

TEST REPORT

EN IEC 62368-1

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

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Testing laboratory

Name: Aerospace Testing Technology (Shenzhen) Co., Ltd.

 Address: 101, Block A4, No. 5, 8th Road, Shapu Yangyong Industrial Park,
Songgang Street, Bao'an District, Shenzhen, Guangdong, China

Testing location: Same as above

Applicant

Applicant name: NEUTRON DIGITAL TECHNOLOGY CO., LIMITED

 Address: 1008 FLAT, 10-FLOOR, WING TUCK COMMERCIAL CENTRE
177-183 WING LOK STREET SHEUNG WAN/HONGKONG

Manufacturer name: Same as applicant

Address: Same as applicant

Factory name: Same as applicant

Address: Same as applicant

Test specification

Standard: EN IEC 62368-1:2020

Test procedure: LVD

Procedure deviation: N/A

Non-standard test method: N/A

Test item

Product name: Wi-fi Smart Socket

Trademark: NEUTRON

Model and/or type reference: NTL-SWxx-yy

Rating(s): AC 230V, 16A, 50Hz, Max. 2300W

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: 2022-09-10
 Date (s) of performance of tests: 2022-09-10 to 2022-09-24

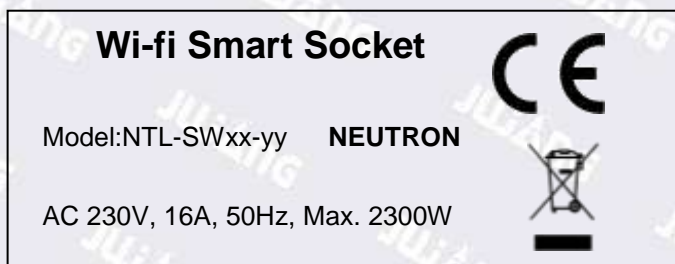
General remarks

The test results presented in this report only to the object tested.
 This report shall not be reproduced except in full without the written approval of the testing laboratory.
 The test results presented in this report relate only to the item tested.
 "(see remark #)" refers to a remark appended to the report.
 "(see Annex #)" refers to an annex appended to the report.
 "(See Enclosure #)" refers to additional information appended to the report.
 "(See appended table)" refers to a table appended to the report.
 Throughout this report a point is used as the decimal separator.
 The equipment has a plastic enclosure that only can be opened by tools.
 Before to use product, refer to the operating instruction from manufacturer.
 Series Model Difference Description: (x are variables, x can be "0-9", "A-Z", "a-z" or blank, the differences of the basic function, y are variables, y can be "0-9", "A-Z", "a-z" or blank, the differences of the interface number and Interface properties. z are variables, z can be "0-9", "A-Z", "a-z" or blank, the differences of the Regional. The differences no impact safety related constructions and EMC.)

Summary of Testing and Conclusions

The sample(s) tested complies with the requirements of EN IEC 62368-1:2020.

Copy of marking plate:



Note:

1. The height of graphical symbols shall not be less than 5 mm.
2. The height of letters and numerals either shown separately or with or as part of symbols shall not be less than 2 mm.
3. The height of WEEE symbols shall not be less than 7 mm.
4. According to the EU directives which have been aligned with EU NLF (new legislative framework), both of manufacturer and importer's name and address shall be affixed on the product or, where that is not possible, on its packaging or in a document accompanying the product before the product is placed on the EU market.

TEST ITEM PARTICULARS:	
Classification of use by.....:	<input checked="" type="checkbox"/> Ordinary person <input type="checkbox"/> Instructed person <input type="checkbox"/> Skilled person <input type="checkbox"/> Children likely to be present
Supply Connection	<input checked="" type="checkbox"/> AC Mains <input type="checkbox"/> DC Mains <input type="checkbox"/> External Circuit - not Mains connected - <input type="checkbox"/> ES1 <input type="checkbox"/> ES2 <input type="checkbox"/> ES3
Supply % Tolerance	<input checked="" type="checkbox"/> +10%/-10% <input type="checkbox"/> +20%/-15% <input type="checkbox"/> + ___ %/ - ___ % <input type="checkbox"/> None
Equipment mobility	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input checked="" type="checkbox"/> direct plug-in <input type="checkbox"/> rack-mounting <input type="checkbox"/> wall-mounted
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input type="checkbox"/> OVC IV <input checked="" type="checkbox"/> other: _OVC II_____
Class of equipment	<input checked="" type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III
Access location	<input type="checkbox"/> restricted access location <input checked="" type="checkbox"/> N/A
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
Manufacturer's specified maximum operating ambient:	35°C
IP protection class	<input checked="" type="checkbox"/> IPX0 <input type="checkbox"/> IP___
Power Systems	<input checked="" type="checkbox"/> TN
Altitude during operation (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> ___5000___ m
Altitude of test laboratory (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> ___ m
Mass of equipment	<input checked="" type="checkbox"/> less 0.3 Kg

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: +5.2V dc output ES1	
Source of electrical energy	Corresponding classification (ES)
Primary circuit	ES3
Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts): PS1	

Source of power or PIS	Corresponding classification (PS)
Primary circuit	PS3
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	N
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)
Edges and corners of enclosure	MS1
Mass of the unit	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 surfaces	TS1 for accessible part
Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example:N	
	N
Type of radiation	Corresponding classification (RS)
N	N

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	Supplementar y	Reinforced (Enclosure)
Ordinary	ES3: primary circuit	N	N	Enclosure
Ordinary	ES1: Secondary output circuit	N	N	N
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS1: 15 Watt circuit)	Safeguards		
		Basic	Supplementar y	Reinforced
All combustible materials within equipment fire enclosure	PS3: All primary circuits and secondary circuits inside the equipment enclosure	No excessive temperature	Suitable Material	N
No such part	PS1: Output circuit	No excessive temperature	N	N
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementar y	Reinforced
N	N	N	N	N
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3: High Pressure Lamp)	Safeguards		
		Basic	Supplementar y	Reinforced (Enclosure)
Ordinary	MS1: Sharp edges and corners	N	N	N
Ordinary	MS1: Equipment mass	N	N	N
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementar y	Reinforced
Ordinary	TS1: All accessible parts	N	N	N
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementar y	Reinforced
Ordinary	RS1: LED backlight	N	N	N

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Clause	Requirement + Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS		P
4.1.1	Acceptance of materials, components and subassemblies		P
4.1.2	Use of components	(See Table 4.1.2)	P
4.1.3	Equipment design and construction		P
4.1.15	Markings and instructions	(See Annex F)	P
4.4.4	Safeguard robustness		P
4.4.4.2	Steady force tests.....	(See Annex T.5)	P
4.4.4.3	Drop tests	(See Annex T.7)	P
4.4.4.4	Impact tests		N
4.4.4.5	Internal accessible safeguard enclosure and barrier tests	The external enclosure cannot be opened without damaging the product.	N
4.4.4.6	Glass Impact tests.....	No glass used	N
4.4.4.74	Thermoplastic material tests	(See Annex T.8)	P
4.4.4.8	Air comprising a safeguard	(See Annex T)	P
4.4.4.9	Accessibility and safeguard effectiveness	After tests of 4.4.4.2, 4.4.4.3, 4.4.4.7, no safeguard damaged.	P
4.5	Explosion	No explosion occurs during normal/abnormal operation and single fault conditions	P
4.6	Fixing of conductors		P
4.6.1	Fix conductors not to defeat a safeguard		P
4.6.2	10 N force test applied to	Internal components and wiring.	P
4.7	Equipment for direct insertion into mains socket - outlets	For direct plug-in models	P
4.7.2	Mains plug part complies with the relevant standard	(See Evaluation sheet for plug portion)	P
4.7.3	Torque (Nm)		N
4.8	Products containing coin/button cell batteries		N
4.8.2	Instructional safeguard		N
4.8.3	Battery Compartment Construction		N
	Means to reduce the possibility of children removing the battery.....	No battery	—
4.8.4	Battery Compartment Mechanical Tests		N
4.8.5	Battery Accessibility		N
4.9	Likelihood of fire or shock due to entry of conductive object.....	No likelihood of conductive object entering into enclosure.	P

EN IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5	ELECTRICALLY-CAUSED INJURY		P
5.2.1	Electrical energy source classifications.....:	ES3: All primary circuit of power supply ES1: Output circuit	P
5.2.2	ES1, ES2 and ES3 limits		P
5.2.2.2	Steady-state voltage and current.....:	See appended table 5.2)	P
5.2.2.3	Capacitance limits.....:		N
5.2.2.4	Single pulse limits.....:	No such single pulses generated in the EUT or applied to it.	N
5.2.2.5	Limits for repetitive pulses.....:	No such repetitive pulses within the EUT	N
5.2.2.6	Ringing signals.....:	No such ringing signals within the EUT	N
5.2.2.7	Audio signals.....:	No such audio signals	N
5.3	Protection against electrical energy sources	See table "OVERVIEW OF EMPLOYED SAFEGUARDS"	P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		P
5.3.2.1	Accessibility to electrical energy sources and safeguards		P
5.3.2.2	Contact requirements		P
	a) Test with test probe from Annex V.....:	No access with test probe to any ES3 circuit or parts.	P
	b) Electric strength test potential (V).....:		N
	c) Air gap (mm).....:		N
5.3.2.4	Terminals for connecting stripped wire		N
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material		P
5.4.1.3	Humidity conditioning.....:		N
5.4.1.4	Maximum operating temperature for insulating materials.....:	Considered to be class 130 (B)	P
5.4.1.5	Pollution degree.....:	2	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N
5.4.1.5.3	Thermal cycling		N
5.4.1.6	Insulation in transformers with varying dimensions		N
5.4.1.7	Insulation in circuits generating starting pulses		N
5.4.1.8	Determination of working voltage		P
5.4.1.9	Insulating surfaces		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		P
5.4.1.10.2	Vicat softening temperature		N
5.4.1.10.3	Ball pressure		P
5.4.2	Clearances		P
5.4.2.2	Determining clearance using peak working voltage	SELV inside, function insulation distance request only	P
5.4.2.3	Determining clearance using required withstand voltage		P
	a) a.c. mains transient voltage	2500Vpeak	—
	b) d.c. mains transient voltage	Not d.c. mains.	—
	c) external circuit transient voltage	No such transient	—
	d) transient voltage determined by measurement		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test		N
5.4.2.5	Multiplication factors for clearances and test voltages.....		P
5.4.3	Creepage distances		P
5.4.3.1	General		P
5.4.3.3	Material Group	Material group IIIb is used	—
5.4.4	Solid insulation		P
5.4.4.2	Minimum distance through insulation		P
5.4.4.3	Insulation compound forming solid insulation	Approved Opto-coupler used	P
5.4.4.4	Solid insulation in semiconductor devices	Approved Opto-coupler used	P
5.4.4.5	Cemented joints		N
5.4.4.6	Thin sheet material	The thin sheet materials of polyester tape used in transformers.	P
5.4.4.6.1	General requirements		P
5.4.4.6.2	Separable thin sheet material		P
	Number of layers (pcs)	2 layers	P
5.4.4.6.3	Non-separable thin sheet material	Triple-insulating winding	P
5.4.4.6.4	Standard test procedure for non-separable thin sheet material.....	Approved TIW used	N
5.4.4.6.5	Mandrel test		N
5.4.4.7	Solid insulation in wound components		P
5.4.4.9	Solid insulation at frequencies >30 kHz		P
5.4.5	Antenna terminal insulation		N
5.4.5.1	General		N

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.5.2	Voltage surge test		N
	Insulation resistance (MΩ)		—
5.4.6	Insulation of internal wire as part of supplementary safeguard.....		N
5.4.7	Tests for semiconductor components and for cemented joints		N
5.4.8	Humidity conditioning		P
	Relative humidity (%)	93%R.H.	—
	Temperature (°C)	40°C	—
	Duration (h)	120h	—
5.4.9	Electric strength test.....		P
5.4.9.1	Test procedure for a solid insulation type test		P
5.4.9.2	Test procedure for routine tests	Should be considered and conducted during production at factory.	N
5.4.10	Protection against transient voltages between external circuit	No such external circuits	N
5.4.10.1	Parts and circuits separated from external circuits		N
5.4.10.2	Test methods		N
5.4.10.2.1	General		N
5.4.10.2.2	Impulse test		N
5.4.10.2.3	Steady-state test		N
5.4.11	Insulation between external circuits and earthed circuitry	No connection to external circuits with transient voltage.	N
5.4.11.1	Exceptions to separation between external circuits and earth		N
5.4.11.2	Requirements		N
	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		P
5.5.2	Capacitors and RC units		P
5.5.2.1	General requirement		P
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector		N
5.5.3	Transformers	(See Annex G.5.3)	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.5.4	Optocouplers	Approved optocoupler used	P
5.5.5	Relays	No relays	N
5.5.6	Resistors		N
5.5.7	SPD's	VDR used between L and N	P
5.5.7.1	Use of an SPD connected to reliable earthing		N
5.5.7.2	Use of an SPD between mains and protective earth		N
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable		N
5.6	Protective conductor		N
5.6.2	Requirement for protective conductors		N
5.6.2.1	General requirements		N
5.6.2.2	Colour of insulation		N
5.6.3	Requirement for protective earthing conductors		N
	Protective earthing conductor size (mm ²)		—
5.6.4	Requirement for protective bonding conductors		N
5.6.4.1	Protective bonding conductors		N
	Protective bonding conductor size (mm ²).....		—
	Protective current rating (A)		—
5.6.4.3	Current limiting and overcurrent protective devices		N
5.6.5	Terminals for protective conductors		N
5.6.5.1	Requirement		N
	Conductor size (mm ²), nominal thread diameter (mm)		N
5.6.5.2	Corrosion		N
5.6.6	Resistance of the protective system		N
5.6.6.1	Requirements		N
5.6.6.2	Test Method Resistance (Ω)		N
5.6.7	Reliable earthing		N
5.7	Prospective touch voltage, touch current and protective conductor current		P
5.7.2	Measuring devices and networks		P
5.7.2.1	Measurement of touch current	0.005mA	P
5.7.2.2	Measurement of prospective touch voltage		N
5.7.3	Equipment set-up, supply connections and earth connections		N
	System of interconnected equipment (separate connections/single connection)		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Multiple connections to mains (one connection at a time/simultaneous connections)		—
5.7.4	Earthed conductive accessible parts.....		N
5.7.5	Protective conductor current		N
	Supply Voltage (V)		—
	Measured current (mA)		—
	Instructional Safeguard		N
5.7.6	Prospective touch voltage and touch current due to external circuits		N
5.7.6.1	Touch current from coaxial cables		N
5.7.6.2	Prospective touch voltage and touch current from external circuits		N
5.7.7	Summation of touch currents from external circuits		N
	a) Equipment with earthed external circuits Measured current (mA)		N
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA).....		N

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		P
6.2.2.1	General		P
6.2.2.2	Power measurement for worst-case load fault.....		P
6.2.2.3	Power measurement for worst-case power source fault		P
6.2.2.4	PS1		N
6.2.2.5	PS2		N
6.2.2.6	PS3		P
6.2.3	Classification of potential ignition sources	Primary circuit	P
6.2.3.1	Arcing PIS	No Arcing PIS	N
6.2.3.2	Resistive PIS	All circuits are considered as resistive PIS	P
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	(See appended table 5.4.1.5, 6.3.2, 9.0, B.2.6)	P
6.3.1 (b)	Combustible materials outside fire enclosure	Only output wire and connector complying to 6.4.5.	N
6.4	Safeguards against fire under single fault conditions		P

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.1	Safeguard Method		P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N
6.4.3.1	General		N
6.4.3.2	Supplementary Safeguards		N
	Special conditions if conductors on printed boards are opened or peeled		N
6.4.3.3	Single Fault Conditions :		N
	Special conditions for temperature limited by fuse		N
6.4.4	Control of fire spread in PS1 circuits	Compliance detailed as follows: --Printed board: rated V-0 --Wire insulation (tubing): complying with Clause 6 (See Table 4.1.2 for wiring used). --All other components: at least V-2 except for mounted on min. V-1 material or small parts of combustible material. --Isolating transformer: complying with G.5.3.	P
6.4.5	Control of fire spread in PS2 circuits		N
6.4.5.2	Supplementary safeguards :	(See appended tables 4.1.2 and Annex G)	P
6.4.6	Control of fire spread in PS3 circuit	Compliance detailed as follows: Parts as in 6.4.5 above including wiring Fire enclosure rated V-0 used.	P
6.4.7	Separation of combustible materials from a PIS		N
6.4.7.1	General..... :		N
6.4.7.2	Separation by distance		N
6.4.7.3	Separation by a fire barrier		N
6.4.8	Fire enclosures and fire barriers		P
6.4.8.1	Fire enclosure and fire barrier material properties	The V-0 fire enclosure is used the overall enclosure.	P
6.4.8.2.1	Requirements for a fire barrier	No fire barrier used.	N
6.4.8.2.2	Requirements for a fire enclosure	The V-0 fire enclosure is used the overall enclosure as above.	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		P
6.4.8.3.1	Fire enclosure and fire barrier openings		P

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.3.2	Fire barrier dimensions		N
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm)		N
	Needle Flame test		N
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm)	No openings.	P
	Flammability tests for the bottom of a fire enclosure		N
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c)	No doors or covers.	N
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating.....	Fire enclosure is made of V-0 material.	N
6.5	Internal and external wiring		N
6.5.1	Requirements		N
6.5.2	Cross-sectional area (mm ²)		—
6.5.3	Requirements for interconnection to building wiring		N
6.6	Safeguards against fire due to connection to additional equipment		P
	External port limited to PS2 or complies with Clause Q.1		P

7	INJURY CAUSED BY HAZARDOUS SUBSTANCES		P
7.2	Reduction of exposure to hazardous substances	No hazardous chemicals within the equipment.	P
7.3	Ozone exposure	No ozone production within the equipment.	N
7.4	Use of personal safeguards (PPE)		N
	Personal safeguards and instructions		—
7.5	Use of instructional safeguards and instructions		N
	Instructional safeguard (ISO 7010)		—
7.6	Batteries		N

8	MECHANICALLY-CAUSED INJURY		P
8.1	General	MS1	P
8.2	Mechanical energy source classifications		P
8.3	Safeguards against mechanical energy sources		N
8.4	Safeguards against parts with sharp edges and corners		N
8.4.1	Safeguards		N

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Clause	Requirement + Test	Result - Remark	Verdict
8.5	Safeguards against moving parts	No moving parts.	N
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N
8.5.2	Instructional Safeguard		—
8.5.4	Special categories of equipment comprising moving parts		N
8.5.4.1	Large data storage equipment		N
8.5.4.2	Equipment having electromechanical device for destruction of media		N
8.5.4.2.1	Safeguards and Safety Interlocks.....		N
8.5.4.2.2	Instructional safeguards against moving parts		N
	Instructional Safeguard		—
8.5.4.2.3	Disconnection from the supply		N
8.5.4.2.4	Probe type and force (N).....		N
8.5.5	High Pressure Lamps	No high pressure lamps.	N
8.5.5.1	Energy Source Classification		N
8.5.5.2	High Pressure Lamp Explosion Test.....		N
8.6	Stability		N
8.6.1	Product classification		N
	Instructional Safeguard		—
8.6.2	Static stability		N
8.6.2.2	Static stability test		N
	Applied Force		—
8.6.2.3	Downward Force Test		N
8.6.3	Relocation stability test		N
	Unit configuration during 10° tilt.....		—
8.6.4	Glass slide test		N
8.6.5	Horizontal force test (Applied Force)		N
	Position of feet or movable parts		—
8.7	Equipment mounted to wall or ceiling		N
8.7.1	Mounting Means (Length of screws (mm) and mounting surface)		N
8.7.2	Direction and applied force		N
8.8	Handles strength		N
8.8.1	Classification		N
8.8.2	Applied Force		N
8.9	Wheels or casters attachment requirements	No wheels or casters.	N
8.9.1	Classification		N

EN IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
8.9.2	Applied force.....:		—
8.10	Carts, stands and similar carriers	No carts or stands or other carriers.	N
8.10.1	General		N
8.10.2	Marking and instructions		N
	Instructional Safeguard		—
8.10.3	Cart, stand or carrier loading test and compliance		N
	Applied force.....:		—
8.10.4	Cart, stand or carrier impact test		N
8.10.5	Mechanical stability		N
	Applied horizontal force (N)		—
8.10.6	Thermoplastic temperature stability (°C)		N
8.11	Mounting means for rack mounted equipment	Not rack mounted.	N
8.11.1	General		N
8.11.2	Product Classification		N
8.11.3	Mechanical strength test, variable <i>N</i>		N
8.11.4	Mechanical strength test 250N, including end stops		N
8.12	Telescoping or rod antennas		N
	Button/Ball diameter (mm)		—

9	THERMAL BURN INJURY		P
9.2	Thermal energy source classifications	TS1 for Accessible surfaces. The equipment evaluated by temperature test	P
9.3	Safeguard against thermal energy sources		N
9.4	Requirements for safeguards		N
9.4.1	Equipment safeguard		N
9.4.2	Instructional safeguard	Instructional safeguard is not required.	N

10	RADIATION		N
10.2	Radiation energy source classification		N
10.2.1	General classification		N
10.3	Protection against laser radiation	No laser.	N
	Laser radiation that exists equipment:		—
	Normal, abnormal, single-fault		N
	Instructional safeguard		—
	Tool.....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
10.4	Protection against visible, infrared, and UV radiation		N
10.4.1	General		N
10.4.1.a)	RS3 for Ordinary and instructed persons		N
10.4.1.b)	RS3 accessible to a skilled person		N
	Personal safeguard (PPE) instructional safeguard		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1 ..		N
10.4.1.d)	Normal, abnormal, single-fault conditions		N
10.4.1.e)	Enclosure material employed as safeguard is opaque		N
10.4.1.f)	UV attenuation.....		N
10.4.1.g)	Materials resistant to degradation UV		N
10.4.1.h)	Enclosure containment of optical radiation		N
10.4.1.i)	Exempt Group under normal operating conditions		N
10.4.2	Instructional safeguard		N
10.5	Protection against x-radiation		N
10.5.1	X- radiation energy source that exists equipment		N
	Normal, abnormal, single fault conditions		N
	Equipment safeguards		N
	Instructional safeguard for skilled person		N
10.5.3	Most unfavourable supply voltage to give maximum radiation		—
	Abnormal and single-fault condition		N
	Maximum radiation (pA/kg)		N
10.6	Protection against acoustic energy sources		N
10.6.1	General		N
10.6.2	Classification		N
	Acoustic output, dB(A).....		N
	Output voltage, unweighted r.m.s.		N
10.6.4	Protection of persons		N
	Instructional safeguards		N
	Equipment safeguard prevent ordinary person to RS2.....		—
	Means to actively inform user of increase sound pressure		—
	Equipment safeguard prevent ordinary person to RS2.....		—

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Clause	Requirement + Test	Result - Remark	Verdict
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N
10.6.5.1	Corded passive listening devices with analog input		N
	Input voltage with 94 dB(A) L_{Aeq} acoustic pressure output		—
10.6.5.2	Corded listening devices with digital input		N
	Maximum dB(A).....		—
10.6.5.3	Cordless listening device		N
	Maximum dB(A).....		—

B	NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS		P
B.2	Normal Operating Conditions	(See Test Item Particulars and appended test tables)	P
B.2.1	General requirements		P
	Audio Amplifiers and equipment with audio amplifiers	Not such equipment.	N
B.2.3	Supply voltage and tolerances		P
B.2.5	Input test		P
B.3	Simulated abnormal operating conditions		P
B.3.1	General requirements	(See appended table B.3)	P
B.3.2	Covering of ventilation openings		N
B.3.3	D.C. mains polarity test		N
B.3.4	Setting of voltage selector.....		N
B.3.5	Maximum load at output terminals		P
B.3.6	Reverse battery polarity		N
B.3.7	Abnormal operating conditions as specified in Clause E.2.		N
B.3.8	Safeguards functional during and after abnormal operating conditions	All safeguards remained effective.	P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited		N
B.4.3	Motor tests		N
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature		N
B.4.4	Short circuit of functional insulation		P
B.4.4.1	Short circuit of clearances for functional insulation		P

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Clause	Requirement + Test	Result - Remark	Verdict
B.4.4.2	Short circuit of creepage distances for functional insulation		P
B.4.4.3	Short circuit of functional insulation on coated printed boards		N
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors		P
B.4.6	Short circuit or disconnect of passive components		P
B.4.7	Continuous operation of components		N
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		N
C	UV RADIATION		N
C.1	Protection of materials in equipment from UV radiation		N
C.1.2	Requirements		N
C.1.3	Test method		N
C.2	UV light conditioning test		N
C.2.1	Test apparatus		N
C.2.2	Mounting of test samples		N
C.2.3	Carbon-arc light-exposure apparatus		N
C.2.4	Xenon-arc light exposure apparatus		N
D	TEST GENERATORS		N
D.1	Impulse test generators		N
D.2	Antenna interface test generator		N
D.3	Electronic pulse generator		N
E	TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS		N
E.1	Audio amplifier normal operating conditions		N
	Audio signal voltage (V)		—
	Rated load impedance (Ω)		—
E.2	Audio amplifier abnormal operating conditions		N
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General requirements		P
	Instructions – Language	English	—
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		P
F.3	Equipment markings		P
F.3.1	Equipment marking locations		P

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification		—
F.3.2.2	Model identification		—
F.3.3	Equipment rating markings		P
F.3.3.1	Equipment with direct connection to mains		P
F.3.3.2	Equipment without direct connection to mains		N
F.3.3.3	Nature of supply voltage		—
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		N
F.3.4	Voltage setting device		N
F.3.5	Terminals and operating devices		N
F.3.5.1	Mains appliance outlet and socket-outlet markings.....		N
F.3.5.2	Switch position identification marking		N
F.3.5.3	Replacement fuse identification and rating markings.....	The fuse is located within the equipment and not replaceable by an ordinary person or an instructed person.	P
F.3.5.4	Replacement battery identification marking		N
F.3.5.5	Terminal marking location		N
F.3.6	Equipment markings related to equipment classification		P
F.3.6.1	Class I Equipment		P
F.3.6.1.1	Protective earthing conductor terminal		P
F.3.6.1.2	Neutral conductor terminal		N
F.3.6.1.3	Protective bonding conductor terminals		N
F.3.6.2	Class II equipment (IEC60417-5172)		P
F.3.6.2.1	Class II equipment with or without functional earth		P
F.3.6.2.2	Class II equipment with functional earth terminal marking		N
F.3.7	Equipment IP rating marking	IPX0	—
F.3.8	External power supply output marking		P
F.3.9	Durability, legibility and permanence of marking		P
F.3.10	Test for permanence of markings		P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present - marking		N

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Clause	Requirement + Test	Result - Remark	Verdict
	b) Instructions given for installation or initial use		P
	c) Equipment intended to be fastened in place		N
	d) Equipment intended for use only in restricted access area		N
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1		N
	f) Protective earthing employed as safeguard		N
	g) Protective earthing conductor current exceeding ES 2 limits		N
	h) Symbols used on equipment		P
	i) Permanently connected equipment not provided with all-pole mains switch		N
	j) Replaceable components or modules providing safeguard function		N
F.5	Instructional safeguards		N
	Where "instructional safeguard" is referenced in the test report it specifies the required elements, location of marking and/or instruction		N
G	COMPONENTS		P
G.1	Switches		N
G.1.1	General requirements		N
G.1.2	Ratings, endurance, spacing, maximum load		N
G.2	Relays		N
G.2.1	General requirements		N
G.2.2	Overload test		N
G.2.3	Relay controlling connectors supply power		N
G.2.4	Mains relay, modified as stated in G.2		N
G.3	Protection Devices		P
G.3.1	Thermal cut-offs		P
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		P
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		P
G.3.1.2	Thermal cut-off connections maintained and secure		P
G.3.2	Thermal links		N
G.3.2.1a)	Thermal links separately tested with IEC 60691		N
G.3.2.1b)	Thermal links tested as part of the equipment		N
	Aging hours (H)		—
	Single Fault Condition		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Test Voltage (V) and Insulation Resistance (Ω) :		—
G.3.3	PTC Thermistors		N
G.3.4	Overcurrent protection devices		N
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		N
G.3.5.1	Non-resettable devices suitably rated and marking provided		N
G.3.5.2	Single faults conditions		N
G.4	Connectors		P
G.4.1	Spacings		P
G.4.2	Mains connector configuration		P
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		P
G.5	Wound Components		P
G.5.1	Wire insulation in wound components	Approved Insulated wire used as Reinforced insulation for secondary winding of T1.	P
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°	Separated by tube or tape, See photo document for details.	P
G.5.1.2 b)	Construction subject to routine testing	The routine tests are to be considered for the production based on the relevant approval	P
G.5.2	Endurance test on wound components		N
G.5.2.1	General test requirements		N
G.5.2.2	Heat run test		N
	Time (s)		—
	Temperature (°C)		—
G.5.2.3	Wound Components supplied by mains		N
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.	P
	Position	T1	—
	Method of protection	See G.5.3.3.	—
G.5.3.2	Insulation	Primary windings and secondary windings are separated by Reinforced insulation (The core is considered as primary part as it is not isolated from Primary)	P
	Protection from displacement of windings	The end-turn of each winding is fixed by insulating tape	—

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.3.3	Overload test.....:		N
G.5.3.3.1	Test conditions		N
G.5.3.3.2	Winding Temperatures testing in the unit		N
G.5.3.3.3	Winding Temperatures - Alternative test method		N
G.5.4	Motors		N
G.5.4.1	General requirements	No motor used.	N
	Position		—
G.5.4.2	Test conditions		N
G.5.4.3	Running overload test		N
G.5.4.4	Locked-rotor overload test		N
	Test duration (days)		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N
G.5.4.5.2	Tested in the unit		N
	Electric strength test (V).....:		—
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h)		N
	Electric strength test (V).....:		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N
G.5.4.6.2	Tested in the unit		N
	Maximum Temperature		N
	Electric strength test (V)		N
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h)		N
	Electric strength test (V).....:		N
G.5.4.7	Motors with capacitors		N
G.5.4.8	Three-phase motors		N
G.5.4.9	Series motors		N
	Operating voltage		—
G.6	Wire Insulation		P
G.6.1	General	Triple insulated winding in T1 secondary windings used as reinforced safeguard in the isolating transformer that has separately complied with Annex J. See Appended table 4.1.2. No other wires used in the EUT.	P
G.6.2	Solvent-based enamel wiring insulation	Insulation does not rely on solvent-based enamel.	P
G.7	Mains supply cords		N

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Clause	Requirement + Test	Result - Remark	Verdict
G.7.1	General requirements		N
	Type		—
	Rated current (A).....		—
	Cross-sectional area (mm ²), (AWG)		—
G.7.2	Compliance and test method		N
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N
G.7.3.2	Cord strain relief		N
G.7.3.2.1	Requirements		N
	Strain relief test force (N)		—
G.7.3.2.2	Strain relief mechanism failure		
G.7.3.2.3	Cord sheath or jacket position, distance (mm) ...:		—
G.7.3.2.4	Strain relief comprised of polymeric material		N
G.7.4	Cord Entry		N
G.7.5	Non-detachable cord bend protection		N
G.7.5.1	Requirements		N
G.7.5.2	Mass (g)		—
	Diameter (m)		—
	Temperature (°C)		—
G.7.6	Supply wiring space		N
G.7.6.2	Stranded wire		N
G.7.6.2.1	Test with 8 mm strand		N
G.8	Varistors		N
G.8.1	General requirements		N
G.8.2	Safeguard against shock		N
G.8.3	Safeguard against fire		N
G.8.3.2	Varistor overload test		N
G.8.3.3	Temporary overvoltage		N
G.9	Integrated Circuit (IC) Current Limiters		N
G.9.1 a)	Manufacturer defines limit at max. 5A.		N
G.9.1 b)	Limiters do not have manual operator or reset		N
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
G.9.3	Test Program 2		N
G.9.4	Test Program 3		N

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Clause	Requirement + Test	Result - Remark	Verdict
G.10	Resistors		N
G.10.1	General requirements		N
G.10.2	Resistor test		N
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N
G.10.3.1	General requirements		N
G.10.3.2	Voltage surge test		N
G.10.3.3	Impulse test		N
G.11	Capacitor and RC units		P
G.11.1	General requirements	(see appended table 4.1.2) Y1-capacitor used as Reinforced safeguard which complies with IEC/EN 60384-14.	P
G.11.2	Conditioning of capacitors and RC units	Y1 capacitor complied as environmental category at least 40/100/21 (21 days humidity) or 30/125/56 (56 days humidity)	P
G.11.3	Rules for selecting capacitors	The selection followed with tables G.9 and G.12. Y1 capacitor bridging Reinforced insulation with rated voltage at least 250V tested with impulse 8kV peak and 4kV rms	P
G.12	Optocouplers		P
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results)..... :		P
	Type test voltage Vini		—
	Routine test voltage, Vini,b		—
G.13	Printed boards		P
G.13.1	General requirements	See the following details.	P
G.13.2	Uncoated printed boards	The insulation between conductors on the outer surfaces of an uncoated printed board complied with the minimum clearance and creepage requirements	P
G.13.3	Coated printed boards	No coated printed board or multilayer board applied for within the equipment.	N
G.13.4	Insulation between conductors on the same inner surface		N
	Compliance with cemented joint requirements (Specify construction)..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
G.13.5	Insulation between conductors on different surfaces		P
	Distance through insulation..... :	Min 0.4mm	P
	Number of insulation layers (pcs) :		—
G.13.6	Tests on coated printed boards		N
G.13.6.1	Sample preparation and preliminary inspection		N
G.13.6.2a)	Thermal conditioning		N
G.13.6.2b)	Electric strength test		N
G.13.6.2c)	Abrasion resistance test		N
G.14	Coating on components terminals		N
G.14.1	Requirements		N
G.15	Liquid filled components		N
G.15.1	General requirements		N
G.15.2	Requirements		N
G.15.3	Compliance and test methods		N
G.15.3.1	Hydrostatic pressure test		N
G.15.3.2	Creep resistance test		N
G.15.3.3	Tubing and fittings compatibility test		N
G.15.3.4	Vibration test		N
G.15.3.5	Thermal cycling test		N
G.15.3.6	Force test		N
G.15.4	Compliance		N
G.16	IC including capacitor discharge function (ICX)		N
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours		N
b)	Impulse test using circuit 2 with $U_c =$ to transient voltage		N
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N
C2)	Test voltage		—
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N
D2)	Capacitance		—
D3)	Resistance		—
H	CRITERIA FOR TELEPHONE RINGING SIGNALS		N
H.1	General		N
H.2	Method A		N
H.3	Method B		N

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Clause	Requirement + Test	Result - Remark	Verdict
H.3.1	Ringling signal		N
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
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N
H.3.2.2	Tripping device		N
H.3.2.3	Monitoring voltage (V)		—
J	INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION		P
	General requirements	Triple insulated winding wiring used as reinforced safeguard in the isolating transformer that has been evaluated to Annex J as follows: Requirements of Annex U of IEC 60950-1/A2 are identical to Annex J of this standard (for wires providing Reinforced insulation). See Table 4.1.2.	P
K	SAFETY INTERLOCKS		N
K.1	General requirements		N
K.2	Components of safety interlock safeguard mechanism		N
K.3	Inadvertent change of operating mode		N
K.4	Interlock safeguard override		N
K.5	Fail-safe		N
	Compliance		N
K.6	Mechanically operated safety interlocks		N
K.6.1	Endurance requirement		N
K.6.2	Compliance and Test method		N
K.7	Interlock circuit isolation		N
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location)		N
K.7.2	Overload test, Current (A)		N
K.7.3	Endurance test		N
K.7.4	Electric strength test		N
L	DISCONNECT DEVICES		P
L.1	General requirements	AC mains plug used as disconnect device.	P

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Clause	Requirement + Test	Result - Remark	Verdict
L.2	Permanently connected equipment		N
L.3	Parts that remain energized	When AC plug is disconnected no hazardous voltage in the equipment.	P
L.4	Single phase equipment	The mains plug disconnects both poles simultaneously.	P
L.5	Three-phase equipment		N
L.6	Switches as disconnect devices		N
L.7	Plugs as disconnect devices		P
L.8	Multiple power sources		N
M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		N
M.1	General requirements		N
M.2	Safety of batteries and their cells		N
M.2.1	Requirements		N
M.2.2	Compliance and test method (identify method) .. :		N
M.3	Protection circuits		N
M.3.1	Requirements		N
M.3.2	Tests		N
	- Overcharging of a rechargeable battery		N
	- Unintentional charging of a non-rechargeable battery		N
	- Reverse charging of a rechargeable battery		N
	- Excessive discharging rate for any battery		N
M.3.3	Compliance		N
M.4	Additional safeguards for equipment containing secondary lithium battery		N
M.4.1	General		N
M.4.2	Charging safeguards		N
M.4.2.1	Charging operating limits		N
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
M.4.4	Endurance of equipment containing a secondary lithium battery		N
M.4.4.2	Preparation		N
M.4.4.3	Drop and charge/discharge function tests		N
	Drop		N
	Charge		N
	Discharge		N

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Clause	Requirement + Test	Result - Remark	Verdict
M.4.4.4	Charge-discharge cycle test		N
M.4.4.5	Result of charge-discharge cycle test		N
M.5	Risk of burn due to short circuit during carrying		N
M.5.1	Requirement		N
M.5.2	Compliance and Test Method (Test of P.2.3)		N
M.6	Prevention of short circuits and protection from other effects of electric current		N
M.6.1	Short circuits		N
M.6.1.1	General requirements		N
M.6.1.2	Test method to simulate an internal fault		N
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method)		N
M.6.2	Leakage current (mA)		N
M.7	Risk of explosion from lead acid and NiCd batteries		N
M.7.1	Ventilation preventing explosive gas concentration		N
M.7.2	Compliance and test method		N
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N
M.8.1	General requirements		N
M.8.2	Test method		N
M.8.2.1	General requirements		N
M.8.2.2	Estimation of hypothetical volume V_z (m^3/s)		—
M.8.2.3	Correction factors.....		—
M.8.2.4	Calculation of distance d (mm)		—
M.9	Preventing electrolyte spillage		N
M.9.1	Protection from electrolyte spillage		N
M.9.2	Tray for preventing electrolyte spillage		N
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing)		N
N	ELECTROCHEMICAL POTENTIALS		P
	Metal(s) used	Pollution degree considered	—
O	MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		
	Figures O.1 to O.20 of this Annex applied.....		—
P	SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS		N
P.1	General requirements		N
P.2.2	Safeguards against entry of foreign object		N

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Clause	Requirement + Test	Result - Remark	Verdict
	Location and Dimensions (mm)		—
P.2.3	Safeguard against the consequences of entry of foreign object		N
P.2.3.1	Safeguards against the entry of a foreign object		N
	Openings in transportable equipment		N
	Transportable equipment with metalized plastic parts		N
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard)		N
P.3	Safeguards against spillage of internal liquids		N
P.3.1	General requirements		N
P.3.2	Determination of spillage consequences		N
P.3.3	Spillage safeguards		N
P.3.4	Safeguards effectiveness		N
P.4	Metallized coatings and adhesive securing parts		N
P.4.2 a)	Conditioning testing		N
	Tc (°C).....		—
	Tr (°C)		—
	Ta (°C)		—
P.4.2 b)	Abrasion testing		N
P.4.2 c)	Mechanical strength testing		N
Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		P
Q.1	Limited power sources		P
Q.1.1 a)	Inherently limited output		N
Q.1.1 b)	Impedance limited output		P
	- Regulating network limited output under normal operating and simulated single fault condition		P
Q.1.1 c)	Overcurrent protective device limited output		N
Q.1.1 d)	IC current limiter complying with G.9		N
Q.1.2	Compliance and test method		P
Q.2	Test for external circuits – paired conductor cable		N
	Maximum output current (A)		—
	Current limiting method.....		—
R	LIMITED SHORT CIRCUIT TEST		N
R.1	General requirements		N
R.2	Determination of the overcurrent protective device and circuit		N

EN IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
R.3	Test method Supply voltage (V) and short-circuit current (A). :		N
S	TESTS FOR RESISTANCE TO HEAT AND FIRE		P
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W	Approved fire enclosure with V-0 material used.	P
	Samples, material		—
	Wall thickness (mm).....		—
	Conditioning (°C)		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N
	- Material not consumed completely		N
	- Material extinguishes within 30s		N
	- No burning of layer or wrapping tissue		N
S.2	Flammability test for fire enclosure and fire barrier integrity		N
	Samples, material		—
	Wall thickness (mm).....		—
	Conditioning (°C)		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N
	Test specimen does not show any additional hole		N
S.3	Flammability test for the bottom of a fire enclosure		N
	Samples, material		—
	Wall thickness (mm).....		—
	Cheesecloth did not ignite		N
S.4	Flammability classification of materials		P
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
	Samples, material		—
	Wall thickness (mm).....		—
	Conditioning (test condition), (°C).....		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N
	After every test specimen was not consumed completely		N
	After fifth flame application, flame extinguished within 1 min		N

EN IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
T	MECHANICAL STRENGTH TESTS		P
T.1	General requirements		P
T.2	Steady force test, 10 N	(See appended table T.2)	P
T.3	Steady force test, 30 N	(See appended table T3)	N
T.4	Steady force test, 100 N	(See appended table T4)	N
T.5	Steady force test, 250 N	(See appended table T5)	P
T.6	Enclosure impact test	(See appended table T6)	N
	Fall test		N
	Swing test		N
T.7	Drop test	(See appended table T7)	P
T.8	Stress relief test	(See appended table T8)	N
T.9	Impact Test (glass)		N
T.9.1	General requirements		N
T.9.2	Impact test and compliance		N
	Impact energy (J)		—
	Height (m).....		—
T.10	Glass fragmentation test.....	(See sub-clause 4.4.4.9)	N
T.11	Test for telescoping or rod antennas		N
	Torque value (Nm)		—
U	MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N
U.1	General requirements		N
U.2	Compliance and test method for non-intrinsically protected CRTs		N
U.3	Protective Screen	(See Annex T)	N
V	DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)		P
V.1	Accessible parts of equipment	No access with test probes to any hazardous parts	P
V.2	Accessible part criterion		P

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

4.1.2 TABLE: List of critical components					
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹
Adapter plug	Ningbo Chuanguan Electric Appliance Co.,Ltd	WG-10,WG-10E,WG-08,WG-08E,WG-16,WG-16E	AC230V, 50Hz, MAX 2300W	DIN VDE 0620-1; DIN VDE 0620-2-1; EN IEC 61058-1 EN 61058-1-1	TUV Rheinland R 50477894
Enclosure, button, plug & socket body, inner protector, shutter box and shutter body	Formasa Chemicals&fibre CORP Plastics DIV	AC3600	PC, Flame class V-0, UL Number: E162823	EN IEC 61058-1 EN 61058-1-1 DIN VDE 0620-1 DIN VDE 0620-2-1	TUV Rheinland R 50477894 0002
Socket contact tube and plug pins	Ningbo Chuanguan Electric Appliance Co.,Ltd	CG-01	Cu: >58%	EN IEC 61058-1 EN 61058-1-1 DIN VDE 0620-1 DIN VDE 0620-2-1	TUV Rheinland R 50477894 0002
Earthing part of plug and Earthing side contact	Ningbo Chuanguan Electric Appliance Co.,Ltd	CG-02	Cu: >58%	EN IEC 61058-1 EN 61058-1-1 DIN VDE 0620-1 DIN VDE 0620-2-1 EN 62368-1	TUV Rheinland R 50477894 0002
Relay	Ningbo YInzhou Jie Ying Electrical pars Co.,Ltd	JY32FNH-S-DC5V- A	10A 250V~	EN 61810-1	TUV Rheinland R 50477894 0002
Alternative	Ningbo YInzhou Jie Ying Electrical pars Co.,Ltd	JY32FN-S-DC5V-A	10A 250V~	EN 61810-1	TUV Rheinland R 50477894 0002
PCB	Unice Circuit Group Ltd	M01	Flame class V-0, UL file No: E332657	EN IEC 61058-1 EN 61058-1-1 DIN VDE 0620-1 DIN VDE 0620-2-1	TUV Rheinland R 50477894 0002
Alternative	Wenzhou Ruihao Electronics Co.,Ltd	RH-M	Flame class V-0, UL file No: E339059	EN IEC 61058-1 EN 61058-1-1 DIN VDE 0620-1 DIN VDE 0620-2-1	TUV Rheinland R 50477894 0002
Varistor	Cerglass MFG Inc	7D471K	Max. continuous voltage: 300V	IEC-EN 61051-1 IEC 61051-2 IEC 61051-2-2 EN 62368-1	VDE

EN IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
Fusing Resistor	SHENZHEN JINGHE ELECTRONICS CO LTD	FRKNP-1W	33Ω,1W, UL file number: E327186	EN IEC 61058-1 EN 61058-1-1 DIN VDE 0620-1 DIN VDE 0620-2-1	TUV Rheinland R 50477894 0002
Thermal link	Xiamen Set Electronics Co. Ltd	S102	102°C 10A 250V~	EN 60691	VDE
Capacitor	Zhongshan jingang Electronic technology Co., LTd	MKP	X2, 0,1μF 310V	EN 60384-14	VDE
Heat shrinkable tube	Dongguan Salipt Co.,Ltd	Salipt S-901-300	300V,125°C UL file No: E339059	EN IEC 61058-1 EN 61058-1-1 IEC 60884-2-5	TUV Rheinland R 50477894 0002
Alternative	Dongguan Salipt Co.,Ltd	Salipt S-901-600	600V,125°C UL file No: E339059	EN IEC 61058-1 EN 61058-1-1 IEC 60884-2-5	TUV Rheinland R 50477894 0002
Supplementary information:					

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

4.8.4.5	TABLE: Impact			N
Impacts per surface	Surface tested	Impact energy (Nm)	Comments	
Supplementary information:				

4.8.4.6	TABLE: Crush test			N
Test position	Surface tested	Crushing Force (N)	Duration force applied (s)	
Supplementary information:				

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

5.2	Table: Classification of electrical energy sources					P	
5.2.2.2 – Steady State Voltage and Current conditions							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
1	275Va.c. 50Hz	Primary circuits supplied by a.c. mains supply	Normal	--	--	--	ES3
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	
			Single fault – R9 (SC)	0.02Vdc	--	--	ES1
			Single fault – R9 (OC)	0.02Vdc	--	--	ES1
Test Conditions:							
Supplementary information: SC=Short Circuit, OC=Short Circuit							

EN IEC 62368-1							
Clause	Requirement + Test			Result - Remark		Verdict	
5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements					P	
	Supply voltage (V)	207	253			—	
	Ambient T _{min} (°C)	See below	See below			—	
	Ambient T _{max} (°C)	See below	See below			—	
	T _{ma} (°C)	35°C	35°C			—	
Maximum measured temperature T of part/at:		T (°C)				Allowed T _{max} (°C)	
		Temp (°C)	Temp (°C)				
T1 winding		72.6	73.6			110	
T1 core		68.3	70.1			110	
Primary wiring		53.3	52.4			105	
Bulk-capacitor		47.2	48.2			105	
CY1		63.5	65.4			125	
PCB near T1		74.6	75.1			130	
Internal enclosure near T1		57.3	57.2			85	
External enclosure near T1		55.2	56.3			85	
Varistor		49.3	50.6			85	
Input terminal		43.3	43.3			Ref.	
Insulation sheet		55.2	56.3			Ref.	
Supplementary information:							
Temperature T of winding:		t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)
Supplementary information:							
Note 1: T _{ma} should be considered as directed by applicable requirement							
Note 2: T _{ma} is not included in assessment of Touch Temperatures (Clause 9)							

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

EN IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.10.3	TABLE: Ball pressure test of thermoplastics		P
Allowed impression diameter (mm)		≤2mm	—
Object/Part No./Material	Manufacturer/trademark	Test temperature (°C)	Impression diameter (mm)
Bobbin	CHANG CHUN PLASTICS CO LTD	125	0.6
Enclosure	SHENZHENSHI XINGSHENGDI NEW MATERIAL CO LTD	125	1.1
Supplementary information:			

5.4.2.2, 5.4.2.4 and 5.4.3	TABLE: Minimum Clearances/Creepage distance						P
	Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Required cl (mm)	cl (mm) ²	Required ³ cr (mm)	cr (mm)
Functional:							
L to N before current fuse (F1) (FI)	515	270	3.38	2.8	2.5	3.38	
Basic/supplementary:							
Two pins of fuse (F1) (BI)	515	270	3.42	2.8	2.5	3.42	
Reinforced:							
Primary to secondary	515	270	4.2	7.04	5.4	7.04	
T1 core and sec. windings (RI)(BI)	515	270	4.2	8.65	5.4	10.25	
CY1	515	270	4.2	7.42	5.4	7.42	
Supplementary information:							
Note 1: frequency under 30 kHz							
Note 2: See table 5.4.2.4 if this is based on electric strength test							
Note 3: Provide Material Group							

EN IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
5.4.4.2, 5.4.4.5 c) 5.4.4.9	TABLE: Distance through insulation measurements				P
Distance through insulation di at/of:	Peak voltage (V)	Material	Required DTI (mm)	DTI (mm)	
Enclosure	515	Plastic	0.4	See appended table 4.1.2	
Bobbin of T1	515	Plastic	0.4	See appended table 4.1.2	
Supplementary information: frequency under 30 kHz					

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes/No
Basic/supplementary:				
Line to Neutral (with fuse disconnect)		AC	2500	No
Reinforced:				
Primary circuit to body (RI)		AC	4000	No
Primary circuit to secondary circuit (RI)		AC	4000	No
Primary winding to secondary winding of T1 (RI)		AC	4000	No
Primary winding to core (RI)		AC	4000	No
Insulation tape around transformer per layer (RI)		AC	4000	No
Supplementary information:				

5.5.2.2	TABLE: Stored discharge on capacitors					N
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: <input type="checkbox"/> bleeding resistor rating: <input type="checkbox"/> 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						

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

5.6.6.2	TABLE: Resistance of protective conductors and terminations				N
Accessible part	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)	

Supplementary information:

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 (e closed, normal and reverse polarity p)		
	2* (netural open (switch n), earth intact and normal polarity, again in reverse polarity (switch p)		
	1 (e closed, normal and reverse polarity p)		
	2* (netural open (switch n), earth intact and normal polarity, again in reverse polarity (switch p)		

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.

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

6.2.2	Table: Electrical power sources (PS) measurements for classification					N/A
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s [*]	PS Classification	
Output (See 6.2.2.2)	Normal operation	Power (W) :	--	--	--	
		V _A (V) :	--	--		
		I _A (A) :	--	--		
Supplementary Information: (*) Measurement taken only when limits at 3 seconds exceed PS1 limits						

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	
See below	--	--	--	--	
Supplementary information: The primary components and T1 having soldered pins in mains circuit (>50V peak) 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 power dissipating components in primary and secondary circuit are considered as resistive PIS. A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter. If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification. A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, or (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.					

EN IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
8.5.5	TABLE: High Pressure Lamp		N
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 (A)	Condition/status	
207	0.22	--	2257.6	--	F1	2257.6	Normal Load	
230	0.20	0.2	2230.4	2300		2230.4	Normal Load	
253	0.18	0.2	2246.3	--		2246.3	Normal Load	
Supplementary information:								
Equipment may be have rated current or rated power or both. Both should be measured								

EN IEC 62368-1						
Clause	Requirement + Test			Result - Remark		Verdict
B.3	TABLE: Abnormal operating condition tests					P
Ambient temperature (°C)						—
Power source for EUT: Manufacturer, model/type, output rating ..						—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time	Fuse no.	Fuse current, (A)	Observation
C1	SC	207/253	<1s	F1	>16.0→0	EUT shut down immediately, fuse opened, repeat 10 times, no hazards
C2	SC	207/253	<1s	F1	>16.0→0	EUT shut down immediately, fuse opened, repeat 10 times, no hazards
T1 pin1-2	SC	207/253	<2mins	F1	>16.0→0	EUT shut down, fuse opened, repeat 10 times, no hazards
T1 pinTA- TB	SC	207/253	10mins	F1	0	EUT protected immediately, no hazards
U1 pin 2-5	SC	207/253	<1s	F1	>16.0→0	EUT shut down immediately, fuse opened, repeat 10 times, no hazards
U2 pin 2-6	SC	207/253	10mins	F1	0	EUT protected immediately, no hazards
R9	SC	207/253	10min	F1	0	Unit shutdown immediately, no damage and hazard.
R12	SC	207/253	10min	F1	0	Unit shutdown immediately, no damage and hazard.
R13	SC	207/253	10min	F1	0	Unit shutdown immediately, no damage and hazard.
Q1 pinD-S	SC	207/253	<1s	F1	>16.0→0	EUT shut down immediately, fuse opened, repeat 10 times, no hazards
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.						

EN IEC 62368-1										
Clause	Requirement + Test			Result - Remark				Verdict		
Annex M	TABLE: Batteries								N	
The tests of Annex M are applicable only when appropriate battery data is not available									N	
Is it possible to install the battery in a reverse polarity position?							No		--	
	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									N	
- Explosion of the battery									N	
- Emission of flame or expulsion of molten metal									N	
- Electric strength tests of equipment after completion of tests									--	

Annex M.4	Table: Additional safeguards for equipment containing secondary lithium batteries							N	
Battery/Cell No.	Test conditions	Measurements			Observation				
		U	I (A)	Temp (C)					
--									
--									
Supplementary Information:									
Supplementary information:									

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

EN IEC 62368-1						
Clause	Requirement + Test			Result - Remark		Verdict
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
Supplementary Information: SC=Short circuit, OC=Open circuit						

T.2, T.3, T.4, T.5	TABLE: Steady force test					P
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation	
Enclosure front surface (T.5)	PPS	1.4mm	250	5	Enclosure remained intact, no crack/opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	
Enclosure side (T.5)	PPS	1.4mm	250	5	Enclosure remained intact, no crack/opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	
Internal components (T.2)	--	--	10	5	Enclosure remained intact, no crack/opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	
Internal components (T.)	--	--	10	5	No insulation breakdown. No reduction the clearances and creepage distances	
Supplementary information:						

EN IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
T.6, T.9	TABLE: Impact tests				P
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
Enclosure front surface (T.6)	PC	1.4mm	1300	Enclosure remained intact, no crack/opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	
Enclosure side(T.6)	PC	1.4mm	1300	Enclosure remained intact, no crack/opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	
Supplementary information:					

T.7	TABLE: Drop tests				P
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation	
Three side of enclosure	Hardwood	15mm	1000mm	After the drop test, no open was found for the enclosure	
Supplementary information:					

T.8	TABLE: Stress relief test					P
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
Enclosure (T.8)	PC	1.4mm	78	7	Enclosure remained intact, no crack/opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	
Supplementary information:						

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

ATTACHMENT TO TEST REPORT IEC 62368-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Information technology equipment – Safety –Part 1: General requirements	
Differences according to..... :	EN 62368-1:2014 including Annex ZB and Annex ZC (Extracted from the EN standard)

EN 62368-1:2014 – CENELEC COMMON MODIFICATIONS

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
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Clause	Requirement + Test	Result - Remark	Verdict
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: 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

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

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.	NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.		P
4.Z1	<p>Add the following new subclause after 4.9:</p> <p>To protect against excessive current, short-circuits and earth faults in 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):</p> <p>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;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for pluggable equipment type B or permanently connected equipment, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for pluggable equipment type A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>	<p>Considered.</p> <p>Complied with item a) for internal fuse (F1) used and for parts as described in b) reliance on the protection in the building installation.</p>	P
5.4.2.3.2.4	<p>Add the following to the end of this subclause:</p> <p>The requirement for interconnection with external circuit is in addition given in EN 50491-3:2009.</p>	No connection to external circuit.	N
10.2.1	<p>Add the following to c) and d) in Table 39:</p> <p>For additional requirements, see 10.5.1.</p>	No radiation.	N

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

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
10.5.1	<p>Add the following after the first paragraph:</p> <p><i>For RS 1 compliance is checked by measurement under the following conditions:</i></p> <p><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></p> <p>NOTE Z1 Soldered joints and paint lockings are examples of adequate locking.</p> <p><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></p> <p><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></p> <p><i>For RS1, the dose-rate shall not exceed 1 μSv/h taking account of the background level.</i></p> <p>NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.</p>		N
10.6.2.1	<p>Add the following paragraph to the end of the subclause:</p> <p>EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.</p>		N

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

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
10.Z1	<p>Add the following new subclause after 10.6.5.</p> <p>10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz</p> <p>The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz).</p> <p>For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body-mounted devices, attention is drawn to EN 50360 and EN 50566</p>		N
G.7.1	<p>Add the following note:</p> <p>NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.</p>		N
Bibliography	<p>Add the notes for the standards EN references indicated</p>		N

ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS	
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EN IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
4.1.15	<p>Denmark, Finland, Norway and Sweden</p> <p>To the end of the subclause the following is added:</p> <p>Class I pluggable equipment type A intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment shall be connected to an earthed mains socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In Denmark: "Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord."</p> <p>In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p>		N
4.7.3	<p>United Kingdom</p> <p>To the end of the subclause the following is added:</p> <p>The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363.</p> <p>Also see Annex G.4.2 of this annex</p>		P
5.2.2.2	<p>Denmark</p> <p>After the 2nd paragraph add the following:</p> <p>A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.</p>	No high touch current measured.	N

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

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Finland and Sweden</p> <p>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</p> <ul style="list-style-type: none"> • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5 kV. <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384- 14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11; • the additional testing shall be performed on all the test specimens as described in EN 60384-14; <p>the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14. in the sequence of tests as described in EN 60384-14.</p>		N

EN IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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).	Considered.	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
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. Justification: In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N
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.		N
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.		N
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.		N

EN IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.1	<p>Norway and Sweden</p> <p>To the end of the subclause the following is added:</p> <p>The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system.</p> <p>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example.</p> <p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in:</p> <p>“Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)”</p> <p>NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p>		N

EN IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>“Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplest utstyr – og er tilkoplest 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.”</p> <p>Translation to Swedish:</p> <p>”Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”.</p>		N
5.7.6.2	<p>Denmark</p> <p>To the end of the subclause the following is added:</p> <p>The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .</p>		N
B.3.1 and B.4	<p>Ireland and United Kingdom</p> <p>The following is applicable:</p> <p>To protect against excessive currents and short-circuits in the primary circuit of direct plug-in equipment, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A.</p> <p>If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the direct plug-in equipment, until the requirements of Annexes B.3.1 and B.4 are met</p>		N

EN IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	<p>Denmark</p> <p>To the end of the subclause the following is added:</p> <p>Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2- D1:2011.</p> <p>CLASS I EQUIPMENT provided with socket- outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a 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.</p> <p>Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a.</p> <p>Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.</p> <p>Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a</p> <p>Justification: Heavy Current Regulations, Section 6c</p>		N

EN IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	<p>United Kingdom</p> <p>To the end of the subclause the following is added:</p> <p>The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C.</p> <p>Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.</p>		P
G.7.1	<p>United Kingdom</p> <p>To the first paragraph the following is added:</p> <p>Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations.</p> <p>NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>		P
G.7.1	<p>Ireland</p> <p>Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard</p>		N
G.7.2	<p>Ireland and United Kingdom</p> <p>To the first paragraph the following is added:</p> <p>A power supply cord with a conductor of 1,25 mm² is allowed for equipment which is rated over 10 A and up to and including 13 A.</p>		N

EN IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
ZC	ANNEX (normative) A-DEVIATIONS (EN)		
10.5.2	<p>Germany</p> <p>The following requirement applies:</p> <p>For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking.</p> <p><i>Justification:</i></p> <p>German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM.</p> <p>NOTE : Contact address: Physikalisch- Technische Bundesanstalt, Bundesallee 100, D- 38116 Braunschweig, Tel.: Int+49-531-592-6320, Internet: http://www.ptb.de</p>	Not such equipment.	N

EN IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
F.1	<p>Italy</p> <p>The following requirements shall be fulfilled:</p> <ul style="list-style-type: none"> • The power consumption in Watts (W) shall be indicated on TV receivers and in their instruction for use (Measurement according to EN 60555-2). <p>Note/Nota <i>EN 60555-2 has since been replaced by IEC 60107-1:1997.</i></p> <ul style="list-style-type: none"> • 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 retrofitable teletext <p><i>Justification:</i> Ministerial Decree of 26 March 1992 : National rules for television receivers trade.</p>	Not such equipment.	N

Product Photo

Photo1

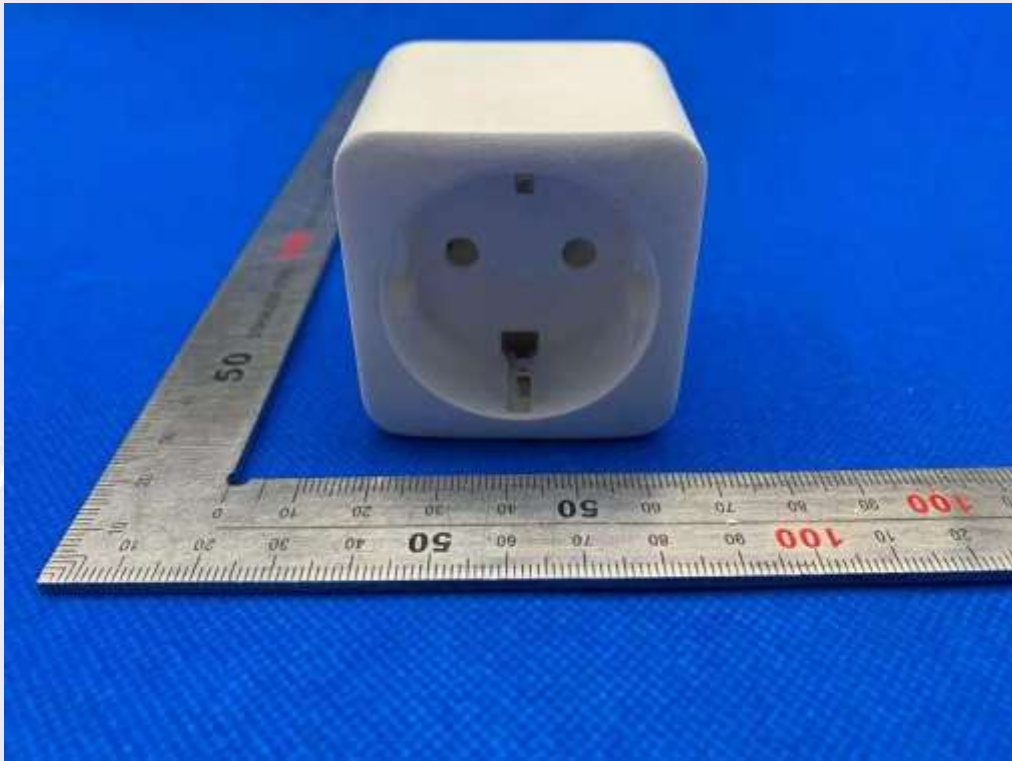


Photo2

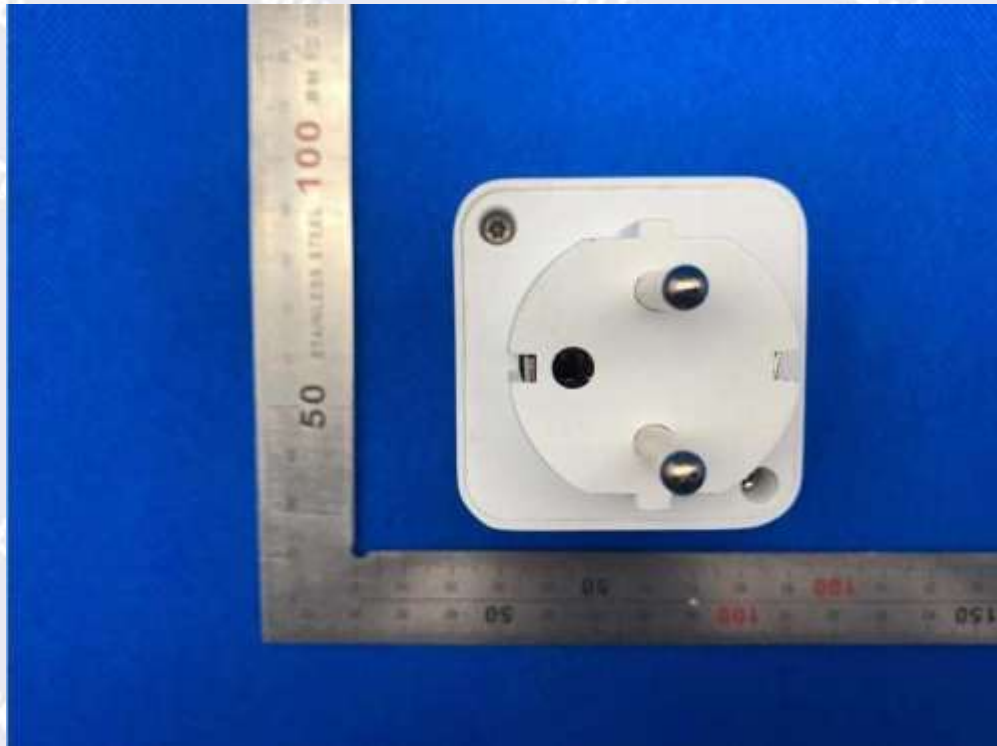


Photo3



Photo4



Photo5

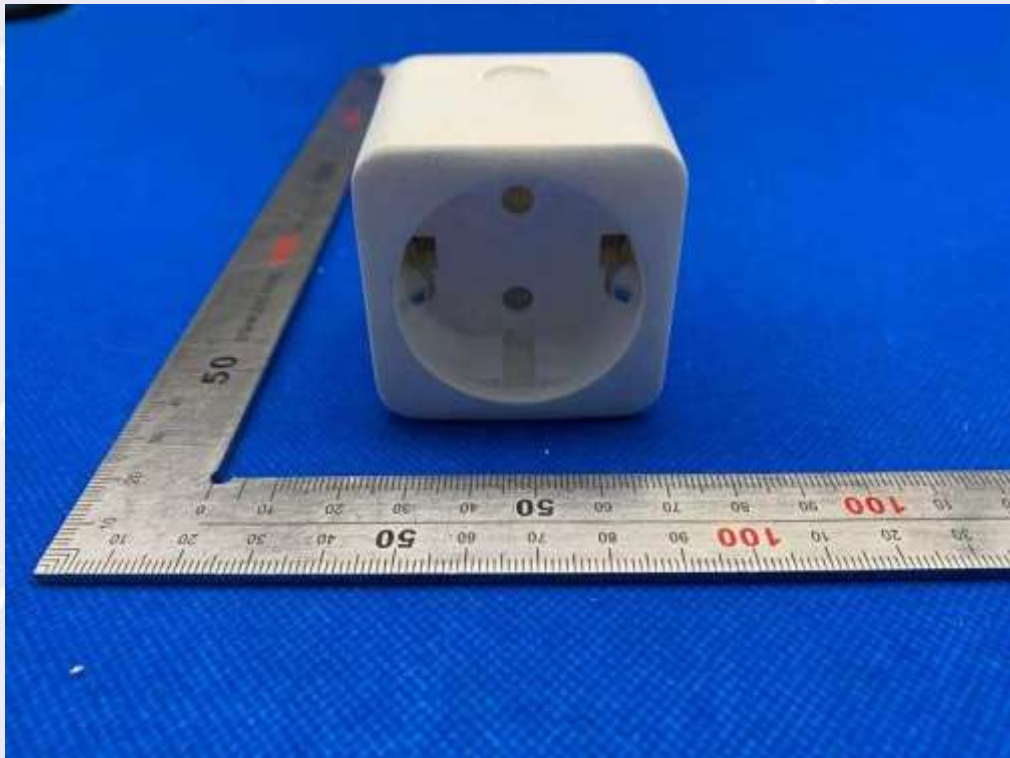


Photo6



Photo7



Photo8



***** END OF REPORT *****