



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: 50259817 001

Date of issue.....: 05 Jul, 2019

Total number of pages: 63

Applicant's name: Seikaku Technical Group Limited

Address.....: Offshore Chambers, P.O. Box 217 Apia, Samoa

Test specification:

Standard: IEC 62368-1:2014 (Second Edition)

Test procedure: CB Scheme

Non-standard test method: N/A

Test Report Form No.: IEC62368_1B

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

Master TRF.....: 2014-03

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General disclaimer:

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

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Test Item description	AMPLIFIER
Trade Mark	
Manufacturer	Same as applicant
Model/Type reference	1) PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB; 2) PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB
Ratings	1) Input: 15Vdc, 2A, 30W 2) Input: 15Vdc, 4A, 60W

Testing procedure and testing location:		
☐	CB Testing Laboratory:	TÜV Rheinland (Guangdong) Ltd.
Testing location/ address		No.199 Kezhu Road, Guangzhou Science City 510663 Guangzhou, CHINA
☐	Associated CB Testing Laboratory:	N/A
Testing location/ address		N/A
Tested by (name + signature)		
Approved by (name + signature)		
☒	Testing procedure: TMP/CTF Stage 1	Dongguan Jingheng Electron Co., Ltd.
Testing location/ address		Shenshan Industrial City, Hengli Town, Dongguan 523465, Guangdong, China
Tested by (name + signature)		Storm Shu (Project Engineer)
Approved by (name + signature)		Barry He (Reviewer)
☐	Testing procedure: WMT/CTF Stage 2	
Testing location/ address		
Tested by (name + signature)		
Witnessed by (name + signature)		
Approved by (name + signature)		
☐	Testing procedure: SMT/CTF Stage 3 or 4	
Testing location/ address		
Tested by (name + signature)		
Approved by (name + signature)		
Supervised by (name + signature)		

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

- Attachment 1 - National Differences (54 pages)
- Attachment 2 - Photo documentation (40 pages)

Summary of testing:
Tests performed (name of test and test clause):

All applicable tests as described in Test Case and Measurement Sections were performed.

Maximal ambient temperature as specified by the manufacturer: +35°C.

5.4.1.4 B.2.6	Maximum operating temperatures for materials, components and systems
9.4.1	Equipment safeguards for thermal burn
B.2.5	Input tests
F.3.9	Durability, legibility and permanence of markings

Remark:

The models PA-20HB, PA-40HB were selected for all the testing.
All the test was performed with approval external power supply, details of the power supply see appendix table 4.1.2.

Testing location:

Unless otherwise indicated, all tests were performed at the location stated in "Testing procedure and testing location" on page 2.

Summary of compliance with National Differences:

List of countries addressed: (According to IEC 62368-1:2014 (Second Edition))

AT, AU, CA, FI, GB, IT, NO, SE, US

Explanation of used codes: AT=Austria, AU=Australia, CA=Canada, FI=Finland, GB= United Kingdom, IT=Italy, NO=Norway, SE=Sweden, US=United States of America

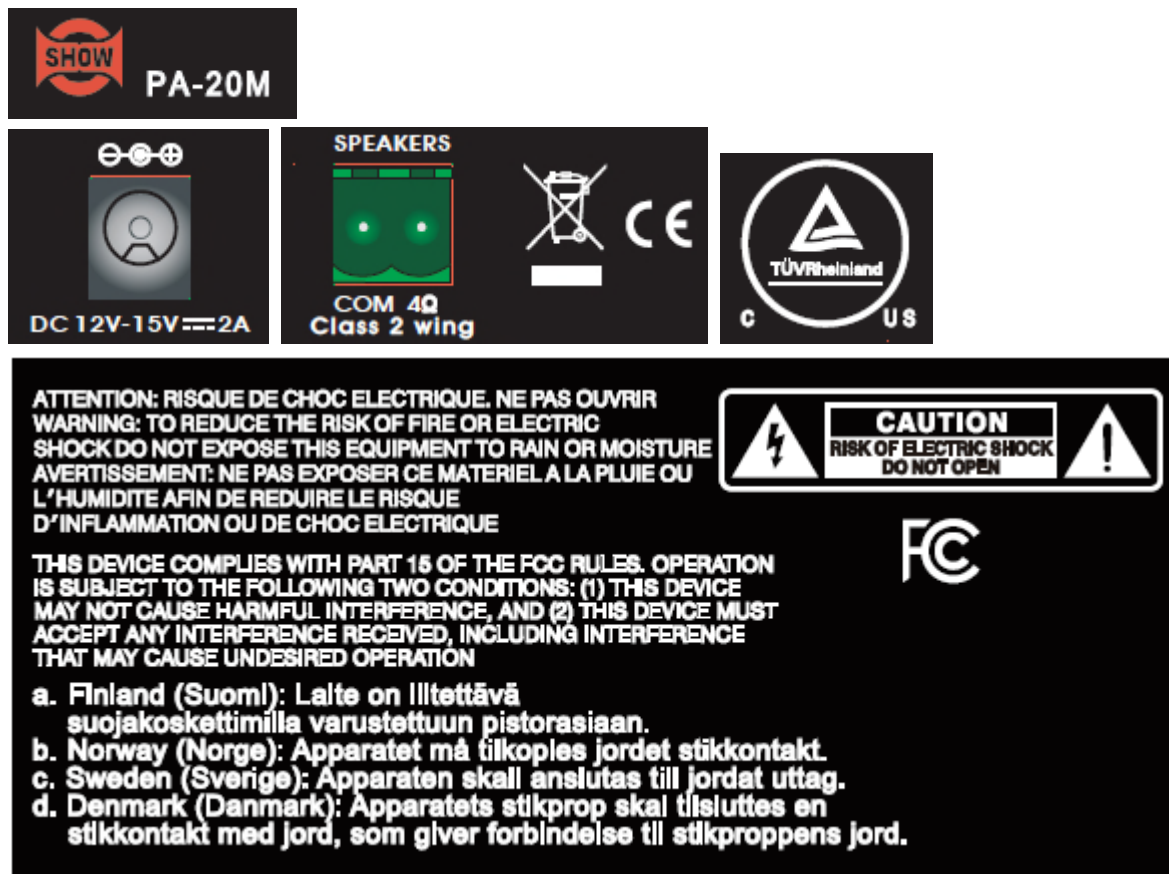
☒ The product fulfils the requirements of EN 62368-1:2014+A11.

For National Differences see end of this test report.

Copy of marking plate(s):

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

(Additional requirements for markings. See 4.1.15 NOTE)



TEST ITEM PARTICULARS:	
Classification of use by	☒ Ordinary person ☐ Instructed person ☐ Skilled person ☐ Children likely to be present
Supply Connection.....	☐ AC Mains ☐ DC Mains ☒ External Circuit - not Mains connected - ☒ ES1 ☐ ES2 ☐ ES3
Supply % Tolerance	☐ +10%/-10% (for AC supply) ☐ +20%/-15% ☐ +__%/ __% for DC supply ☒ None (not directly connected to the mains)
Supply Connection – Type	☐ pluggable equipment type A - ☐ non-detachable supply cord ☐ appliance coupler ☐ direct plug-in ☐ mating connector ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☐ permanent connection ☐ mating connector ☒ other: <u>DC supply source</u>
Considered current rating of protective device as part of building or equipment installation.....	N/A Installation location: ☐ building; ☐ equipment
Equipment mobility.....	☒ movable ☐ hand-held ☐ transportable ☐ stationary ☐ for building-in ☐ direct plug-in ☐ rack-mounting ☐ wall-mounted
Over voltage category (OVC)	☐ OVC I ☐ OVC II ☐ OVC III ☐ OVC IV ☒ other: <u>DC supply source</u>
Class of equipment	☐ Class I ☐ Class II ☒ Class III
Access location	☐ restricted access location ☐ N/A ☒ The case does not apply to the test object
Pollution degree (PD)	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified maximum operating ambient.....	35°C
IP protection class	☒ IPX0 ☐ IP____
Power Systems	☐ TN ☐ TT ☐ IT - <u>230</u> V L-L
Altitude during operation (m)	☒ 2000 m or less ☐ <u>3000</u> m
Altitude of test laboratory (m)	☒ 2000 m or less ☐ _____ m
Mass of equipment (kg)	☒ See page 6 for detail.

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.....:	18 Apr, 2019					
Date (s) of performance of tests.....:	18 Apr, 2019 to 19 May, 2019					
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 ☐ comma / ☒ point is used as the decimal separator.						
Manufacturer's Declaration per sub-clause 4.2.5 of IEC60068-2-1:						
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided	☐ Yes ☒ Not applicable					
When differences exist; they shall be identified in the General product information section.						
Name and address of factory (ies)	Dongguan Jingheng Electron Co., Ltd. Shenshan Industrial City, Hengli Town, Dongguan, Guangdong 523465, P. R. China					
GENERAL PRODUCT INFORMATION:						
1. The products listed in this report are Amplifier, which constructed by an amplifier board, an audio output transformer at secondary side. All the electrical parts were housed in the metal enclosure; 2. The product can be powered by external approved adaptor; 3. Specified maximum ambient temperature is 35°C; 4. Pre-production samples without serial numbers.						
Model Differences						
Model name	Bluetooth function	MP3 Function	Audio output transformer	Rated power	Weight (kg)	Size (L x W x H) Unit (mm)
PA-20	No	No	No	30	0.85	168x105x44mm
PA-20M	No	Yes	No			
PA-20B	Yes	No	No			
PA-20H	No	No	Yes			
PA-20HM	No	Yes	Yes			
PA-20HB	Yes	No	Yes			
PA-40	No	No	No	60	0.49	
PA-40M	No	Yes	No			
PA-40B	Yes	No	No			
PA-40H	No	No	Yes			

PA-40HM	No	Yes	Yes			
PA-40HB	Yes	No	Yes			

Additional application considerations – (Considerations used to test a component or sub-assembly)-
Integrated sample provided.

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:

(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.)

(Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.

Electrically-caused injury (Clause 5):

(Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification)

Example: +5 V dc input

ES1

Source of electrical energy	Corresponding classification (ES)
All the circuit (except audio terminal output)	ES1
Audio output port	ES2

Electrically-caused fire (Clause 6):

(Note: List sub-assembly or circuit designation and corresponding energy source classification)

Example: Battery pack (maximum 85 watts):

PS2

Source of power or PIS	Corresponding classification (PS)
All the circuit (except audio terminal output)	PS2
Audio output port	PS2

Injury caused by hazardous substances (Clause 7)

(Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.)

Example: Liquid in filled component

Glycol

Source of hazardous substances	Corresponding chemical
N/A	N/A

Mechanically-caused injury (Clause 8)

(Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.)

Example: Wall mount unit

MS2

Source of kinetic/mechanical energy	Corresponding classification (MS)
Sharp edges and corners	MS1
Equipment mass <7 kg	MS1

Thermal burn injury (Clause 9)

(Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.)

Example: Hand-held scanner – thermoplastic enclosure

TS1

Source of thermal energy	Corresponding classification (TS)
External metal enclosure surface (the accessible surfaces near the power supply board)	TS1 for accessible part
External switch	TS1 for accessible part

Radiation (Clause 10)

(Note: List the types of radiation present in the product and the corresponding energy source classification.)

Example: DVD – Class 1 Laser Product

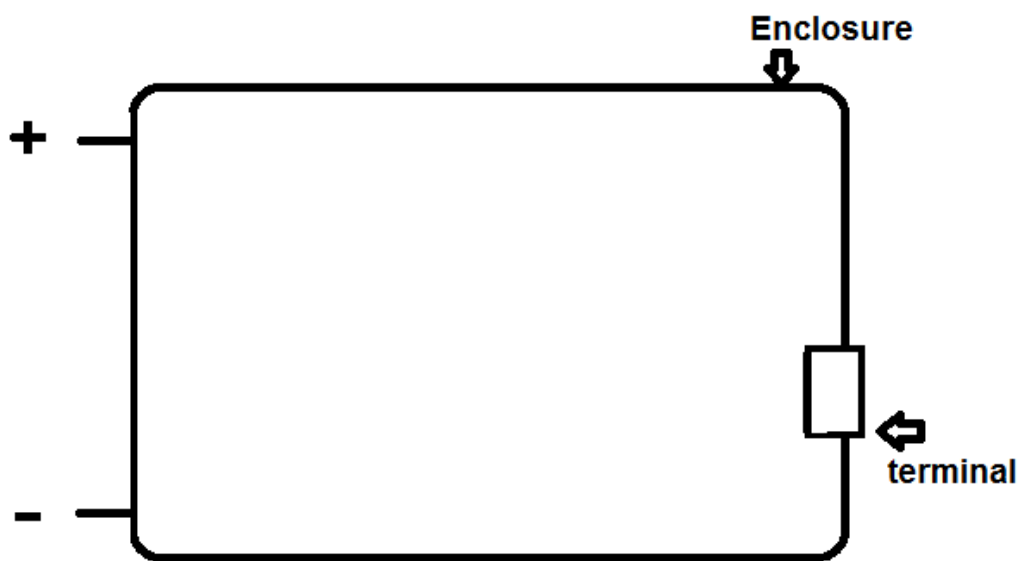
RS1

Type of radiation	Corresponding classification (RS)
N/A	N/A

ENERGY SOURCE DIAGRAM

Indicate which energy sources are included in the energy source diagram. Insert diagram below

ES1	All the circuit (except audio terminal output)
ES2	Audio output port
PS2	All the circuit
MS1	Mass
MS1	Sharp edges and corners
TS1	Enclosure external surface



☐ ES1 ☐ PS1 ☐ MS ☐ TS ☐ RS

OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	Possible Hazard			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	ES1: All the circuit (except audio terminal output)	N/A	N/A	N/A
Ordinary	ES2: Audio output port	Instructional safeguard	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source	Safeguards		
		Basic	Supplementary	Reinforced
All the circuit	PS2 circuit	Equipment safeguards (no ignition occurs, no high temperature occurs)	Provided separation from arcing PIS and resistive PIS	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	MS1: No sharp edges and corners	N/A	N/A	N/A
Ordinary	MS1: Equipment mass <7 kg	N/A	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS1: Metal enclosure and Knob	N/A	N/A	N/A
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
Supplementary Information:				

- (1) See attached energy source diagram for additional details.
- (2) "N" – Normal Condition; "A" – Abnormal Condition; "S" Single Fault

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	No accessible part which could cause injury.	P
4.1.15	Markings and instructions	(See Annex F)	P
4.4.4	Safeguard robustness	Class III equipment, no safeguard needed.	N/A
4.4.4.2	Steady force tests		N/A
4.4.4.3	Drop tests		N/A
4.4.4.4	Impact tests		N/A
4.4.4.5	Internal accessible safeguard enclosure and barrier tests.....		N/A
4.4.4.6	Glass Impact tests.....		N/A
4.4.4.7	Thermoplastic material tests.....		N/A
4.4.4.8	Air comprising a safeguard		N/A
4.4.4.9	Accessibility and safeguard effectiveness		N/A
4.5	Explosion		N/A
4.6	Fixing of conductors		N/A
4.6.1	Fix conductors not to defeat a safeguard		N/A
4.6.2	10 N force test applied to		N/A
4.7	Equipment for direct insertion into mains socket – outlets	Not direct plug-in equipment.	N/A
4.7.2	Mains plug part complies with the relevant standard :		N/A
4.7.3	Torque (Nm) :		N/A
4.8	Products containing coin/button cell batteries	No coin/button cell batteries used.	N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery		—
4.8.4	Battery Compartment Mechanical Tests.....		N/A
4.8.5	Battery Accessibility		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.9	Likelihood of fire or shock due to entry of conductive object	No openings.	N/A

5	ELECTRICALLY-CAUSED INJURY		P
5.2.1	Electrical energy source classifications.....	1: The input voltage is 15Vdc, all the circuit (except audio transformer output) in the product is ES1 circuit. 2. Max. audio signal open circuit is 100Vdc is ES2.	P
5.2.2	ES1, ES2 and ES3 limits	See above.	P
5.2.2.2	Steady-state voltage and current.....		N/A
5.2.2.3	Capacitance limits		N/A
5.2.2.4	Single pulse limits	No such single pulse with the equipment.	N/A
5.2.2.5	Limits for repetitive pulses	No such repetitive pulses with the equipment.	N/A
5.2.2.6	Ringing signals	No such ringing signals with the equipment.	N/A
5.2.2.7	Audio signals	ES2 circuit Max. audio signal open circuit voltage: 100Vrms at audio output port.	P
5.3	Protection against electrical energy sources		N/A
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		N/A
5.3.2.1	Accessibility to electrical energy sources and safeguards		N/A
5.3.2.2	Contact requirements		N/A
	a) Test with test probe from Annex V		N/A
	b) Electric strength test potential (V)		N/A
	c) Air gap (mm)		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	Insulation materials and requirements		N/A
5.4.1.2	Properties of insulating material		N/A
5.4.1.3	Humidity conditioning.....		N/A
5.4.1.4	Maximum operating temperature for insulating materials	(See appended table 5.4.1.4)	P
5.4.1.5	Pollution degree		—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.5.3	Thermal cycling		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		N/A
5.4.1.9	Insulating surfaces		N/A
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		N/A
5.4.1.10.2	Vicat softening temperature..... :		N/A
5.4.1.10.3	Ball pressure :		N/A
5.4.2	Clearances		N/A
5.4.2.2	Determining clearance using peak working voltage		N/A
5.4.2.3	Determining clearance using required withstand voltage :		N/A
	a) a.c. mains transient voltage :		—
	b) d.c. mains transient voltage :		—
	c) external circuit transient voltage :		—
	d) transient voltage determined by measurement :		—
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 :		N/A
5.4.3	Creepage distances :		N/A
5.4.3.1	General		N/A
5.4.3.3	Material Group :		—
5.4.4	Solid insulation		N/A
5.4.4.2	Minimum distance through insulation :		N/A
5.4.4.3	Insulation compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Cemented joints		N/A
5.4.4.6	Thin sheet material		N/A
5.4.4.6.1	General requirements		N/A
5.4.4.6.2	Separable thin sheet material		N/A
	Number of layers (pcs) :		N/A
5.4.4.6.3	Non-separable thin sheet material		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.7	Solid insulation in wound components		N/A
5.4.4.9	Solid insulation at frequencies >30 kHz :		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
	Insulation resistance ($M\Omega$) :		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		N/A
	Relative humidity (%) :		—
	Temperature (°C) :		—
	Duration (h) :		—
5.4.9	Electric strength test..... :		N/A
5.4.9.1	Test procedure for a solid insulation type test		N/A
5.4.9.2	Test procedure for routine tests		N/A
5.4.10	Protection against transient voltages between external circuit		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
5.4.11	Insulation between external circuits and earthed circuitry :		N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage U_{op} (V) :		—
	Nominal voltage U_{peak} (V) :		—
	Max increase due to variation U_{sp} :		—
	Max increase due to ageing ΔU_{sa} :		—
	$U_{op} = U_{peak} + \Delta U_{sp} + \Delta U_{sa}$:		—
5.5	Components as safeguards		
5.5.1	General		N/A
5.5.2	Capacitors and RC units		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.5.2.1	General requirement		N/A
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector		N/A
5.5.3	Transformers		N/A
5.5.4	Optocouplers		N/A
5.5.5	Relays		N/A
5.5.6	Resistors		N/A
5.5.7	SPD's		N/A
5.5.7.1	Use of an SPD connected to reliable earthing		N/A
5.5.7.2	Use of an SPD between mains and protective earth		N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable		N/A
5.6	Protective conductor		N/A
5.6.2	Requirement for protective conductors	Class III equipment.	N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm ²)		—
5.6.4	Requirement for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm ²).		—
	Protective current rating (A)		—
5.6.4.3	Current limiting and overcurrent protective devices		P
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Requirement		N/A
	Conductor size (mm ²), nominal thread diameter (mm).		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective system		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method Resistance (Ω).....		N/A
5.6.7	Reliable earthing		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		N/A
5.7.2	Measuring devices and networks		N/A
5.7.2.1	Measurement of touch current.....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.7.2.2	Measurement of prospective touch voltage		N/A
5.7.3	Equipment set-up, supply connections and earth connections		N/A
	System of interconnected equipment (separate connections/single connection)		—
	Multiple connections to mains (one connection at a time/simultaneous connections)		—
5.7.4	Earthed conductive accessible parts.....		N/A
5.7.5	Protective conductor current		N/A
	Supply Voltage (V)		—
	Measured current (mA)		—
	Instructional Safeguard		N/A
5.7.6	Prospective touch voltage and touch current due to external circuits	No external circuits.	N/A
5.7.6.1	Touch current from coaxial cables		N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits		N/A
5.7.7	Summation of touch currents from external circuits	No external circuits.	N/A
	a) Equipment with earthed external circuits Measured current (mA)		N/A
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA).....		N/A

6	ELECTRICALLY- CAUSED FIRE		P
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		P
6.2.2	Power source circuit classifications	PS (power source) classification determined by measuring the maximum power in Figure 34 and Figure 35 for load and power source circuits.	P
6.2.2.1	General	See the following details	P
6.2.2.2	Power measurement for worst-case load fault....	(See appended table 6.2.2)	P
6.2.2.3	Power measurement for worst-case power source fault		P
6.2.2.4	PS1		P
6.2.2.5	PS2	(See appended table 6.2.2)	P
6.2.2.6	PS3		N/A
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS	(See appended table 6.2.3.1)	P
6.2.3.2	Resistive PIS	(See appended table 6.2.3.2)	P

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Clause	Requirement + Test	Result - Remark	Verdict
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1 (a)	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
6.3.1 (b)	Combustible materials outside fire enclosure	No such component.	P
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method	Method by control of fire spread applied, detail see sub-clauses 6.4.4, 6.4.5 and 6.4.6.	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		P
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits	See sub-clauses 6.4.4, 6.4.5 and 6.4.6.	P
6.4.3.1	General		P
6.4.3.2	Supplementary Safeguards	Provided separation from arcing PIS and resistive PIS, if the distance from PIS less than specified in the Figure 37, Figure 38, Figure 39, min. V-1 materials used.	P
	Special conditions if conductors on printed boards are opened or peeled	No conductors on printed boards opened. And V-0 printed boards used.	P
6.4.3.3	Single Fault Conditions	(see Annex B)	P
	Special conditions for temperature limited by fuse	No such consideration.	N/A
6.4.4	Control of fire spread in PS1 circuits		N/A
6.4.5	Control of fire spread in PS2 circuits	Metal enclosure used.	P
6.4.5.2	Supplementary safeguards		N/A
6.4.6	Control of fire spread in PS3 circuit		N/A
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.	P
6.4.7.1	General		N/A
6.4.7.2	Separation by distance	.	N/A
6.4.7.3	Separation by a fire barrier	No specific barrier provided.	N/A
6.4.8	Fire enclosures and fire barriers	See below.	P
6.4.8.1	Fire enclosure and fire barrier material properties	Metal enclosure used.	P
6.4.8.2.1	Requirements for a fire barrier	No fire barrier used.	N/A
6.4.8.2.2	Requirements for a fire enclosure	Metal enclosure used.	P

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier	Metal enclosure used.	P
6.4.8.3.1	Fire enclosure and fire barrier openings	See subclause 6.4.8.3.2	P
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm)	No top opening	N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm)	No openings.	N/A
	Flammability tests for the bottom of a fire enclosure		N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c)		N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating	Metal enclosure.	N/A
6.5	Internal and external wiring		N/A
6.5.1	Requirements		N/A
6.5.2	Cross-sectional area (mm ²)		—
6.5.3	Requirements for interconnection to building wiring		N/A
6.6	Safeguards against fire due to connection to additional equipment		N/A
	External port limited to PS2 or complies with Clause Q.1		N/A
7	INJURY CAUSED BY HAZARDOUS SUBSTANCES		N/A
7.2	Reduction of exposure to hazardous substances	No hazardous chemicals within the equipment.	N/A
7.3	Ozone exposure	No ozone production within the equipment.	N/A
7.4	Use of personal safeguards (PPE)		N/A
	Personal safeguards and instructions		—
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010)		—
7.6	Batteries	No batteries used.	N/A
8	MECHANICALLY-CAUSED INJURY		P
8.1	General	See the following details.	P

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Clause	Requirement + Test	Result - Remark	Verdict
8.2	Mechanical energy source classifications	1) Sharp edges and corners, classified as MS1. 2) Equipment mass: See page 6 for detail. Classified as MS1.	P
8.3	Safeguards against mechanical energy sources		N/A
8.4	Safeguards against parts with sharp edges and corners	Accessible edges and corners of the equipment are rounded and are classified as MS1.	P
8.4.1	Safeguards	See above.	P
8.5	Safeguards against moving parts	No moving parts used.	N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard		—
8.5.4	Special categories of equipment comprising moving parts	No such equipment.	N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks		N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N)		N/A
8.5.5	High Pressure Lamps		N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test.....		N/A
8.6	Stability	MS1 equipment.	N/A
8.6.1	Product classification		N/A
	Instructional Safeguard		—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A
	Unit configuration during 10° tilt.....		—
8.6.4	Glass slide test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.6.5	Horizontal force test (Applied Force).....:		N/A
	Position of feet or movable parts.....:		—
8.7	Equipment mounted to wall or ceiling	No such functions.	N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface)		N/A
8.7.2	Direction and applied force.....:		N/A
8.8	Handles strength		N/A
8.8.1	Classification		N/A
8.8.2	Applied Force		N/A
8.9	Wheels or casters attachment requirements	No wheels or casters.	N/A
8.9.1	Classification		N/A
8.9.2	Applied force		—
8.10	Carts, stands and similar carriers	No carts, stands and similar carriers used.	N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard.....:		—
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force		—
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N)		—
8.10.6	Thermoplastic temperature stability (□C)		N/A
8.11	Mounting means for rack mounted equipment	Not rack mounted equipment.	N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable N		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas.....	No such devices provided within the equipment.	N/A
	Button/Ball diameter (mm).....:	See above.	—

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Clause	Requirement + Test	Result - Remark	Verdict
9	THERMAL BURN INJURY		P
9.2	Thermal energy source classifications	No part considered to be accessible other than enclosure and plastic knob. The equipment evaluated by temperature test (See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6)	P
9.3	Safeguard against thermal energy sources	Temperature of enclosure and knob classed as TS1.	N/A
9.4	Requirements for safeguards		N/A
9.4.1	Equipment safeguard		N/A
9.4.2	Instructional safeguard		N/A

10	RADIATION		N/A
10.2	Radiation energy source classification	No radiation energy source used.	N/A
10.2.1	General classification		N/A
10.3	Protection against laser radiation		N/A
	Laser radiation that exists equipment:		—
	Normal, abnormal, single-fault.....:		N/A
	Instructional safeguard		—
	Tool.....:		—
10.4	Protection against visible, infrared, and UV radiation		N/A
10.4.1	General		N/A
10.4.1.a)	RS3 for Ordinary and instructed persons.....:		N/A
10.4.1.b)	RS3 accessible to a skilled person.....:		N/A
	Personal safeguard (PPE) instructional safeguard		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1:		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions		N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque.....:		N/A
10.4.1.f)	UV attenuation		N/A
10.4.1.g)	Materials resistant to degradation UV		N/A
10.4.1.h)	Enclosure containment of optical radiation		N/A
10.4.1.i)	Exempt Group under normal operating conditions:		N/A
10.4.2	Instructional safeguard		N/A
10.5	Protection against x-radiation	No such x-radiation generated from the equipment	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10.5.1	X- radiation energy source that exists equipment:		N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards..... :		N/A
	Instructional safeguard for skilled person..... :		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation..... :		—
	Abnormal and single-fault condition		N/A
	Maximum radiation (pA/kg)..... :		N/A
10.6	Protection against acoustic energy sources	Not such equipment.	N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A)		N/A
	Output voltage, unweighted r.m.s..... :		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards..... :		N/A
	Equipment safeguard prevent ordinary person to RS2..... :		—
	Means to actively inform user of increase sound pressure		—
	Equipment safeguard prevent ordinary person to RS2..... :		—
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) L_{Aeq} acoustic pressure output		—
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum dB(A)		—
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A)		—

B	NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS		P
B.2	Normal Operating Conditions		P
B.2.1	General requirements	(See summary of testing for tested models, each loaded according to its output ratings. See also appended table B.2.5.)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Audio Amplifiers and equipment with audio amplifiers	(see Annex E)	P
B.2.3	Supply voltage and tolerances	+10 % and -10 % considered.	P
B.2.5	Input test	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General requirements :	(See appended table B.3 & B.4)	P
B.3.2	Covering of ventilation openings	No openings.	N/A
B.3.3	D.C. mains polarity test	The EUT is not connected to a D.C. mains	N/A
B.3.4	Setting of voltage selector :	No voltage selector was used.	N/A
B.3.5	Maximum load at output terminals		N/A
B.3.6	Reverse battery polarity	No battery within the EUT	N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.	Max non-clipped output power, one speaker short circuit test considered. See appended table B.3 & B.4)	P
B.3.8	Safeguards functional during and after abnormal operating conditions		N/A
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited	(See appended table B.3 & B.4)	P
B.4.3	Motor tests	No moter used.	N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature		N/A
B.4.4	Short circuit of functional insulation	See the following details.	P
B.4.4.1	Short circuit of clearances for functional insulation		N/A
B.4.4.2	Short circuit of creepage distances for functional insulation		N/A
B.4.4.3	Short circuit of functional insulation on coated printed boards	No coated printed boards used.	N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors	No such component used.	N/A
B.4.6	Short circuit or disconnect of passive components	(See appended table B.3 & B.4)	P
B.4.7	Continuous operation of components	The EUT is continuous operating type and no such components intended for short time operation or intermittent operation	N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions		P
B.4.9	Battery charging under single fault conditions	No battery used.	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	No UV generated from the equipment.	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 apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		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	Audio amplifier normal operating conditions		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Audio signal voltage (V)..... :	For model PA-20: CH1: max. 8.90V For model PA-20M: CH1: max. 9.10V For model PA-20B: CH1: max. 9.11V For model PA-20H: CH1: max. 8.99V For model PA-20HM: CH1: max. 9.14V For model PA-20HB: CH1: max. 9.20V For model PA-40: CH1: max. 11.65V For model PA-40M: CH1: max. 10.95V For model PA-40B: CH1: max. 10.91V For model PA-40H: CH1: max. 11.85V For model PA-40HM: CH1: max. 11.04V For model PA-40HB: CH1: max. 12.00V	—
	Rated load impedance (Ω)	All models: CH1: max. 4 Ω	—
E.2	Audio amplifier abnormal operating conditions	Max non-clipped output power, one speaker short circuit test considered. See appended table B.3 & B.4)	P

F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General requirements	See below.	P
	Instructions – 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
F.2.1	Letter symbols according to IEC60027-1		P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific	See copy of marking plate.	P
F.3	Equipment markings		P

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.1	Equipment marking locations	The required marking is located on the enclosure of the equipment and is easily visible.	P
F.3.2	Equipment identification markings	The product is not directly connected the mains.	P
F.3.2.1	Manufacturer identification	See copy of marking plate.	—
F.3.2.2	Model identification	See copy of marking plate.	—
F.3.3	Equipment rating markings		N/A
F.3.3.1	Equipment with direct connection to mains		N/A
F.3.3.2	Equipment without direct connection to mains	15Vdc	P
F.3.3.3	Nature of supply voltage	Not directly connected the mains.	—
F.3.3.4	Rated voltage		—
F.3.3.4	Rated frequency.....		—
F.3.3.6	Rated current or rated power		—
F.3.3.7	Equipment with multiple supply connections	Not directly connected the mains.	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		N/A
F.3.5.3	Replacement fuse identification and rating markings.....		N/A
F.3.5.4	Replacement battery identification marking.....		N/A
F.3.5.5	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification		N/A
F.3.6.1	Class I Equipment	Class III equipment.	N/A
F.3.6.1.1	Protective earthing conductor terminal		N/A
F.3.6.1.2	Neutral conductor terminal		N/A
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment (IEC60417-5172)	Class III equipment.	N/A
F.3.6.2.1	Class II equipment with or without functional earth		N/A
F.3.6.2.2	Class II equipment with functional earth terminal marking		N/A
F.3.7	Equipment IP rating marking	IPX0	—
F.3.8	External power supply output marking	No power supply output used.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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) Equipment for use in locations where children not likely to be present - marking	No such equipment used.	N/A
	b) Instructions given for installation or initial use	See user manual.	P
	c) Equipment intended to be fastened in place	Not such equipment.	N/A
	d) Equipment intended for use only in restricted access area	Not such equipment.	N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1		N/A
	f) Protective earthing employed as safeguard		N/A
	g) Protective earthing conductor current exceeding ES2 limits	Class III product.	N/A
	h) Symbols used on equipment	No such symbols used as a safeguard considered.	N/A
	i) Permanently connected equipment not provided with all-pole mains switch	Not permanently connected equipment.	N/A
	j) Replaceable components or modules providing safeguard function	No replaceable components or modules.	N/A
F.5	Instructional safeguards	No instructional safeguard is considered as necessary.	N/A
	Where "instructional safeguard" is referenced in the test report it specifies the required elements, location of marking and/or instruction		N/A

G	COMPONENTS		P
G.1	Switches		N/A
G.1.1	General requirements		N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.2	Relays		N/A
G.2.1	General requirements	No relay used.	N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	Protection Devices		N/A
G.3.1	Thermal cut-offs	No thermal cut-offs used.	N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691	No thermal link used.	N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H).....:		—
	Single Fault Condition.....:		—
	Test Voltage (V) and Insulation Resistance (□) ...:		—
G.3.3	PTC Thermistors		N/A
G.3.4	Overcurrent protection devices		N/A
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		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		N/A
G.4.1	Spacings	No such components used.	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		N/A
G.5	Wound Components		N/A
G.5.1	Wire insulation in wound components	No such components used.	N/A
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		N/A
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components		N/A
G.5.2.1	General test requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.2.2	Heat run test		N/A
	Time (s)		—
	Temperature (°C).....		—
G.5.2.3	Wound Components supplied by mains		N/A
G.5.3	Transformers		P
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1)	The transformer meets the requirements given in G.5.3.2 and G.5.3.3	N/A
	Position.....	See table	—
	Method of protection		—
G.5.3.2	Insulation		P
	Protection from displacement of windings	By insulating tape	—
G.5.3.3	Overload test.....		N/A
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding Temperatures testing in the unit	(See appended table B.3 & B.4)	P
G.5.3.3.3	Winding Temperatures - Alternative test method		N/A
G.5.4	Motors		N/A
G.5.4.1	General requirements	No such components used.	N/A
	Position		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days)		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V)		—
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h)		N/A
	Electric strength test (V)		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature		N/A
	Electric strength test (V)		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Electric strength test (V)		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		N/A
G.6.1	General		N/A
G.6.2	Solvent-based enamel wiring insulation		N/A
G.7	Mains supply cords		N/A
G.7.1	General requirements		N/A
	Type.....		—
	Rated current (A)		—
	Cross-sectional area (mm ²), (AWG)		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N)		—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm)		—
G.7.3.2.4	Strain relief comprised of polymeric 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	Mass (g)		—
	Diameter (m)		—
	Temperature (°C).....		—
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
G.8	Varistors		N/A
G.8.1	General requirements	No such components used.	N/A
G.8.2	Safeguard against shock		N/A
G.8.3	Safeguard against fire		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.8.3.2	Varistor overload test..... :		N/A
G.8.3.3	Temporary overvoltage..... :		N/A
G.9	Integrated Circuit (IC) Current Limiters		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.	No such components used.	N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA :		—
G.9.1 d)	IC limiter output current (max. 5A) :		—
G.9.1 e)	Manufacturers' defined drift :		—
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	Resistors		N/A
G.10.1	General requirements	No such components used.	N/A
G.10.2	Resistor test		N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
G.11	Capacitor and RC units		N/A
G.11.1	General requirements	No such components used.	N/A
G.11.2	Conditioning of capacitors and RC units		N/A
G.11.3	Rules for selecting capacitors		N/A
G.12	Optocouplers		N/A
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results)..... :	No such components used.	N/A
	Type test voltage Vini :		—
	Routine test voltage, Vini,b :		—
G.13	Printed boards		N/A
G.13.1	General requirements	No such components used.	N/A
G.13.2	Uncoated printed boards		N/A
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Compliance with cemented joint requirements (Specify construction)		—
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.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A
G.14	Coating on components terminals		N/A
G.14.1	Requirements		N/A
G.15	Liquid filled components		N/A
G.15.1	General requirements		N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
G.16	IC including capacitor discharge function (ICX)		N/A
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours	Not such IC used.	N/A
b)	Impulse test using circuit 2 with U_c = to transient voltage		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage		—
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
D2)	Capacitance		—
D3)	Resistance		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
H	CRITERIA FOR TELEPHONE RINGING SIGNALS		N/A
H.1	General	No telephone ringing signal generated within the equipment.	N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringling signal		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 complied with		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V)		—
J	INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION		N/A
	General requirements		N/A
K	SAFETY INTERLOCKS		N/A
K.1	General requirements	No safety interlock provided.	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
	Compliance		N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location)		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

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

L	DISCONNECT DEVICES		N/A
L.1	General requirements	Not directly connected to the mains.	N/A
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		N/A
L.5	Three-phase equipment		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

M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		N/A
M.1	General requirements	No battery used.	N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method) :		N/A
M.3	Protection circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Tests		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
M.3.3	Compliance :		N/A
M.4	Additional safeguards for equipment containing secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature.....:		—
M.4.2.2 b)	Single faults in charging circuitry.....:		—
M.4.3	Fire Enclosure		N/A
M.4.4	Endurance of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation		N/A
M.4.4.3	Drop and charge/discharge function tests		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Drop		N/A
	Charge		N/A
	Discharge		N/A
M.4.4.4	Charge-discharge cycle test		N/A
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current		N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method)		N/A
M.6.2	Leakage current (mA)		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
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume V_z (m³/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 (Determination of compliance: inspection, data review; or abnormal testing)		N/A
N	ELECTROCHEMICAL POTENTIALS		N/A
	Metal(s) used	.	—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
O	MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		N/A
	Figures O.1 to O.20 of this Annex applied..... :		—
P	SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS		N/A
P.1	General requirements		N/A
P.2.2	Safeguards against entry of foreign object		N/A
	Location and Dimensions (mm) :		—
P.2.3	Safeguard against the consequences of entry of foreign object		N/A
P.2.3.1	Safeguards against the entry of a foreign object		N/A
	Openings in transportable equipment		N/A
	Transportable equipment with metalized plastic parts :		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard) :		N/A
P.3	Safeguards against spillage of internal liquids		N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts	No such construction.	N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C)..... :		—
	Tr (°C) :		—
	Ta (°C)..... :		—
P.4.2 b)	Abrasion testing :		N/A
P.4.2 c)	Mechanical strength testing..... :		N/A
Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		N/A
Q.1	Limited power sources		N/A
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		N/A
	- Regulating network limited output under normal operating and simulated single fault condition		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method		N/A
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A) :		—
	Current limiting method :		—
R	LIMITED SHORT CIRCUIT TEST		N/A
R.1	General requirements	No such consideration.	N/A
R.2	Determination of the overcurrent protective device and circuit		N/A
R.3	Test method Supply voltage (V) and short-circuit current (A)). :		N/A
S	TESTS FOR RESISTANCE TO HEAT AND FIRE		N/A
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 :		—
	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) :		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material :		—
	Wall thickness (mm) :		—
	Cheesecloth did not ignite		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
S.4	Flammability classification of materials		N/A
S.5	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		—
	Wall thickness (mm)		—
	Conditioning (test condition), (□C)		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A

T	MECHANICAL STRENGTH TESTS		N/A
T.1	General requirements	Class III equipment	N/A
T.2	Steady force test, 10 N		N/A
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		N/A
T.6	Enclosure impact test		N/A
	Fall test		N/A
	Swing test		N/A
T.7	Drop test		N/A
T.8	Stress relief test		N/A
T.9	Impact Test (glass)	No such glass provided within the equipment.	N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J)		—
	Height (m)		—
T.10	Glass fragmentation test		N/A
T.11	Test for telescoping or rod antennas	No such antennas provided within the equipment.	N/A
	Torque value (Nm)		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
U	MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N/A
U.1	General requirements	No CRT provided.	N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen.....:		N/A
V	DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES. AND WEDGES)		P
V.1	Accessible parts of equipment	Following the test probes specified in this Annex except for Figures V.3, V.4 and V.5 are not suitable. The surfaces and all the openings is evaluated by the test probe of Figure V.1 and Figure V.2.	P
V.2	Accessible part criterion	No live parts can be accessible.	P

4.1.2	TABLE: List of critical components					P
Object/part No.	Manufacturer/ Trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity1)	
External adaptor (PA20H, PA20HB, PA20HM)	SHENZHEN XINSPower TECHNOLOGY CO LTD	A361-1502000E	100-240V~50/60Hz, 15V, 2A	EN 60950- 1:2006+A11+A1+A 12+A2 EN 60065:2014 UL/CUL62368	TUV GS cert no.: S50388720 UL E479246	
(Alternative)	KUANTECH(BEI HAI)CO LTD	KSA-36W- 150200D5	100-240V~50/60Hz, 15V, 2A	UL/CUL60950	UL E215890	
External adaptor (PA40H, PA40HB, PA40HM)	SHENZHEN XINSPower TECHNOLOGY CO LTD	A361-1502000U	100-240V~50/60Hz, 15V, 4A	EN 60950- 1:2006+A11+A1+A 12+A2 EN 60065:2014 UL/CUL62368	TUV GS cert no.: S50388720 UL E479246	
Metal enclosure	Interchangeable	Interchangeable	Min. thickness 1.2mm	--	--	
Plastic panel	CHI MEI CORPORATION	PA-757(+)	Min. thickness: 1.5mm, Min 80°C HB	UL94	UL E56070	
Power switch	Light Country Co. Ltd.	R6	AC250V ,6A AC125V ,12A, 10E3, T85, V-0	IEC/EN 61058-1 UL 61058-1 CAN/CSA-C22.2 No. 61058-1 (2009)	VDE 40006923 UL E104190	
(Alternative)	Pronic	R13	AC250V, 6A AC125V, 10A, 10E3, T85, V-0	IEC/EN 61058-1 UL 61058-1 CAN/CSA-C22.2 No. 61058-1 (2009)	VDE 40027403 UL E105856	
(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 E104190	
(Alternative)	RONG FENG	RF-1003	AC250V,10A, 10E3, T85, V-0	IEC/EN 61058-1 UL 61058-1 CAN/CSA-C22.2 No. 61058-1 (2009)	TUV HN 69248433 UL E94138	
PCB	ZHUHAI YUNXIN ELECTRONIC TECHNOLOGY CO LTD	YX-D1	V-0, 130°C	UL-796	UL E353820	

(Alternative)	Long Chang	LC-02V0	V-0, 130°C	UL 796	UL E94733
(Alternative)	BAOYUEJIA	BY-2	V-0, 130°C	UL 796	UL/cUL E230225
(Alternative)	Interchangeable	Interchangeable	V-0, 130°C	UL 796	UL
Internal wire	Recognized Styles for DONGGUAN XIEHE WIRE CO LTD	1007	Min.300VAC, 105°C, 18AWG	UL 758	UL E189533
(Alternative)	Recognized Styles for DONGGUAN XIEHE WIRE CO LTD	1007	Min.300VAC, 105°C, 18AWG	UL 758	UL E251491
(Alternative)	Fushen	1617 or 1015	Min. 300VAC, 105°C, 18AWG, VW-1	UL 758 CSA-C22.2 No.210	UL E218170
(Alternative)	WENCHANG	1617 or 1015	Min. 300VAC, 105°C, 18AWG, VW-1	UL 758	UL E214500
(Alternative)	DANYANG	1617 or 1015	Min. 300Vac, 105°C, Min.18AWG	UL 758	UL E332522
Audio output transformer (PA-20H, PA-20HM, PA-20HB)	YAN WO INDUSTRIES LIMITED	OT-PA-20HM	Com~4(BLK~RED) Com~70V(BLK~YEL) Com~100V(BLK~BLU) WHT-BLK 4ohm-Com	IEC 62368-1 EN 62368-1	Tested with appliance
Audio output transformer (PA-40H, PA-40HM, PA-40HB)	YAN WO INDUSTRIES LIMITED	OT-PA-40HM	Com~4(BLK~RED) Com~70V(BLK~YEL) Com~100V(BLK~BLU) WHT-BLK 4ohm-Com	IEC 62368-1 EN 62368-1	Tested with appliance
- Bobbin	E I DUPONT DE NEMOURS & CO INC	101F	PA66, V-2, 130°C, min. Thickness: 0.75 mm	UL 94	UL E41938
- Insulation tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	WF	130°C	UL 94	UL E165111
(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)	CHIN YIH TECHNOLOGY WIRE CO LTD	UEW	130°C	UL 1446	UL E196473
(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

Supplementary information:

- 1) Provided Evidence Ensures The Agreed Level Of Compliance. See OD-CB2039.
- 2) In Optocoupler Technical Data Column, Where “Dti.” Means Distance Through Insulation, “Int.” Means Internal Creepage Distance, “Ext.” Means External Creepage Distance.

4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests			N/A
(The following mechanical tests are conducted in the sequence noted.)				
4.8.4.2	TABLE: Stress Relief test			--
Part		Material	Oven Temperature (°C)	Comments
--		--	--	--
4.8.4.3	TABLE: Battery replacement test			--
Battery part no.:				—
Battery Installation/withdrawal			Battery Installation/Removal Cycle	Comments
			1	--
			2	--
			3	--
			4	--
			5	--
			6	--
			8	--
			9	--
4.8.4.4	TABLE: Drop test			--
Impact Area		Drop Distance	Drop No.	Observations
--		--	1	--
--		--	2	--
--		--	3	--
4.8.4.5	TABLE: Impact			--
Impacts per surface		Surface tested	Impact energy (Nm)	Comments
--		--	--	--
4.8.4.6	TABLE: Crush test			--
Test position		Surface tested	Crushing Force (N)	Duration force applied (s)
--		--	--	--
Supplementary information: Not Lithium coin/button cell batteries				

4.8.5	TABLE: Lithium coin/button cell batteries mechanical test result			N/A
Test position		Surface tested	Force (N)	Duration force applied (s)
--		--	--	--
Supplementary information:				

5.2		Table: Classification of electrical energy sources (model)					P
5.2.2.2 – Steady State Voltage and Current conditions							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions ¹⁾	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
1	240Va.c, 60Hz	Transformer (T1) for PA-20HB					
		0~4(BLK~RED) After	Normal:	8.95Vdc	--	--	ES1
		0~4(BLK~RED) After	Single fault: SC	Unit shutdown immediately	--	--	
		0~70V(BLK~YE L)After	Normal:	70.0Vdc	--	--	
		0~70V(BLK~YE L)After	Single fault: SC	Unit shutdown immediately	--	--	
		0~100V(BLK~BL U)After	Normal:	100.0Vrms	--	--	ES2
		0~100V(BLK~BL U)After	Single fault: SC	Unit shutdown immediately	--	--	
1	240Va.c, 60Hz	Transformer (T1) for PA-40HB					
		0~4(BLK~RED) After	Normal:	12.65Vdc	--	--	ES1
		0~4(BLK~RED) After	Single fault: SC	Unit shutdown immediately	--	--	
		0~70V(BLK~YE L)After	Normal:	70.0Vdc	--	--	
		0~70V(BLK~YE L)After	Single fault: SC	Unit shutdown immediately	--	--	
		0~100V(BLK~BL U)After	Normal:	100.0Vrms	--	--	ES2
		0~100V(BLK~BL U)After	Single fault: SC	Unit shutdown immediately	--	--	

5.2.2.3 - Capacitance Limits						
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class
				Capacitance, nF	Upk (V)	
1						
Note: no X capacitor used.						

5.2.2.4 - Single Pulses						
No.	Supply	Location (e.g.	Test conditions	Parameters		ES Class

	Voltage	circuit designation)		Duration (ms)	Upk (V)	Ipk (mA)	
			Normal				
			Abnormal				
			Single fault – SC/OC				

5.2.2.5 - Repetitive Pulses

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Off time (ms)	Upk (V)	Ipk (mA)	
			Normal				
			Abnormal				
			Single fault – SC/OC				

Test Conditions:

Normal – Full load and no load.

Abnormal – Overload output

Supplementary information: SC=Short Circuit, OC=Open Circuit

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements			P
	Supply voltage (V) ...	1. AC 264V, 50Hz 2. AC 90V, 50Hz		--
	Supply frequency (Hz)	See above		--
	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. CH1: 4Ω		--
	Test position	See below		--
	Ambient T _{min} (°C)	--		--
	Ambient T _{max} (°C)	--		--
	T _{ma} (°C)	See below.		--
Maximum measured temperature T of part/at:		T (°C)		Allowed T _{max} (°C)
Test Voltage:		1	2	
For model PA-20HB				

Power Switch				37.3		37.5		55		
Input terminal				42.9		45.4		--		
Internal wire for switch				46.9		49.6		105		
Internal wire for transformer input				46.1		49.2		105		
Winding of transformer T1				54.4		60.4		110		
Core of transformer T1				51.4		56.2		--		
PCB surface near IC14				46.2		48.9		130		
Body of C82 (Electrolytic Capacitor)				46.6		50.0		85		
Input wire for external power				36.7		38.0		--		
Output wire for external power				42.4		35.1		--		
Ambient				Shifed to 35°C					--	
(At room temperature)										
Enclosure of external power				37.1		38.7		77*		
Metal enclosure				36.2		36.2		60*		
Knob				28.8		27.1		77*		
Ambient				28.5		26.6		--		
For model PA-40HB										
Power Switch				38.5		38.5		55		
Input terminal				43.5		44.1		--		
Internal wire for switch				44.6		45.4		105		
Internal wire for transformer input				42.7		47.5		105		
Winding of transformer T1				53.0		54.7		110		
Core of transformer T1				50.6		51.9		--		
PCB surface near IC14				49.0		50.6		130		
Body of C82 (Electrolytic Capacitor)				49.1		49.3		85		
Input wire for external power				35.9		36.0		--		
Output wire for external power				44.3		42.2		--		
Ambient				Shifed to 35°C					--	
(At room temperature)										
Enclosure of external power				35.5		36.7		77*		
Metal enclosure				36.6		36.3		60*		
Knob				31.3		29.3		77*		
Ambient				30.5		26.9		--		
Temperature T of winding:			t1 (°C)	R1 (Ω)	t2 (°C)	R2 (Ω)	T (°C)	Allowed Tmax (°C)	Insulation class	
--			--	--	--	--	--	--	--	

Supplementary information:

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.

Note 2: The temperatures were measured under the worse case normal mode defined in clause B.2.5.

Note 3: Temperature limits are calculated as follows:

Winding components providing safety isolation:

Class B $\rightarrow T_{max} = 120\text{ °C} - 10\text{ °C} = 110\text{ °C}$

* 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 $<10s$).

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

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	Test temperature (°C)	Impression diameter (mm)	
Supplementary information:				

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics		N/A
Penetration (mm):			—
Object/ Part No./Material	Manufacturer/t rademark	T softening (°C)	
supplementary information:			

5.4.2.3	TABLE: Minimum Clearances distances using required withstand voltage			N/A
	Overvoltage Category (OV):			
	Pollution Degree:			
Clearance distanced between:	Required withstand voltage	Required cl (mm)	Measured cl (mm)	

5.4.2.3		TABLE: Minimum Clearances distances using required withstand voltage			N/A
		Overvoltage Category (OV):			
		Pollution Degree:			
Clearance distanced between:		Required withstand voltage	Required cl (mm)	Measured cl (mm)	
Supplementary information: --					

5.4.2.4	TABLE: Clearances based on electric strength test			N/A
Test voltage applied between:		Required cl (mm)	Test voltage (kV) peak/ r.m.s. / d.c.	Breakdown Yes / No
Supplementary information: --				

5.4.4.2, 5.4.4.5 c) 5.4.4.9	TABLE: Distance through insulation measurements					N/A
Distance through insulation di at/of:	Peak voltage (V)	Frequency (kHz)	Material	Required DTI (mm)	DTI (mm)	
Supplementary information: --						

5.4.9	TABLE: Electric strength tests			N/A
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
Functional:				
Basic/supplementary:				
Reinforced:				
Routine Tests:				

5.4.9	TABLE: Electric strength tests			N/A
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
Supplementary information: --				

5.5.2.2	TABLE: Stored discharge on capacitors					N/A
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification	
Supplementary information: X-capacitors installed for testing are: bleeding resistor rating: ICX: Notes: A. Test Location: Phase to Neutral; Phase to Phase; Phase to Earth; and/or Neutral to Earth B. Operating condition abbreviations: N – Normal operating condition (e.g., normal operation, or open fuse); S –Single fault condition						

5.5.2.2	TABLE: Stored discharge on capacitors					N/A
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification	
Supplementary information: X-capacitors installed for testing are: bleeding resistor rating: ICX: Notes: A. Test Location: Phase to Neutral; Phase to Phase; Phase to Earth; and/or Neutral to Earth B. Operating condition abbreviations: N – Normal operating condition (e.g., normal operation, or open fuse); S –Single fault condition						

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part	N/A
-----------------------	--	-----

Supply voltage.....:		—
Location	Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7	Touch current (mA)
	1	
	2*	
	3	
	4	
	5	
	6	
	8	

Supplementary Information:

Notes:

[1] Supply voltage is the anticipated maximum Touch Voltage

[2] Earthed neutral conductor [Voltage differences less than 1% or more]

[3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3

[4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.

[5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.

6.2.2	Table: Electrical power sources (PS) measurements for classification					P
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s*)	PS Classification	
Model PA-20HB						
Audio output transformer COM to 4Ω	Normal operation	Power (W) :	29.49	29.49	PS2	
		V _A (V) :	11.97	11.97		
		I _A (A) :	2.47	2.47		
Audio output transformer COM to 70V	Normal operation	Power (W) :	16.20	16.20	PS2	
		V _A (V) :	95.30	95.30		
		I _A (A) :	0.17	0.17		
Audio output transformer COM to 100V	Normal operation	Power (W) :	12.49	12.49	PS2	
		V _A (V) :	134.80	134.80		
		I _A (A) :	0.09	0.09		
Model PA-40HB						
Audio output transformer COM to 4Ω	Normal operation	Power (W) :	41.62	41.62	PS2	
		V _A (V) :	14.06	14.06		
		I _A (A) :	2.96	2.96		
Audio output transformer COM to 70V	Normal operation	Power (W) :	44.12	44.12	PS2	
		V _A (V) :	95.93	95.93		
		I _A (A) :	0.46	0.46		

Audio output transformer COM to 100V	Normal operation	Power (W) :	25.89	25.89	PS2
		V _A (V) :	117.70	117.70	
		I _A (A) :	0.22	0.22	
Supplementary Information: All the circuit was considered as PS2 circuit					

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)				P
Location	Open circuit voltage After 3 s (V _p)	Measured r.m.s current (I _{rms})	Calculated value (V _p x I _{rms})	Arcing PIS? Yes / No	
All circuit	--	--	--	Yes	

Supplementary information:

The contact terminals of switch or connector are considered as arcing PIS.

An Arcing PIS requires a minimum of 50 V (peak) a.c. or d.c. An Arcing PIS is established when the product of the open circuit voltage (V_p) and normal operating condition rms current (I_{rms}) is greater than 15.

6.2.3.2	Table: Determination of Potential Ignition Sources (Resistive PIS)				P
Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No
--	--	--	--	--	Yes
Supplementary Information: All the circuit was considered as Resistive PIS . A combination of voltmeter, VA and ammeter I _A may be used instead of a wattmeter. If a separate voltmeter and ammeter are used, the product of (V _A x I _A) is used to determine Resistive PIS classification. A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, <u>or</u> (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault.					

8.5.5	TABLE: High Pressure Lamp		N/A
Description	Values	Energy Source Classification	
Lamp type		—	
Manufacturer		—	
Cat no.		—	
Pressure (cold) (MPa).....		MS_	
Pressure (operating) (MPa)		MS_	
Operating time (minutes)		—	
Explosion method		—	
Max particle length escaping enclosure (mm) .:		MS_	
Max particle length beyond 1 m (mm).....		MS_	

Overall result	
Supplementary information:--	

B.2.5		TABLE: Input test						P
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (mA)	Condition/status	
Model PA-20								
264.0	0.076	--	1.65	--	--	--	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. CH1: 4Ω	
264.0	0.076	--	1.48	--	--	--		
240.0	0.080	2.0	2.28	--	--	--		
240.0	0.080	2.0	2.17	--	--	--		
100.0	0.138	2.0	4.63	--	--	--		
100.0	0.140	2.0	4.75	--	--	--		
90.0	0.150	--	4.59	--	--	--		
90.0	0.152	--	4.91	--	--	--		
Model PA-20M								
264.0	0.080	--	1.76	--	--	--	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. CH1: 4Ω	
264.0	0.080	--	1.59	--	--	--		
240.0	0.083	2.0	2.39	--	--	--		
240.0	0.083	2.0	2.28	--	--	--		
100.0	0.143	2.0	4.54	--	--	--		
100.0	0.145	2.0	4.66	--	--	--		
90.0	0.152	--	4.68	--	--	--		
90.0	0.156	--	4.98	--	--	--		
Model PA-20B								
264.0	0.098	--	4.26	--	--	--	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. CH1: 4Ω	
264.0	0.100	--	4.43	--	--	--		
240.0	0.103	2.0	4.81	--	--	--		
240.0	0.104	2.0	4.83	--	--	--		
100.0	0.198	2.0	7.36	--	--	--		
100.0	0.201	2.0	8.07	--	--	--		
90.0	0.209	--	7.65	--	--	--		
90.0	0.210	--	7.27	--	--	--		
Model PA-20H								
264.0	0.076	--	1.66	--	--	--	Pink noise signal input, tone controls set to their mid position,	
264.0	0.076	--	1.49	--	--	--		

B.2.5		TABLE: Input test					P
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (mA)	Condition/status
240.0	0.080	2.0	2.29	--	--	--	volume control adjust to max position.1/8 Max non-clipped output power to output. CH1: 4Ω
240.0	0.080	2.0	2.18	--	--	--	
100.0	0.138	2.0	4.64	--	--	--	
100.0	0.140	2.0	4.76	--	--	--	
90.0	0.150	--	4.60	--	--	--	
90.0	0.152	--	4.92	--	--	--	
Model PA-20HM							
264.0	0.080	--	1.76	--	--	--	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. CH1: 4Ω
264.0	0.080	--	1.59	--	--	--	
240.0	0.083	2.0	2.39	--	--	--	
240.0	0.083	2.0	2.28	--	--	--	
100.0	0.143	2.0	4.74	--	--	--	
100.0	0.145	2.0	4.86	--	--	--	
90.0	0.152	--	4.70	--	--	--	
90.0	0.156	--	5.02	--	--	--	
Model PA-20HB							
264.0	0.098	--	4.26	--	--	--	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. CH1: 4Ω
264.0	0.100	--	4.43	--	--	--	
240.0	0.103	2.0	4.81	--	--	--	
240.0	0.104	2.0	4.83	--	--	--	
100.0	0.198	2.0	7.36	--	--	--	
100.0	0.201	2.0	8.07	--	--	--	
90.0	0.209	--	7.65	--	--	--	
90.0	0.210	--	7.27	--	--	--	
Model PA-40							
264.0	0.090	--	4.20	--	--	--	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. CH1: 4Ω
264.0	0.089	--	3.80	--	--	--	
240.0	0.091	4.0	4.80	--	--	--	
240.0	0.090	4.0	4.60	--	--	--	
100.0	0.190	4.0	7.56	--	--	--	
100.0	0.189	4.0	7.39	--	--	--	
90.0	0.210	--	7.69	--	--	--	
90.0	0.210	--	7.49	--	--	--	

B.2.5		TABLE: Input test						P
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (mA)	Condition/status	
Model PA-40B								
264.0	0.100	--	4.39	--	--	--	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. CH1: 4Ω	
264.0	0.099	--	3.99	--	--	--		
240.0	0.105	4.0	5.00	--	--	--		
240.0	0.104	4.0	4.82	--	--	--		
100.0	0.203	4.0	7.80	--	--	--		
100.0	0.201	4.0	7.60	--	--	--		
90.0	0.218	--	7.90	--	--	--		
90.0	0.217	--	7.70	--	--	--		
Model PA-40M								
264.0	0.119	--	6.80	--	--	--	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. CH1: 4Ω	
264.0	0.117	--	6.70	--	--	--		
240.0	0.133	4.0	7.93	--	--	--		
240.0	0.126	4.0	7.59	--	--	--		
100.0	0.246	4.0	9.80	--	--	--		
100.0	0.245	4.0	9.69	--	--	--		
90.0	0.257	--	9.20	--	--	--		
90.0	0.264	--	9.76	--	--	--		
Model PA-40H								
264.0	0.097	--	4.30	--	--	--	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. CH1: 4Ω	
264.0	0.096	--	3.90	--	--	--		
240.0	0.098	4.0	4.90	--	--	--		
240.0	0.097	4.0	4.70	--	--	--		
100.0	0.192	4.0	7.66	--	--	--		
100.0	0.191	4.0	7.49	--	--	--		
90.0	0.213	--	7.79	--	--	--		
90.0	0.21	--	7.59	--	--	--		
Model PA-40HB								
264.0	0.103	--	4.49	--	--	--	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. CH1: 4Ω	
264.0	0.102	--	4.09	--	--	--		
240.0	0.107	4.0	5.08	--	--	--		
240.0	0.106	4.0	4.90	--	--	--		
100.0	0.209	4.0	7.86	--	--	--		

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B.2.5		TABLE: Input test						P
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (mA)	Condition/status	
100.0	0.207	4.0	7.69	--	--	--		
90.0	0.223	--	7.99	--	--	--		
90.0	0.222	--	7.79	--	--	--		
Model PA-40HM								
264.0	0.121	--	6.85	--	--	--	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. CH1: 4Ω	
264.0	0.119	--	6.75	--	--	--		
240.0	0.135	4.0	8.03	--	--	--		
240.0	0.128	4.0	7.69	--	--	--		
100.0	0.248	4.0	9.90	--	--	--		
100.0	0.247	4.0	9.79	--	--	--		
90.0	0.259	--	9.30	--	--	--		
90.0	0.266	--	9.86	--	--	--		
Supplementary information: The maximum measured current under rated voltage did not exceed 110% of the rated power.								

B.3		TABLE: Abnormal operating condition tests						P
Ambient temperature (°C)					25°C, if not specified			—
Power source for EUT: Manufacturer, model/type, output rating ...					--			—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Model PA-40HB								

Unit	Max non-clipped output	264V	3.0h	Main fuse	0.44A	K	Power Switch T= 56.4°C; Input terminal T= 79.4°C; Internal wire for switch T= 77.4°C; Internal wire for transformer input T= 79.6°C; Winding of transformer (T1) T= 103.5°C; Core of transformer (T1) T= 96.7°C; PCB surface near IC14 T= 86.6°C; Metal enclosure T= 56.7°C; Knob T= 32.0°C; Input wire for external power T= 35.1°C; Output wire for external power T= 69.3°C Enclosure of external power T= 50.9°C	Unit normal operation until thermal equilibrium. No damaged, no hazards. Load condition: CH1: 4Ω
Unit	SC Load (CH1)	264V	2.5h	Main fuse	0.05A	K	Power Switch T= 36.5°C; Input terminal T= 38.1°C; Internal wire for switch T= 37.5°C; Internal wire for transformer input T= 37.9°C; Winding of transformer (T1) T= 38.5°C; Core of transformer (T1) T= 38.4°C; PCB surface near IC14 T= 38.9°C; Metal enclosure T= 29.8°C; Knob T= 27.1°C; Input wire for external power T= 35.4°C; Output wire for external power T= 39.2°C Enclosure of external power T= 35.9°C	Unit normal operation until thermal equilibrium. No damaged, no hazards. Load condition: CH1: 4Ω
Model PA-20HB								

Unit	Max non-clipped output	264V	2.0h	Main fuse	0.32A	K	Power Switch T= 41.4°C; Input terminal T= 54.1°C; Internal wire for switch T= 60.9°C; Internal wire for transformer input T= 61.7°C; Winding of transformer (T1) T= 89.0°C; Core of transformer (T1) T= 79.0°C; PCB surface near IC14 T= 60.3°C; Metal enclosure T= 44.5°C; Knob T= 29.9°C; Input wire for external power T= 41.2°C; Output wire for external power T= 53.3°C Enclosure of external power T= 42.7°C	Unit normal operation until thermal equilibrium. No damaged, no hazards. Load condition: CH1: 4Ω
Unit	SC Load (CH1)	264V	2.5h	Main fuse	0.05A	K	Power Switch T= 35.3°C; Input terminal T= 38.0°C; Internal wire for switch T= 41.4°C; Internal wire for transformer input T= 38.3°C; Winding of transformer (T1) T= 39.8°C; Core of transformer (T1) T= 39.6°C; PCB surface near IC14 T= 39.2°C; Metal enclosure T= 32.2°C; Knob T= 28.9°C; Input wire for external power T= 35.7°C; Output wire for external power T= 37.9°C Enclosure of external power T= 35.9°C	Unit normal operation until thermal equilibrium. No damaged, no hazards. Load condition: CH1: 4Ω

B.4		TABLE: Fault condition tests						N/A
Ambient temperature (°C)								—
Power source for EUT: Manufacturer, model/type, output rating ...		--						—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation

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.

Annex M	TABLE: Batteries								N/A	
The tests of Annex M are applicable only when appropriate battery data is not available										
Is it possible to install the battery in a reverse polarity position?										
	Non-rechargeable batteries			Rechargeable batteries						
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging		
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	
Max. current during normal condition										
Max. current during fault condition										
Test results:									Verdict	
- Chemical leaks										
- Explosion of the battery										
- Emission of flame or expulsion of molten metal										
- Electric strength tests of equipment after completion of tests										
Supplementary information:--										

Annex M.4	Table: Additional safeguards for equipment containing secondary lithium batteries					N/A
Battery/Cell No.	Test conditions	Measurements			Observation	
		U	I (A)	Temp (C)		
	Normal					
	Abnormal					
	Single fault –SC/OC					
	Normal					
	Abnormal					
	Single fault – SC/OC					
Supplementary Information:						

Battery identification	Charging at T_{lowest} (°C)	Observation	Charging at T_{highest} (°C)	Observation
Supplementary Information:				

Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)					N/A
Note: Measured UOC (V) with all load circuits disconnected:						
Output Circuit	Components	U _{oc} (V)	I _{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit
Test model: --						
Normal	--	--	--	--	--	--
Abnormal	--	--	--	--	--	--
Supplementary Information:						

T.2, T.3, T.4, T.5	TABLE: Steady force test					N/A
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation	
Supplementary information:--						

T.6, T.9	TABLE: Impact tests				N/A
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
Supplementary information:					

T.7	TABLE: Drop tests				N/A
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation	
Supplementary information:					

T.8	TABLE: Stress relief test				N/A
------------	----------------------------------	--	--	--	-----

Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation
Supplementary information:					

List of test equipment used:

A completed list of used test equipment shall be provided in the Test Reports when a Manufacturer Testing Laboratory according to TMP/CTF stage 1 or WMT/CTF stage 2 procedure has been used.

Clause	Measurement / testing	Testing / measuring equipment / material used	Range used	Calibration date	Calibration due date
5.4.1.4 B.2.6	Maximum operating temperatures for materials, components and systems	Power meter (D21110000007)	AC 0-150V/0-300V	2018.07.09	2019.07.08
		Digital Phosphor Oscilloscope (D20512000671)	Vertical deflection factor: 1KHz 1V/Div 1.1E-02 Horizontal Deflection Factor: 1KHz 1us/Div 4.0E-03	2018.10.15	2019.10.14
		Signal Generator (D20512000667)	Flatness :0.1dB Power Spectrum Density:0.3dB	2018.10.16	2019.10.15
		Oscilloscope Probe (100x) (D20512000620)	Attention:100X Input voltage:2000V System bandwidth:100MHz	2018.07.08	2019.07.07
		Hybrid Recorder (D20512000650)	0.1°C	2018.10.16	2019.10.15
B.2.5	Input tests	Power meter (D21110000007)	AC 0-150V/0-300V	2018.07.09	2019.07.09
		Digital Phosphor Oscilloscope (D20512000671)	Vertical deflection factor: 1KHz 1V/Div 1.1E-02 Horizontal Deflection Factor: 1KHz 1us/Div 4.0E-03	2018.10.15	2019.10.14
		Signal Generator (D20512000667)	Flatness :0.1dB Power Spectrum Density:0.3dB	2018.10.16	2019.10.15
		Oscilloscope Probe (100x) (D20512000620)	Attention:100X Input voltage:2000V System bandwidth:100MHz	2018.07.09	2019.07.09
B.3	Simulated Abnormal operating condition tests	Power meter (D21110000007)	AC 0-150V/0-300V	2018.07.09	2019.07.09
		Digital Phosphor Oscilloscope (D20512000671)	Vertical deflection factor: 1KHz 1V/Div 1.1E-02 Horizontal Deflection Factor: 1KHz 1us/Div 4.0E-03	2018.10.15	2019.10.14
		Signal Generator (D20512000667)	Flatness :0.1dB Power Spectrum Density:0.3dB	2018.10.16	2019.10.15
		Oscilloscope Probe (100x) (D20512000620)	Attention:100X Input voltage:2000V System bandwidth:100MHz	2018.07.09	2019.07.09
		Hybrid Recorder (D20512000650)	0.1°C	2018.10.16	2019.10.15
B.4	Simulated single	Power meter	AC 0-150V/0-300V	2018.07.09	2019.07.09

	fault conditions	(D21110000007)			
		Digital Phosphor Oscilloscope (D20512000671)	Vertical deflection factor: 1KHz 1V/Div 1.1E-02 Horizontal Deflection Factor: 1KHz 1us/Div 4.0E-03	2018.10.15	2019.10.14
		Multimeter (D20512000649)	0-600V 1.5A-30A +/-0.5%	2018.07.09	2019.07.09
		Signal Generator (D20512000667)	Flatness :0.1dB Power Spectrum Density:0.3dB	2018.10.16	2019.10.15
		Oscilloscope Probe (100x) (D20512000620)	Attention:100X Input voltage:2000V System bandwidth:100MHz	2018.07.09	2019.07.09

Attachment 1

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IEC62368_1B - ATTACHMENT			
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 62368.1:2018			
Attachment Form No..... : AU_NZ_ND_IEC62368_1B			
Attachment Originator : JAS-ANZ			
Master Attachment : 2018-02			
Copyright © 2017 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.			
	National Differences		
Appendix ZZ	Variations to IEC 62368-1:2014 (ED. 2.0) for Australia and New Zealand		P
ZZ1 Scope	This Appendix lists the normative variations to IEC 62368-1:2014 (ED. 2.0)		P
ZZ2 Variations	The following modifications are required for Australian/New Zealand conditions:		P
2	Add the following to the list of normative references: The following normative documents are referenced in Appendix ZZ: -AS/NZS 3112, <i>Approval and test specification—Plugs and socket-outlets</i> -AS/NZS 3123, <i>Approval and test specification—Plugs, socket-outlets and couplers for general industrial application</i> -AS/NZS 3191, <i>Electric flexible cords</i> -AS/NZS 60065, <i>Audio, video and similar electronic apparatus—Safety requirements (IEC 60065:2015 (ED.8.0) MOD)</i> -AS/NZS 60320.1, <i>Appliance couplers for household and similar general purposes, Part 1: General requirements (IEC 60320-1, Ed.2.1 (2007) MOD)</i> -AS/NZS 60320.2.2, <i>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> -AS/NZS 60695.2.11, <i>Fire hazard testing, Part 2.11: Glowing/hot wire based test methods—Glow-wire flammability test method for end-products</i> -AS/NZS 60695.11.5, <i>Fire hazard testing, Part 11.5: Test flames—Needle-flame test method—</i>		P

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	<i>Apparatus, confirmatory test arrangement and guidance</i> -AS/NZS 60695.11.10, <i>Fire hazard testing, Part 11.10: Test flames—50 W horizontal and vertical flame test methods</i> -AS/NZS 60884.1, <i>Plugs and socket-outlets for household and similar purposes, Part 1: General requirements</i> -AS/NZS 60950.1:2015, <i>Information technology equipment—Safety, Part 1: General requirements (IEC 60950-1, Ed.2.2 (2013), MOD)</i> IEC 61032:1997, <i>Protection of persons and equipment by enclosures—Probes for verification</i> -AS/NZS 61558.1:2008 (including Amendment 2:2015), <i>Safety of Power Transformers, Power Supplies, Reactors and Similar Products, Part 1: General requirements and tests (IEC 61558-1 Ed 2.1, MOD)</i> -AS/NZS 61558.2.16, <i>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>		
4.1.1	Application of requirements and acceptance of materials, components and subassemblies 1 <i>Replace the text 'IEC 60950-1' with 'AS/NZS 60950.1:2015'.</i> 2 <i>Replace the text 'IEC 60065' with 'AS/NZS 60065'.</i>		P
4.7	Equipment for direct insertion into mains socket-outlets		N/A
4.7.2	Requirements <i>Delete the text of the second paragraph and replace with the following:</i> Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet complying with AS/NZS 3112 shall comply with the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets.	Should be evaluated during national approval.	N/A
4.7.3	Compliance Criteria <i>Delete the first paragraph and Note 1 and Note 2 and replace with the following:</i> <i>Compliance is checked by inspection and, if necessary, by the tests in AS/NZS 3112.</i>	Should be evaluated during national approval.	N/A
4.8	<i>Delete existing clause title and replace with the following:</i> 4.8 Products containing coin/button cell batteries		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
4.8.1	General 1 Second dashed point, <i>delete</i> the text and <i>replace</i> with the following: – include coin/button cell batteries with a diameter of 32 mm or less. 2 After the second dashed point, <i>insert</i> the following Note: NOTE 1: Batteries are specified in IEC 60086-2. 3 After the third dashed point, <i>renumber</i> the existing Note as 'NOTE 2'. 4 Fifth dashed point, <i>delete</i> the word 'lithium'.		N/A
4.8.2	Instructional Safeguard First line, <i>delete</i> the word 'lithium'.		N/A
4.8.3	Construction First line, after the word 'Equipment' <i>insert</i> the words 'containing one or more coin/button batteries and'		N/A
4.8.5	Compliance criteria <i>Delete</i> the first paragraph and <i>replace</i> with the following: <i>Compliance is checked by applying a force of 30 N +/-1 N for 10 s to the battery compartment door/cover by a rigid test finger according to test probe 11 of IEC 61032:1997 at the most unfavourable place and in the most unfavourable direction. The force shall be applied in one direction at a time.</i>		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General <i>Delete</i> the first paragraph and <i>replace</i> with the following: In Australia only, the separation is checked by the test of both Clause 5.4.10.2.2 and Clause 5.4.10.2.3. In New Zealand, the separation is checked by the test of either Clause 5.4.10.2.2 or Clause 5.4.10.2.3.		N/A
Table 29	<i>Replace</i> the table with the following:		N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

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 10/700 μs	7.0 kV for hand-held telephones and headsets, 2.5 kV for other equipment. 10/700 μs	1.5 kV	3 kV	
Parts indicated in Clause 5.4.10.1 b) and c) ^b	1.5 kV 10/700 μs ^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.					
5.4.10.2.2	After the first paragraph, <i>insert</i> new Notes 201 and 202 as follows: NOTE 201 For Australia, the 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines. NOTE 202 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	After the first paragraph, <i>insert</i> new Notes 201 and 202 as follows: NOTE 201 For Australia, where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used. NOTE 202 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
6.1	General After the first paragraph, <i>insert</i> the following new paragraph: Alternatively, the requirements of Clauses 6.2 to 6.5.2 are considered to be fulfilled if the equipment complies with the requirements of Clause 6.202				P
6.6	After Clause 6.6, <i>add</i> the new Clauses 6.201 and 6.202 as follows: 6.201 External power supplies, docking stations and other similar devices and 6.202 Resistance to fire—Alternative tests (see special national conditions)				P
8.5.4	Special categories of equipment comprising moving parts				N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
8.5.4.1	Large data storage equipment In the first dashed row and the second dashed rows <i>replace</i> 'IEC 60950-1:2005' with 'AS/NZS 60950.1:2015'.		N/A
8.6	Stability of equipment		N/A
8.6.1 and Table 36	Requirements 1. Table 36, <i>insert</i> Footnote c at the end of the 'Glass slide' heading, and <i>add</i> a new Footnote c after the text of Footnote b in the last row of Table 36 as follows: c The glass slide test is not applicable to floor standing equipment, even though the equipment may have controls or a display. 2. Table 36, fifth row, <i>insert</i> '201' at the end of 'No stability requirements' 3. Table 36, ninth row, <i>insert</i> '201' at the end of 'No stability requirements' 4. Table 36, <i>add</i> the following new footnote: 201 MS2 and MS3 television sets and display devices, designed only for fixing to a wall, ceiling or equipment rack, are not subjected to stability requirements only if the instructional safeguard of Clause 8.6.1.201 is provided. Otherwise, the glass slide requirements of Clause 8.6.4 and horizontal force requirements of Clause 8.6.5 apply. 5. Second paragraph beneath Table 36, <i>delete</i> the words 'MS2 and MS3 television sets' and <i>replace</i> with 'MS2 and MS3 television sets and display devices'		N/A
8.6.1	After Clause 8.6.1 <i>add</i> the following new clauses: 8.6.1.201 Instructional safeguard for fixed-mount television sets (see special national conditions)		N/A
Annex F Paragraph F.3.5.1	Mains appliance outlet and socket-outlet markings <i>Replace</i> 'IEC 60320-2-2' with 'AS/NZS 60320.2.2'.	Should be evaluated during national approval.	N/A
Annex G Paragraph G.4.2	Mains connectors 1 In the second line <i>insert</i> 'or AS/NZS 3123' after 'IEC 60906-1'. 2 In the second line <i>insert</i> 'or AS/NZS 60320 series' after 'IEC 60320 series' 3 <i>Add</i> the following new paragraph: 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.	P

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Paragraph G.5.3.1	Transformers, General 1 In the 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 In the fourth dashed point <i>replace</i> 'IEC 61558-2-16' with 'AS/NZS 61558.2.16'.		N/A
Paragraph G.7.1	Mains supply cords, General In the fourth dashed paragraph, <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'	Should be evaluated in national approval	N/A
Table G.5	Sizes of conductors 1 In the second row, first column, <i>delete</i> '6' and <i>replace</i> with '7.5' 2 In the second row, second column, <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> the text of '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 In Footnote c <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1' 7 In Footnote d <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'		N/A
Annex M Paragraph M.3.2	Protection circuits for batteries provided within the equipment, Test method After the first dashed point <i>add</i> the following Note: NOTE 201: 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 SELV 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)		P

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Clause	Requirement + Test	Result - Remark	Verdict
6.201	External power supplies, docking stations and other similar devices For external power supplies, docking stations and other similar devices, during and after abnormal operating conditions and during single fault conditions the output voltage— – at all ES1 outlets or connectors shall not increase by more than 10% of its rated output voltage under normal operating condition; and – of a USB outlet or connector shall not increase by more than 3 V or 10% of its rated output voltage under normal operating conditions, whichever is higher. For equipment with multiple rated output voltages, the requirements apply with the equipment configured for each rated output voltage in turn. NOTE: This is intended to reduce the possibility of battery fire or explosion in attached equipment or accessories when charging secondary lithium batteries. <i>Compliance 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</i>		P
6.202	Resistance to fire—Alternative tests		N/A
6.202.1	General Parts of non-metallic material shall be resistant to ignition and spread of fire. This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames from inside the equipment, or the following: a) Components that are contained in an enclosure having a flammability category of V-0 according to AS/NZS 60695.11.10 and having openings only for the connecting wires filling the openings completely, and for ventilation not exceeding 1 mm in width regardless of length. b) The following parts which would contribute negligible fuel to a fire: – small mechanical parts, the mass of which does not exceed 4 g, such as mounting parts, gears, cams, belts and bearings; – small electrical components, such as capacitors with a volume not exceeding 1 750 mm³, integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category V-1, or better,		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	according to AS/NZS 60695.11.10. NOTE: In considering how to minimize propagation of fire and what 'small parts' are, account should be taken of the cumulative effect of small parts adjacent to each other for the possible effect of propagating the fire from one part to another.		
	<i>Compliance shall be checked by the tests of Clauses 6.202.2, 6.202.3 and 6.202.4.</i> For the base material of printed boards, compliance shall be checked by the test of Clause 6.202.5. The tests shall be carried out on parts of non-metallic material which have been removed from the equipment. When the glow-wire test is carried out, the parts shall be placed in the same orientation as they would be in normal use. These tests are not carried out on internal wiring.		N/A
6.202.2	Testing of non-metallic materials Parts of non-metallic material shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 550°C. Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of material classified at least FH-3 according to ISO 9772 provided that the relevant part is not thinner than the sample tested.		N/A
6.202.3	Testing of insulating materials Parts of insulating material supporting Potential Ignition Sources shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 750°C. The test shall be also carried out on other parts of insulating material which are within a distance of 3 mm of the connection. NOTE: Contacts in components such as switch contacts are considered to be connections		
	For parts which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test. However, parts shielded by a barrier which meets the needle-flame test need not be tested		N/A
	The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Clause of AS/NZS 60695.11.5	Change	
	9 Test procedure		
	9.2 Application of needle-flame	<i>Delete</i> the first and second paragraphs and <i>replace</i> with the following: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1. If possible the flame shall be applied at least 10 mm from a corner. The duration of application of the test flame shall be 30 s $\square$ 1 s.	
	9.3 Number of test specimens	<i>Replace</i> with the following: The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further specimens, both of which shall withstand the test.	
	11 Evaluation of test results	<i>Replace</i> with the following: The duration of burning (tb) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s.	
The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to AS/NZS 60695.11.10,			

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Clause	Requirement + Test	Result - Remark	Verdict
	provided that the relevant part is not thinner than the sample tested.		
6.202.4	Testing in the event of non-extinguishing material If parts, other than enclosures, do not withstand the glow wire tests of Clause 6.202.3, by failure to extinguish within 30 s after the removal of the glowwire tip, the needle-flame test detailed in Clause 6.202.3 shall be made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by flame during the tests of Clause 6.202.3. Parts shielded by a separate barrier which meets the needle-flame test need not be tested. NOTE 1: If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the requirements of Clause 6.202 without the need for consequential testing. NOTE 2: If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirements of Clause 6.202 without the need for consequential testing. NOTE 3: Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting, in contact with, or in close proximity to, connections.		N/A
6.202.5	Testing of printed boards The base material of printed boards shall be subjected to the needle-flame test of Clause 6.202.3. The flame shall be applied to the edge of the board where the heat sink effect is lowest when the board is positioned as in normal use. The flame shall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3 mm from a potential ignition source. The test is not carried out if— – the printed board does not carry any potential ignition source; – the base material of printed boards, on which the available apparent power at a connection exceeds 15 VA operating at a voltage exceeding 50 V and equal or less than 400 V (peak) a.c. or d.c. under normal operating conditions, is of flammability category V-1 or better according to AS/NZS 60695.11.10, or the printed boards are protected by an enclosure meeting the flammability category V-0 according to AS/NZS 60695.11.10, or made of metal, having openings only for		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	connecting wires which fill the openings completely; or – the base material of printed boards, on which the available equipment power at a connection exceeds 15 VA operating at a voltage exceeding 400 V (peak) a.c. or d.c. under normal operating conditions, and base material of printed boards supporting spark gaps which provides protection against overvoltages, is of flammability category V-0 according to AS/NZS 60695.11.10 or the printed boards are contained in a metal enclosure, having openings only for connecting wires which fill the openings completely. <i>Conformance shall be determined using the smallest thickness of the material.</i> NOTE: Available apparent power is the maximum apparent power which can be drawn from the supplying circuit through a resistive load whose value is chosen to maximize the apparent power for more than 2 min when the circuit supplied is disconnected.		
6.202.6	For open circuit voltages greater than 4 kV Potential ignition sources with open circuit voltages exceeding 4 kV (peak) a.c. or d.c. under normal operating conditions shall be contained in a FIRE ENCLOSURE which shall comply with flammability category V-1 or better according to AS/NZS 60695.11.10.		N/A
8.6.1.201	8.6.1.201 Instructional safeguard for fixed-mount television sets MS2 and MS3 television sets and display devices designed only for fixed mounting to a wall of ceiling or equipment rack shall, where required in Table 36, footnote 201, have an instructional safeguard in accordance with Clause F.5 which may be on the equipment or included in the installation instructions or equivalent document accompanying the equipment. The elements of the instructional safeguard shall be as follows: – element 1a: not available; – element 2: 'Stability Hazard' or equivalent wording; – element 3: 'The television set may fall, causing serious personal injury or death' or equivalent text; – element 4: the following or equivalent text: To prevent injury, this television set must be securely attached to the floor/wall in accordance with the installation instructions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.6.1.202	Restraining device MS2 and MS3 television sets and display devices that are not solely fixed-mounted should be provided with a restraining device such as a fixing point to facilitate restraining the equipment from toppling forward. The restraining device shall be capable of withstanding a pull of 100 N in all directions without damage. Where a restraining device is provided, instructions shall be provided in the instructions for installation or instructions for use to ensure correct and safe installation.		N/A

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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 62368-1:2014+A11:2017
Attachment Form No.....:	EU_GD_IEC62368_1B_II
Attachment Originator	Nemko AS
Master Attachment	Date 2017-09-22
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	CENELEC COMMON MODIFICATIONS (EN)						P																																				
Contents	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 (normative) A-Deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords						P																																				
General	Delete all the “country” notes in the reference document according to the following list: <table><tr><td>0.2.1</td><td>Note</td><td>1</td><td>Note 3</td><td>4.1.15</td><td>Note</td></tr><tr><td>4.7.3</td><td>Note 1 and 2</td><td>5.2.2.2</td><td>Note</td><td>5.4.2.3.2.2 & Table 13</td><td>Note c</td></tr><tr><td>5.4.2.3.2.4</td><td>Note 1 and 3</td><td>5.4.2.5</td><td>Note 2</td><td>5.4.5.1</td><td>Note</td></tr><tr><td>5.5.2.1</td><td>Note</td><td>5.5.6</td><td>Note</td><td>5.6.4.2.1</td><td>Note 2 and 3</td></tr><tr><td>5.7.5</td><td>Note</td><td>5.7.6.1</td><td>Note 1 and 2</td><td>10.2.1 & Table 39</td><td>Note 2, 3 and 4</td></tr><tr><td>10.5.3</td><td>Note 2</td><td>10.6.2.1</td><td>Note 3</td><td>F.3.3.6</td><td>Note 3</td></tr></table> For special national conditions, see Annex ZB.						0.2.1	Note	1	Note 3	4.1.15	Note	4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 & Table 13	Note c	5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note	5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3	5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 & Table 39	Note 2, 3 and 4	10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3	P
0.2.1	Note	1	Note 3	4.1.15	Note																																						
4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 & Table 13	Note c																																						
5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note																																						
5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3																																						
5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 & Table 39	Note 2, 3 and 4																																						
10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3																																						
1.	NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.						P																																				

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Clause	Requirement + Test	Result - Remark	Verdict
4.Z1	Add the following new subclause after 4.9: To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment; 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; 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. 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.	Considered. Complied with item a) for internal fuse used and for parts as described in b) reliance on the protection in the building installation.	P
5.4.2.3.2.4	Add the following to the end of this subclause: The requirement for interconnection with external circuit is in addition given in EN 50491-3:2009.	No external circuit.	N/A
10.2.1	Add the following to ^o and ^o in Table 39: For additional requirements, see 10.5.1.	No radiation.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.5.1	Add the following after the first paragraph: <i>For RS 1 compliance is checked by measurement under the following conditions:</i> <i>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 presets 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.</i> NOTE Z1 Soldered joints and paint lockings are examples of adequate locking. <i>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.</i> <i>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.</i> <i>For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.</i> NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.	Added. No x-radiation used.	N/A
10.6.2.1	Add the following paragraph to the end of the subclause: EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.	Added. Not personal music player used.	N/A
10.Z1	Add the following new subclause after 10.6.5. 10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz 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). 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	Added.	N/A
G.7.1	Add the following note: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.	Added.	N/A

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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Bibliography	Add the notes for the standards EN references indicated 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.	Added.	P
ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS		—

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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
4.1.15	Denmark, Finland, Norway and Sweden To the end of the sub-clause the following is added: 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. The marking text in the applicable countries shall be as follows: 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"	No such construction.	N/A
4.7.3	United Kingdom To the end of the subclause the following is added: 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	Not direct plug in equipment.	N/A
5.2.2.2	Denmark After the 2nd paragraph add the following: 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.	Not high touch current measured.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
5.4.11.1 and Annex G	Finland and Sweden To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition • 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), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5 kV. It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: • 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; 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.	No connection to telecommunication network.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
5.5.2.1	Norway After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).	Class III equipment.	P
5.5.6	Finland, Norway and Sweden To the end of the subclause the following is added: 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.	No such resistor used.	N/A
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.	Added.	P
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.	Added.	P
5.6.5.1	Ireland and United Kingdom 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.	Added.	P
5.7.5	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.	Class III equipment.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
5.7.6.1	Norway and Sweden 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. 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. 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: “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)” 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.	Not TV set.	N/A

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
	Translation to Norwegian (the Swedish text will also be accepted in Norway): “Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV net installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.” 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.”.	Not TV set.	N/A
5.7.6.2	Denmark 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 .	Class III equipment.	N/A
B.3.1 and B.4	Ireland and United Kingdom The following is applicable: 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.	Not direct plug-in equipment.	P

IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
G.4.2	Denmark To the end of the subclause the following is added: 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. 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 shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase 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. 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. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. 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 <i>Justification:</i> Heavy Current Regulations, Section 6c	No main socket-outlets used.	N/A
G.4.2	United Kingdom To the end of the subclause the following is added: 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.	Not direct plug-in equipment.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
G.7.1	United Kingdom To the first paragraph the following is added: 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. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.	Class III equipment.	N/A
G.7.1	Ireland Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard	Should be evaluated in national difference approval.	N/A
G.7.2	Ireland and United Kingdom To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm ² is allowed for equipment which is rated over 10 A and up to and including 13 A.	Should be evaluated in national difference approval.	N/A

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ZC ANNEX (normative) A-DEVIATIONS (EN)			
10.5.2	Germany The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking. <i>Justification:</i> German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. NOTE : Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int+49-531-592-6320, Internet: http://www.ptb.de	Not CRT used in the equipment.	N/A

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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

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

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**Annex ZD
(informative)**

IEC and CENELEC code designations for flexible cords

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	60277 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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IEC62368_1B - ATTACHMENT			
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ATTACHMENT TO TEST REPORT IEC 62368-1 DENMARK NATIONAL DIFFERENCES Audio/video, information and communication technology equipment – Part 1: Safety requirements			
Differences according to: DS/EN 62368-1:2014			
Attachment Form No.: DK_ND_IEC62368_1B			
Attachment Originator: UL (Demko)			
Master Attachment: 2014-10			
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	National Differences		P
4.1.15	To the end of the subclause the following is added: 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. The marking text in the applicable countries shall be as follows: “Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord.”	Not intended for connection to other equipment.	N/A
5.2.2.2	After the 2nd paragraph add the following: 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.	Added. No such high touch current.	N/A
5.6.1	Add to the end of the subclause: Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. Justification: In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.	Added. No socket outlet provided.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.7.5	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.	Not such high current.	N/A
5.7.6.2	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.	Added. No such high current.	N/A
G.4.2	To the end of the subclause the following is added: 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. 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 shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase 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. 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. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. 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 Justification: Heavy Current Regulations, Section 6c	No socket-outlet provided.	N/A

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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1 ITALY NATIONAL DIFFERENCES Audio/video, information and communication technology equipment – Part 1: Safety requirements	
Differences according to.....:	CEI EN 62368-1:2016
Attachment Form No.....:	IT_ND_IEC62368_1B
Attachment Originator	IMQ S.p.A.
Master Attachment	2014-10
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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
F.1	The following requirements shall be fulfilled: • The power consumption in Watts (W) shall be indicated on TV receivers and in their instruction for use (Measurement according to EN 60555-2). <i>Note/Nota EN 60555-2 has since been replaced by IEC 60107-1:1997.</i> • TV receivers shall be provided with an instruction for use, schematic diagrams and adjustments procedure in Italian language. • Marking for controls and terminals shall be in Italian language. Abbreviation and international symbols are allowed provided that they are explained in the instruction for use. • The ECC manufacturers are bound to issue a conformity declaration according to the above requirements in the instruction manual. The correct statement for conformity to be written in the instruction manual, shall be: <i>Questo apparecchio è fabbricato nella CEE nel rispetto delle disposizioni del</i> <i>D.M. marzo 1992 ed è in particolare conforme alle prescrizioni dell'art. 1 dello stesso D.M.</i> • The first importers of TV receivers manufactured outside EEC are bound to submit the TV receivers for previous conformity certification to the Italian Post Ministry (PP.TT). The TV receivers shall have on the backcover the certification number in the following form: D.M. 26/03/1992 xxxxx/xxxxx/S or T or pT S for stereo T for Teletext pT for retrofittable teletext <i>Justification:</i> Ministerial Decree of 26 March 1992 : National rules for television receivers trade. <i>NOTE/NOTA: Ministerial decree above contains additional, but not safety relevant requirements</i>	Not TV.	N/A

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ATTACHMENT TO TEST REPORT IEC 62368-1 SWEDEN NATIONAL DIFFERENCES Audio/video, information and communication technology equipment – Part 1: Safety requirements			
Differences according to: SS-EN 62368-1:2014			
Attachment Form No.: SE_ND_IEC62368_1B			
Attachment Originator: Intertek Semko AB			
Master Attachment: 2014-10			
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	National Differences		P
4.1.15	Denmark, Finland, Norway and Sweden To the end of the subclause the following is added: 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. The marking text in the applicable countries shall be as follows: 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 jordnet stikkontakt" In Sweden: "Apparaten skall anslutas till jordat uttag"	No connection to other equipment or a network.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.11.1 And Annex G	Finland and Sweden To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.	No TNV circuit used.	N/A
5.4.11.1 And Annex G	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 • 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), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5 kV. It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: • 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; 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.	No TNV circuit used.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.5.6	Finland, Norway and Sweden To the end of the subclause the following is added: 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.	No such resistor used.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.1	Norway and Sweden 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. 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. 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: “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)” 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. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake 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.” 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.”	Not TV set.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1 2th Ed CANADA NATIONAL DIFFERENCES Audio/video, information and communication technology equipment – Part 1: Safety requirements			
Differences according to: CAN/CSA C22.2 No. 62368-1-14			
Attachment Form No.: CA_ND_IEC623681B			
Attachment Originator: CSA International			
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IEC 62368-1 - US and Canadian National Differences Special National Conditions based on Regulations and Other National Differences			
1DV.1	Battery backup systems that are not an integral part of stationary equipment, such as provided in separate cabinets, are subject to the appropriate standard for battery backup systems, such as UL 1973, Batteries for Use in Light Electric Rail (LER) Applications and Stationary Applications.	No battery backup systems.	N/A
1DV.2	For equipment intended for outdoor installation, additional requirements for Information and communication technology equipment are covered by CSA/UL 60950-22 and for Audio/video equipment are covered by the relevant requirements in CSA C22.2 No. 60065 or UL 60065	Indoor used only.	N/A
1DV.3.1	Standard is applicable to equipment designed to be installed in accordance with the Canadian Electrical Code, Part I, C22.1-12; Canadian Electrical Code, Part II, General Requirements, CAN/CSA C22.2 No. 0-10; the National Electrical Code, NFPA 70-2014; and the National Electrical Safety Code, IEEE C2-2012.	Not such equipment.	N/A
1DV.3.2	For equipment designed to be installed in accordance with Article 645 of the National Electrical Code, NFPA 70-2014, and the Standard for the Protection of Information Technology Equipment, NFPA 75-2013, identification by marking or instruction [see Annex DVA (Annex DVA, Clause 1)] is required.	Not such equipment.	N/A
1DV.3.3	Additional regulatory requirements that apply to this equipment per Annex DVA, as applicable.	Considered.	P
1DV.4.1	Additional requirements for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities per Annex DVB.	Not such equipment.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
1DV.4.2	This standard includes additional requirements for equipment intended for mounting under kitchen cabinets. See Annex DVC.	Not such equipment.	N/A
1DV.4.3	This standard does not apply to equipment having Remote Feeding Telecommunication (RFT) circuits. Equipment having RFT circuits is covered by CSA/UL 60950-21.	No such parts.	N/A
1DV.4.4	Additional requirements may apply to large data storage equipment. Refer to CSA/UL 60950-23.	Not such equipment.	N/A
1DV.4.5	Does not cover Modular Data Centers (MDCs) but only the information and communication technology equipment contained within.	Not such equipment.	N/A
1DV.5.1	Power Distribution Equipment and Sub-Assemblies	Not such equipment.	N/A
1DV.5.1.1	Power distribution sub-assemblies connected to a mains used to distribute power entirely within a system of equipment, such as power distribution units (PDUs), cord-connected power strips, shelves with multiple power outlets (receptacles) etc., and intended to be installed in system racks, cabinets, home entertainment centers, etc. are covered by this standard	Not such equipment.	N/A
1DV.5.1.2	For equipment covered by this standard that incorporates components and sub-assemblies that perform a power distribution and control function covered by other standards, such as panelboards, load transfer equipment, or uninterruptible power systems utilized in power conditioners and computer power centers, this standard only may be used for investigation of safety for those aspects not covered by the other standards.	Not such equipment.	N/A
1DV.5.1.3	This standard also does not apply to stand-alone equipment used for distribution of mains power that is covered by individual power distribution equipment standards.	Not such equipment.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
1DV.5.1.4	Based on the specific function, the following requirements are applicable to the stand-alone distribution equipment, or apply additionally to power distribution sub-assemblies and components of equipment covered by this standard, as described in 1DV.5.1.2 and 1DV.5.1.3: – For Industrial Control Equipment, see CSA C22.2 No. 14 and UL 508. – For Panelboards, see CSA C22.2 No. 29 and UL 67. – For Switchboards, see CSA C22.2 No 244 and UL 891. – For Transfer Switch Equipment, see CSA C22.2 No 178.1 and UL 1008. – For Uninterruptible Power Systems, see CSA C22.2 No. 107.3 and UL 1778.	Not such equipment.	N/A
1DV.5.1.4	– For Power Distribution Centers for Communications Equipment, see UL Subject 1801. – Other forms of power distribution units for general applications, such as, • Relocatable Power Taps, CSA-C22.2 No. 21, Cord Sets and Power Supply Cords, and UL 1363, Relocatable Power Taps. • Cord connected Surge Protective Devices, CSA Technical Information Letter No. A-24, Interim Certification - Requirements for AC Line Connected Wiring Devices with Varistors, and UL 1449, Surge Protective Devices. • Furniture Power Distribution Units, CSA-C22.2 No. 21, Cord Sets and Power Supply Cords and UL 962A, Furniture Power Distribution Units.	Not such equipment.	N/A
3.3.1.2DV D2	For additional information regarding low voltage d.c. mains (centralized d.c. power systems) equipment, refer to Annex DVD. This standard covers high voltage d.c. mains up to 600 Vdc.	Class III equipment.	N/A

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3.3.1.3DV.1	New definition: telecommunication network – metallicallly terminated transmission medium intended for communication between equipment that may be located in separate buildings, excluding: – the mains system for supply, transmission and distribution of electrical power, if used as a telecommunication transmission medium; – cable distribution systems; – ES1 circuits connecting units of audio/video, information and communication technology equipment.	No TNV circuit.	N/A
4.1.1DV.1 D2	The U.S. and Canada, components and subassemblies that comply with the standards referenced in Annex DVE are required in addition to or as a replacement for the requirements in this standard. Components complying with these standards are considered acceptable as part of equipment covered by this standard without further evaluation other than to give consideration to the appropriate use of the component or subassembly in the end product.	Considered.	P
4.1.1DV.2 DC	In the U.S. and Canada, components and subassemblies that comply with the standards referenced in Annex DVG are acceptable as an alternative to requirements as part of equipment covered by this standard without further evaluation other than to give consideration to the appropriate use of the component or subassembly in the end product.	Considered.	P
4.1.2DV DC	In the U.S. and Canada, some UL/CSA component standards may be used as alternatives to referenced IEC standards for the purposes of North America certifications or surveillance programs. Components and subassemblies that comply with the standards referenced in Annex DVF are acceptable as part of equipment covered by this standard without further evaluation other than to give consideration to the appropriate use of the component or subassembly in the end product.	Considered.	P
4.1.16DV.1	Mains connections	Class III equipment.	P
4.1.16DV.1.1 DE, 4.1.16DV.1.2 DR	Requirements for Mains Supply Cords for Pluggable (Cord Connected) Equipment (Canadian and U.S. regulatorybased requirements) - Annex G.7 and G.7ADV	Class III equipment.	P

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Clause	Requirement + Test	Result - Remark	Verdict
4.1.16DV.1.3 D2, 4.1.16DV.1.4 DR	Requirements for Permanently Connected Equipment. (Canadian and U.S. regulatory-based requirements) – Annex DVH	Not permanently equipment.	N/A
4.1.17DV.1	External interconnecting cable and wiring	No such parts.	P
4.1.17DV.1.1	General External interconnecting cable and wiring are investigated to the requirements of 6.5 and either 4.1.17DV.1.2 or 4.1.17DV.1.3, as appropriate. – External interconnecting cable and wiring 3,05 m or less may be investigated as part of the equipment (system) to the requirements of this standard. See 4.1.17DV.1.2. – External interconnect cable and wiring longer than 3,05 m are regulated by the Canadian Electrical Code, C22.1, and the National Electrical Code, NFPA 70, and are subject to associated requirements. See 4.1.17DV.1.3. – External interconnect cable longer than 3,05 m designed to carry audio and/or video signals only, and that is not specified by the manufacturer to be routed inside the building structure (e.g., walls, ceilings, etc.), is subject to the applicable requirements of 4.1.17DV.1.2. For purposes of 4.1.17DV.1.2, it is assumed such cables are connected to PS1 circuits. Alternatively, detachable external interconnecting cable and wiring (with terminations) may be excluded from the equipment evaluation if specified by the manufacturer.	No interconnecting cable used.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.1.17DV.1.2	Equipment (system) interconnecting cable and wiring The following requirements apply to detachable and nondetachable external interconnecting cable and wiring investigated as part of the equipment (system). – The length of the external interconnecting cable or wiring shall not exceed 3,05 m; – For external interconnecting cable and wiring connected to PS2 and PS3 circuits, see 6.5 for fire (flammability) considerations; – There are no fire (flammability) considerations for external interconnecting cable and wiring specified by the manufacturer for connection to circuits that are PS1. – External interconnecting cable and wiring intended to be connected to an ES3 or PS3 circuit require a jacket for mechanical protection in accordance with Table G.7ADV.2, or equivalent; – Detachable external interconnecting cable and wiring (with terminations) intended to be connected to a PS2, PS3, ES2 or ES3 circuit and furnished as part of the equipment shall be either marked, or similarly identified in the installation instructions with (a) the name, trademark or trade name of the organization that is responsible for the equipment, and (b) the organization's identifying number or equivalent designation for the cable. See Annex DVK. – The marking may be applied on the cable and wiring at any location – This marking is not required to comply with the test for permanence of markings, F.3.9 Optical fiber interconnecting cables 3,05 m or less are not subject to the above requirements	No interconnecting cable used.	N/A
4.1.17DV.1.3	External interconnecting cable and wiring considered part of the building installation. External interconnecting cables and wiring longer than 3,05 m are regulated by the Canadian Electrical Code, C22.1, and the National Electrical Code, NFPA 70. See Annex DVA(Annex Q entry).	No interconnecting cable used.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.6.2DV D2	Additional examples of compliance: - wire-wrap terminals used for the connection of ES1 and ES2 that are: • provided on equipment that forms part of the telecommunication network, up to and including the demarcation point, and are located in service access areas only. (This equipment is generally considered Central Office Equipment, although it may be deployed elsewhere in similarly controlled environments.) and • provided with a guard or cover that prevents unintentional contact during normal operation. are tested with a steady force of 2,5 N $\pm$ 0,25 N.	No such parts.	N/A
4.8.3DV D2	If screws or similar fasteners are used to secure the door/cover providing access to the battery compartment, the fasteners shall be captive to ensure that they remain with the door/cover. This does not apply to side panel doors on larger devices which are necessary for the functioning of the equipment and which are not likely to be discarded or Secretariat, Geneva5/9 left off the equipment	No battery used.	N/A
4.8.4.5DV D2	0,5 J impact test deleted.		N/A
4.8.5DV.1 D2	Replace 30 N battery compartment door/cover test with 45 N		N/A
4.8.5DV.2 D2	Power distribution transformers distributing Additional compliance criteria replaced with: - the battery compartment door/cover shall not open; and - the battery shall not become accessible.		N/A
5.4.4.1DV D1	For printed boards, see Clause G.13 For antenna terminals, see Clause 5.4.5 For solid insulation on internal and external wiring, see Clause G.6. Additionally, for internal wiring accessible to an ordinary person, see Clause 5.4.6.	Considered.	P
5.6.3DV.1 DR to 5.6.3DV.3 DR	Protective earthing conductors shall comply with the minimum conductor sizes in Table G.5, except as required by • Table G.7ADV.1 for cord connected equipment; or • Annex DVH for permanently connected equipment.	Considered.	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.6.4.1DV DR	Minimum conductor size alternative compliance to Table G.5 or Table G.7ADV.1 as applicable , or Table 31 Minimum protective bonding conductor size of copper conductors	Considered.	P
5.6.4.4DV DR	Protective bonding conductor sizes alternative compliance to Table G.7ADV.1 in addition to Table 31 or Table G.5	Considered.	P
Table 32 DV DR	Include alternative conductor size compliance with Table G.7ADV.1 in the first column heading for protective conductor terminals.	Considered.	P
5.6.6.1 DV DR	Protective bonding conductors that meet the minimum conductor sizes in Table G.5 or Table G.7ADV.1 as applicable, throughout their length and whose terminals all meet the minimum sizes in Table 32 are considered to comply without test.	Considered.	P
5.7.6.2DV DE	Clause title modified to read "Prospective touch voltage and touch current to external circuits"		P
5.7.7DV.1 D2	Clause 5.7.7 to apply to stationary pluggable equipment type A or pluggable equipment type B	No such equipment.	N/A
5.7.7DV.2 D2	Summation of touch currents not exceeding the limits of ES2 exception per Clause 5.7.7(a)(1)	Considered.	P
5.7.7DV.3 D2	Clause 5.7.7(a)(2) replaced with: Such equipment shall comply with Clause 5.7.5. The value of $S(I_1)$ shall be added to the measured protective conductor current to determine compliance with the 5 % input current limit per phase specified in Clause 5.7.5.	Replaced	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.7.7.1DV D2	Limitation of touch current due to ringing signals Equipment containing input telecommunication network leads over which ringing voltages are applied to the equipment shall be tested using the circuit of Figure 5.7.7.1DV.1 for mains-connected equipment or Figure 5.7.7.1DV.2 for other equipment. For any position of the selector switches, the total touch current including consideration of 5.7.7 shall not exceed the relevant limits for ES2 specified in Table 4, unless the equipment complies with 5.7.7(a) with the protective conductor current due to ringing signal taken into account. An EUT that receives ringing voltages on up to three telecommunication network connection ports shall have simulated ringing applied to each network connection. For four or more ports receiving ringing, simulated ringing shall be applied to three ports and an additional 3 % (rounding down) of the remaining ports.	No ringing signals used.	N/A
5.7.7.1DV D2	Compliance is checked by the following tests, which are conducted using the measuring network described in IEC 60990, Figure 4. Simulated ringing at 120 V, 50 to 60 Hz, shall be applied to ringing input telecommunication network leads, either one lead at a time or connected together. Other telecommunication network leads shall be left disconnected. Equipment shall be evaluated in each operating state, including ground start. The general test methods of 5.7 shall apply, checking touch current for all positions of switches S1, S2, and S3 in Figure 5.7.7.1DV.1. In case the total touch current exceeds the ES2 limits, the protective conductor current is measured using the test set up of Figure 5.7.7.1DV.1 or Figure 5.7.7.1DV.2 with the measuring instrument replaced with an ammeter having negligible impedance.	No ringing signals used.	N/A
6.5.1DV.1 DC	Add the following text to the end of the second, third and fourth paragraphs: or the insulation of the conductor or cable assembly shall be rated VW-1 or FT-1.	Added.	P

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Clause	Requirement + Test	Result - Remark	Verdict
6.5.1DV.2 D2	Add the following after the third paragraph: PS3 wiring outside a fire enclosure shall comply with single fault testing in B.4. Alternatively, the following constructions are considered to comply: – conductors provided with overcurrent protection in accordance with Article 240 of the National Electrical Code, NFPA 70, and the Canadian Electrical Code, Part I, C22.1, Section 14; – internal conductors supplied by a power source that is limited to the output voltage and current values specified in Table Q.1 or is limited to the output voltage values and provided with an overcurrent protective device with a rated current value as specified in Table Q.2; – interconnecting cables supplied by a limited power source (see Q.1); – a 20-A protective device used with any size wire in the primary.	Considered.	P
6.7DV.1	Safeguards against electrically-caused fire due to overvoltage from power line crosses		N/A
6.7DV.1.1	Equipment with external circuits intended for connection to a telecommunication network that uses outside cable subject to overvoltage from power line failures shall comply with Annex DVI.	No TNV circuit used.	N/A
10.6.1DV D2	For telecommunication-network connected equipment, see Annex DVJ.	No TNV circuit used.	N/A
F.1DV DR	F.1DV.1 See Annex DVK for U.S. and Canadian markings and instructions.	Considered.	P
F.3.3.9DV.1	Equipment with output terminals Output terminals provided for supply of other equipment except mains supply shall be marked with the nominal output voltage and frequency, and, in addition, the maximum output current or power, unless the terminals are marked with the type references of the equipment which are permitted to be connected. When intended to be installed or interconnected in the field by a skilled person, the Class of wiring shall be marked adjacent to the terminals.	Considered.	P
G.4.3DV D2	Delete the 2nd sentence reference to “banana plug” of the EXAMPLE.	Deleted.	N/A
G.7.2DV DR	In the second paragraph, replace the reference to Table G.4 with a reference to Table G.7ADV.1.		P

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Clause	Requirement + Test	Result - Remark	Verdict
G.7ADV DR	Additional requirements: Power supply cords – detachable and non-detachable		N/A
G.7ADV.1	General Flexible cords and plugs are permitted for movable equipment, hand-held equipment, stationary equipment and transportable equipment, and for fixed equipment where the fastening means and mechanical connections of the equipment are designed to permit removal for maintenance and repair.		N/A
G.7ADV.2	Methods of connection Flexible cords shall be provided with an attachment plug for connection to the branch circuit.		N/A
G.7ADV.3	Sizing and ratings The attachment plug configuration shall be one that is rated not less than 125 percent of the current rating of the equipment. Power supply cords shall have conductors with cross-sectional areas sufficient for the rated current of the equipment. Conductors shall be sized based on the requirements in the National Electrical Code (NEC), NFPA 70, and the Canadian Electrical Code, Part I, C22.1. Table G.7ADV.1 provides allowable ampacity for flexible cords and cables based on Table 400.5(a)(1) of the NEC. See Table 400.5(a)(2) of the NEC for ampacity information on portable power cables. For equipment with a rated current up to and including 2 A, 20 AWG is acceptable provided that the mains plug is provided with a 2 A fuse maximum and the equipment is not provided with a socket outlet.	Considered.	P
G.7ADV.4	Serviceability Power supply cords and cord sets shall incorporate flexible cords suitable for the particular application or shall be of a type at least as serviceable for the particular application. Table G.7ADV.2 lists common applications and associated suitable cord types.	Considered.	P

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Clause	Requirement + Test	Result - Remark	Verdict
G.7ADV.5.1	Minimum length The minimum length of a power supply cord shall be 1,5 m unless it is intended for a special installation, such as dedicated equipment intended to be mounted near a mains socket-outlet. For equipment provided with an external power supply, the minimum length of the power supply cord shall be 0,5 m, provided that the total length of the conductive path from the receptacle to the equipment is 1,5 m or greater.	Considered.	P
G.7ADV.5.2	Maximum length For equipment intended for installation in ITE Rooms, the length of a power supply cord shall not exceed 4,5 m. For other intended installations, see Table G.7ADV.2.	Considered.	P
H.2DV D2	item a: Continuous ringing signals shall: • be located only in areas where a skilled person has access during servicing; • be so located and guarded that unintentional contact with such parts is unlikely during servicing by a skilled person, or be provided with a marking to warn a skilled person of the presence of continuous ringing signals; and • not become accessible to an ordinary person under single fault conditions.	No ringing signals used.	N/A

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H.4DV.1	Other telecommunication signals: Telecommunication signaling systems (e.g., some message waiting systems) using voltages or current, or both, greater than those specified in 5.2.1.1 and 5.2.1.2 shall be permitted if they comply with the following: – continuous signal: For a signal of duration greater than 5 s, the current through the relevant measuring instrument described in IEC 60990:1999, Figure 4, shall be not greater than 7.1 mA peak a.c., or 30 mA d.c., or the limit shown in Figure H.4DV.1 for combinations of a.c. and d.c., when measured in accordance with 5.7. – intermittent signal: For a signal of duration less than 5 s, the current through the relevant measuring instrument described in IEC 60990:1999, Figure 4, shall be not greater than the limit specified in Figure H.4DV.2. The signal shall be followed by a quiet interval of at least 1 s before the next intermittent signal. During the quiet interval, either the voltage is less than 56,6 V d.c., or the current measured is less than 0,5 mA.	No TNV circuit used.	N/A
M.2.1DV DC	Battery packs with sealed secondary cells and batteries (other than button) containing alkaline or other non-acid electrolyte and used in stationary equipment shall comply with either IEC 62133, UL 2054 or UL 1973. Additionally, such battery packs that rely on solid-state circuits and software controls as safeguards shall comply with either the requirements in UL 1973 for System Safety Analysis (5.7) and Protective Circuit and Controls (5.8), or similar requirements in an appropriate standard for electronic safety-related controls that are suitable for investigation of such protection of secondary cells and batteries.	No battery used.	N/A
P.4.1DV DE	Additional text added to correct for editing error: For metalized coatings, clearances and creepage distances for pollution degree 3 shall be maintained instead of the tests of P.4.2DV.1.	Added	P
P.4.2DV DE	Added test requirements text from Clause P.5 as new Clause P.4.2DV DE to correct for editing error.	Added	P
P.5DV DE	Clause P.5 relocated to P.4.1 and P.4.2		P

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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
U.1DV D1	Added the following text: The outer enclosure housing a CRT shall have no opening that exceeds 130 mm ² unless the minor dimension of the opening is 10 mm or less.	No CRT used.	N/A
Table W.3DV DE	Modify Table W.3 by replacing the entry for 1.2.8.14 in the first column with the following to correct a typographical error: TNV-3 CIRCUIT TNV CIRCUIT – whose normal operating voltages exceed the limits for an SELV circuit under normal operating conditions and – on which overvoltages from telecommunication networks and cable distribution systems are possible	Replaced	N/A
Annex DVA	(normative) Canadian and U.S. regulatory-based requirements		P
Annex DVB	(normative) Equipment used in health care facilities	No such equipment used.	N/A
Annex DVC	(normative) Under kitchen cabinet equipment	No such equipment used.	N/A
Annex DVD	(informative) D.C. powered equipment and centralized d.c. power systems (DC mains)	Class III equipment.	N/A
Annex DVE	(normative) UL and CSA component requirements (mandatory)		P
Annex DVF	(normative) UL and CSA component requirements (alternative to IEC standards)		P
Annex DVG	(normative) UL and CSA component requirements (alternative)		P
Annex DVH	(normative) Permanently connected equipment – mains connections	Not Permanently connected equipment.	N/A
Annex DVI	(normative) Safeguards against electrically-caused fire due to overvoltage from power line crosses		P
Annex DVJ	(normative) Acoustic tests for telecommunications equipment	No TNV used.	N/A
Annex DVK	(normative) Canadian and U.S. marking and instructions		P

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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62368-1 2th Ed U.S.A. NATIONAL DIFFERENCES Audio/video, information and communication technology equipment – Part 1: Safety requirements	
Differences according to.....:	UL 62368-1:2014
Attachment Form No.....:	US _ND_IEC623681B
Attachment Originator	UL(US)
Master Attachment	Date 2015-06
Copyright © 2015 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			
1.1	All equipment is to be designed to allow installation according to the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, 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.	In accordance with the National Electrical Code (NEC) and the Canadian Electrical Code (CEC) part 1 CAN/CSA C22.1, ANSI/NFPA 70, and unless marked or otherwise identified, the Standard for Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	P
1.4	Additional requirements apply to some forms of power distribution equipment, including sub-assemblies.	Considered.	P
4.1.17	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the NEC.	No interconnecting flexible cord used.	N/A
	For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC generally are required to have special construction features and identification markings.	See above.	N/A
4.8	Lithium coin / button cell batteries have modified special construction and performance requirements.	No such batteries.	N/A
5.6.3	Protective earthing conductors comply with the minimum conductor sizes in Table G.5, except as required by Table G.7ADV.1 for cord connected equipment, or Annex DVH for permanently connected equipment		P

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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.7	Equipment intended to receive telecommunication ringing signals complies with a special touch current measurement tests.	No TNV circuits within the equipment.	N/A
6.5.1	PS3 wiring outside a fire enclosure complies with single fault testing in B.4, or be current limited per one of the permitted methods.	No such parts.	N/A
Annex F (F.3.3.8)	Output terminals provided for supply of other equipment, except mains, supply are marked with a maximum rating or references to which equipment it is permitted to be connected.		N/A
Annex G (G.7.1)	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.	The equipment is not permanent connection equipment.	N/A
Annex G (G.7.3)	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.	Considered. (see appended table)	P
	Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.	See above.	N/A
Annex G (G.7.5)	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.		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.	No TNV circuits within the equipment.	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.	No TNV circuits within the equipment.	N/A
Annex M	Battery packs for stationary applications comply with special component requirements.	No such parts.	N/A
Annex DVA (1)	Equipment intended for use in spaces used for environmental air are subjected to special flammability requirements for heat and visible smoke release.	The equipment not intended to be used within such environments.	N/A

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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	For ITE room applications, automated information storage systems with combustible media greater than 0.76 m ³ (27 cu ft) have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.	Not such equipment.	N/A
	Consumer products designed or intended primarily for children 12 years of age or younger are subject to additional requirements in accordance with U.S. & Canadian Regulations.	The equipment is not for children used.	N/A
	Baby monitors additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.	Not a baby monitors.	N/A
Annex DVA (5.6.3)	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.	Considered.	P
Annex DVA (6.3)	The maximum quantity of flammable liquid stored in equipment complies with NFPA 30.	No flammable liquids within the equipment.	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) 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 min. flammability classification of V-1.	No such application.	N/A
Annex DVA (10.3.1)	Equipment with lasers meets the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).	No such parts.	N/A
Annex DVA (10.5.1)	Equipment that produces ionizing radiation complies with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).	No such parts.	N/A
Annex DVA (F.3.3.3)	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 are lower than the "Normal Operating Condition" in Table 2 of CAN/CSA C22.2 No. 235."	Single phase only.	N/A
Annex DVA (F.3.3.5)	Equipment identified for ITE (computer) room installation is marked with the rated current	Not such application.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (G.1)	Vertically-mounted disconnect switches and circuit breakers have the "on" position indicated by the handle in the up position	No such parts.	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 supply outlets, receptacles, medium-base or smaller lampholders provided.	N/A
Annex DVA (G.4.2)	Equipment with isolated ground (earthing) receptacles complies with NEC 250.146(D) and CEC 10-112 and 10-906(8).	No such parts.	N/A
Annex DVA (G.4.3)	Where a fuse is used to provide Class 2 or Class 3 current limiting, it is not operator-accessible unless it is non- interchangeable.	No such parts.	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.	No such parts.	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).	No such parts.	N/A
Annex DVA (Annex M)	For ITE room applications, equipment with battery systems capable of supplying 750 VA for five minutes have a battery disconnect means that may be connected to the ITE room remote power-off circuit.	Not such application.	N/A
Annex DVA (Q)	Wiring terminals intended to supply Class 2 outputs according to the NEC or CEC Part 1 are marked with the voltage rating and "Class 2" or equivalent; marking is located adjacent to the terminals and visible during wiring.		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.	Not such application.	N/A
Annex DVC (1)	Additional requirements apply for equipment intended for mounting under kitchen cabinets.	Not such application.	N/A

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IEC62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVE (4.1.1)	Some equipment, components, sub-assemblies and materials associated with the risk of fire, electric shock, or personal injury have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. Components required to comply include: appliance couplers, attachment plugs, battery back-up systems, battery packs, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), power supply cords, direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultra-capacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), ground-fault current interrupters, interconnecting cables, data storage equipment, printed wiring, protectors for communications circuits, receptacles, surge protective devices, vehicle battery adapters, wire connectors, and wire and cables.	UL approved components used. Refer to table 4.1.2 of IEC 62368-1 test report for details.	P
Annex DVH	Equipment for permanent connection to the mains supply is subjected to additional requirements.	The equipment is not permanently connected equipment.	N/A
Annex DVH (DVH.1)	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains are in accordance with the NEC/CEC.	Pluggable equipment type A.	N/A
Annex DVH (DVH.3.2)	Terminals for permanent wiring, including protective earthing terminals, are suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and are specially marked when specified.	No terminals for permanent wiring.	N/A
Annex DVH (DVH.3.2)	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).	No wire binding screws.	N/A
Annex DVH (DVH.4)	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.	The equipment is not permanently connected equipment.	N/A
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, complies with special earthing, wiring, marking and installation instruction requirements.	The equipment not connected to a centralized d.c. power system.	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 TNV circuits within the equipment.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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.	No TNV circuits within the equipment.	N/A

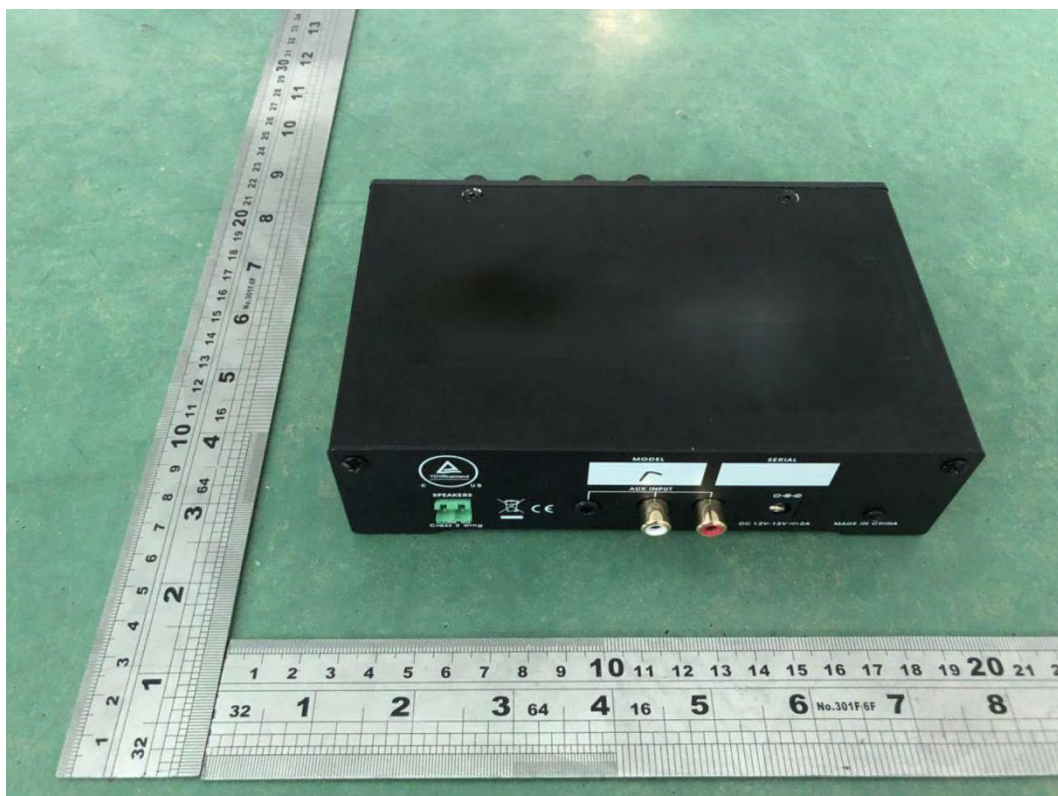
-END-

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB

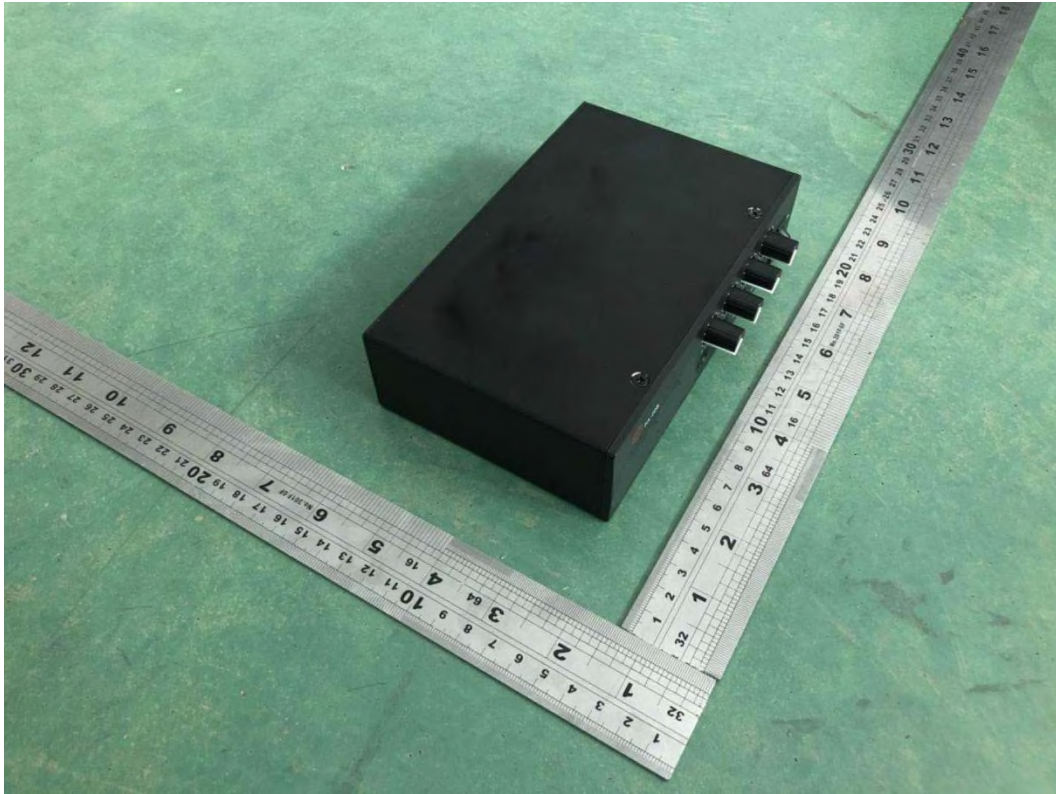


Picture 1. Model PA-20

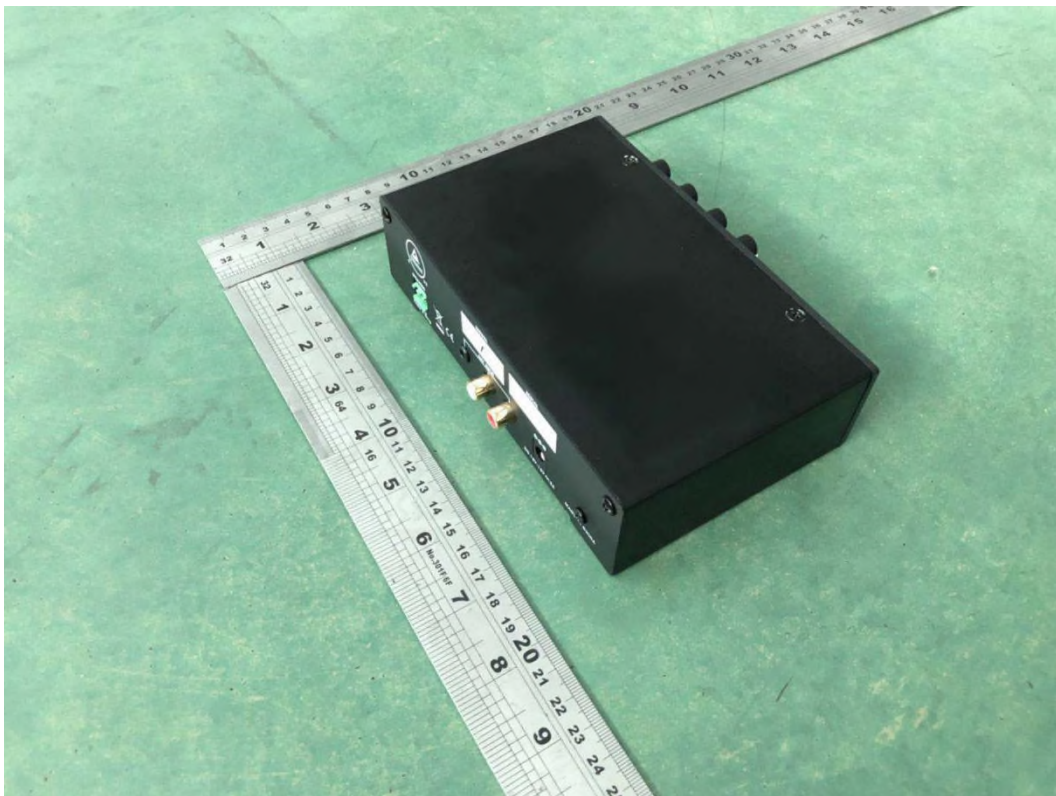


Picture 2. Model PA-20

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



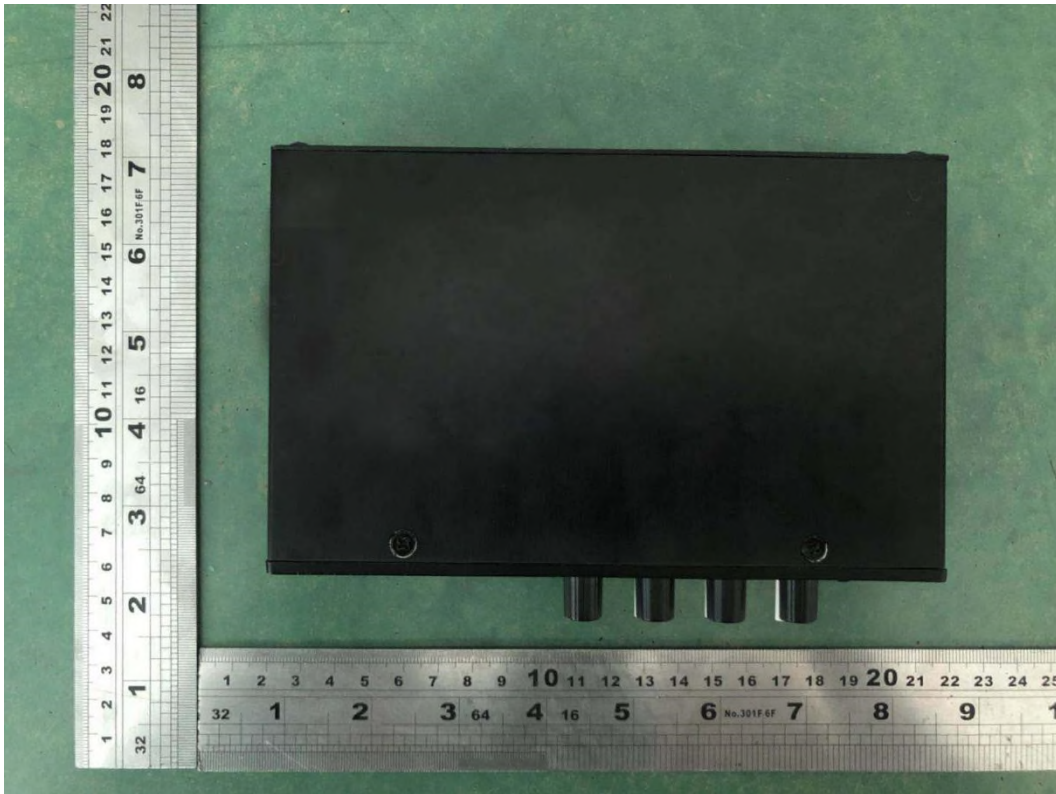
Picture 3. Model PA-20



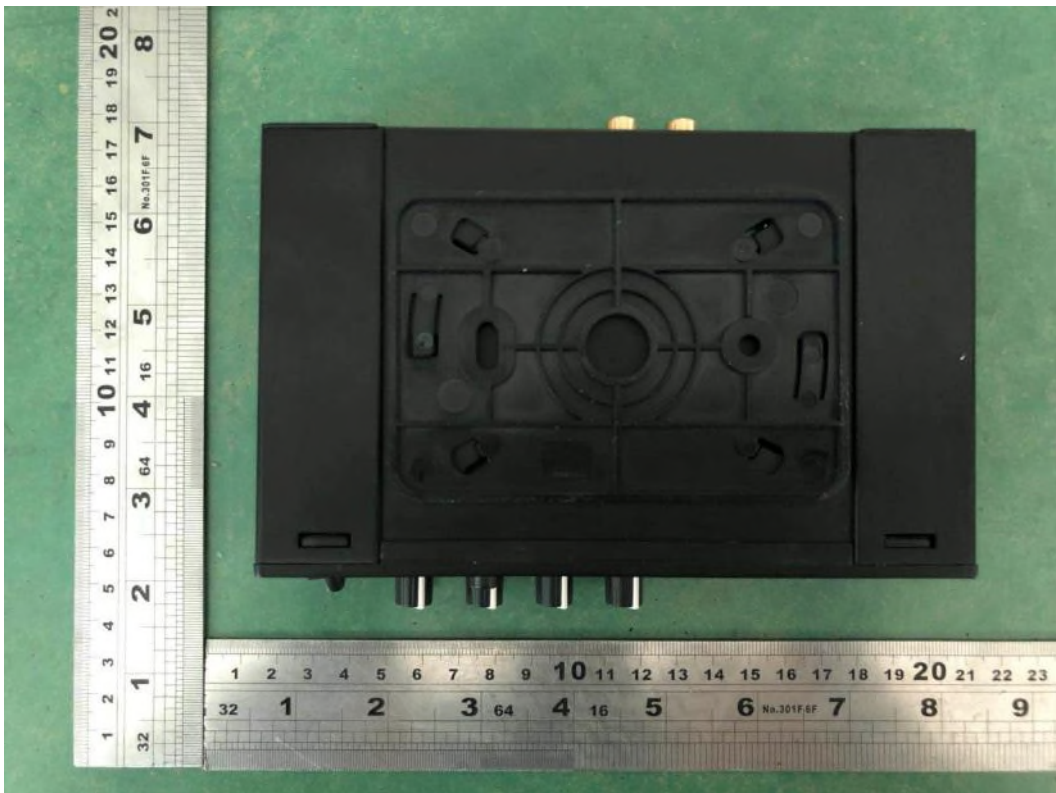
Picture 4. Model PA-20

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



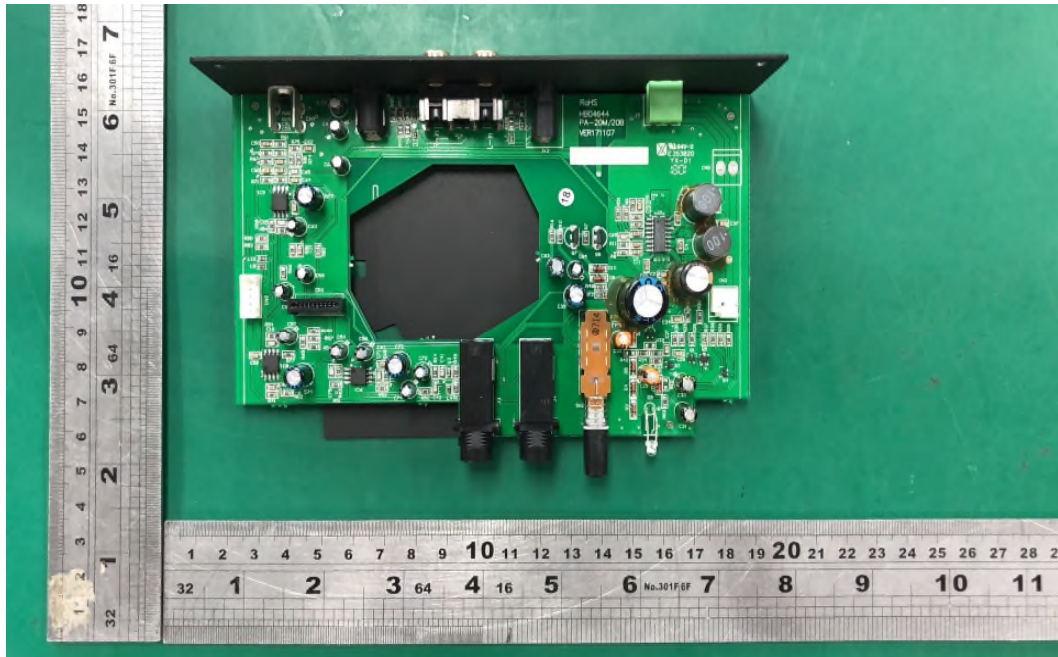
Picture 5. Model PA-20



Picture 6. Model PA-20

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



Picture 7. Model PA-20



Picture 8. Model PA-20M

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



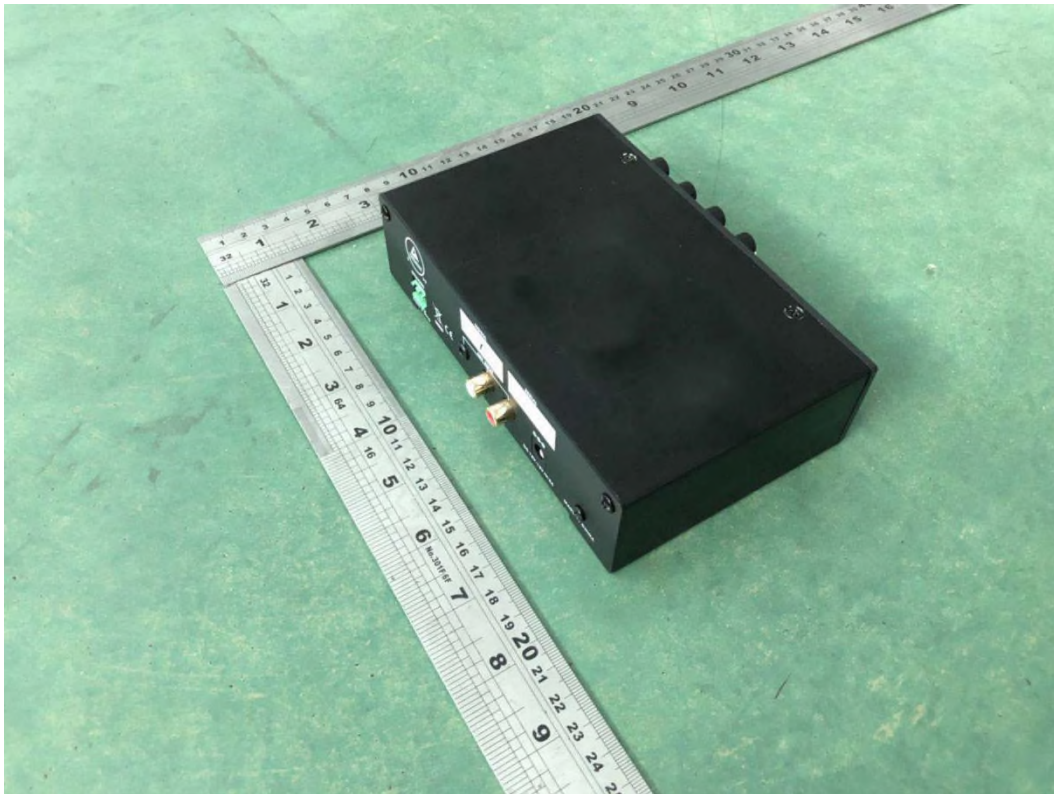
Picture 9. Model PA-20M



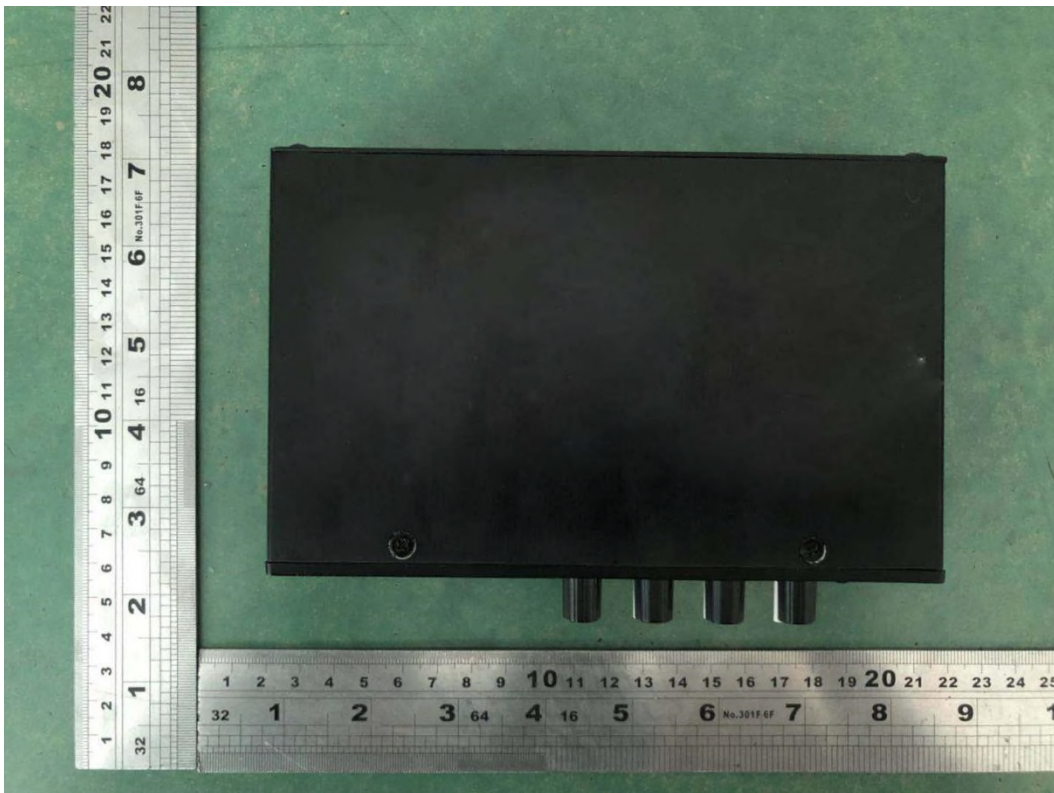
Picture 10. Model PA-20M

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



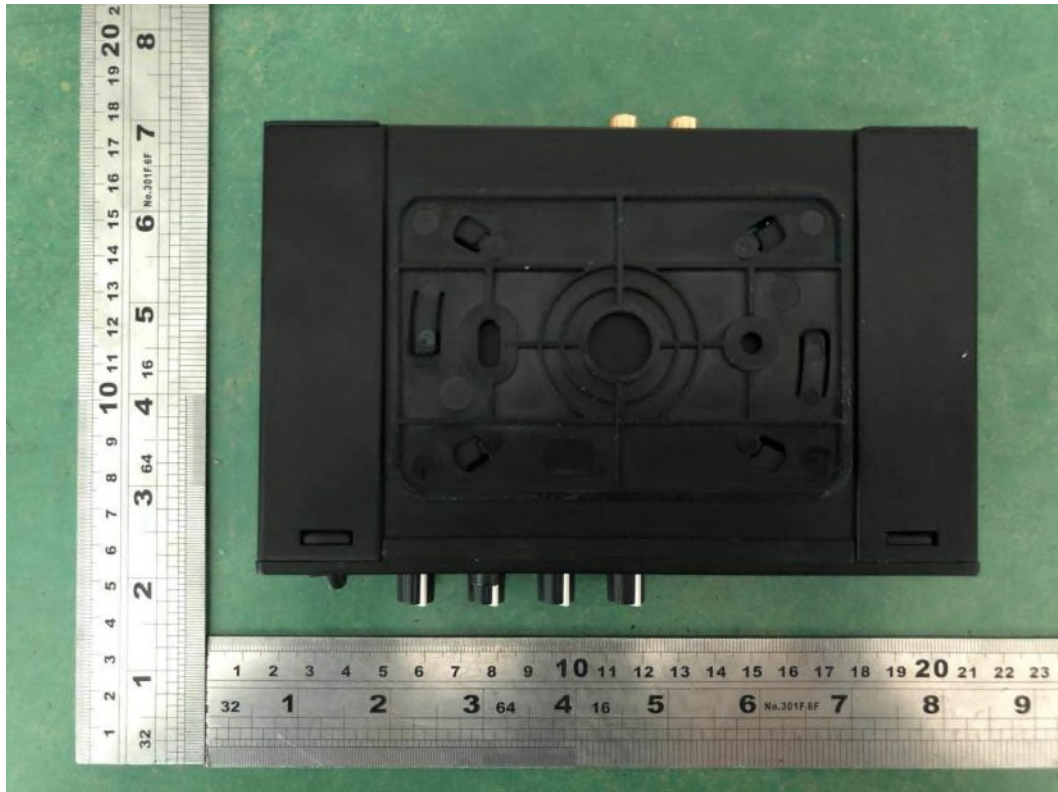
Picture 11. Model PA-20M



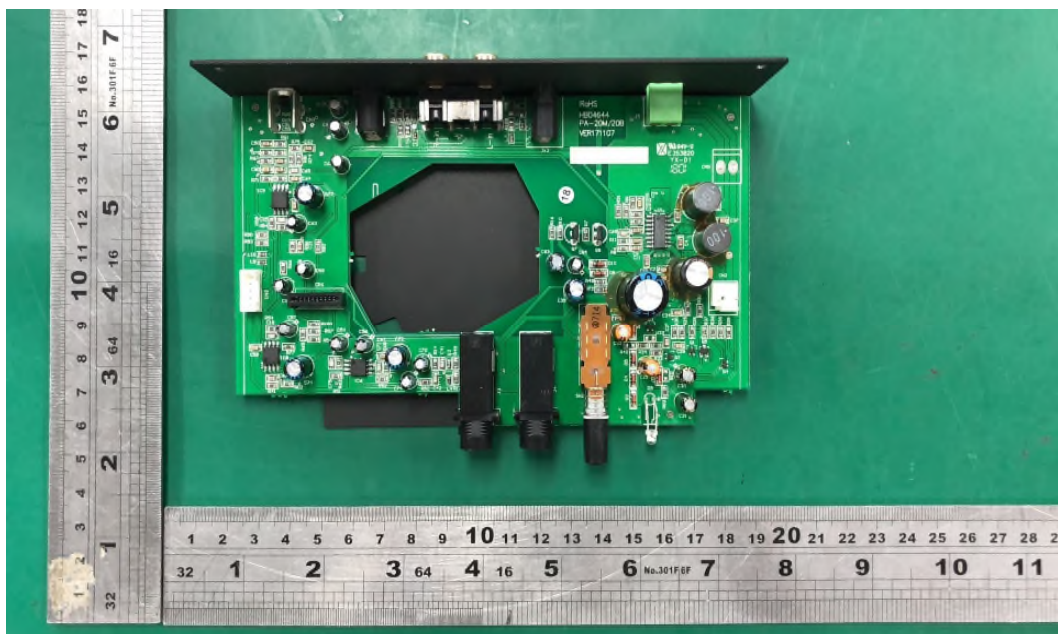
Picture 12. Model PA-20M

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



Picture 13. Model PA-20M



Picture 14. Model PA-20M

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



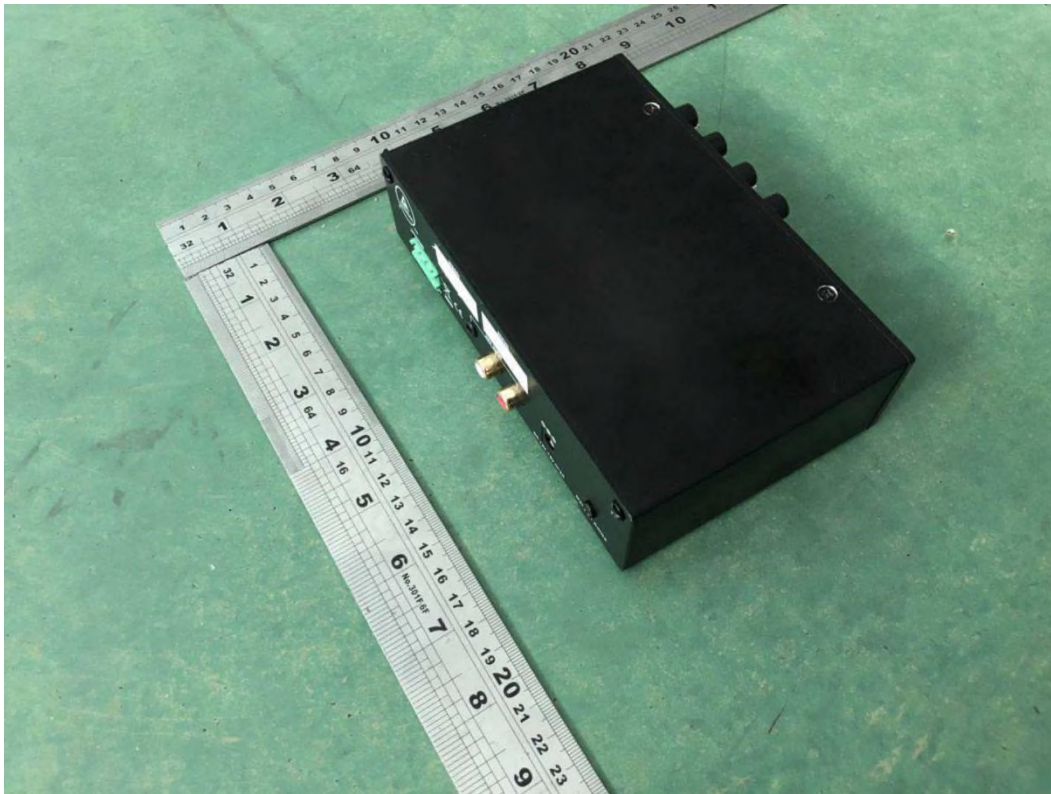
Picture 15. Model PA-20H



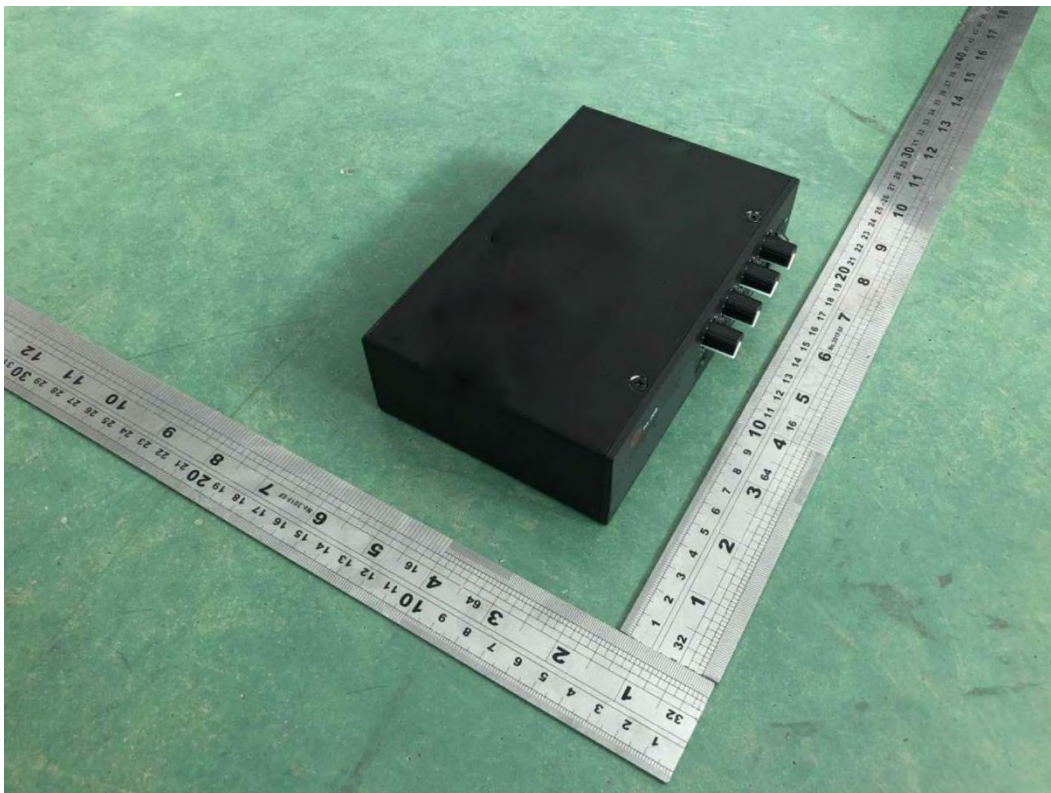
Picture 16. Model PA-20H

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



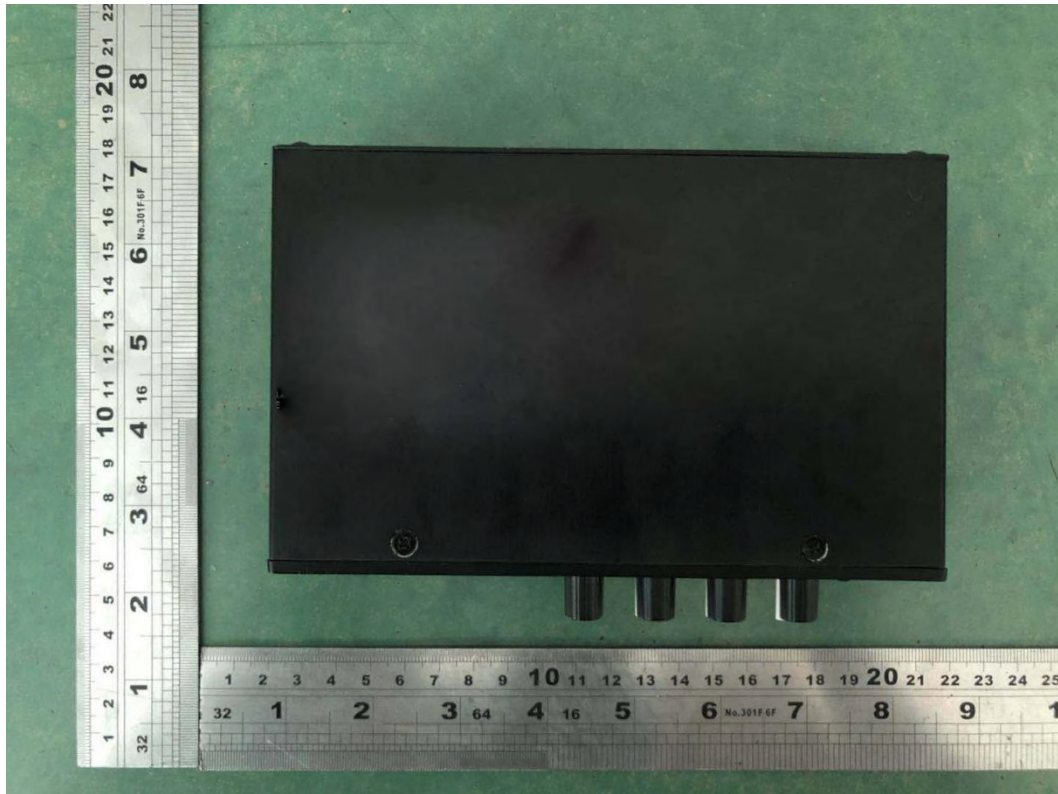
Picture 17. Model PA-20H



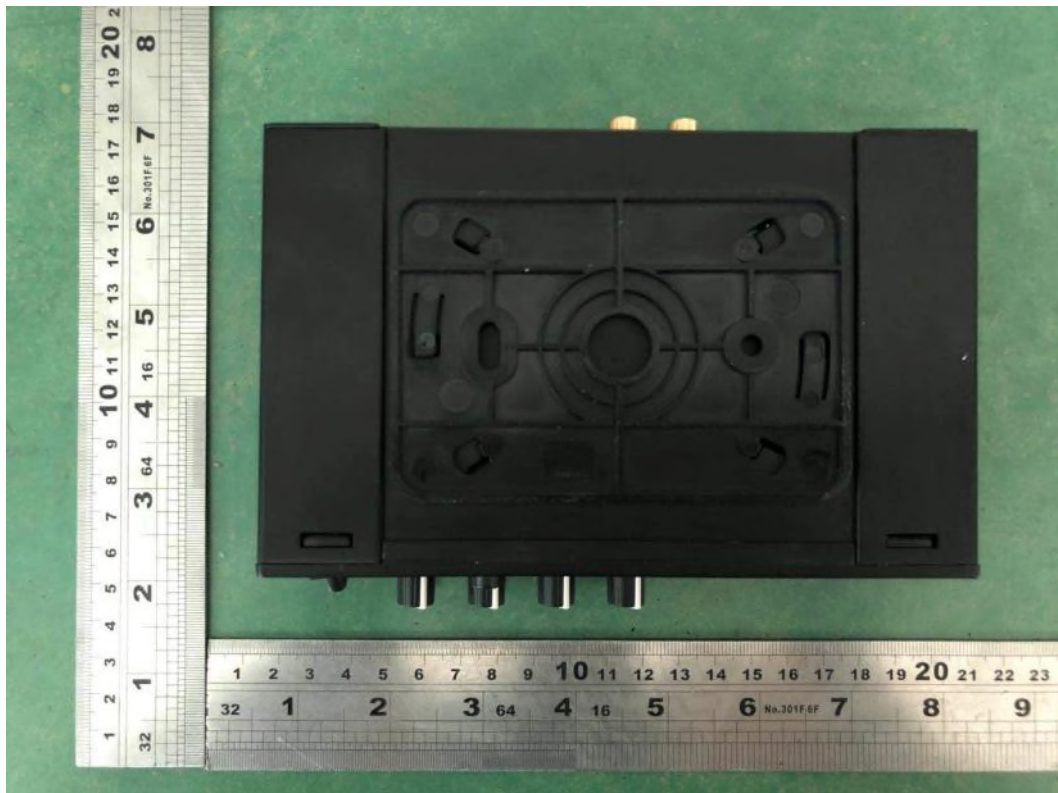
Picture 18. Model PA-20H

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



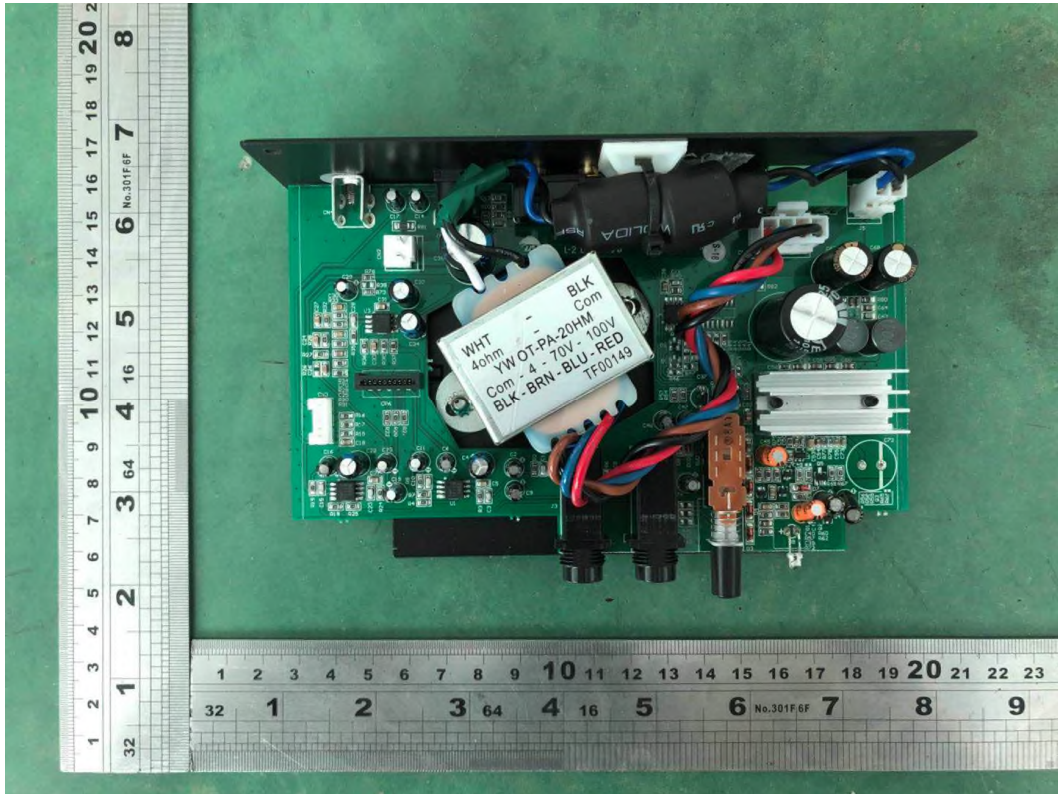
Picture 19. Model PA-20H



Picture 20. Model PA-20H

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



Picture 21. Model PA-20H



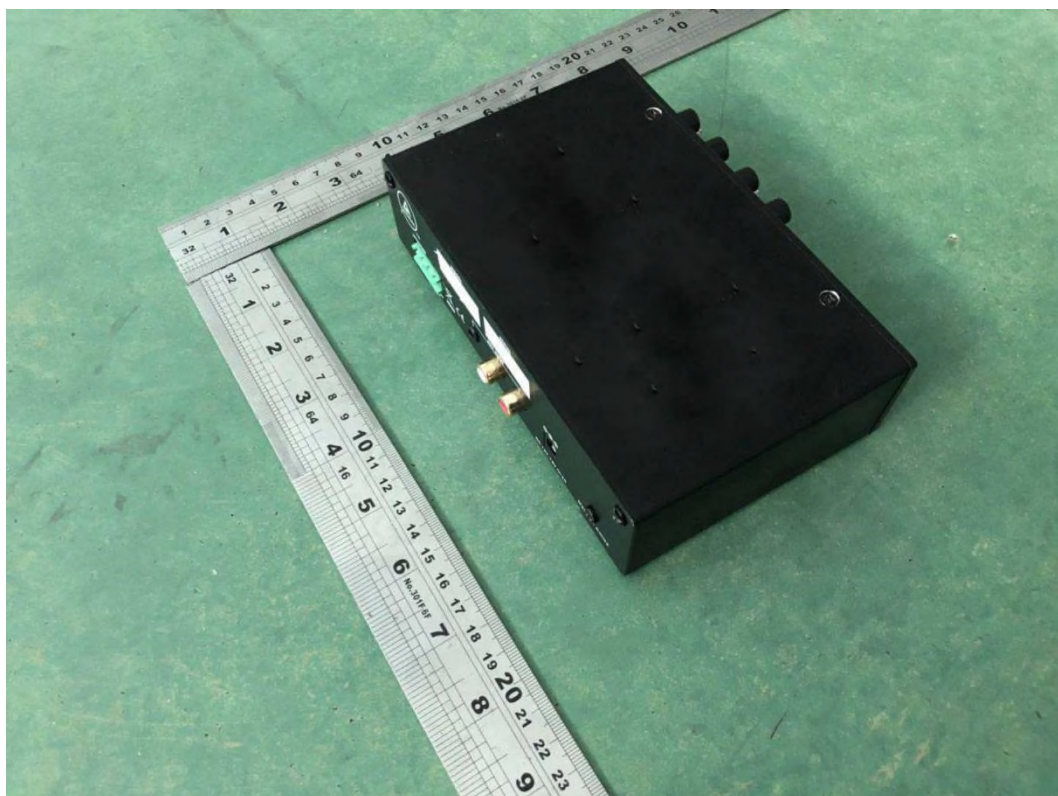
Picture 22. Model PA-20HM

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



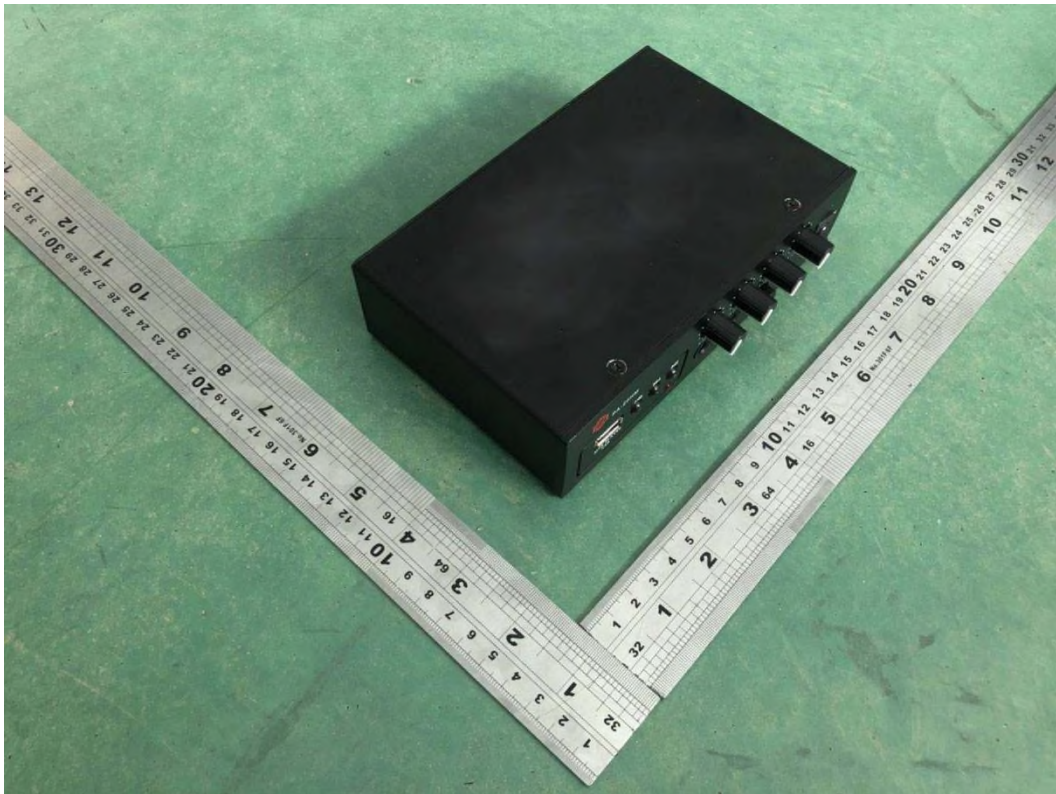
Picture 23. Model PA-20HM



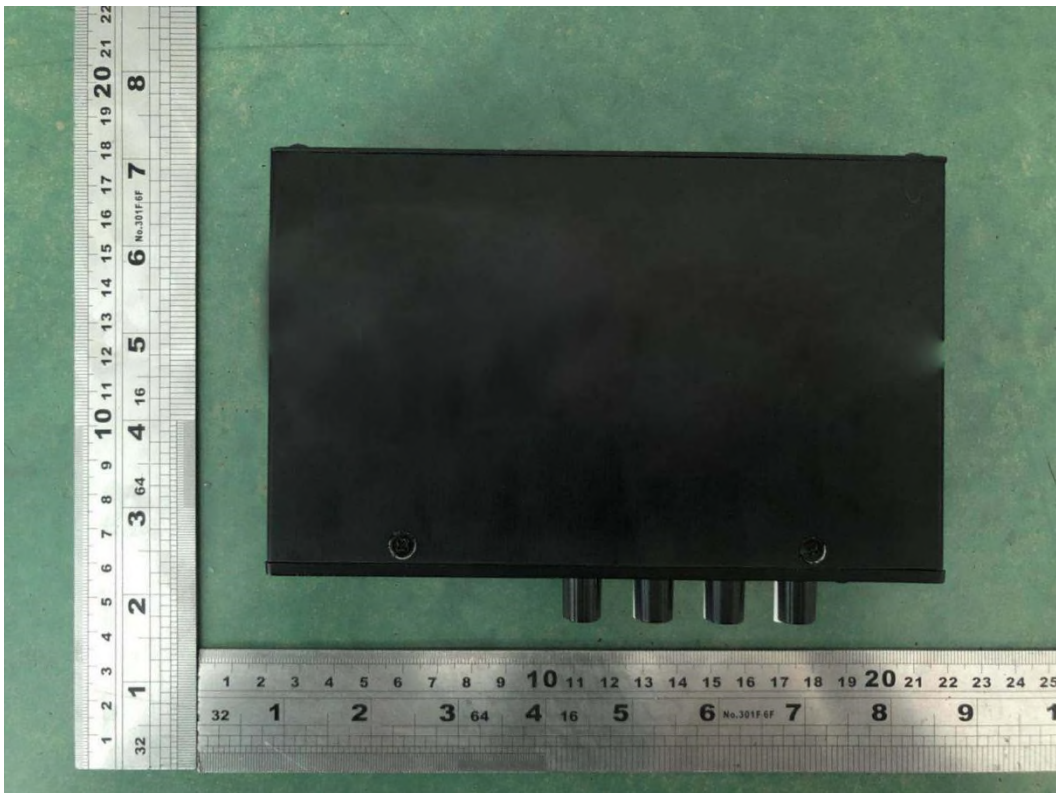
Picture 24. Model PA-20HM

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



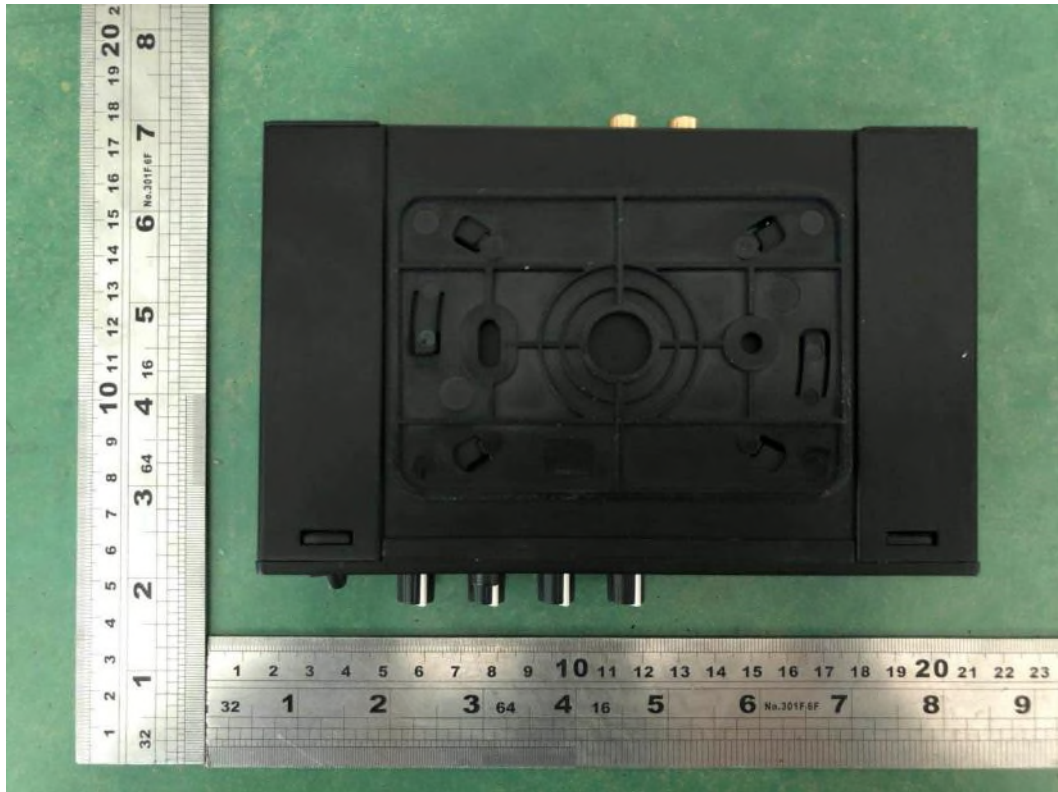
Picture 25. Model PA-20HM



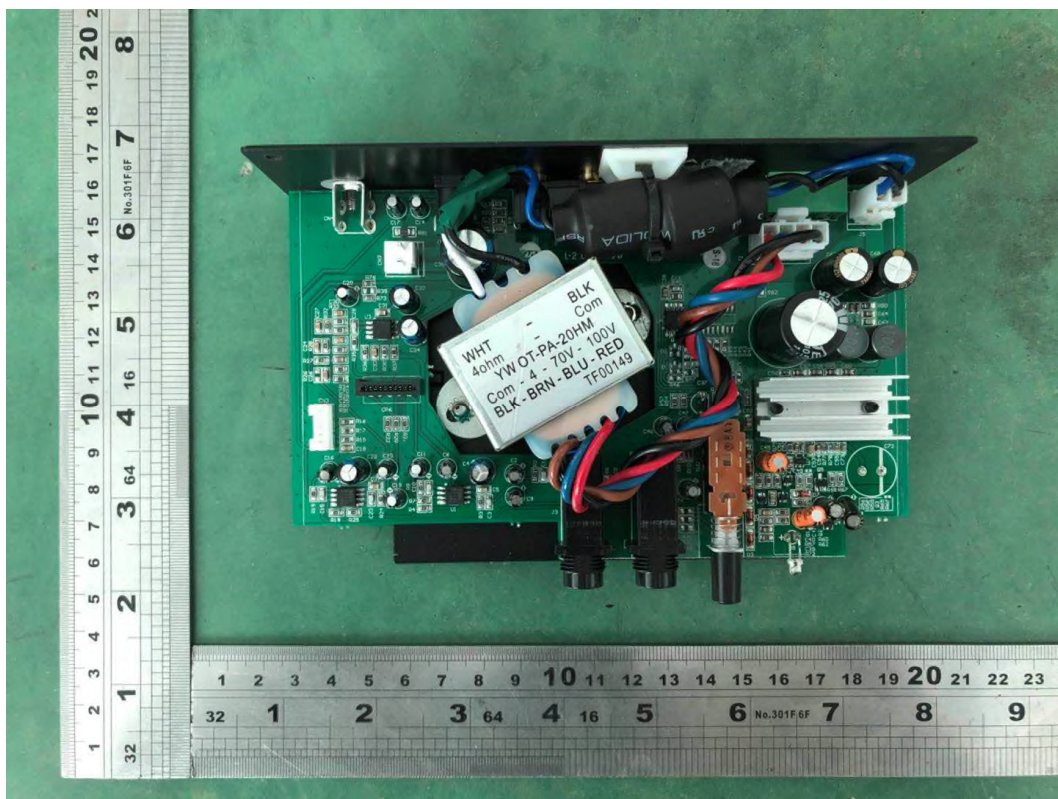
Picture 26. Model PA-20HM

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



Picture 27. Model PA-20HM



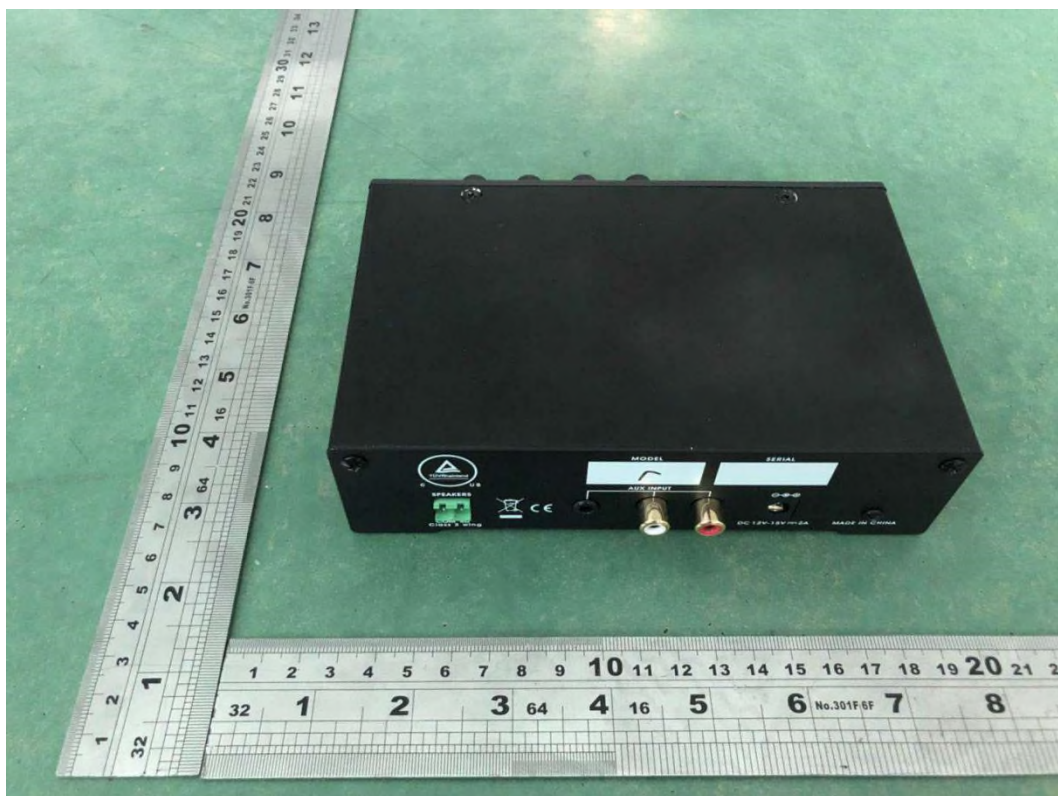
Picture 28. Model PA-20HM

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



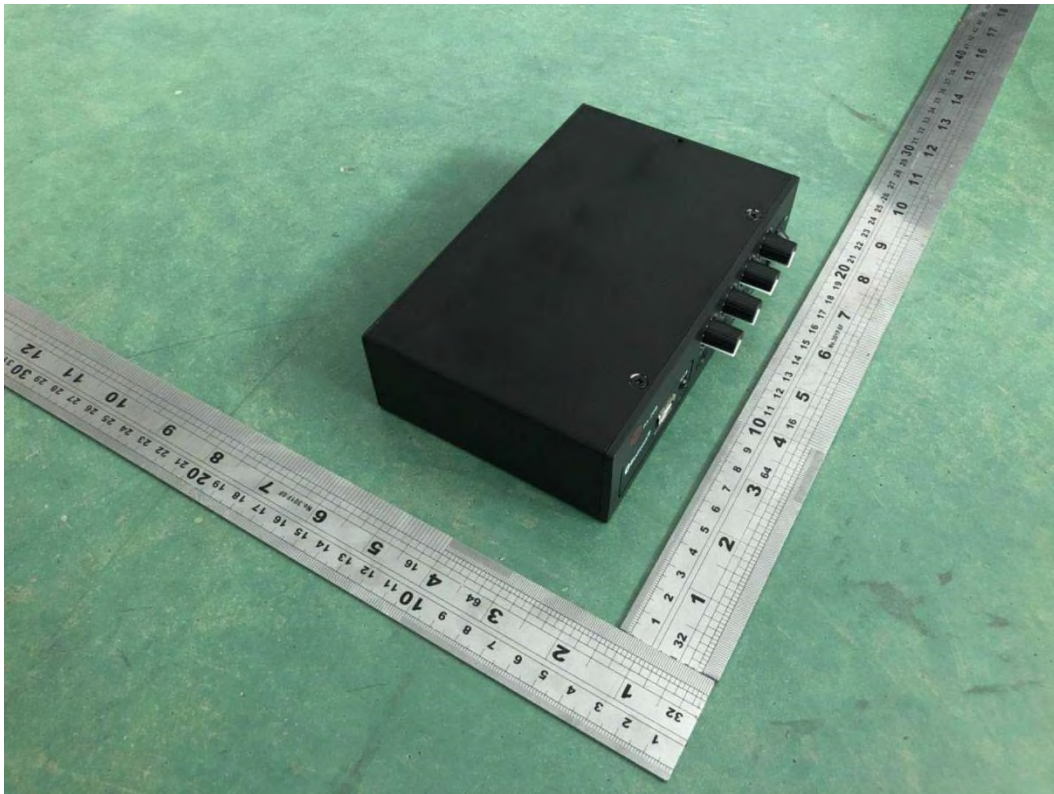
Picture 29. Model PA-20B



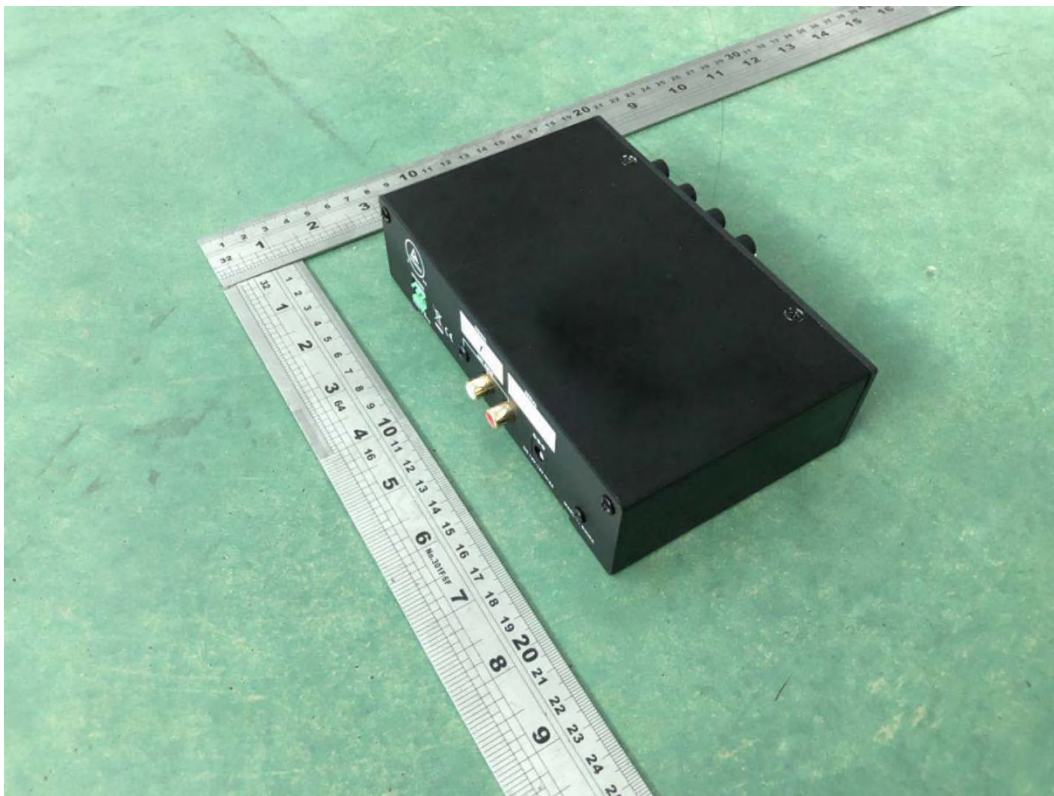
Picture 30. Model PA-20B

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



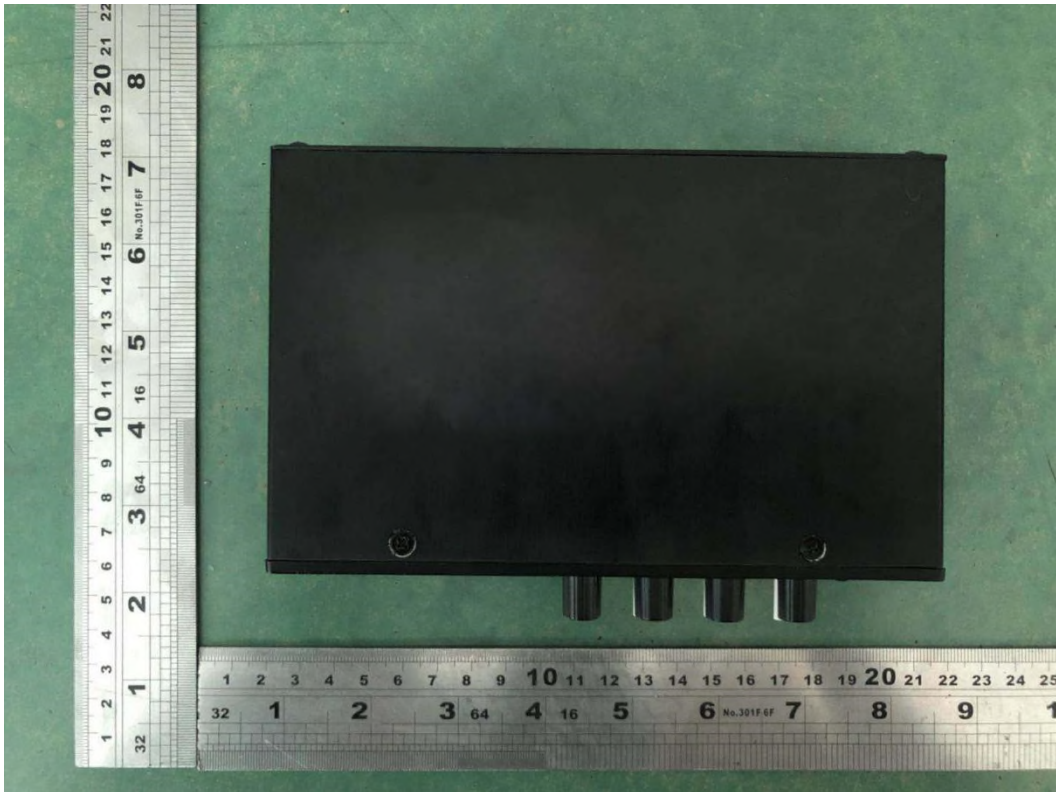
Picture 31. Model PA-20B



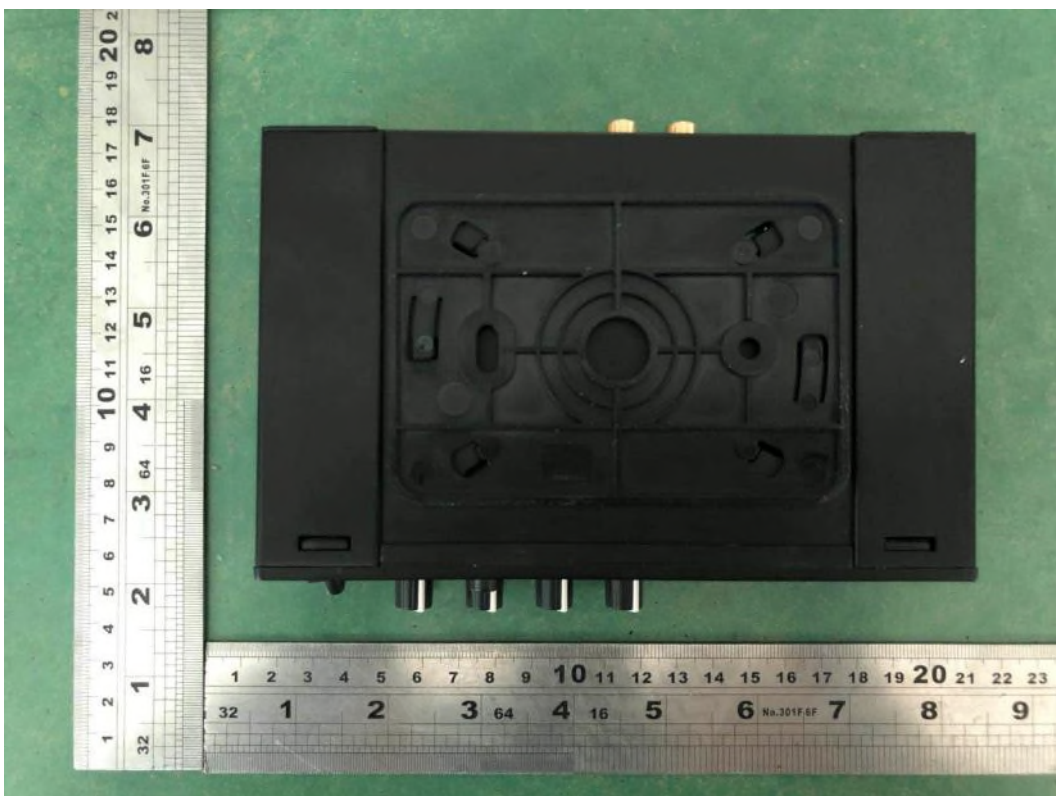
Picture 32. Model PA-20B

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



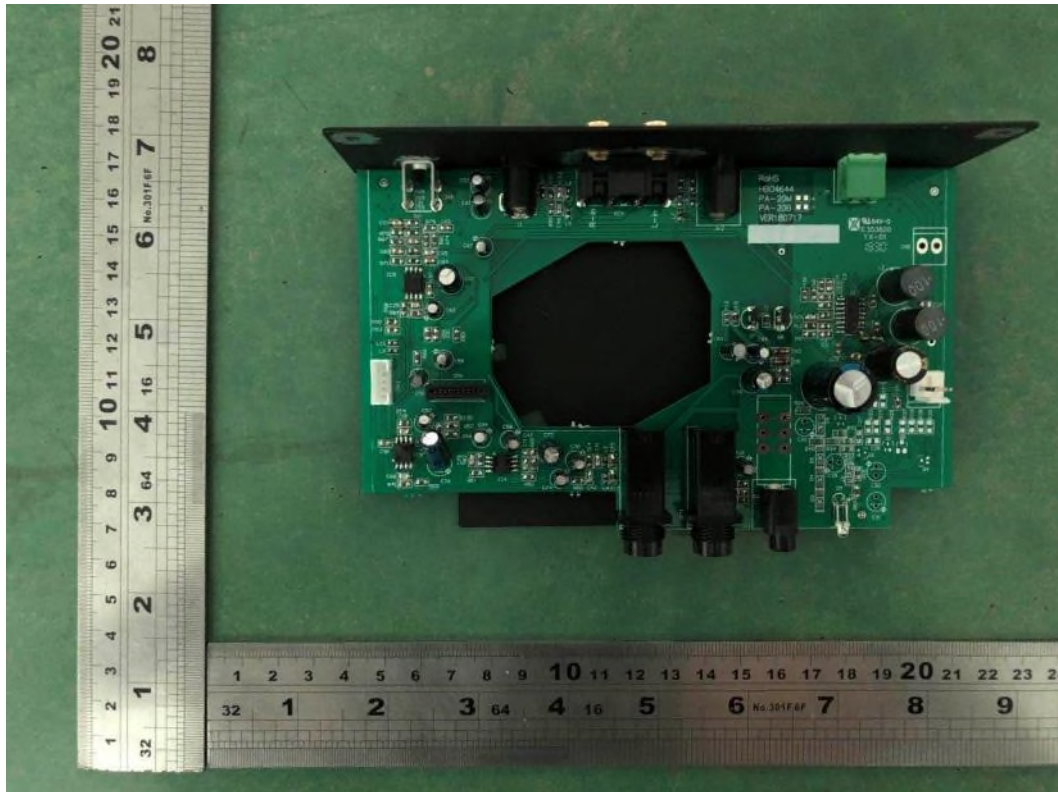
Picture 33. Model PA-20B



Picture 34. Model PA-20B

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



Picture 35. Model PA-20B



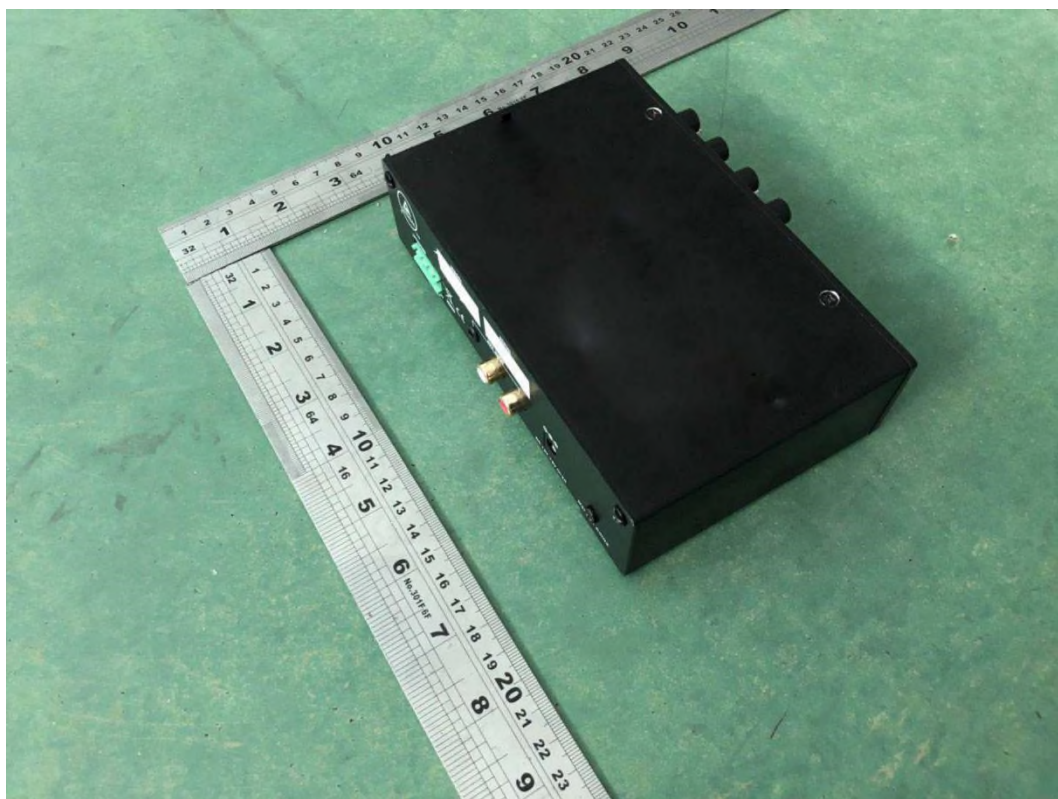
Picture 36. Model PA-20HB

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB

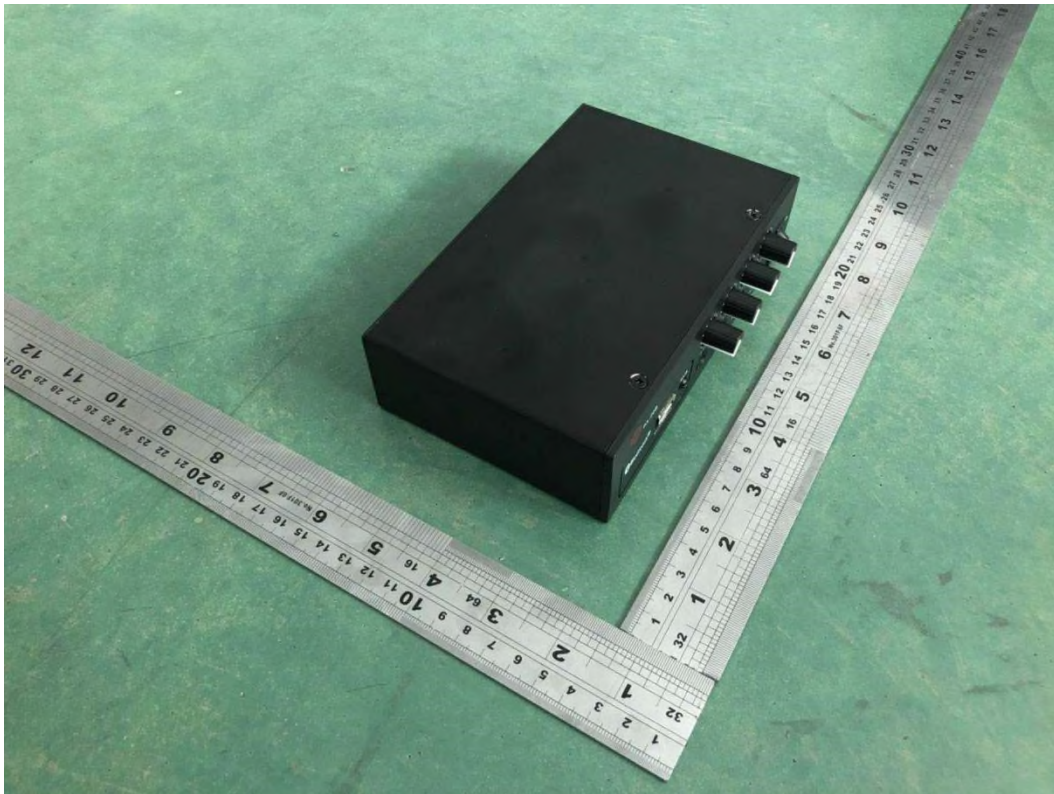


Picture 37. Model PA-20HB

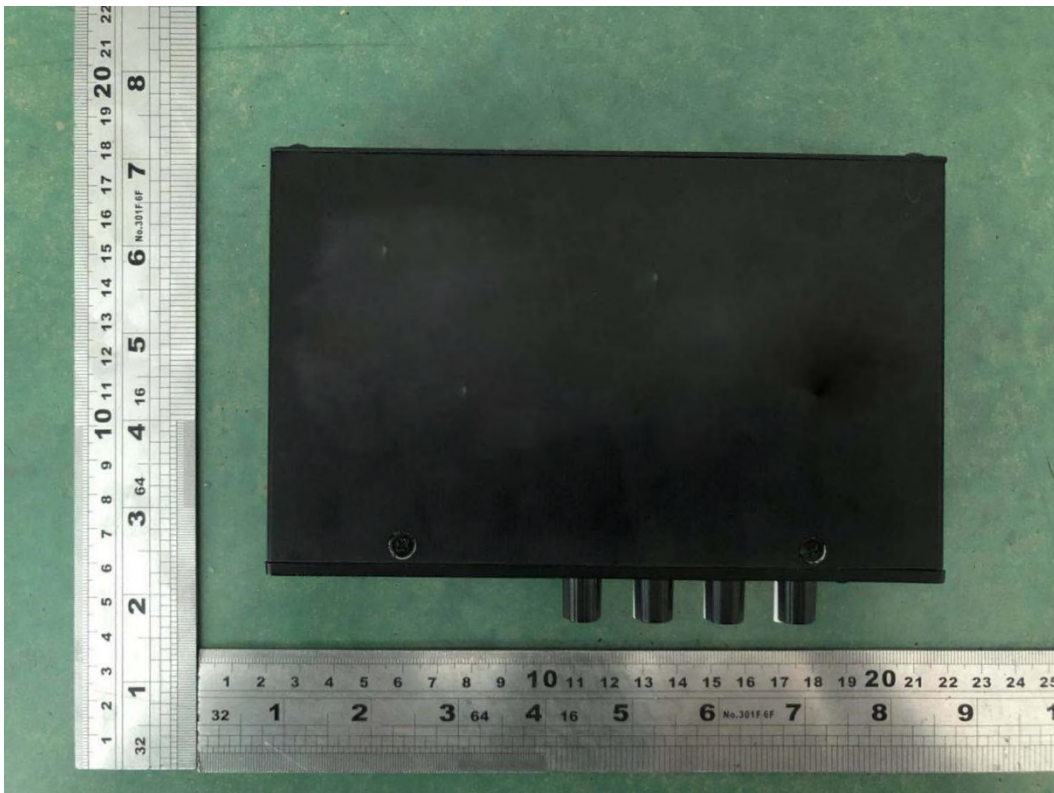


Picture 38. Model PA-20HB

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



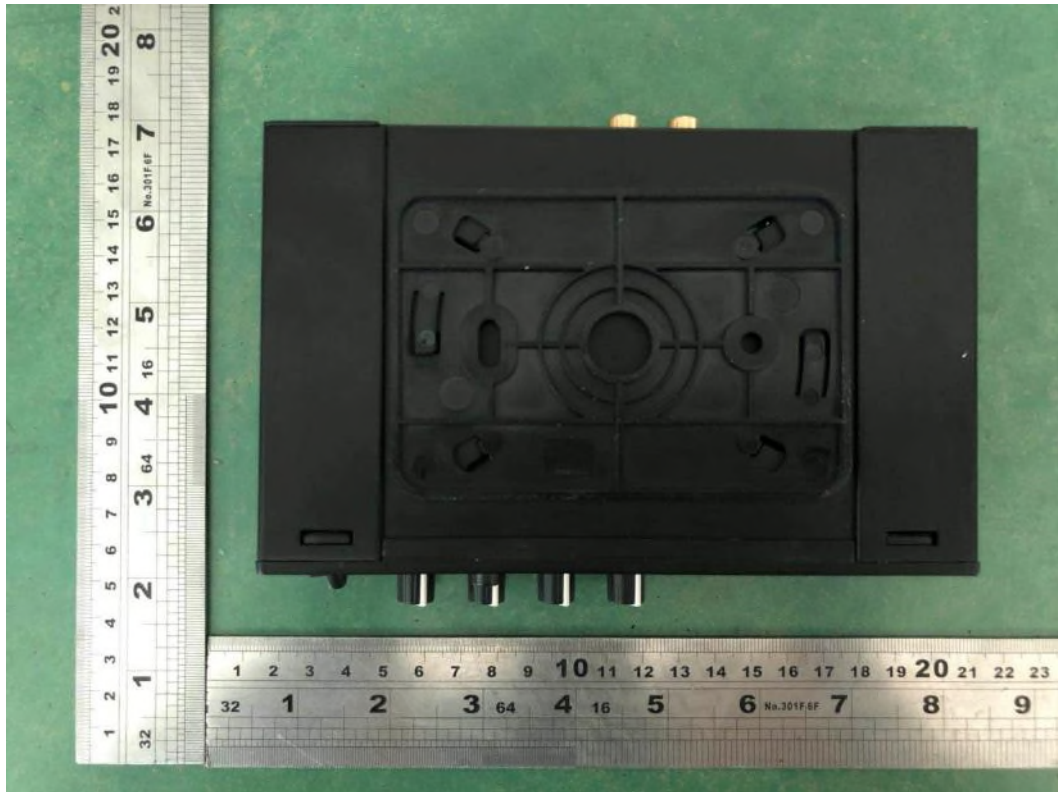
Picture 39. Model PA-20HB



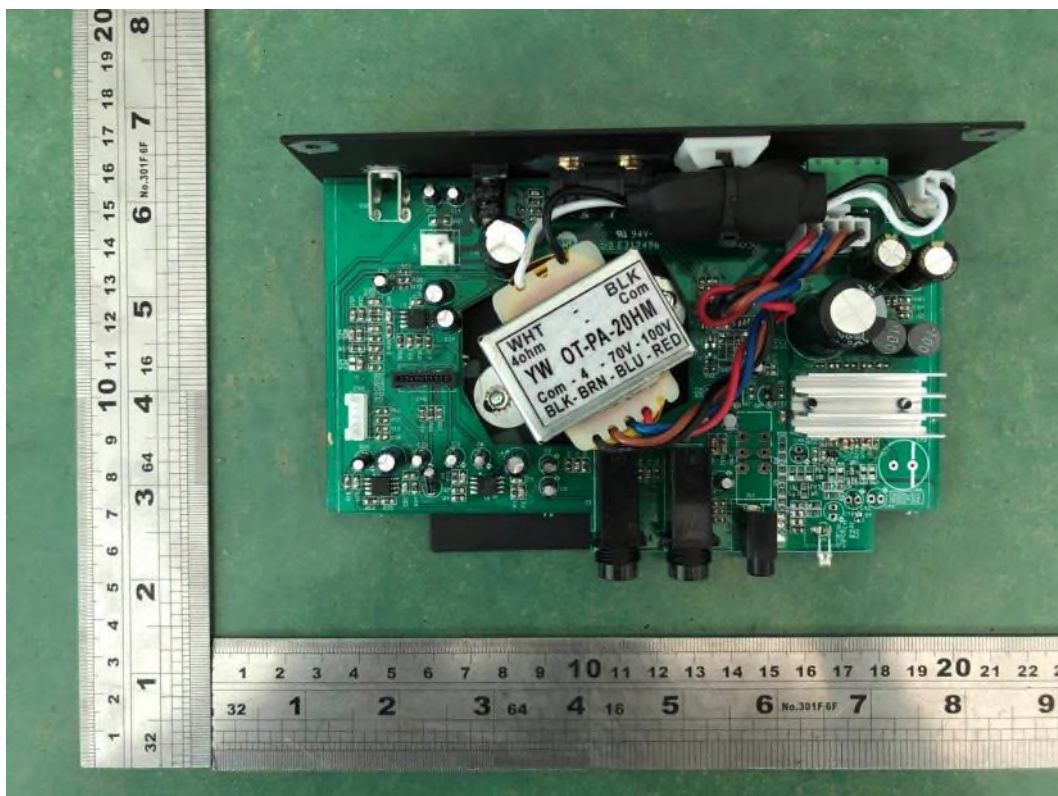
Picture 40. Model PA-20HB

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



Picture 41. Model PA-20HB



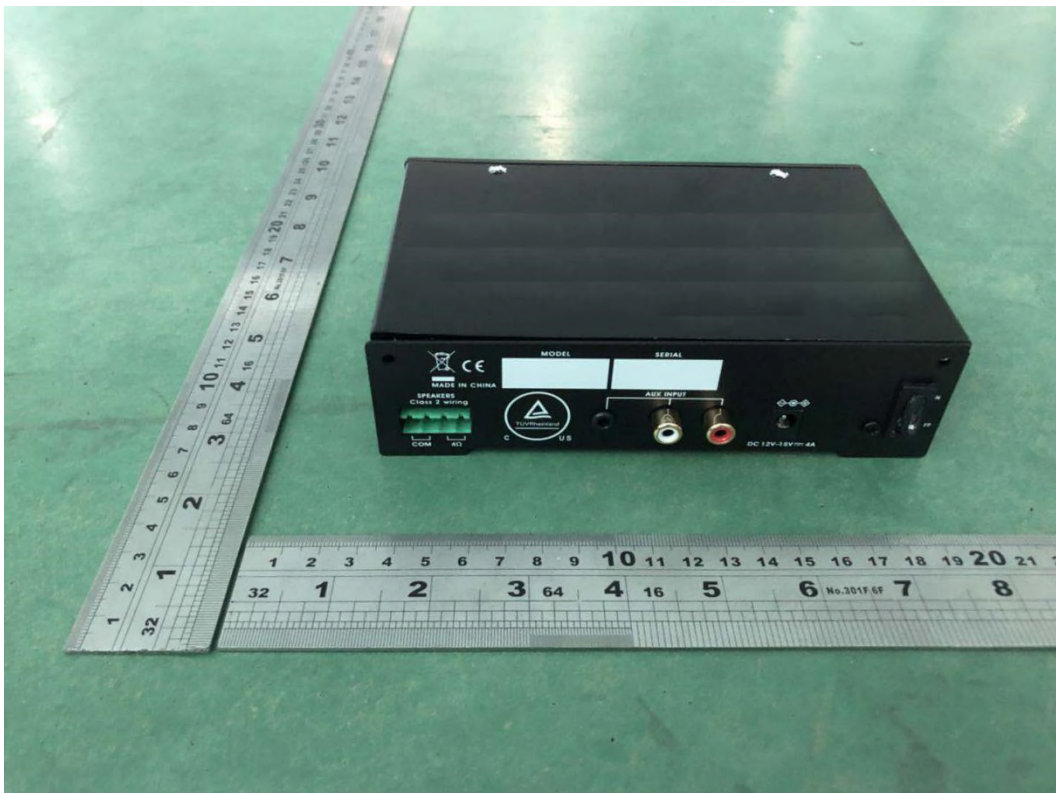
Picture 42. Model PA-20HB

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB

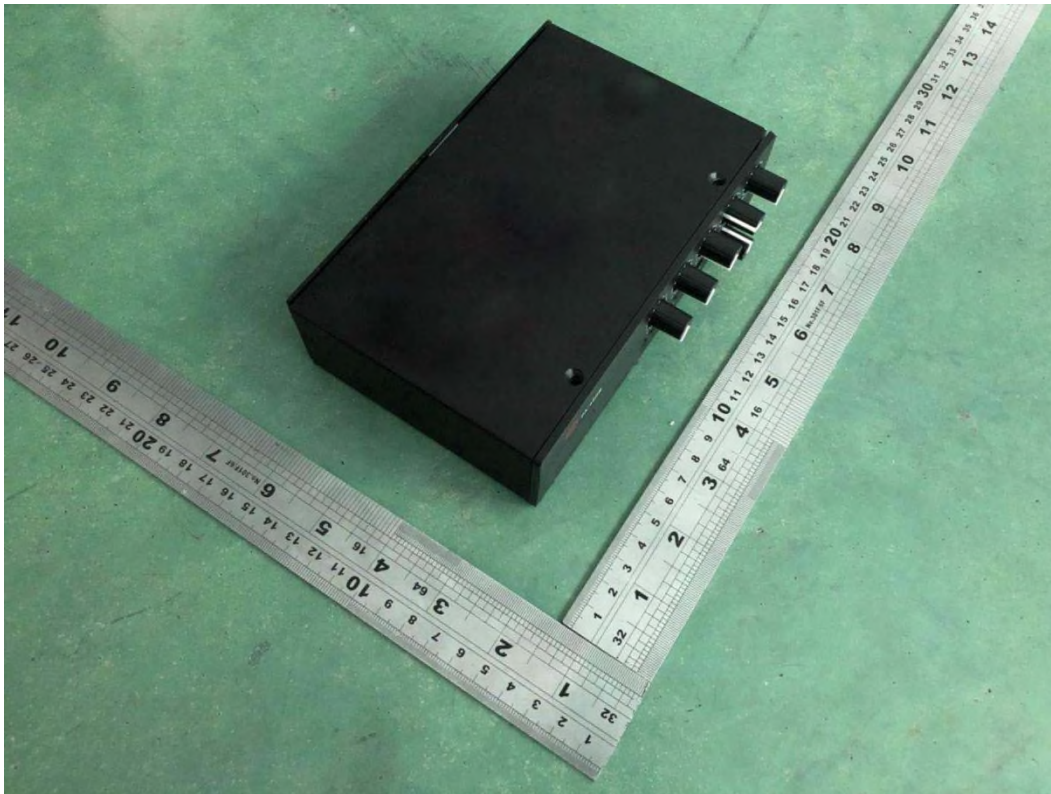


Picture 43. Model PA-40

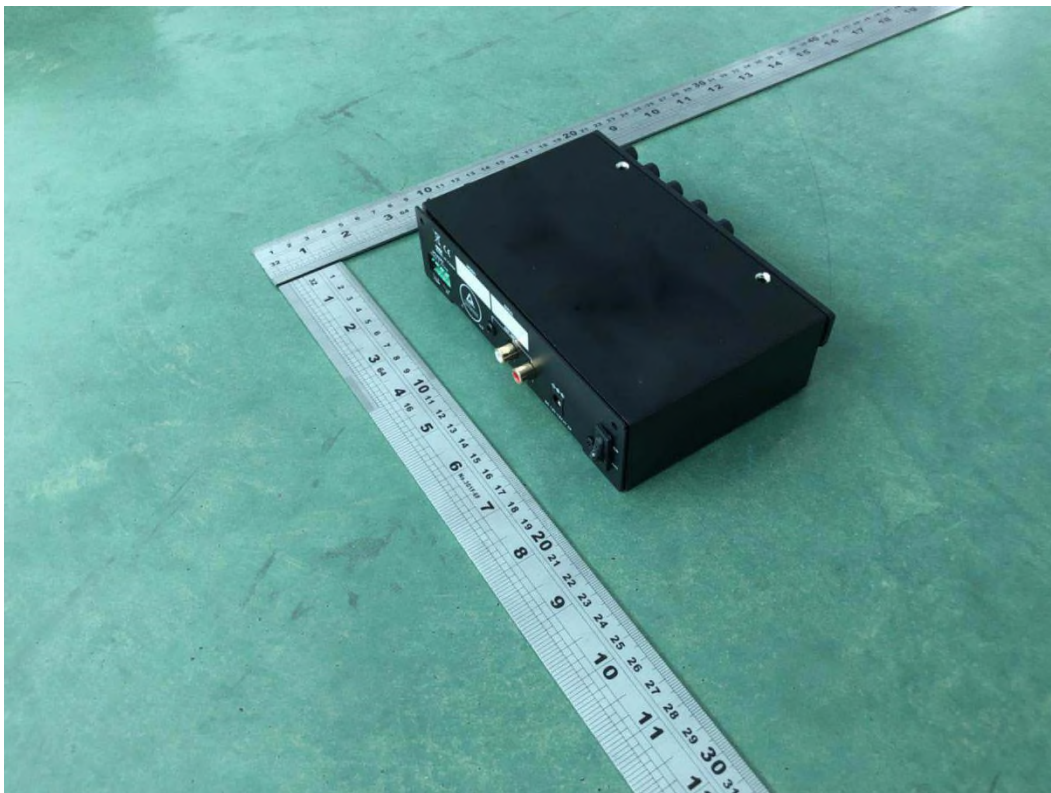


Picture 44. Model PA-40

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



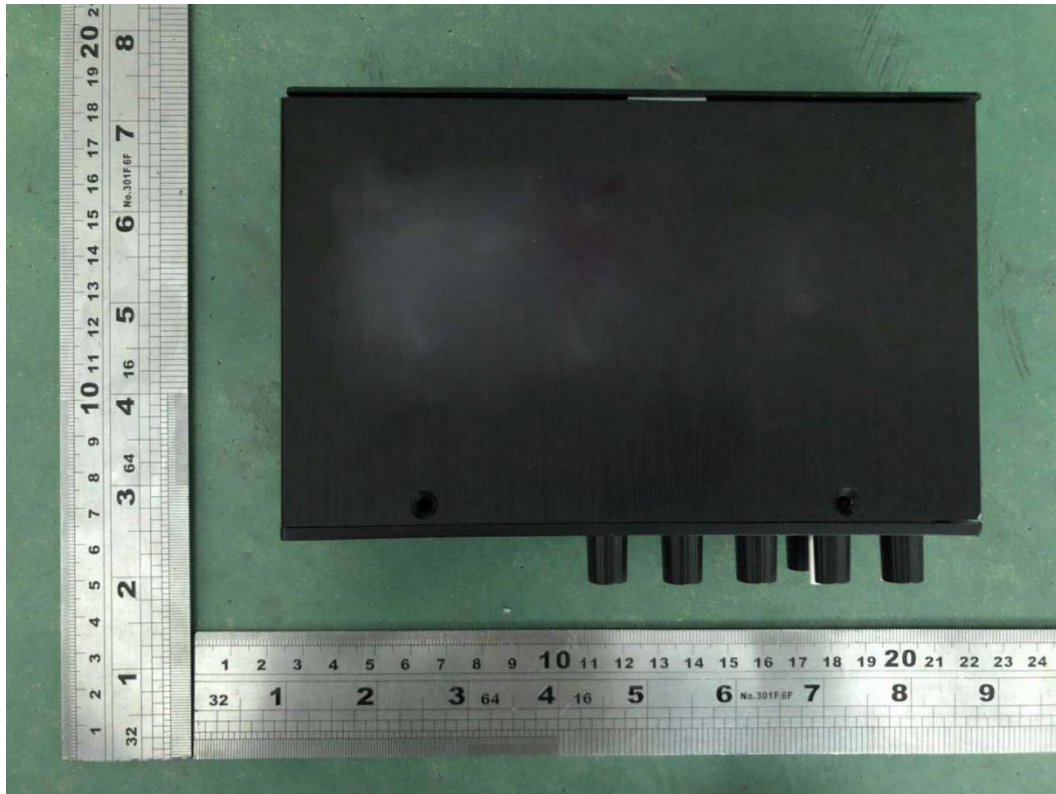
Picture 45. Model PA-40



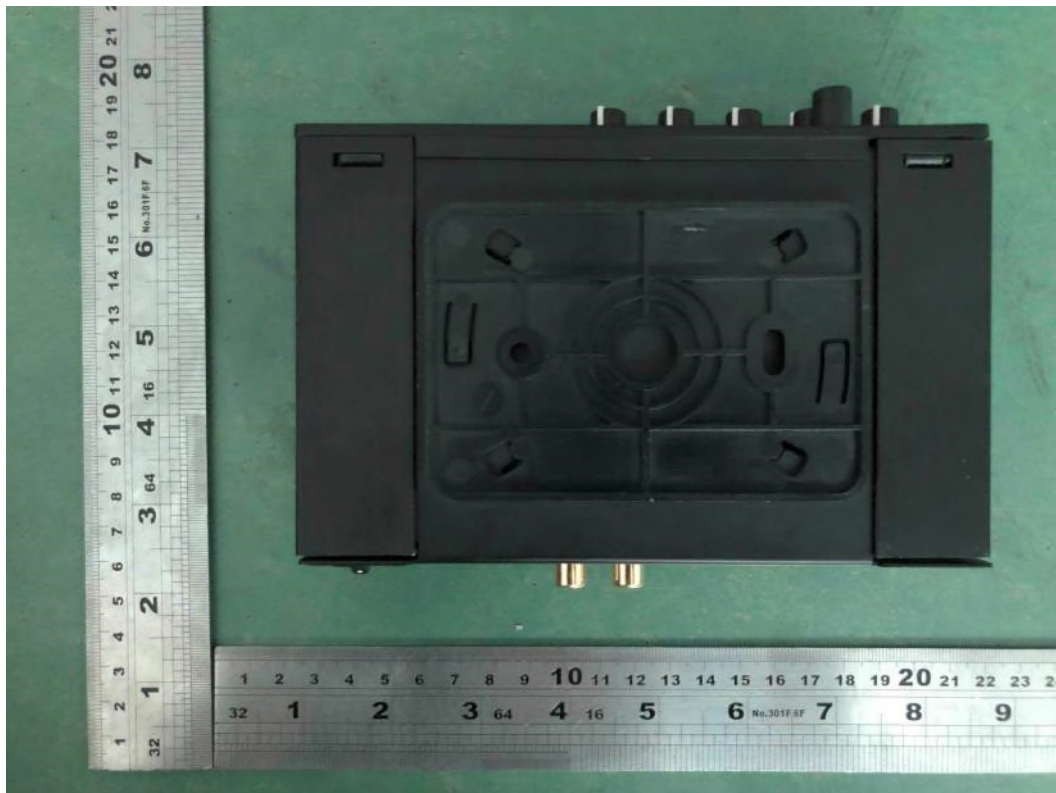
Picture 46. Model PA-40

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



Picture 47. Model PA-40



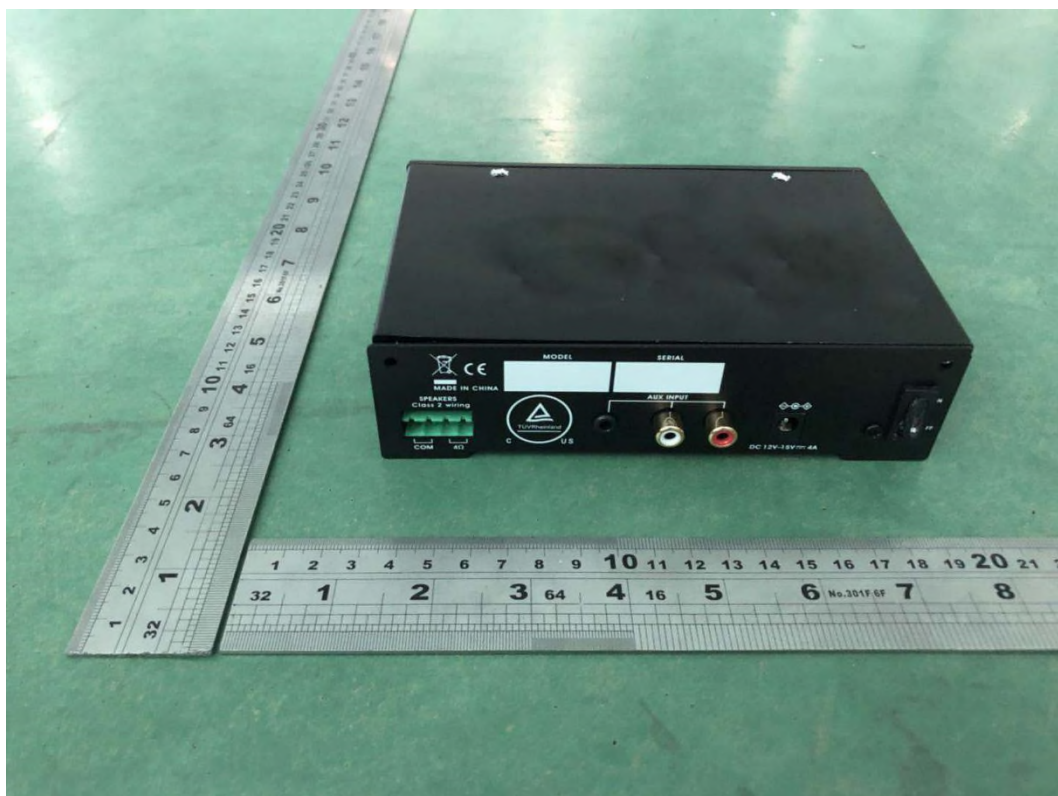
Picture 48. Model PA-40

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



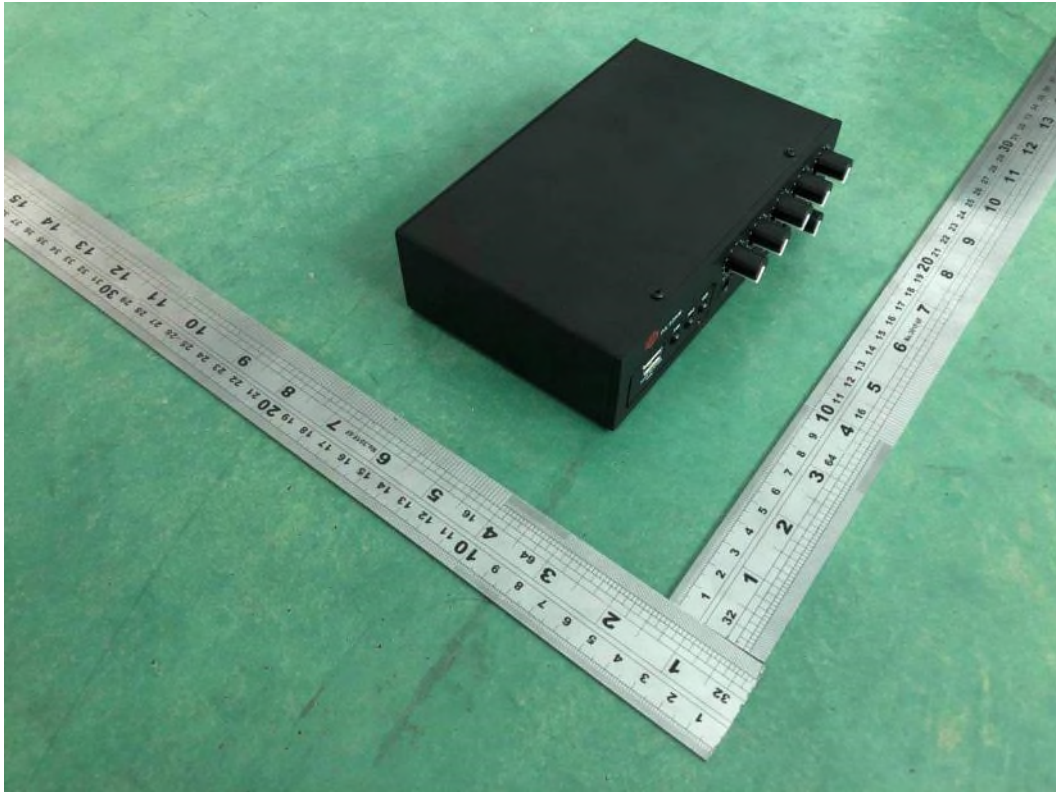
Picture 49. Model PA-40M



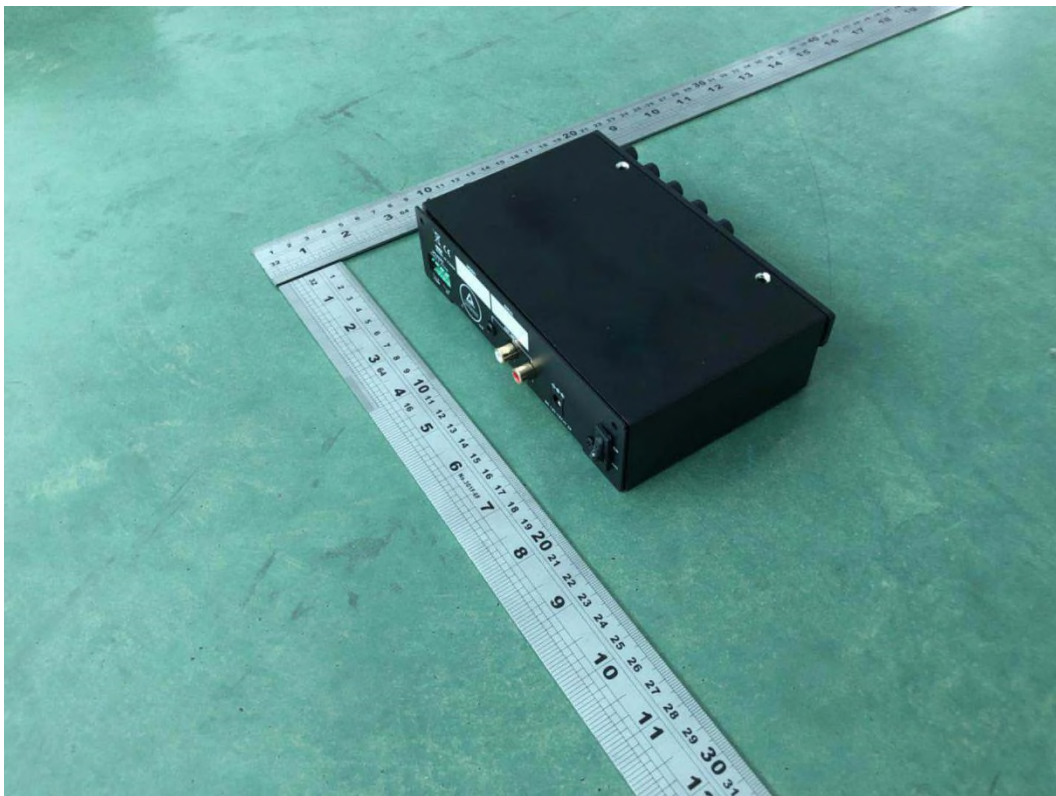
Picture 50. Model PA-40M

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



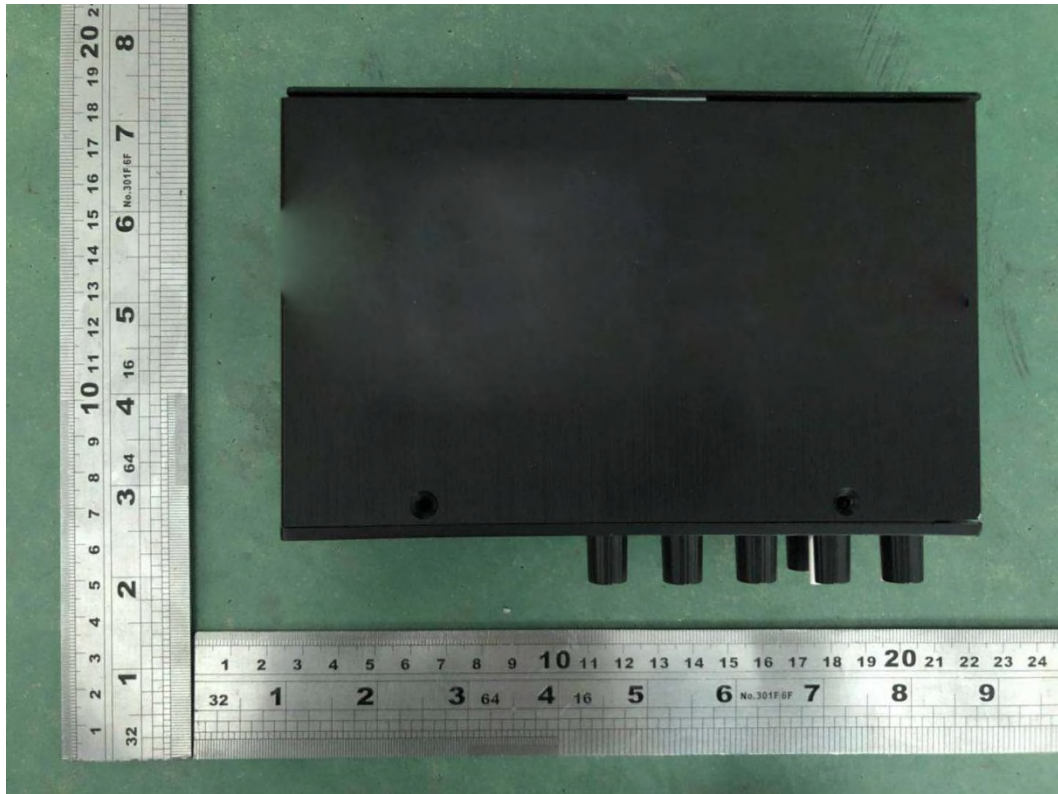
Picture 51. Model PA-40M



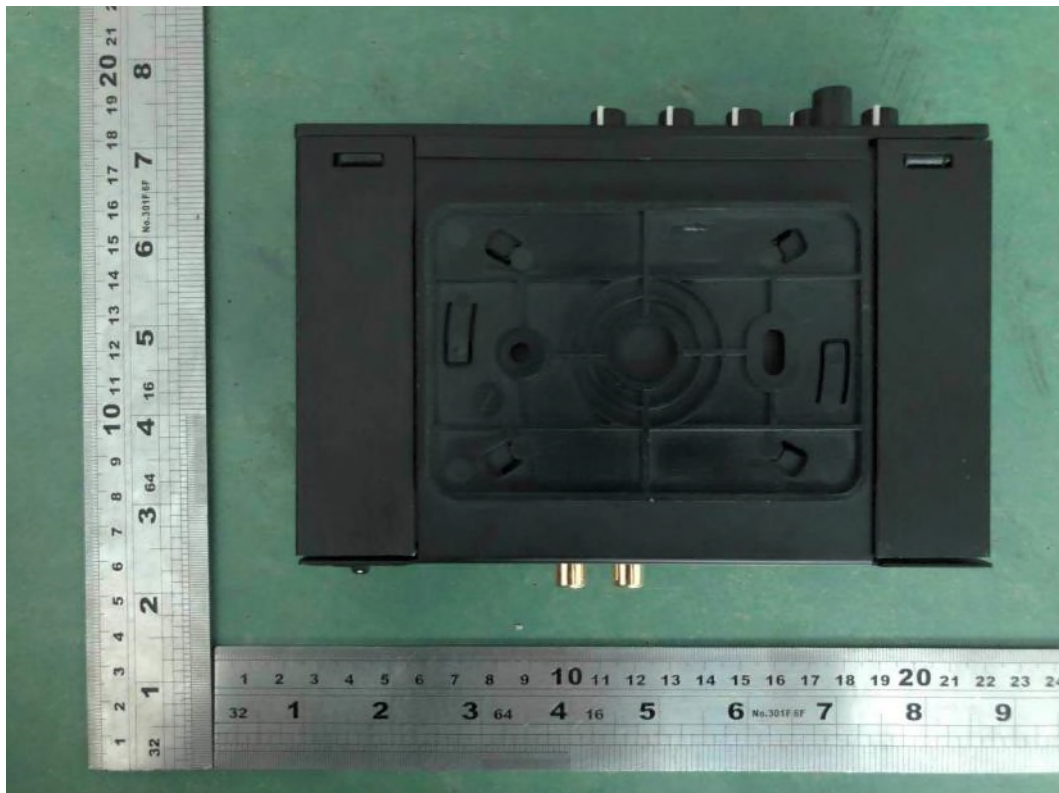
Picture 52. Model PA-40M

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



Picture 53. Model PA-40M



Picture 54. Model PA-40M

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB

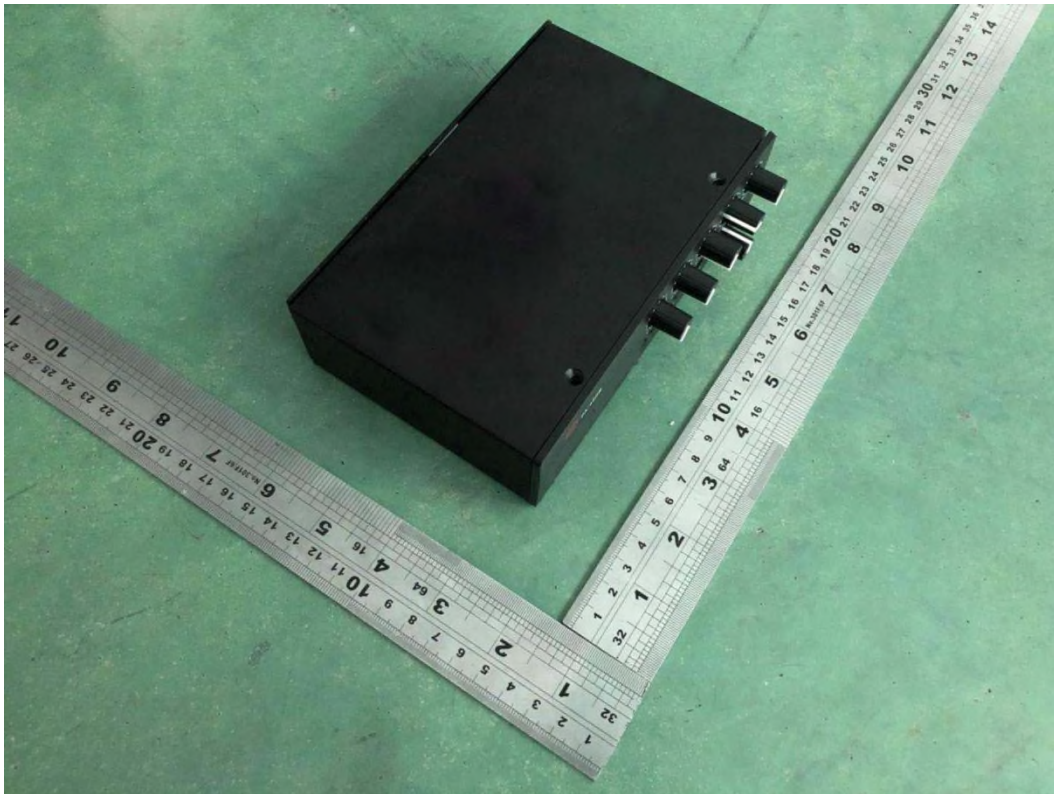


Picture 55. Model PA-40H

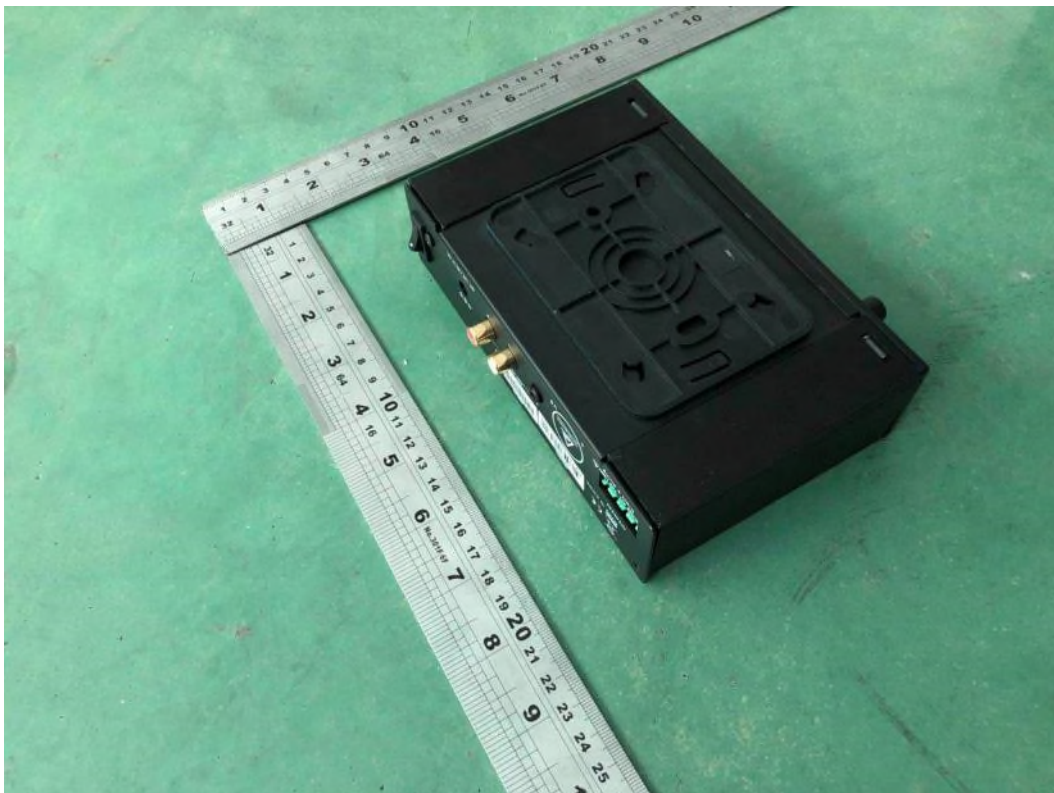


Picture 56. Model PA-40H

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



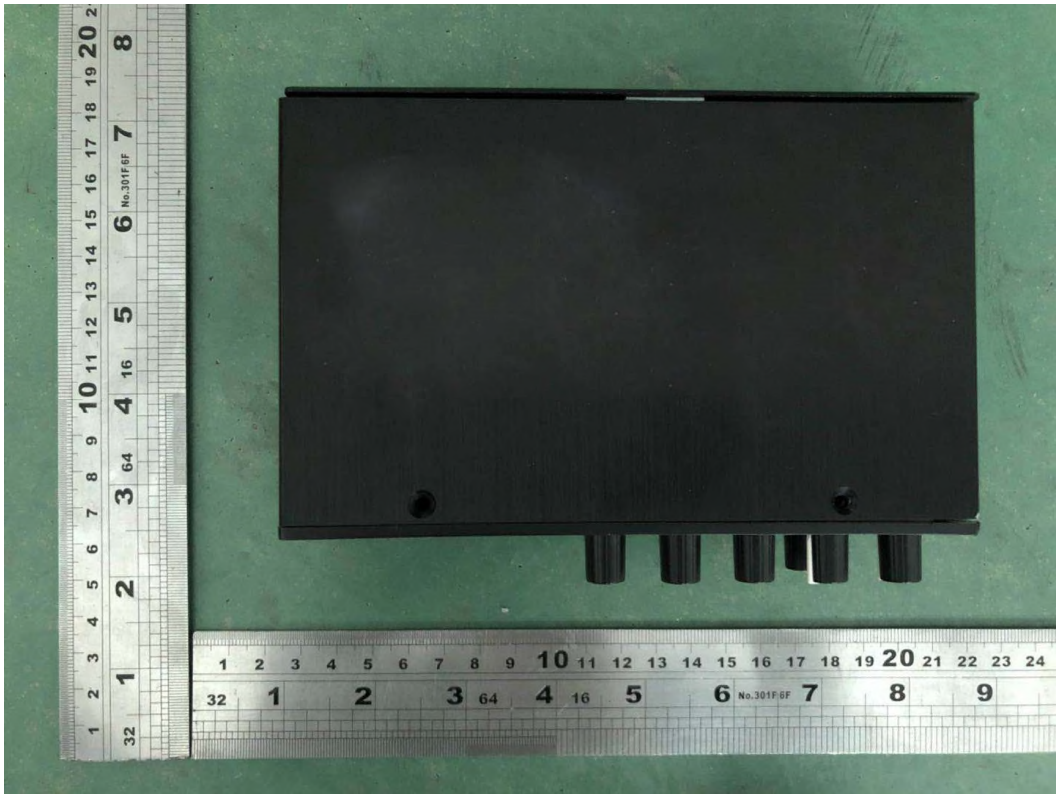
Picture 57. Model PA-40H



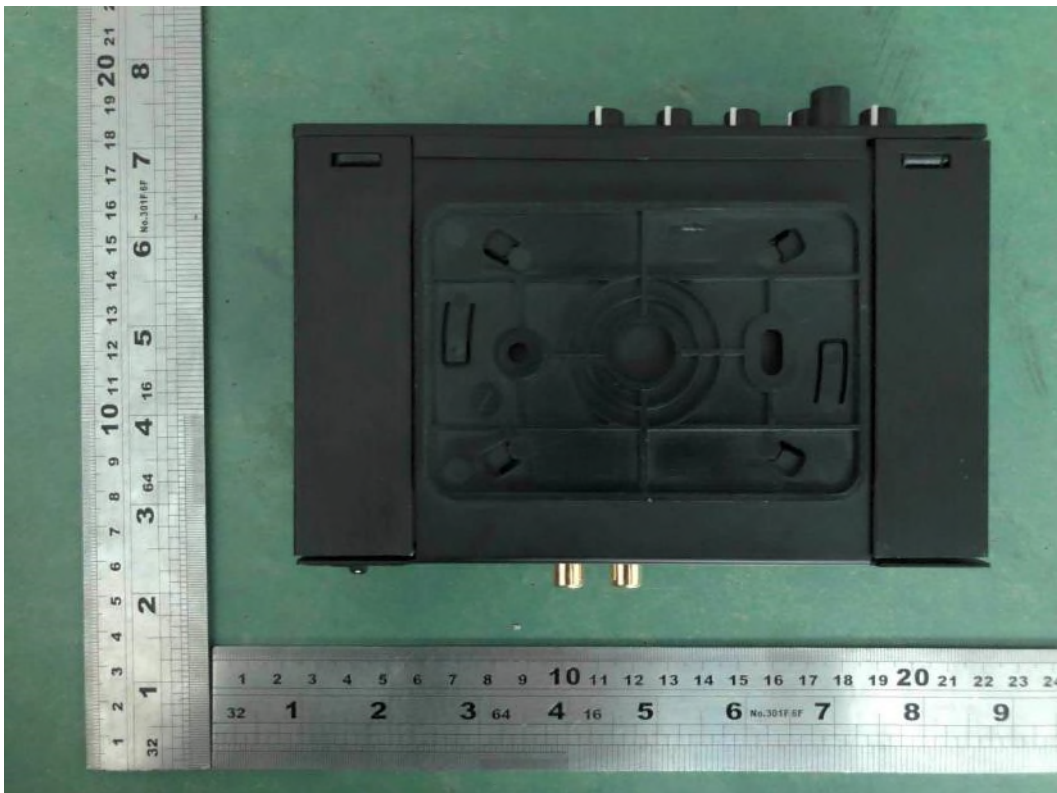
Picture 58. Model PA-40H

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



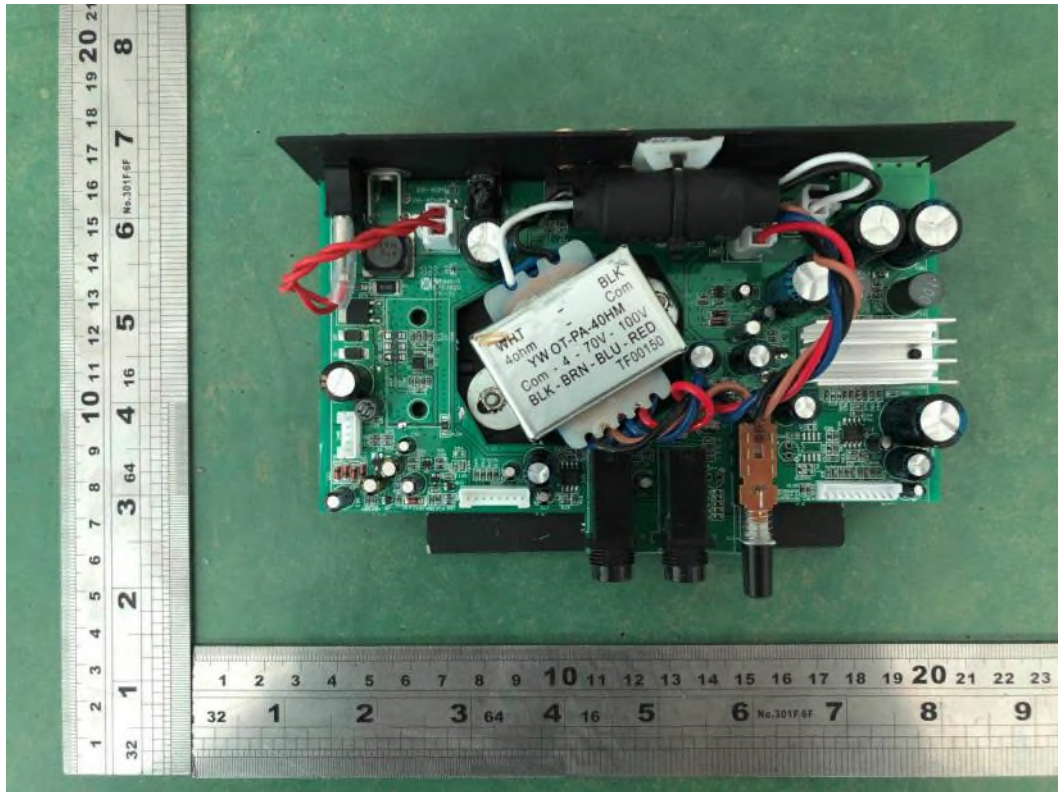
Picture 59. Model PA-40H



Picture 60. Model PA-40H

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



Picture 61. Model PA-40H



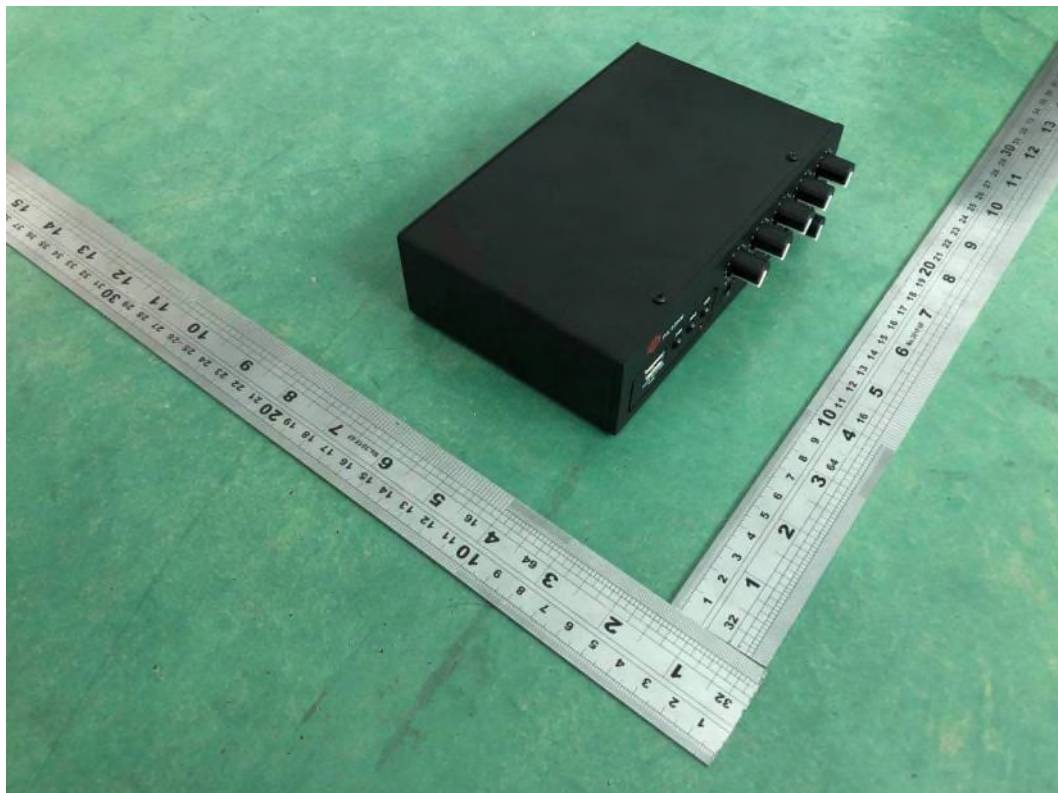
Picture 62. Model PA-40HM

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



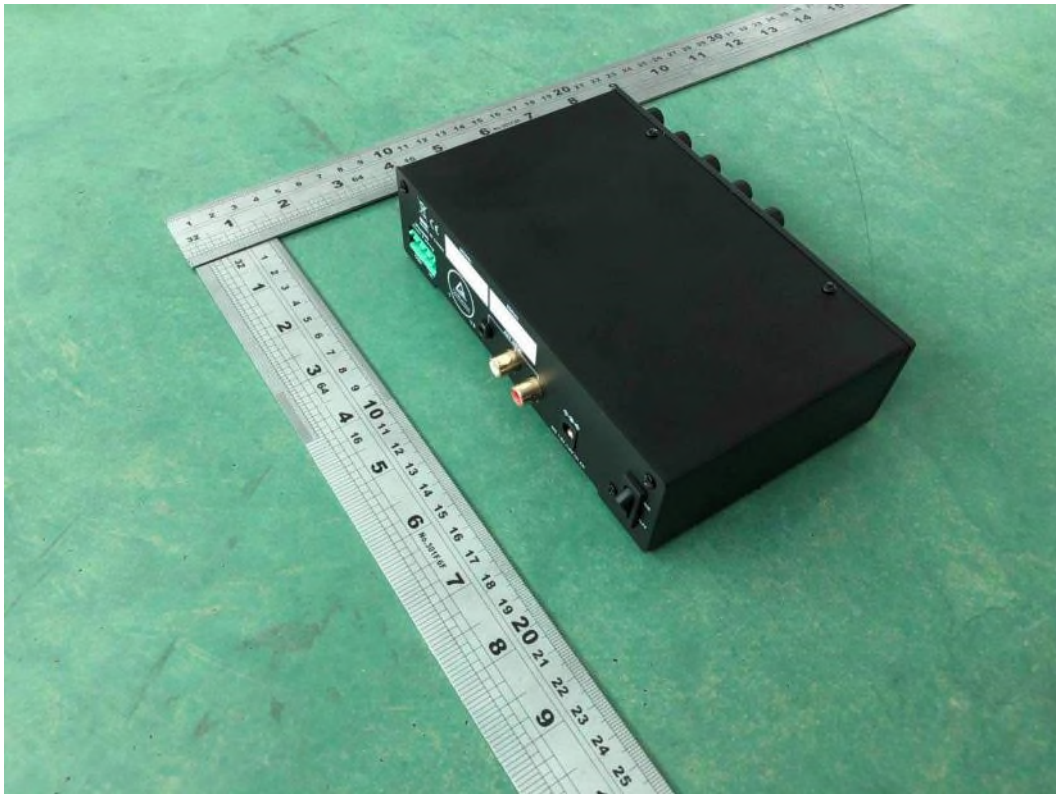
Picture 63. Model PA-40HM



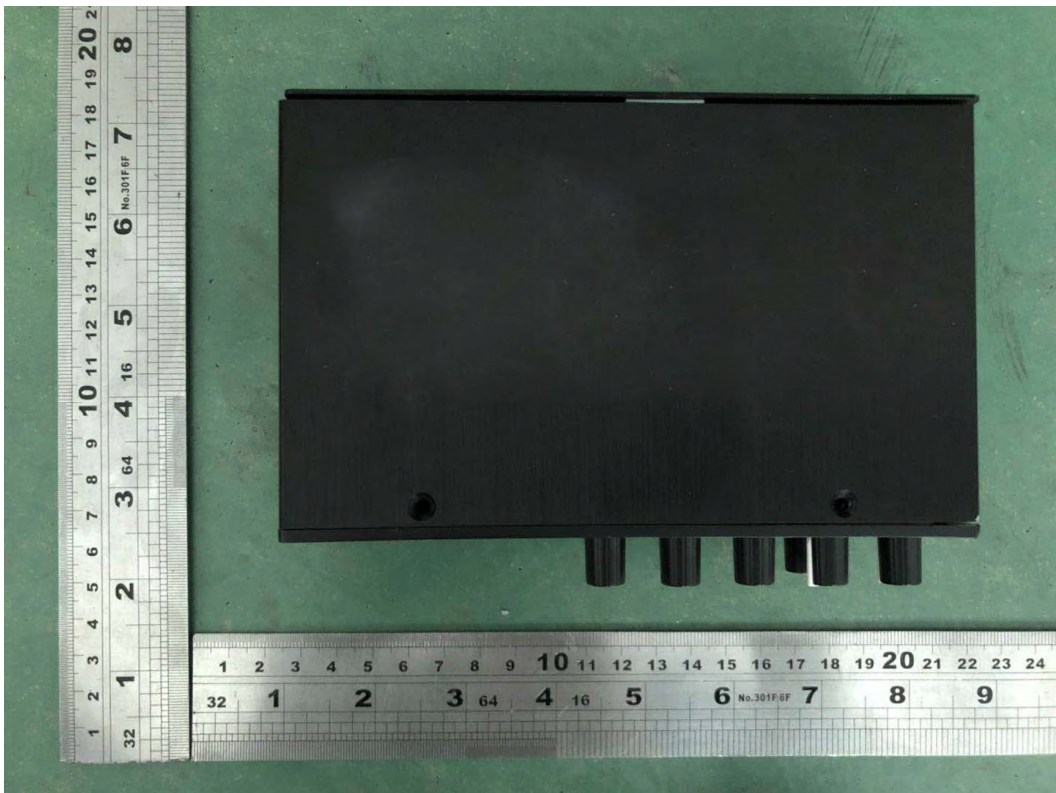
Picture 64. Model PA-40HM

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



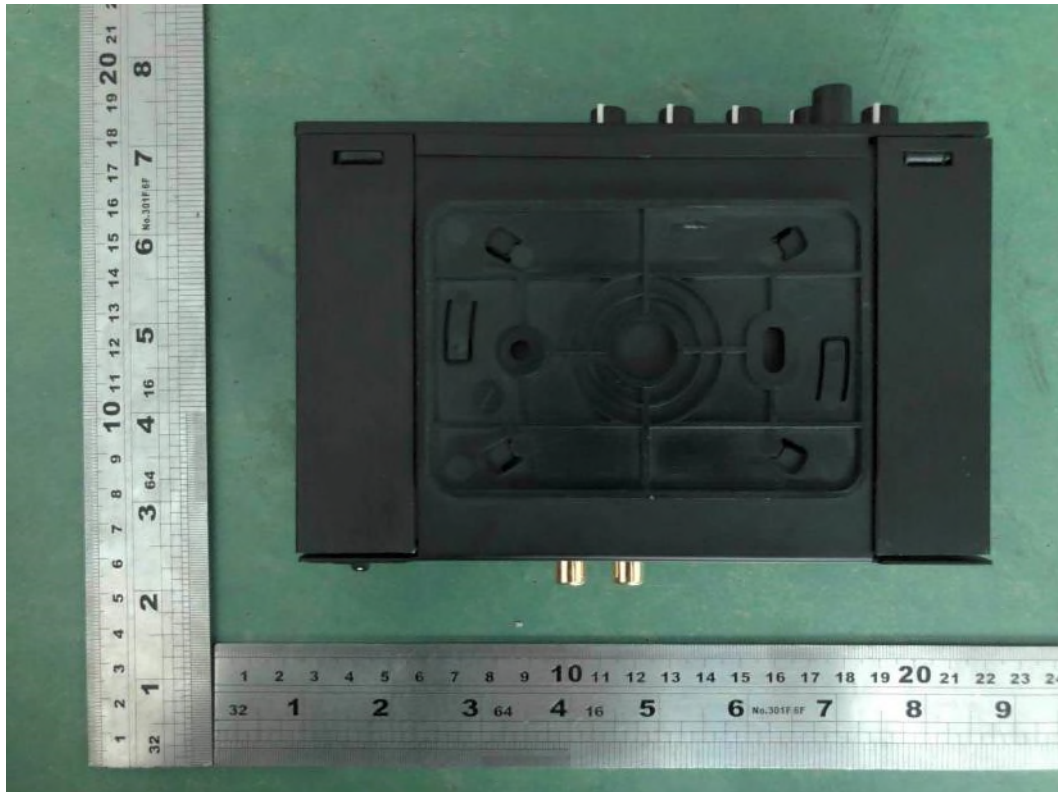
Picture 65. Model PA-40HM



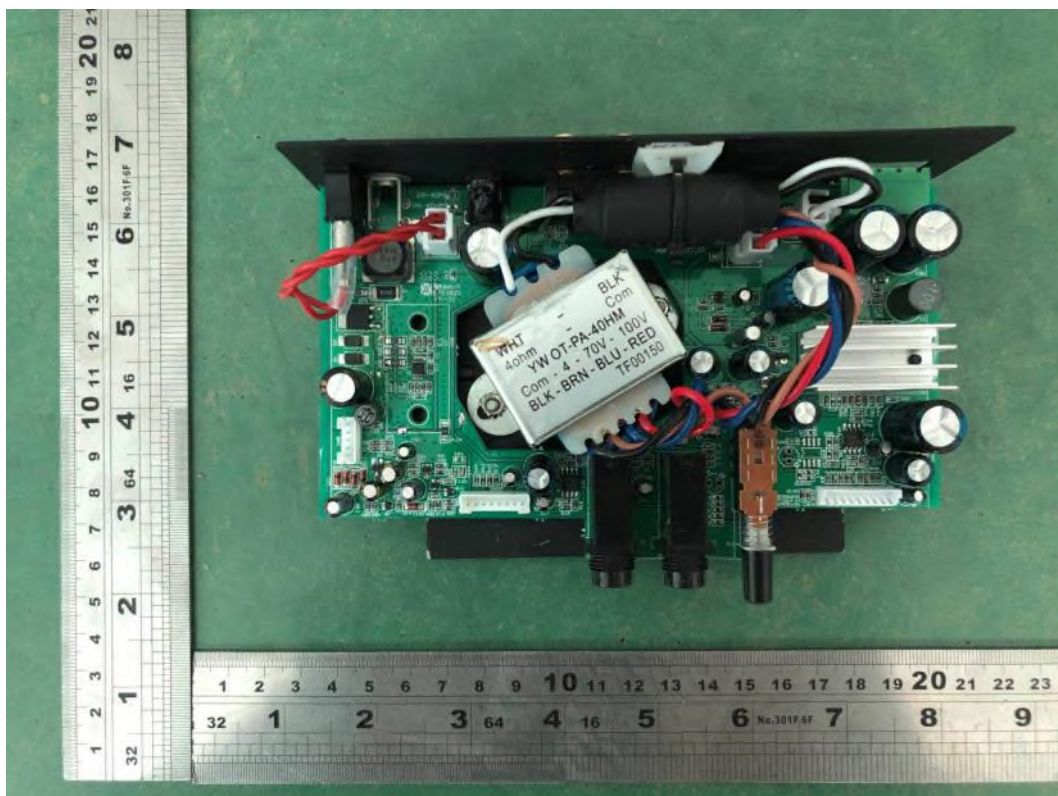
Picture 66. Model PA-40HM

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



Picture 67. Model PA-40HM



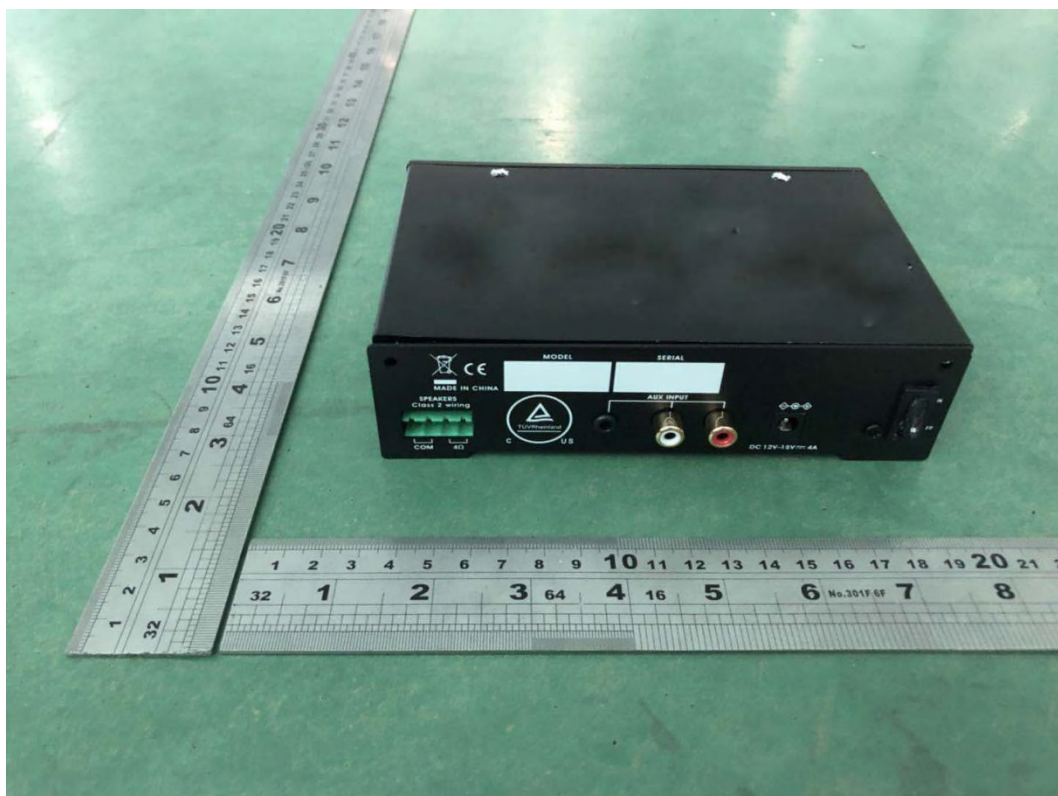
Picture 68. Model PA-40HM

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB

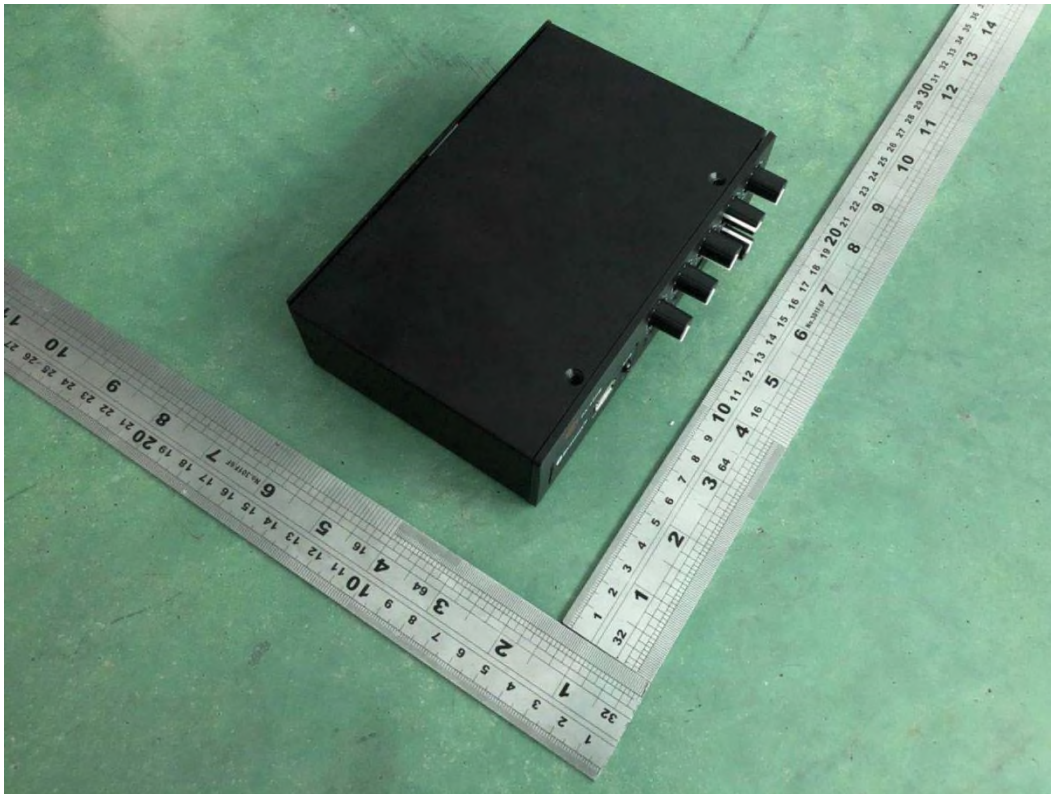


Picture 69. Model PA-40B

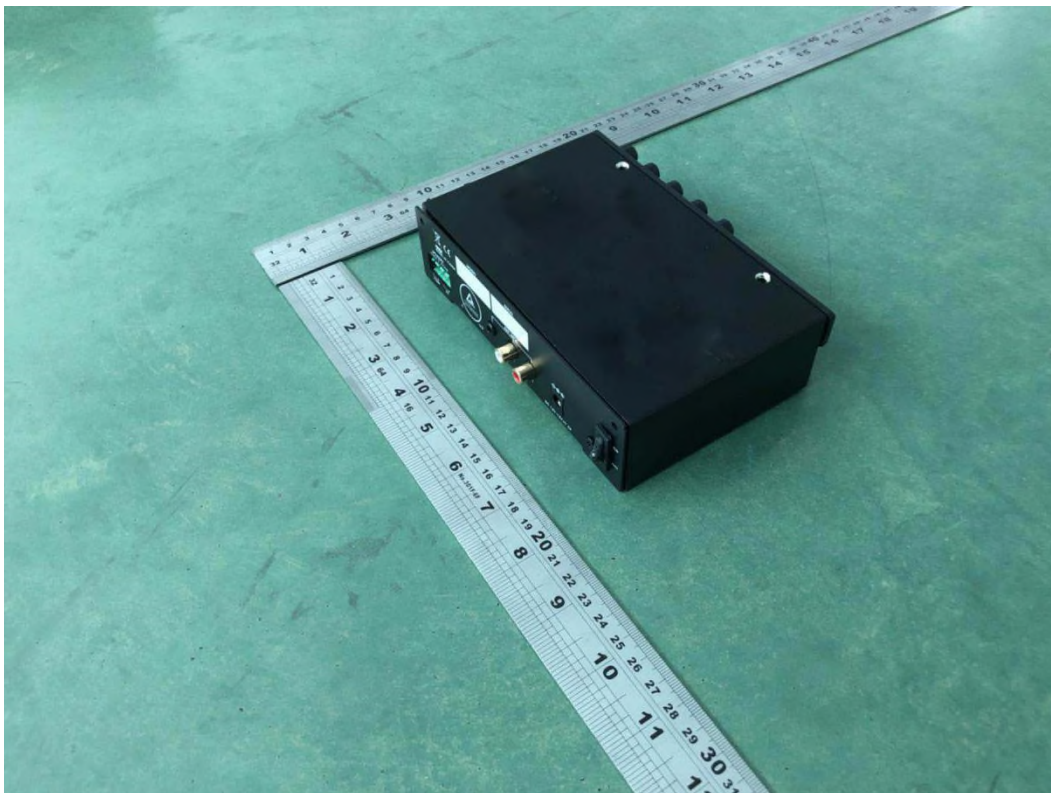


Picture 70. Model PA-40B

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



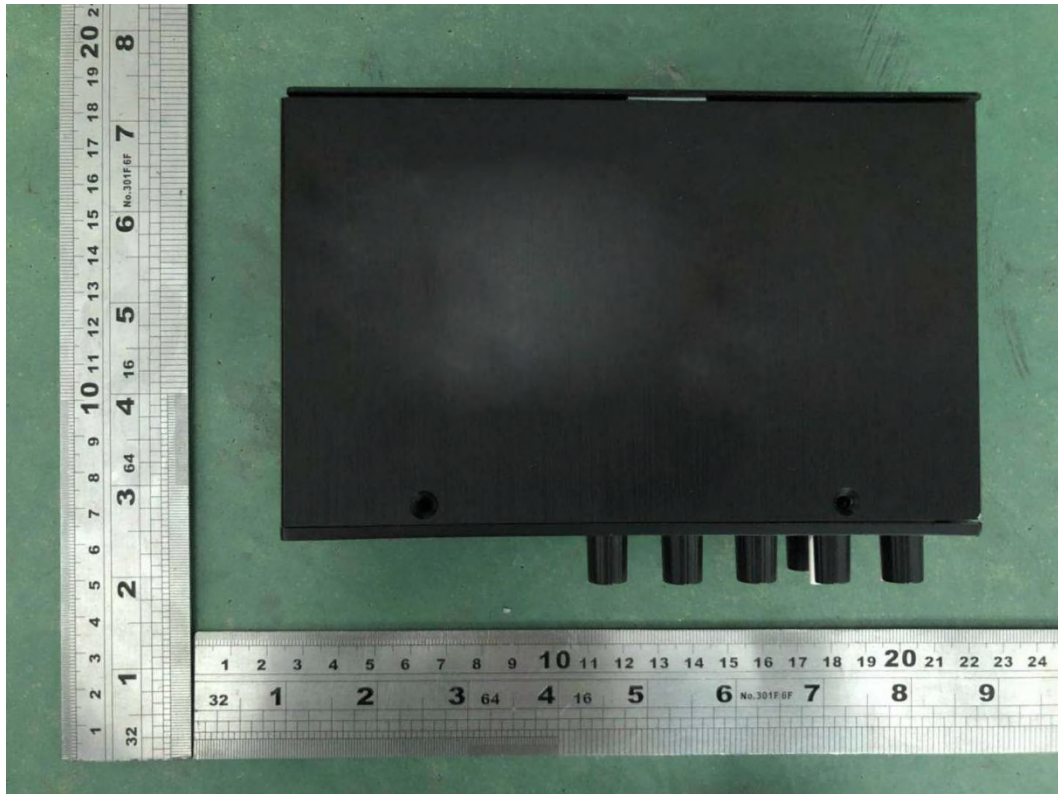
Picture 71. Model PA-40B



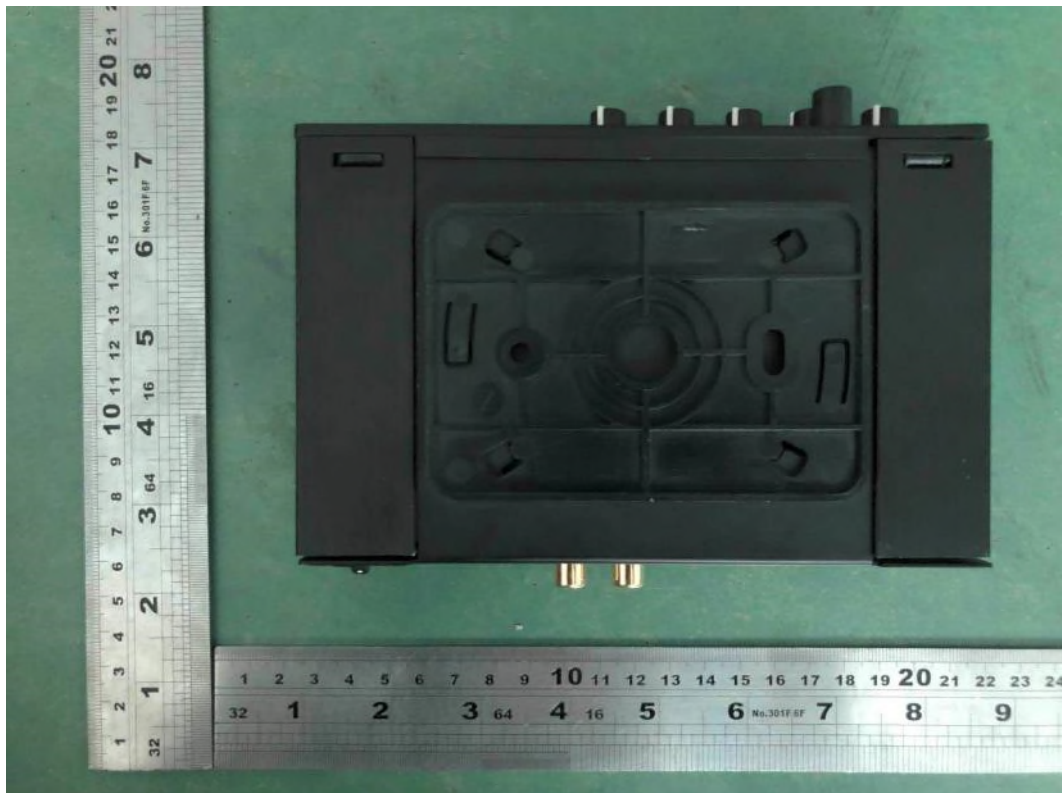
Picture 72. Model PA-40B

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



Picture 73. Model PA-40B

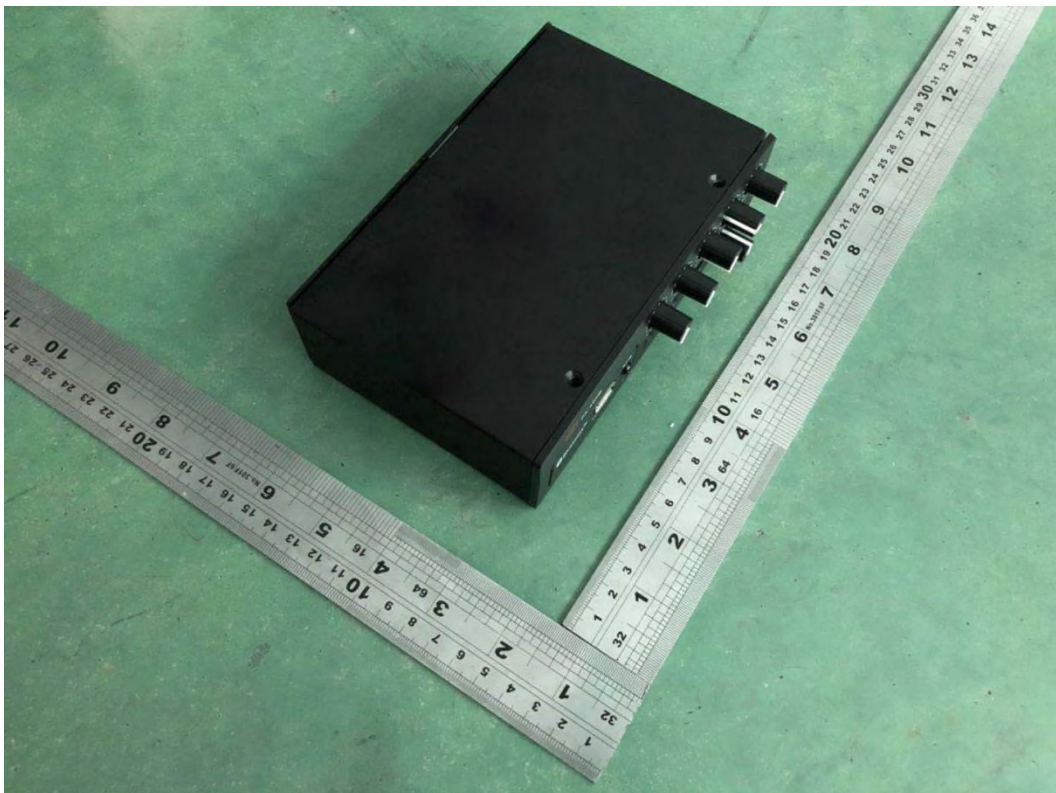


Picture 74. Model PA-40B

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



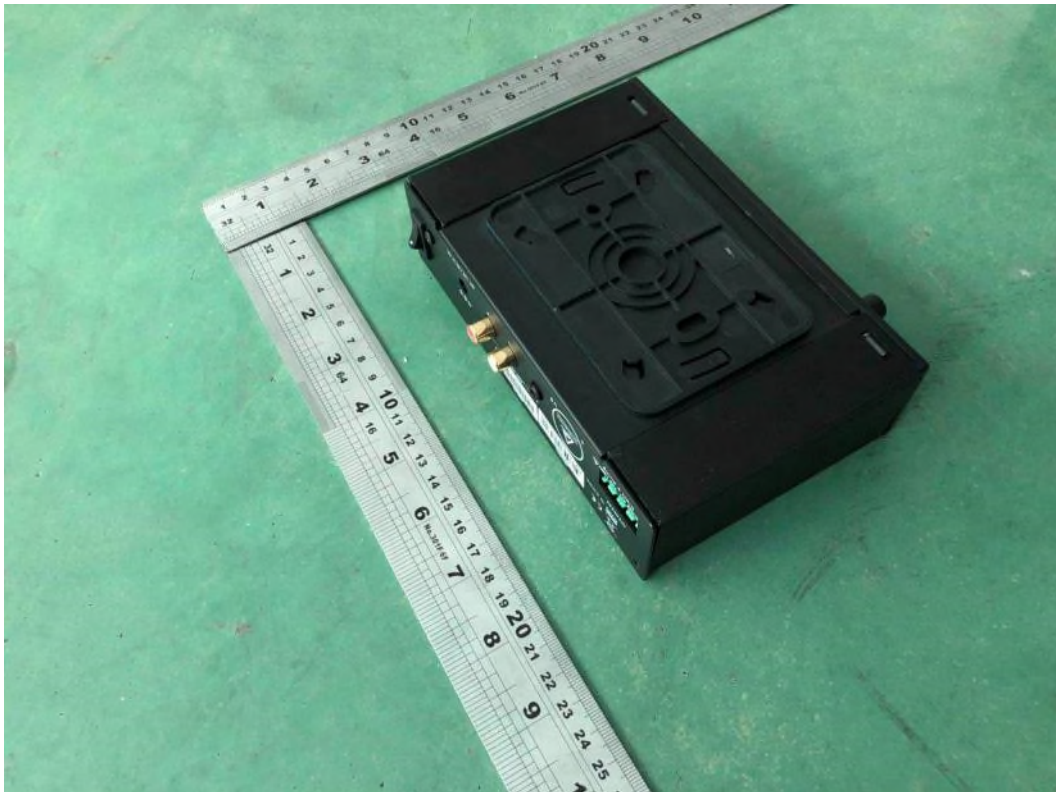
Picture 75. Model PA-40HB



Picture 76. Model PA-40HB

Report Number: 50259817 001

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB

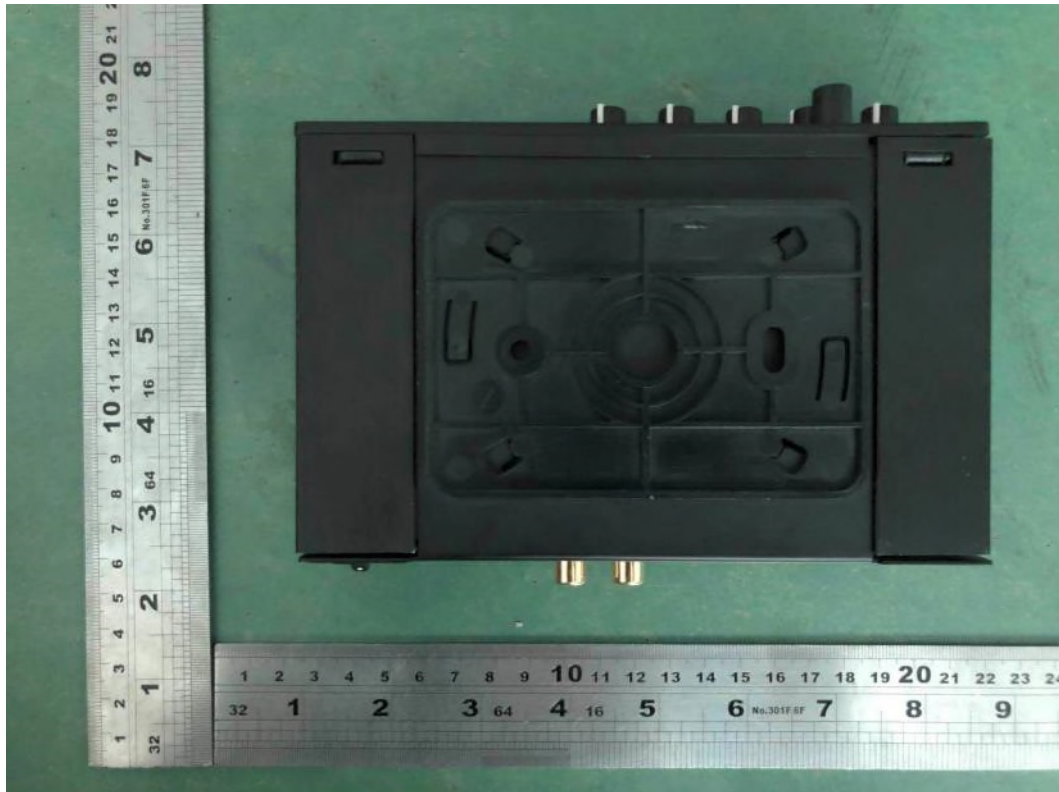


Picture 77. Model PA-40HB

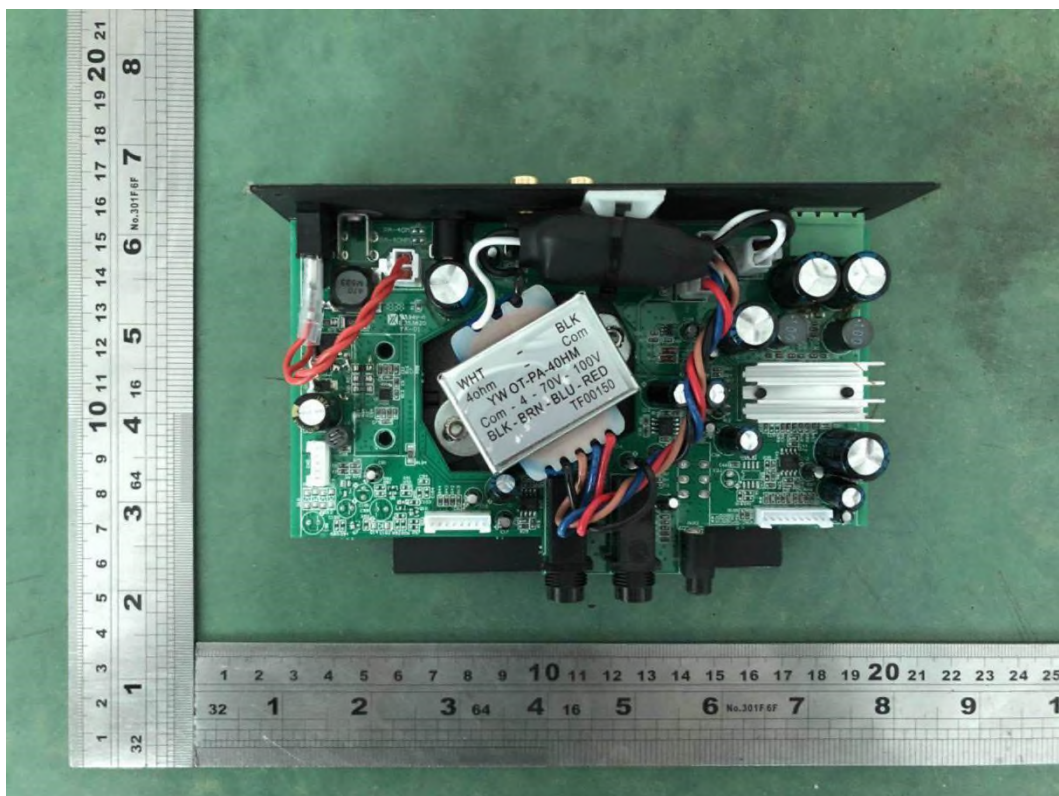


Picture 78. Model PA-40HB

Model: PA-20, PA-20M, PA-20H, PA-20HM, PA-20B, PA-20HB,
PA-40, PA-40M, PA-40H, PA-40HM, PA-40B, PA-40HB



Picture 79. Model PA-40HB



Picture 80. Model PA-40HB