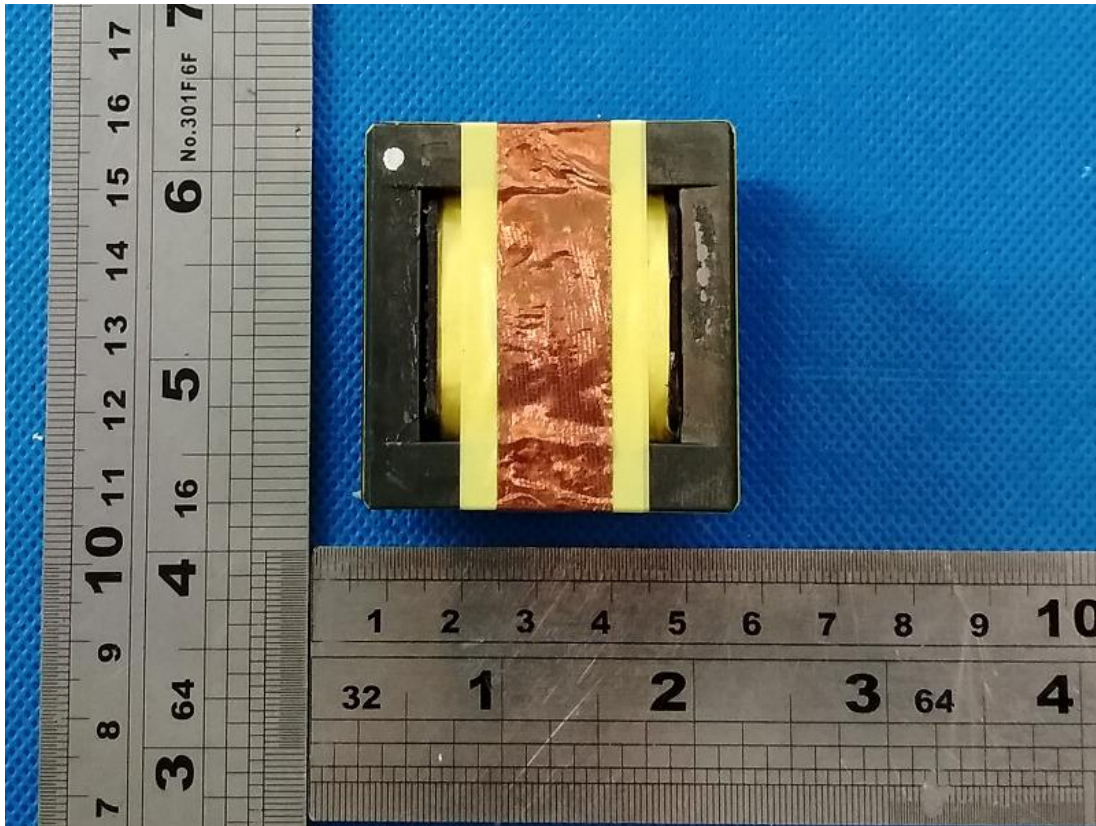
Picture 51.



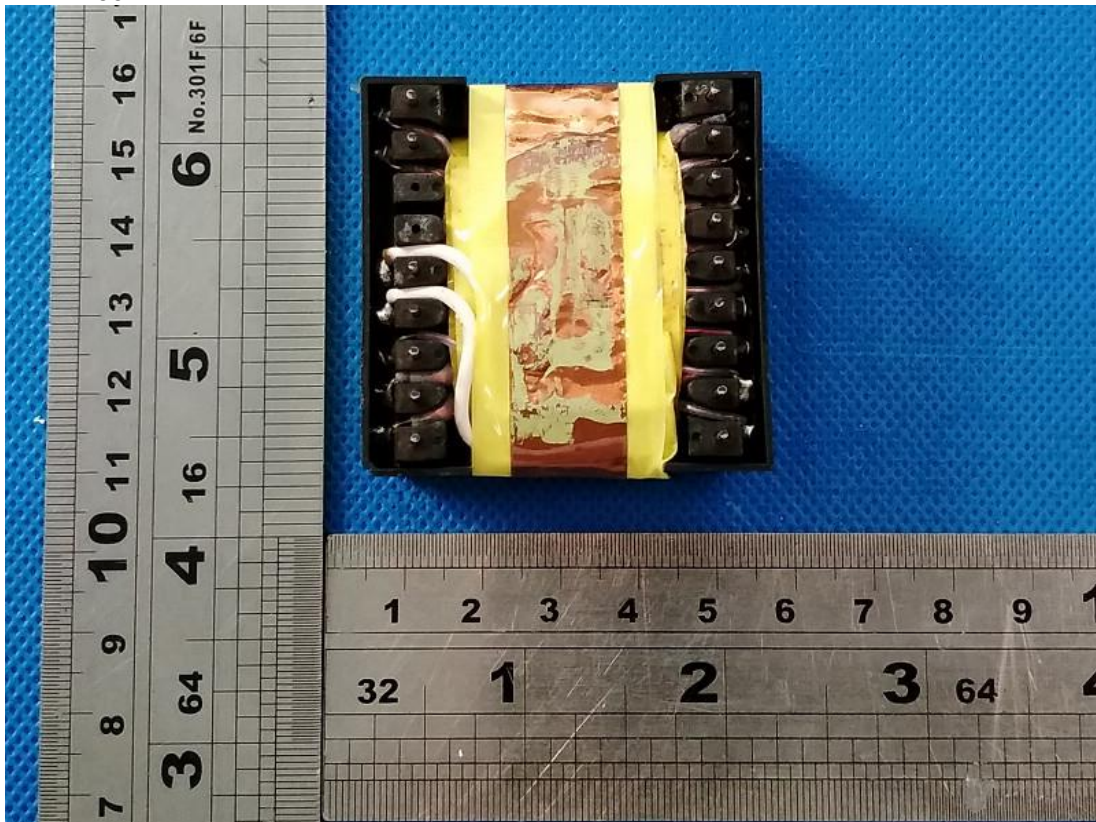
Picture 52.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



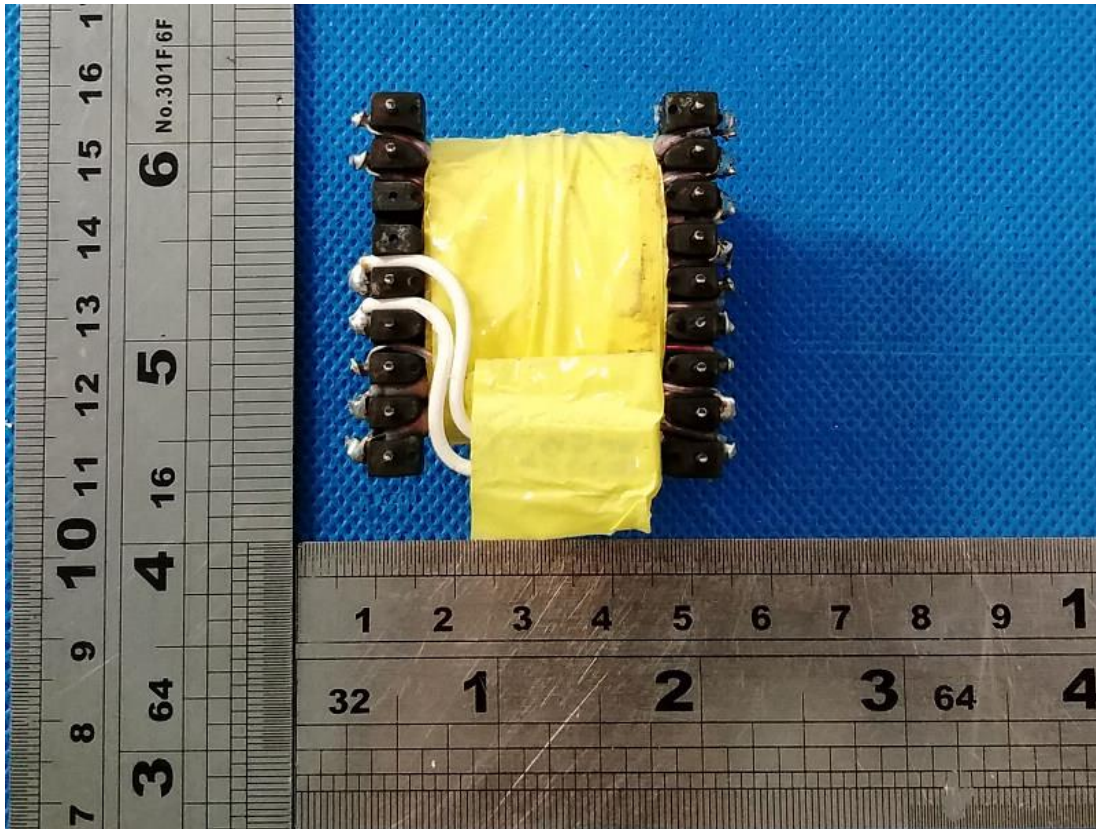
Picture 53.



Picture 54.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



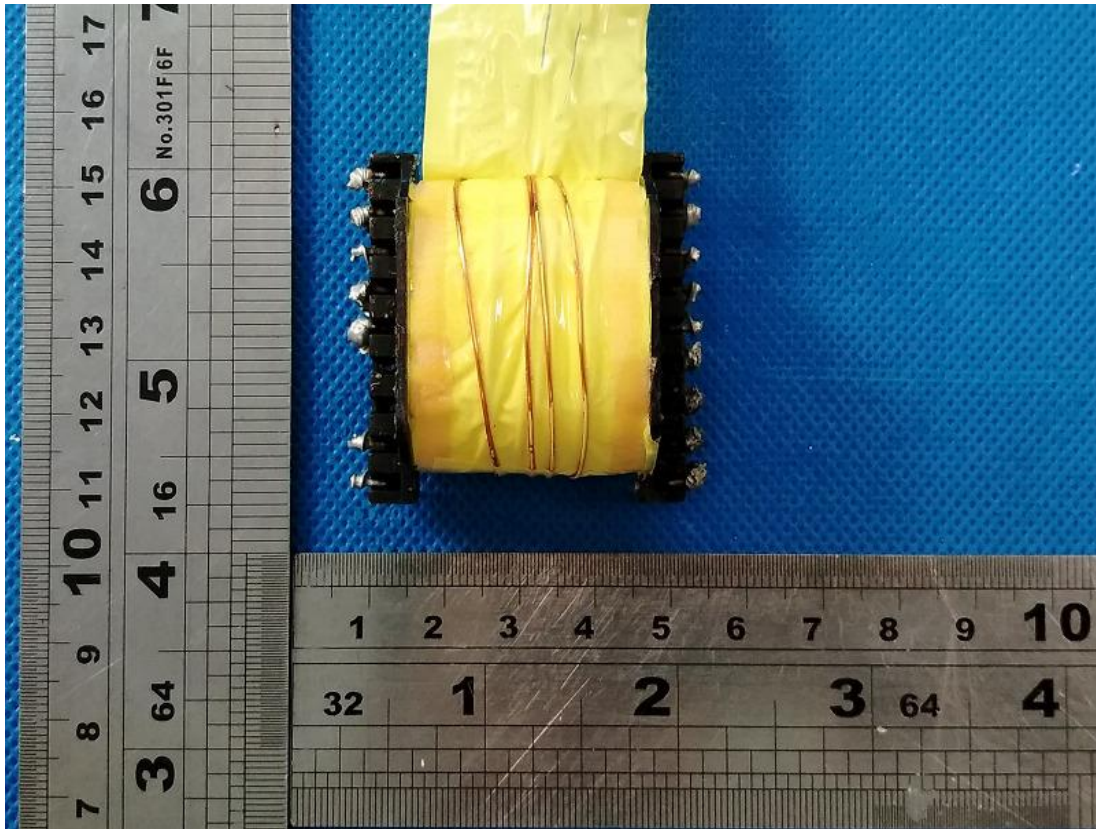
Picture 55.



Picture 56.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



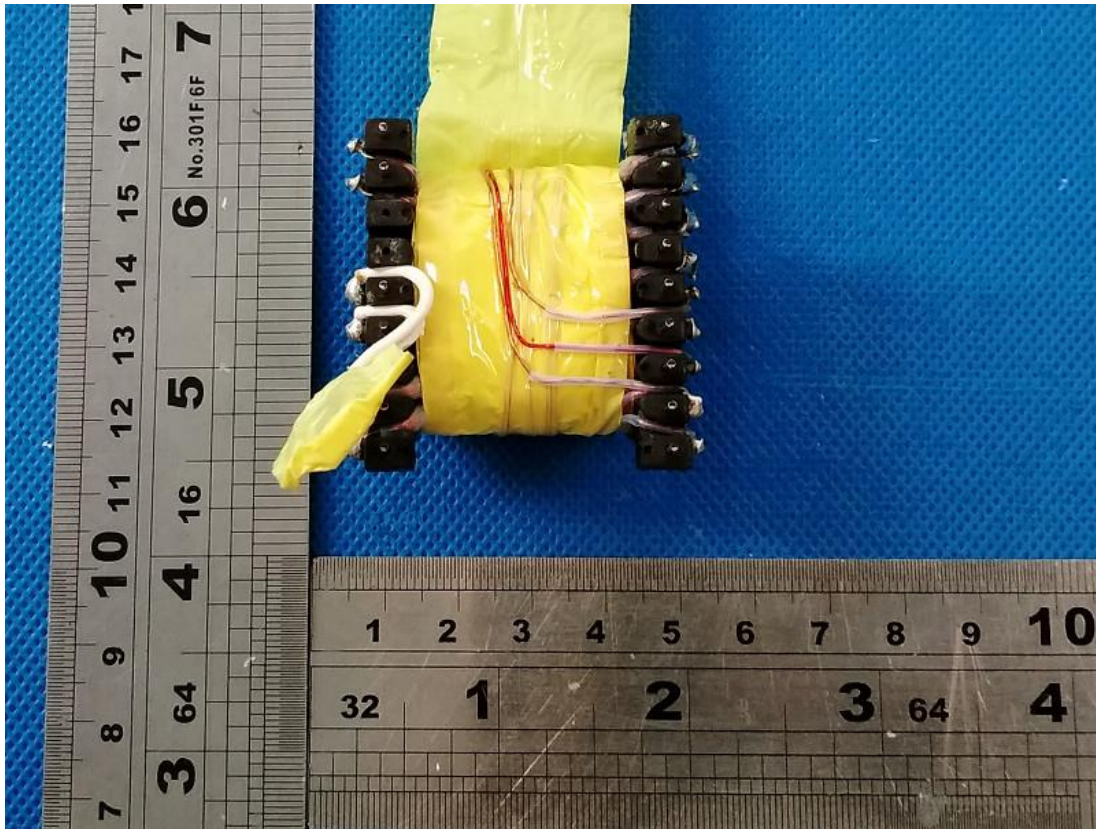
Picture 57.



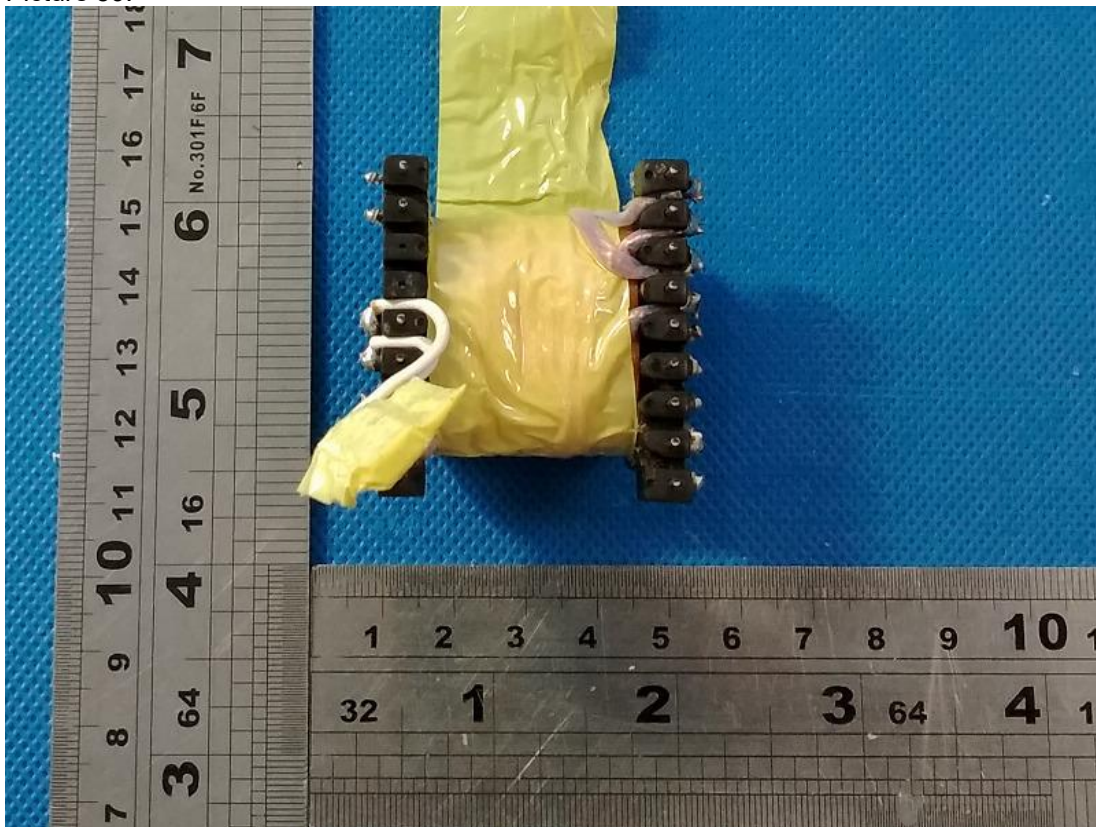
Picture 58.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



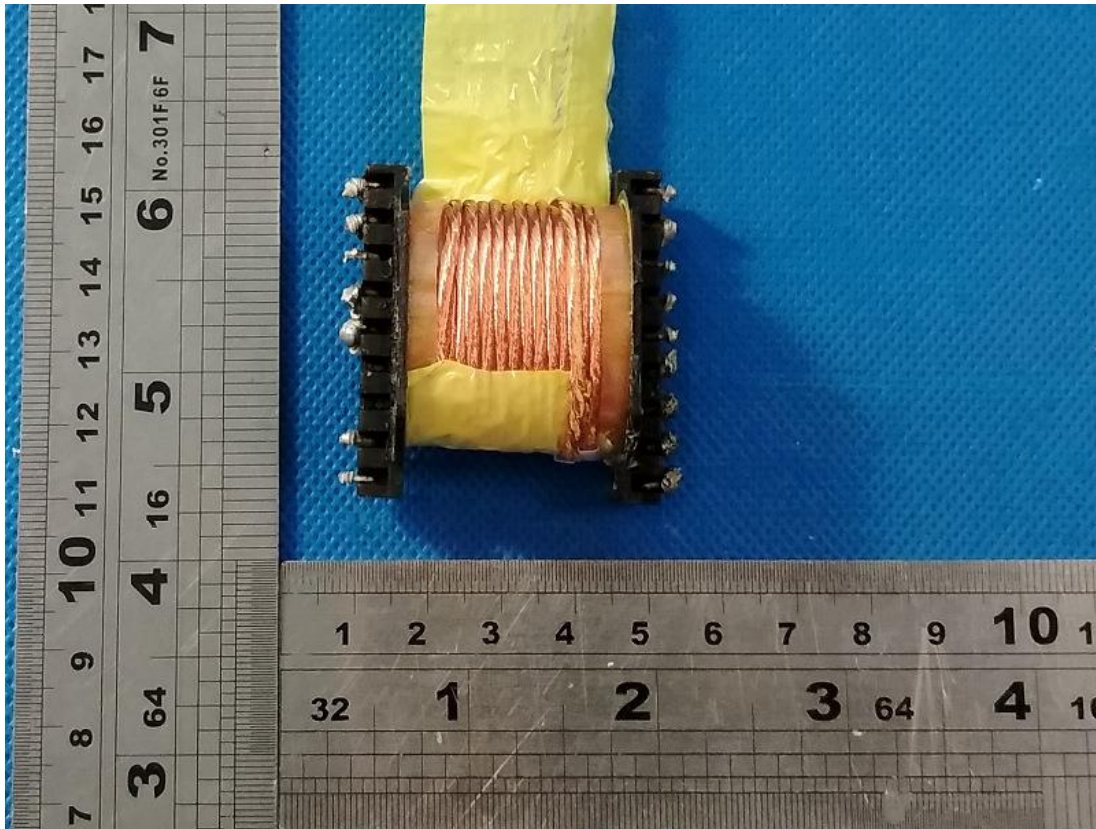
Picture 59.



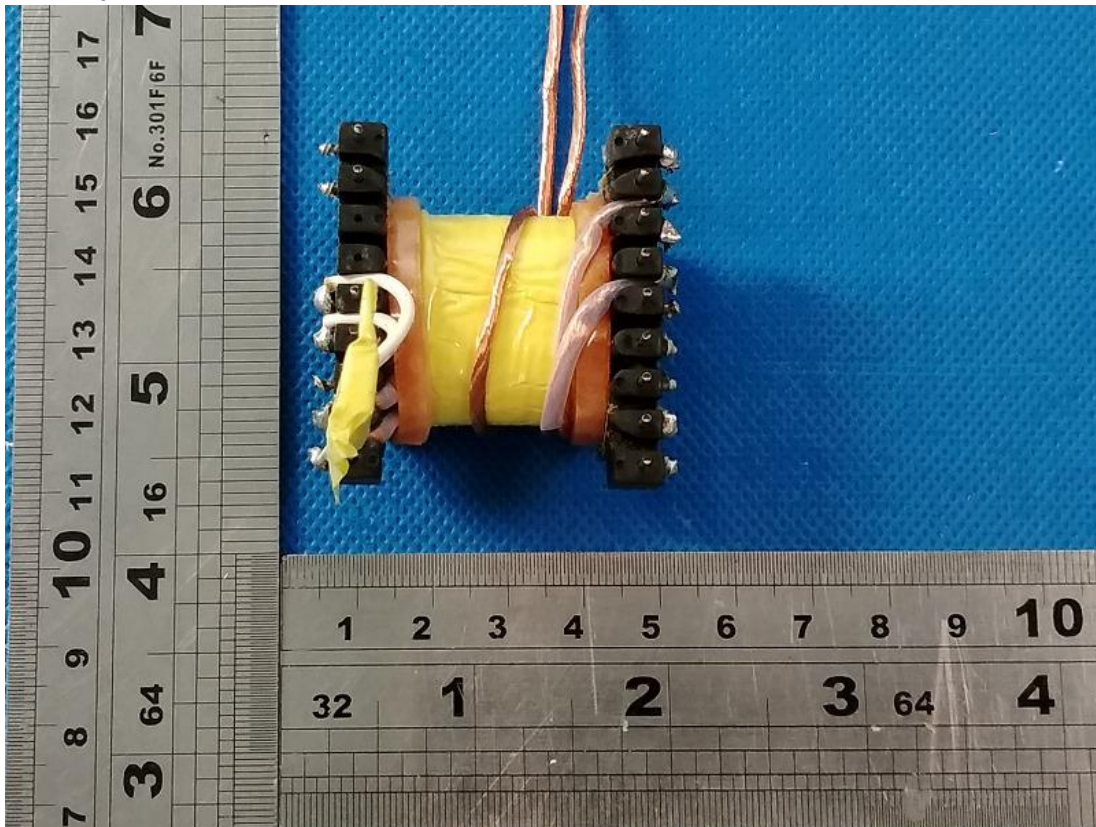
Picture 60.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



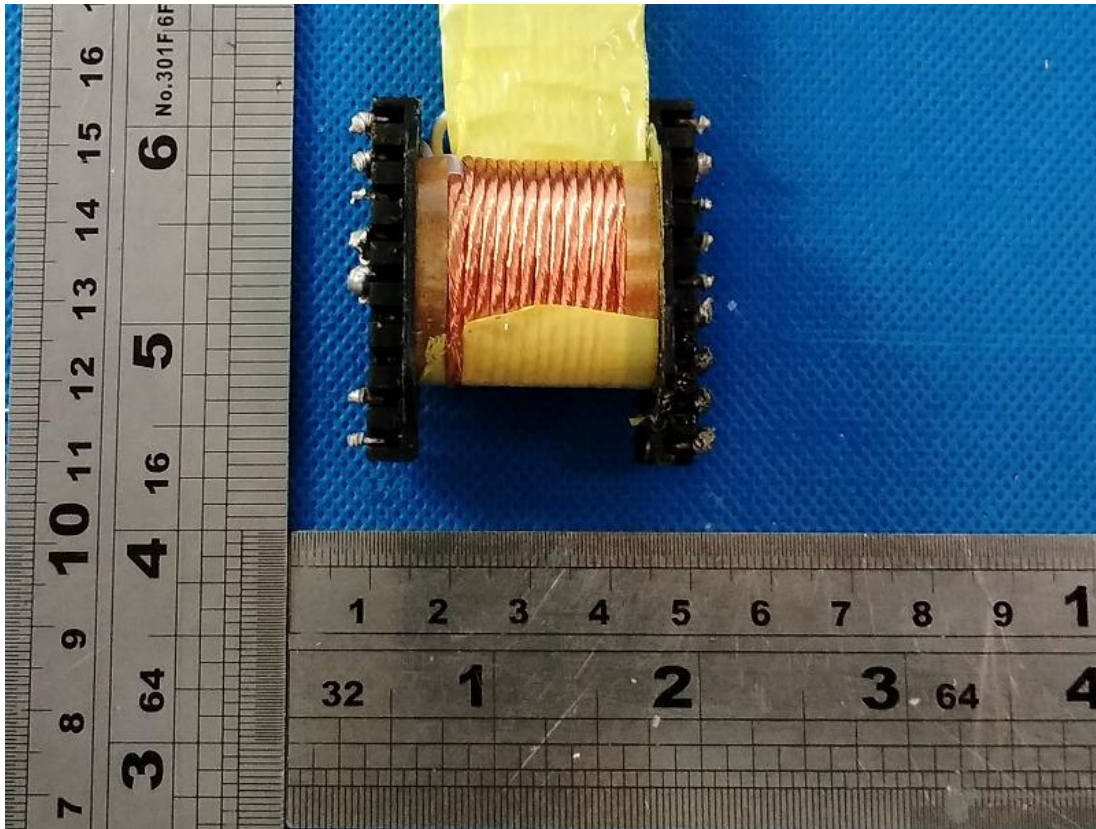
Picture 61.



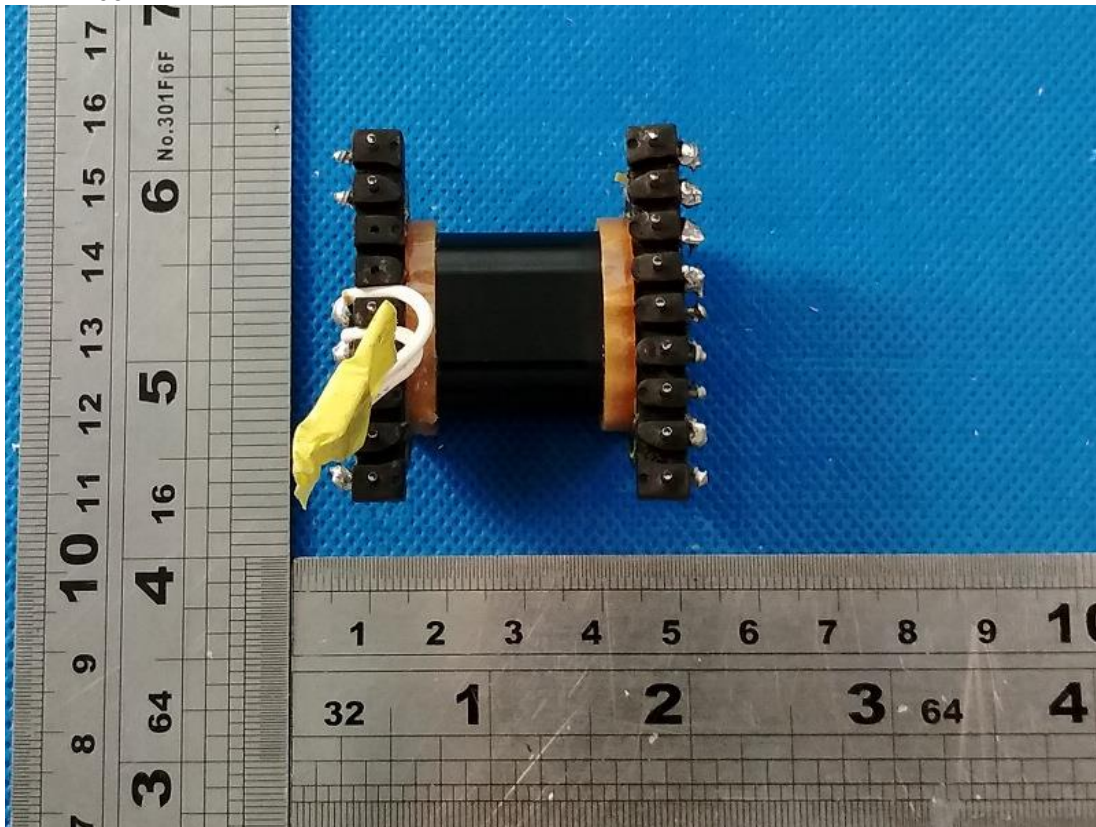
Picture 62.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



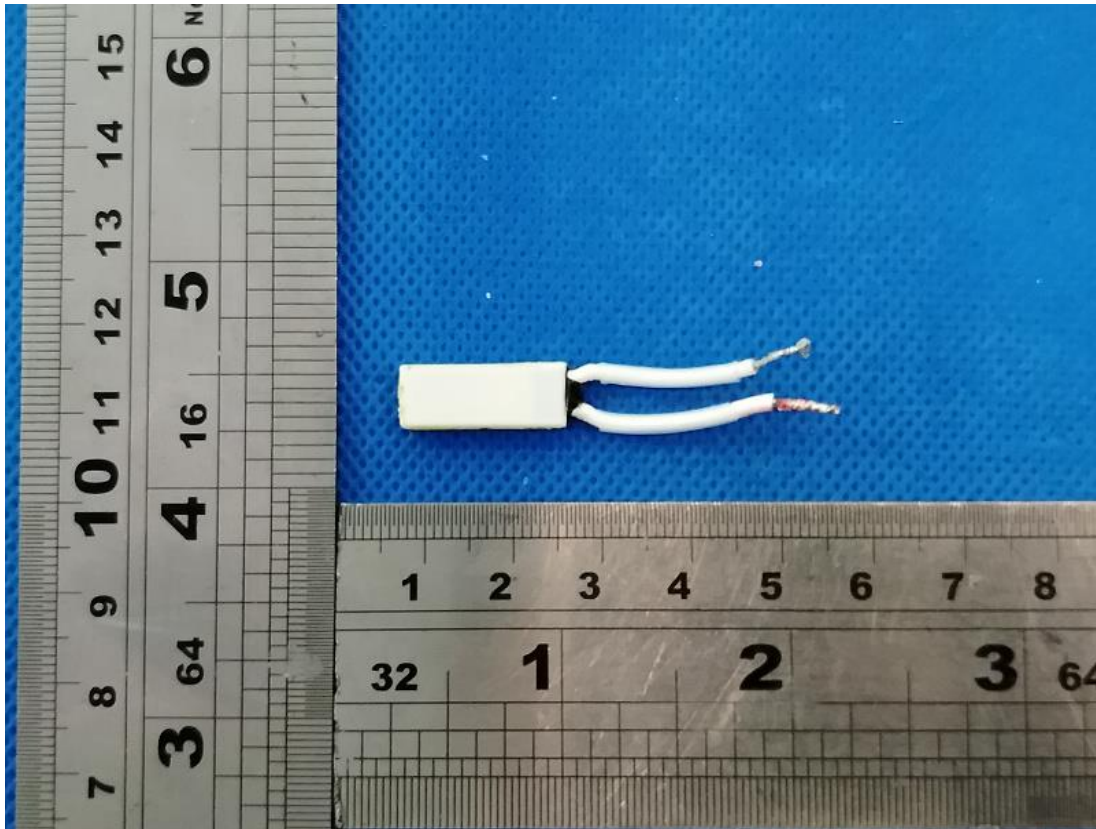
Picture 63.



Picture 64.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



Picture 65.



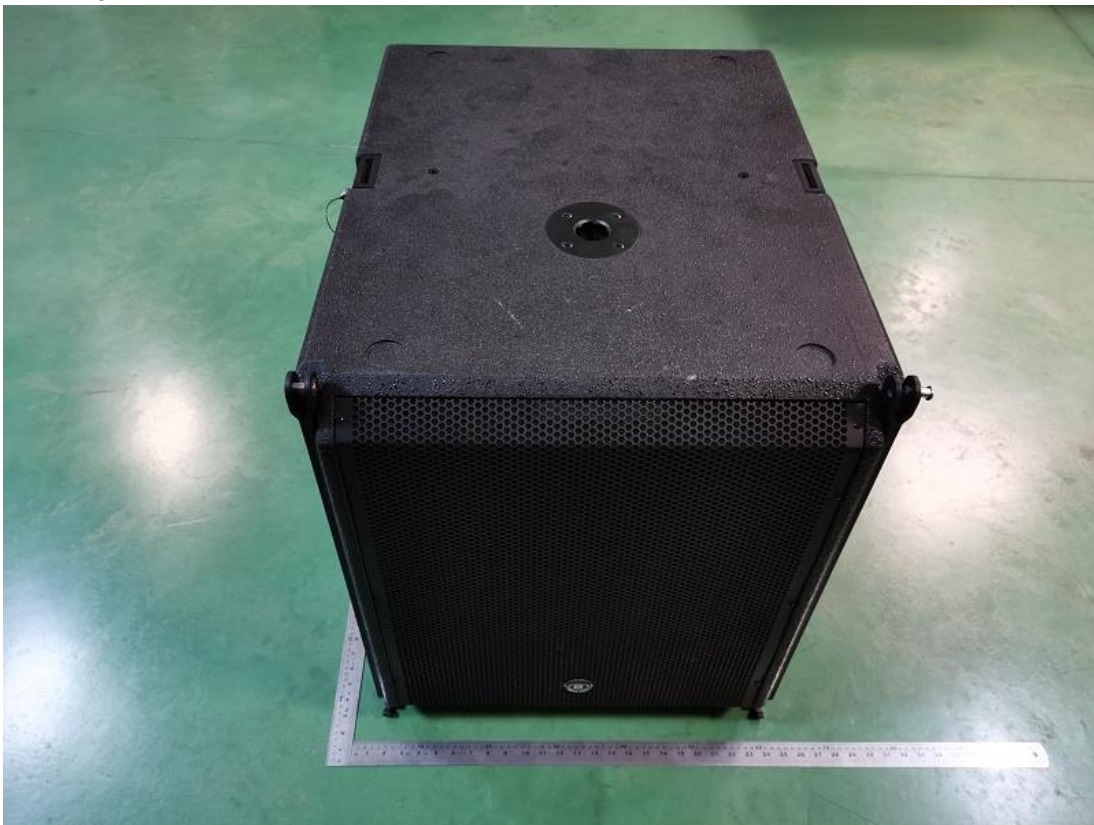
Picture 66. Model L-ARRAY 18S

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



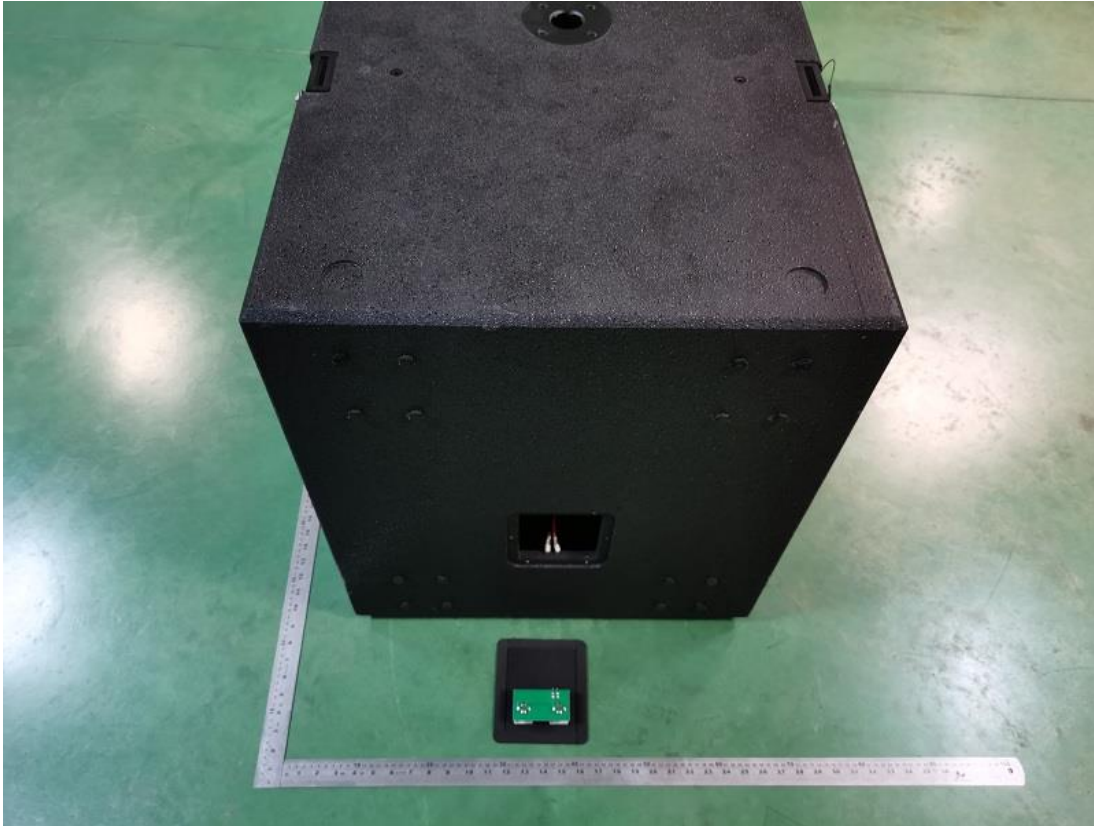
Picture 67.



Picture 68.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



Picture 69.



Picture 70.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



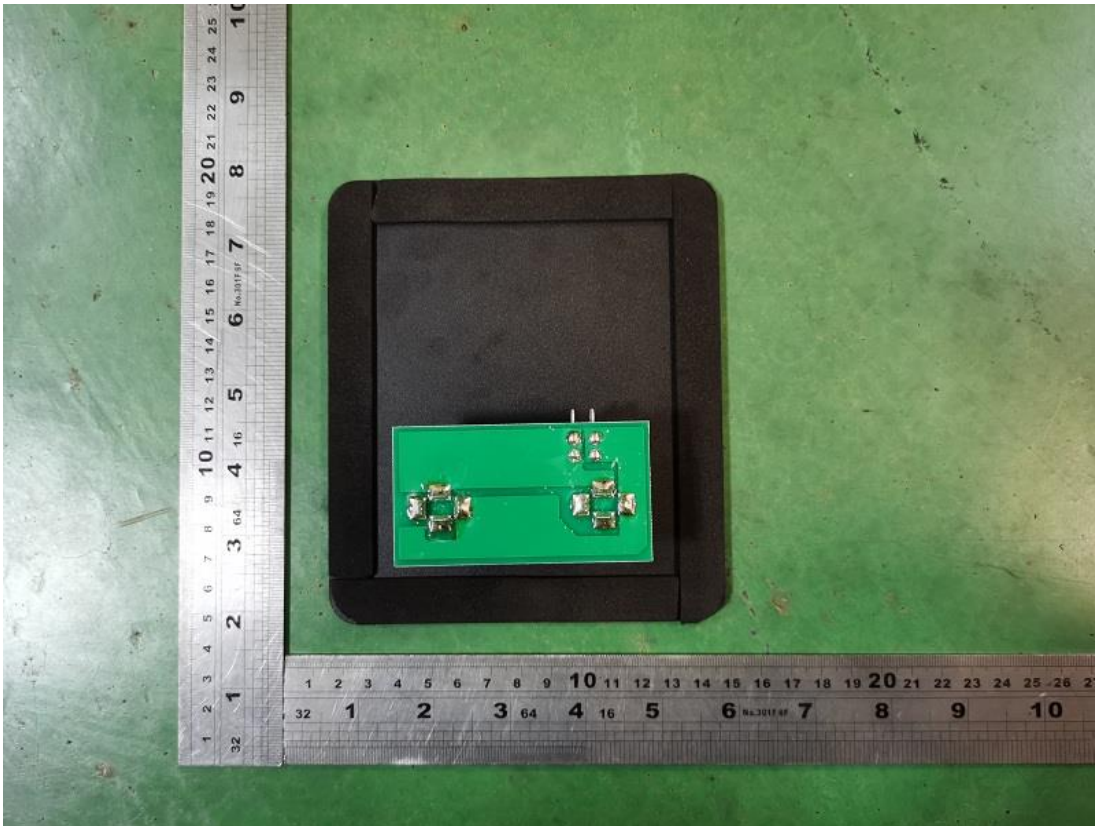
Picture 71.



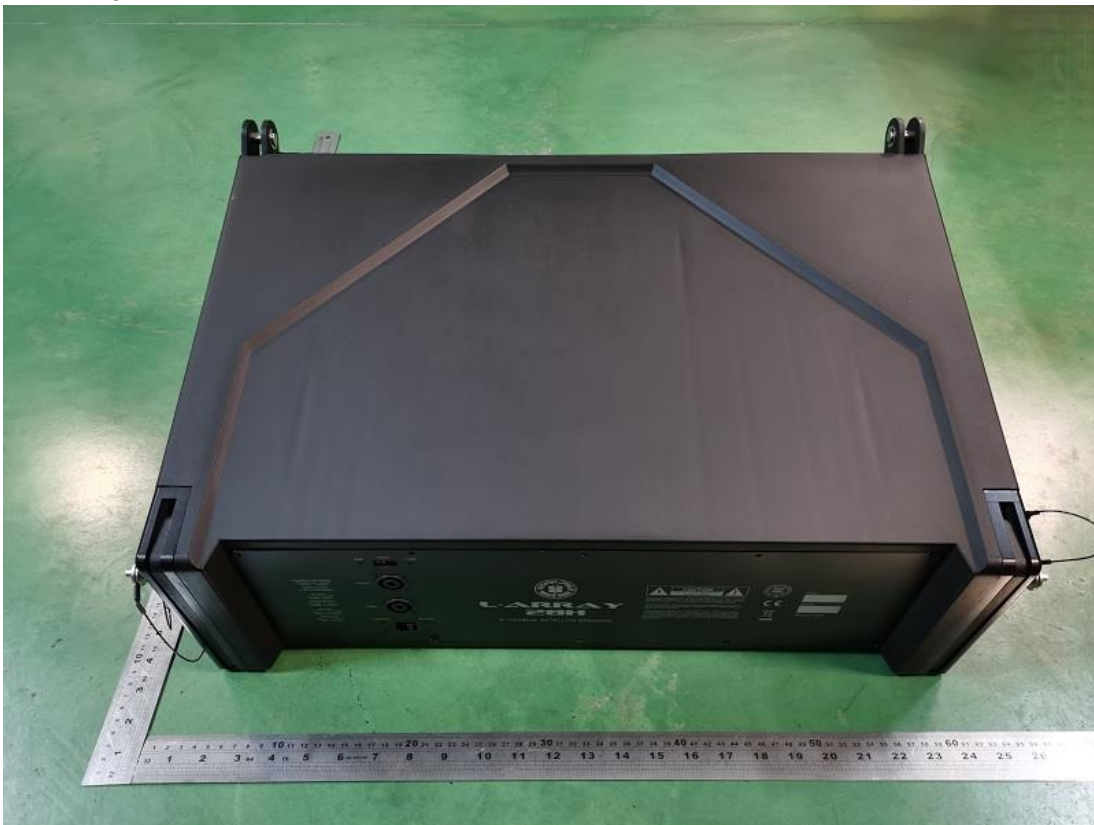
Picture 72.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



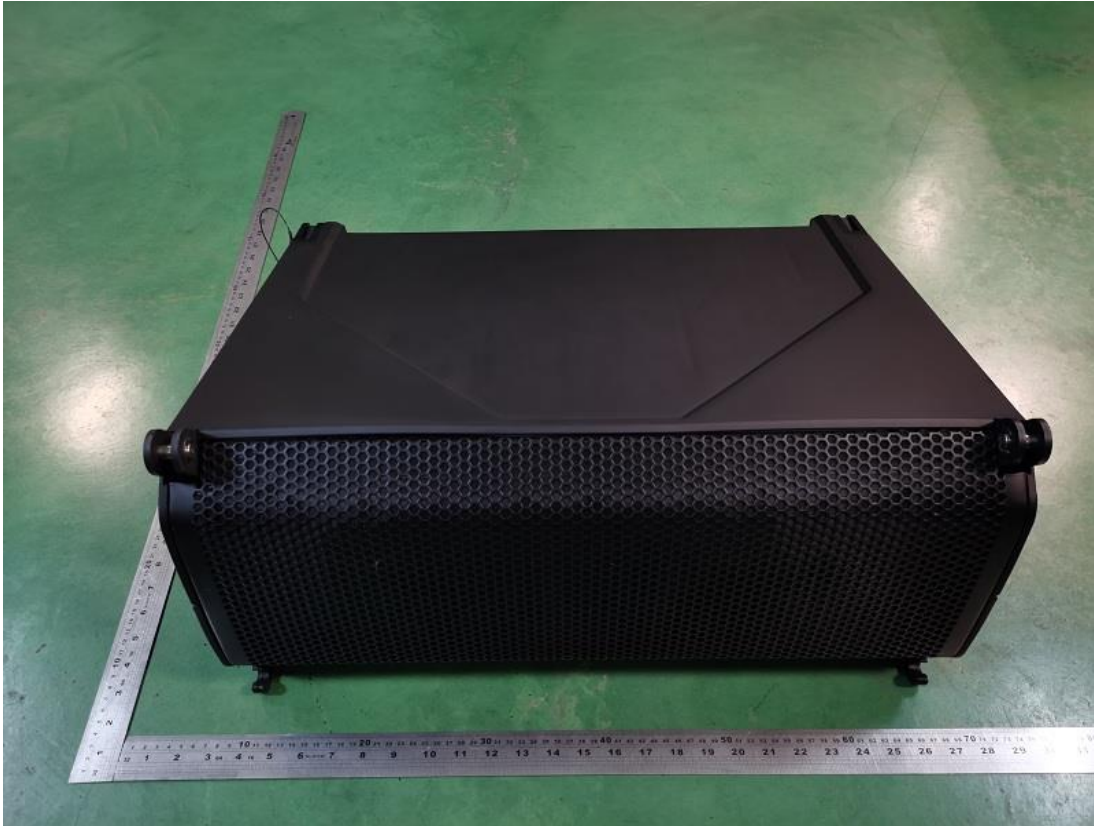
Picture 73.



Picture 74. Model L-ARRAY 28H

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



Picture 75.



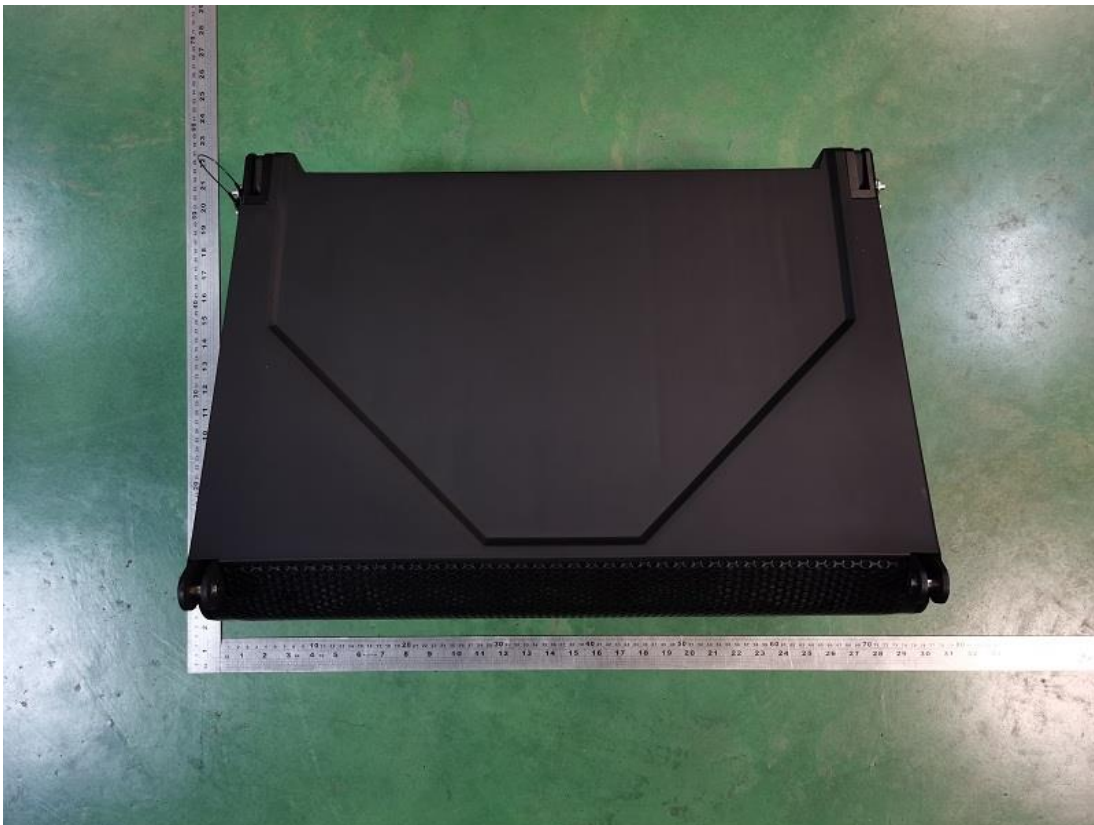
Picture 76.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



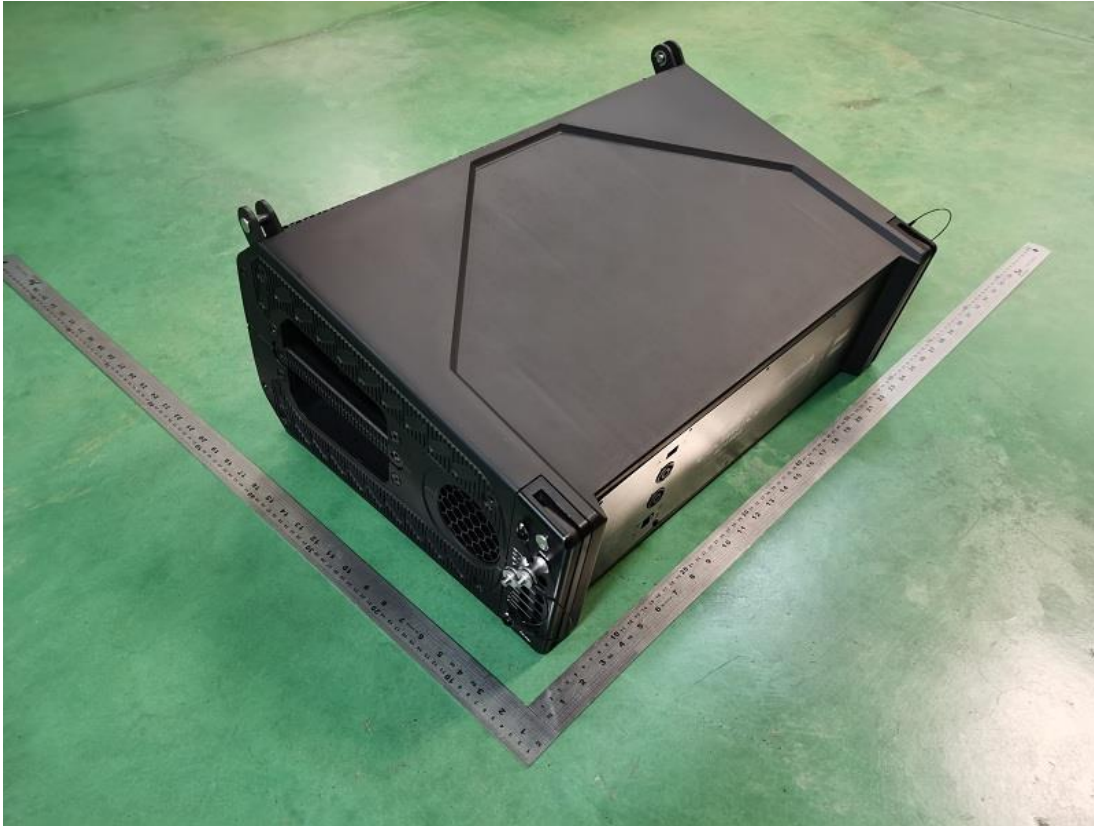
Picture 77.



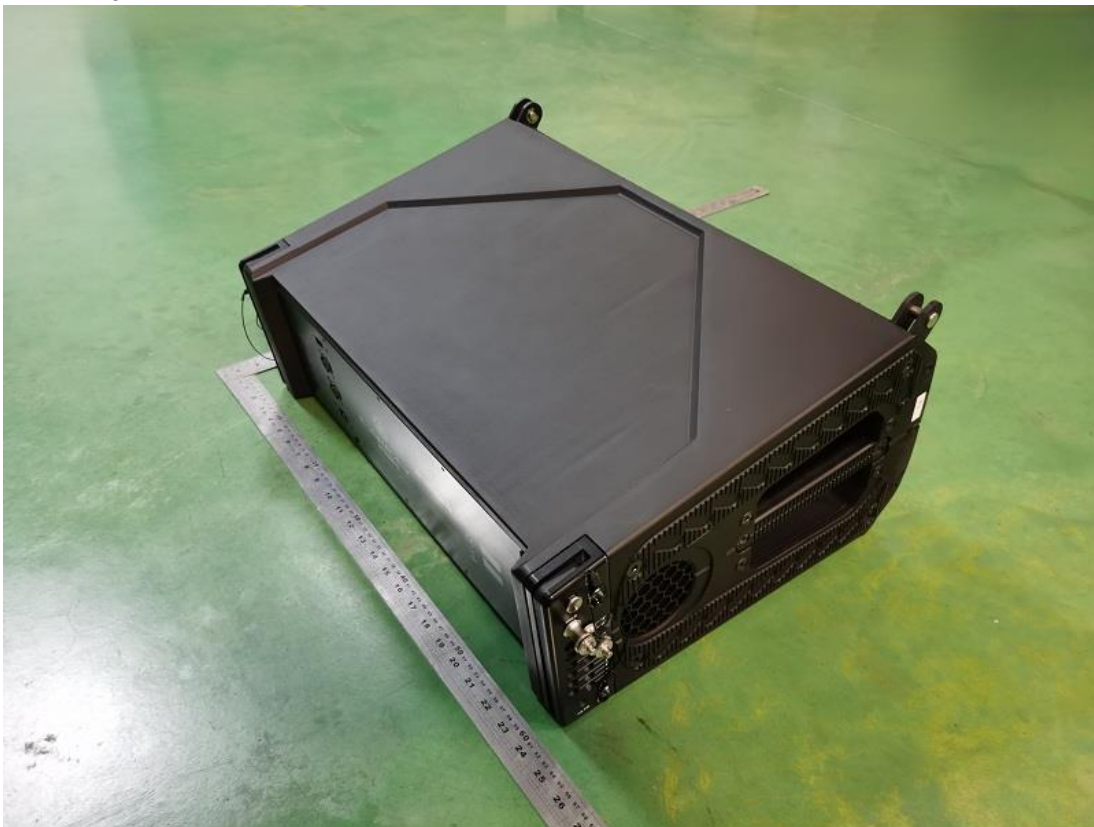
Picture 78.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



Picture 79.



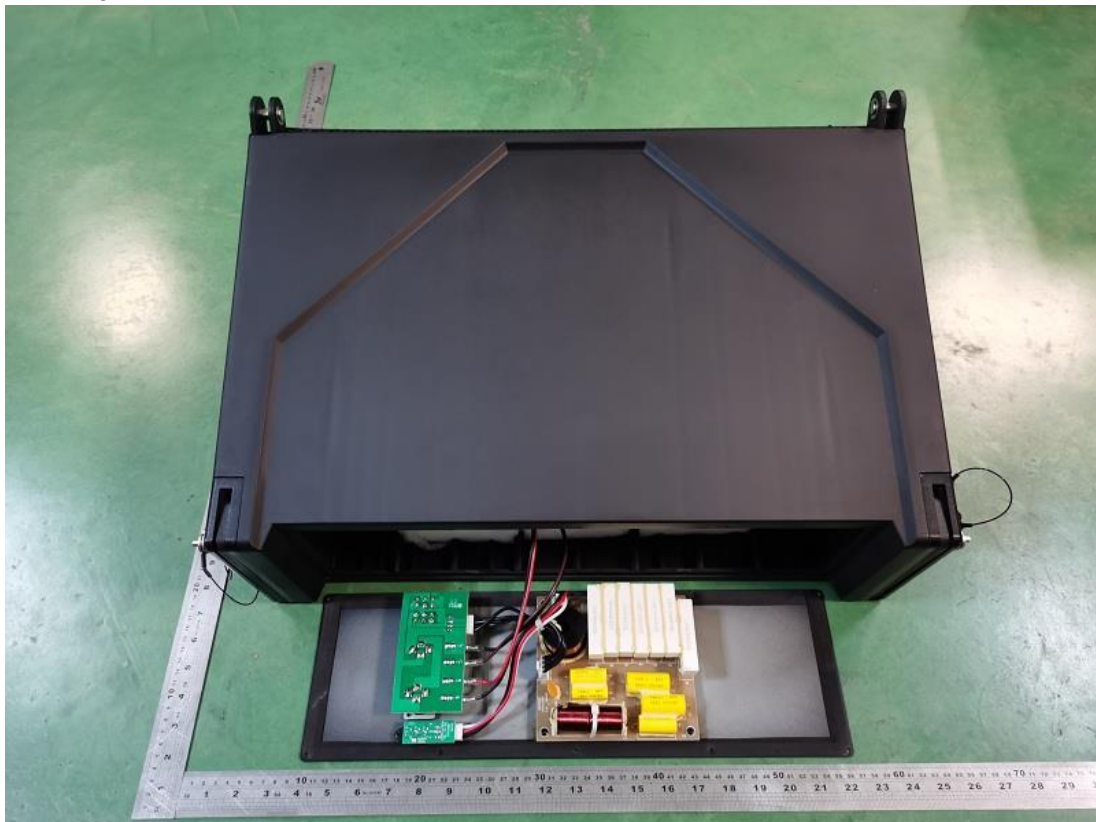
Picture 80.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



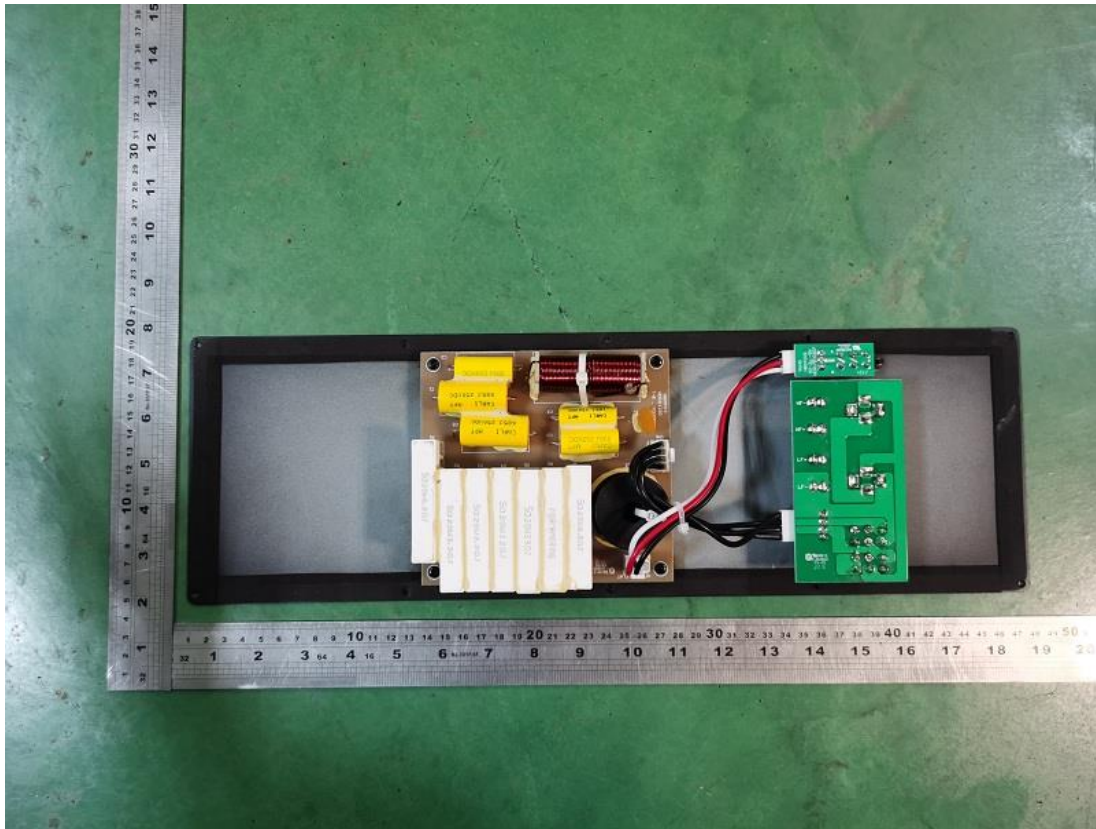
Picture 81.



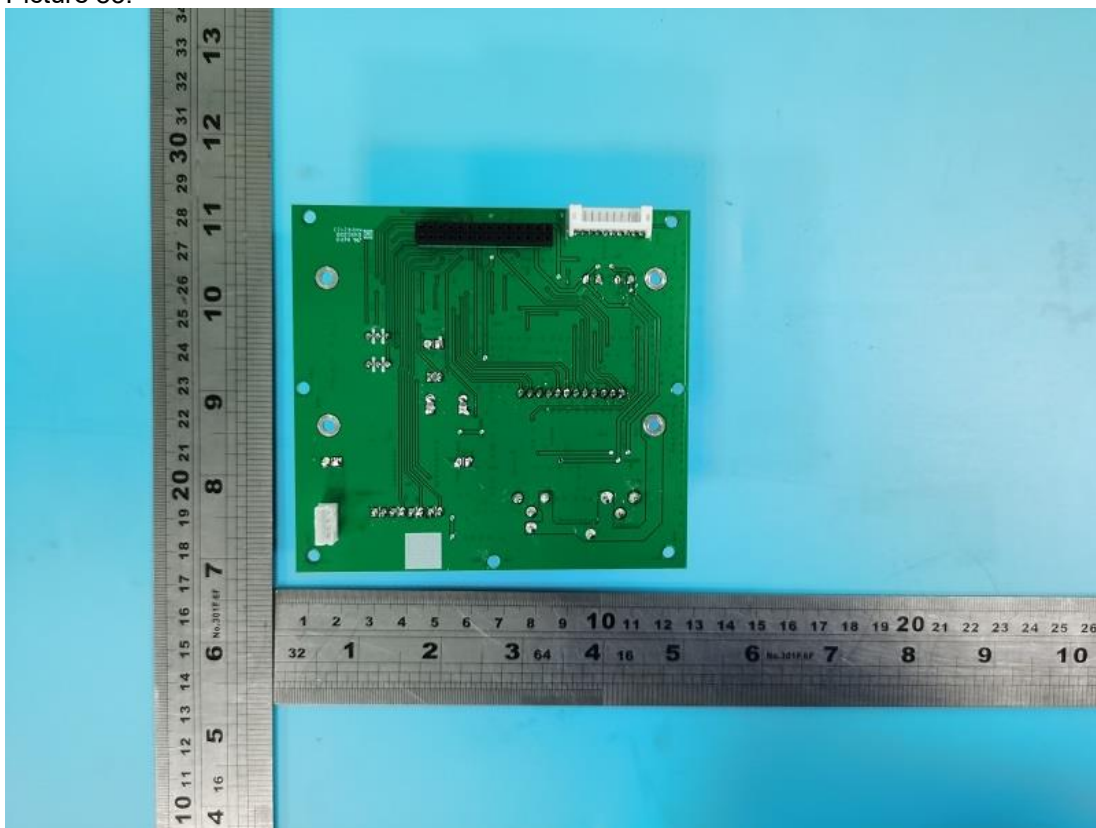
Picture 82.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



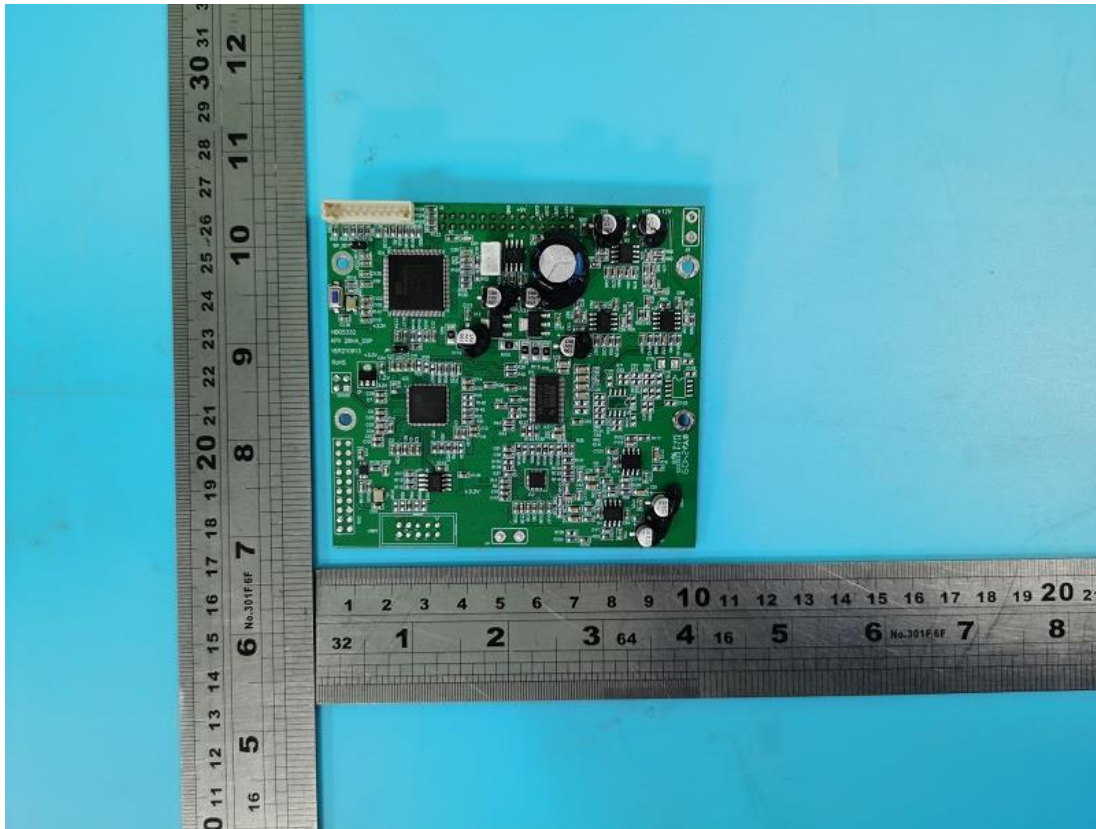
Picture 83.



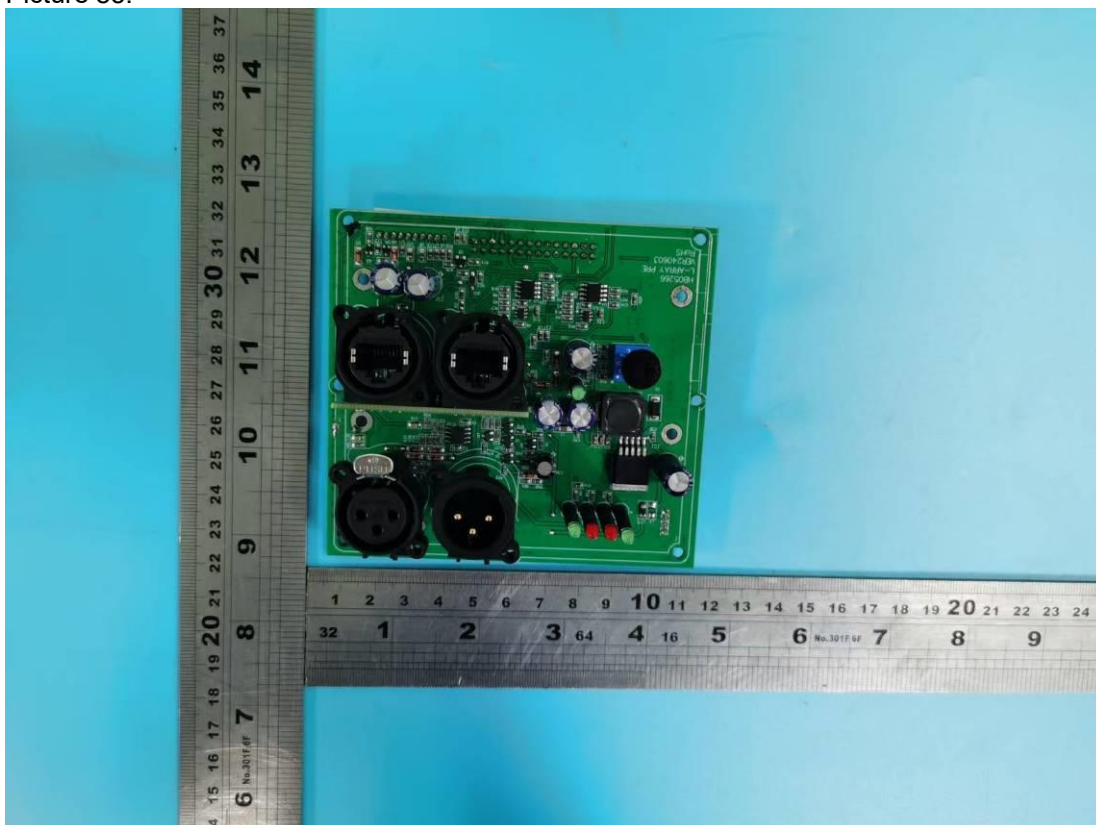
Picture 84. PC board

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



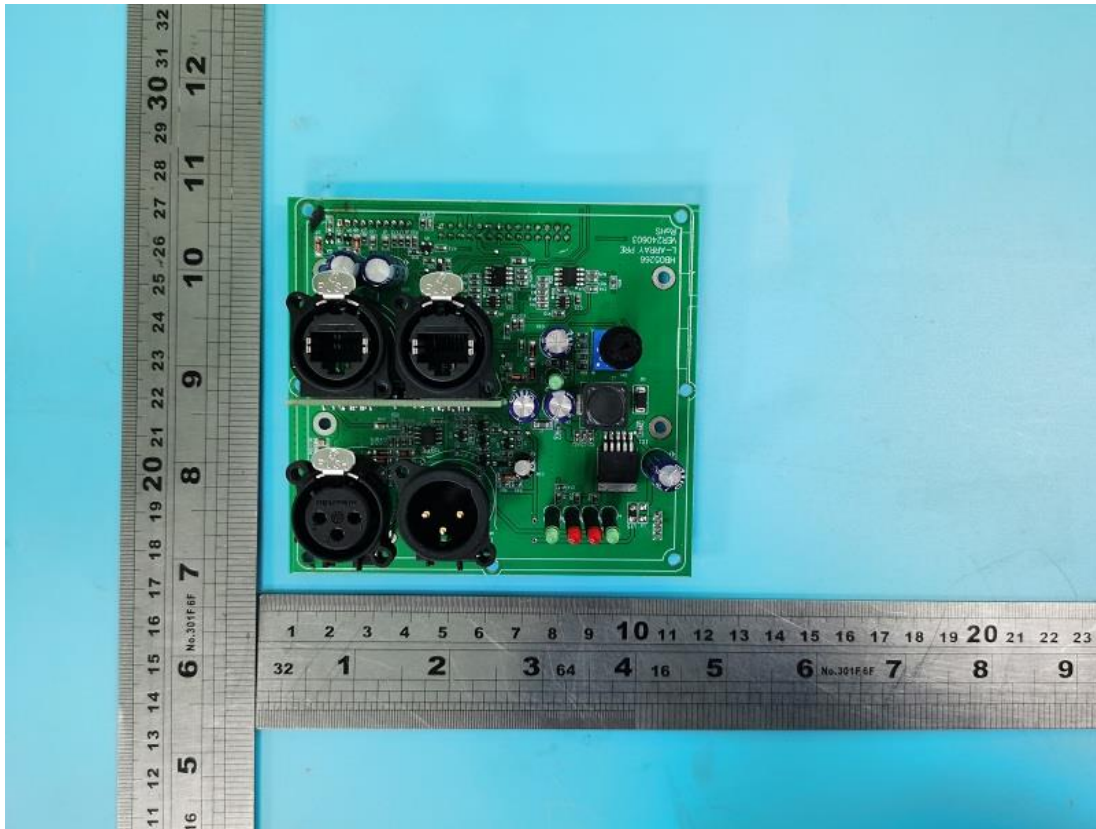
Picture 85.



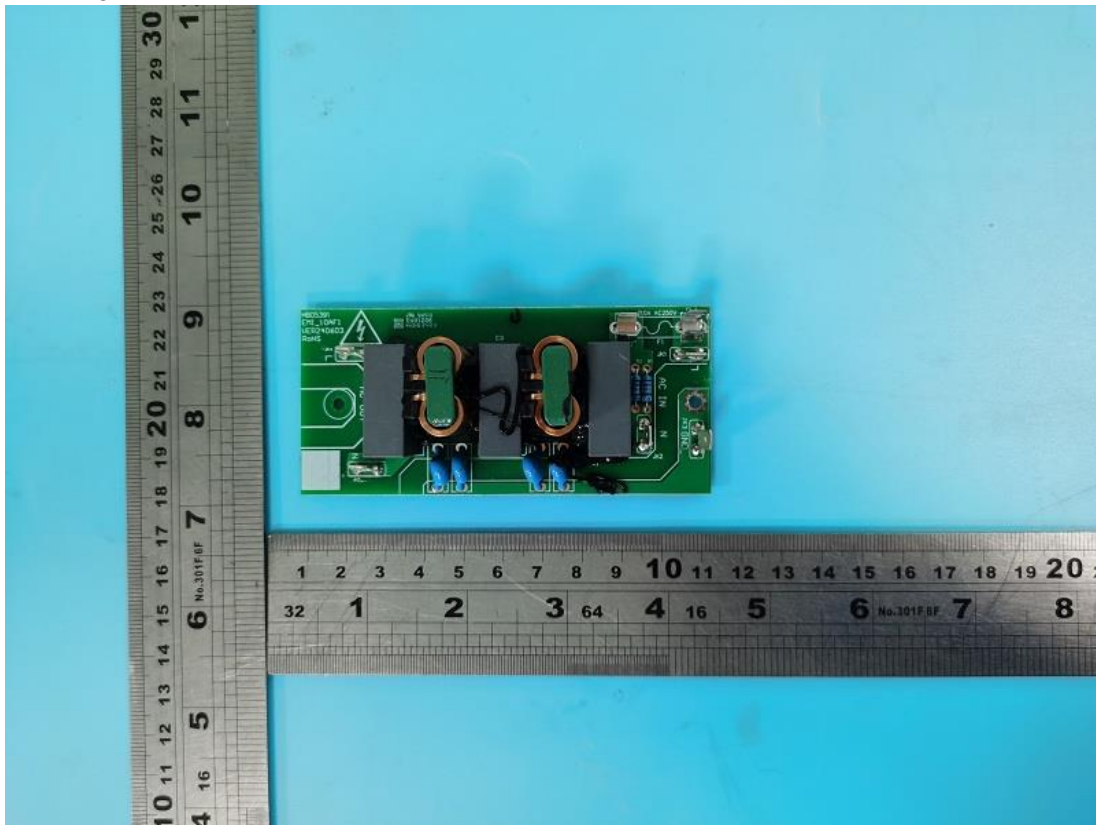
Picture 86.

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



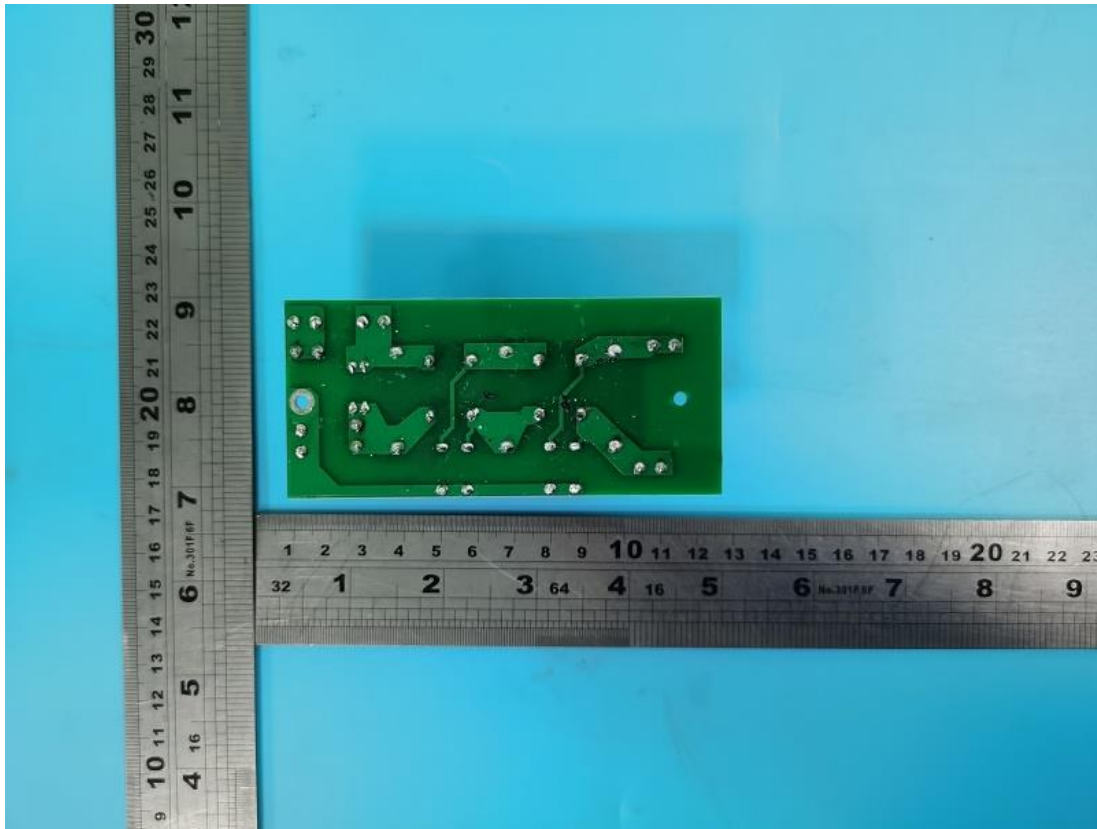
Picture 87.



Picture 88. EMI board

Product: LINE ARRAY SPEAKER SYSTEMS

Type Designation: See test report



Picture 89.