Test Report issued under the responsibility of:

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TEST REPORT
IEC 62368-1
Audio/video, information and communication technology equipment
Part 1: Safety requirements

Report Number	: 220200837SHA-001
Date of issue	: 2022-03-17
Total number of pages	: 77
Applicant's name	: Lumi United Technology Co., Ltd
Address	: Room 801-804,Building 1,Chongwen Park,Nanshan iPark,No.3370, Liuxian Avenue, Fuguang Community,Taoyuan Residential District, Nanshan District, Shenzhen, China
Test specification:	
Standard	: EN 62368-1: 2014+A11: 2017
Test procedure	: CE Testing
Non-standard test method	: N/A
Test Report Form No.	: IEC62368_1B
Test Report Form(s) Originator	: UL(US)
Master TRF	: 2014-03

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test Item description ..... :	Hub M1S Gen 2
Trade Mark ..... :	Aqara
Manufacturer ..... :	Same as applicant
Model/Type reference ..... :	HM1S-G02
Ratings ..... :	100-240V~, 50/60Hz, 0.2A, Class II

Testing procedure and testing location:			
☒	Testing Laboratory:	Intertek Testing Services Shanghai	
Testing location/ address .....:		Building No.86, 1198 Qinzhou Road (North), 200233 Shanghai, China	
☐	Associated Testing Laboratory:		
Testing location/ address .....:			
Tested by (name + signature) .....:		Eli Shui (Engineer)	Eli Shui
Approved by (name + signature) .....:		Sam Li (Mandated Reviewer)	Sam Li
☐	Testing procedure: TMP/CTF Stage 1		
Testing location/ address ..... :			
Tested by (name + signature) .....:			
Approved by (name + signature) .....:			
☐	Testing procedure: WMT/CTF Stage 2		
Testing location/ address .....:			
Tested by (name + signature) .....:			
Witnessed by (name + signature).....:			
Approved by (name + signature) .....:			
☐	Testing procedure: SMT/CTF Stage 3 or 4		
Testing location/ address .....:			
Tested by (name + signature) .....:			
Approved by (name + signature) .....:			
Supervised by (name + signature) .....:			

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

Page 50-62: Photograph

Page 63-72: Group and national differences for the CENELEC countries

Page 73-77: Supplementary tests for plug portion according to EN50075

Summary of testing:

All tests are performed and the most disadvantageous results are recorded. We conclude that the appliances comply with this standard.

Tests performed (name of test and test clause):	**Testing location:**
See test report. The equipment under test (EUT) fulfilled the test requirement according to the standard EN 62368-1:2014+A11: 2017	Intertek Testing Services Shanghai Building No.86, 1198 Qinzhou Road (North), 200233 Shanghai, China

Summary of compliance with National Differences:

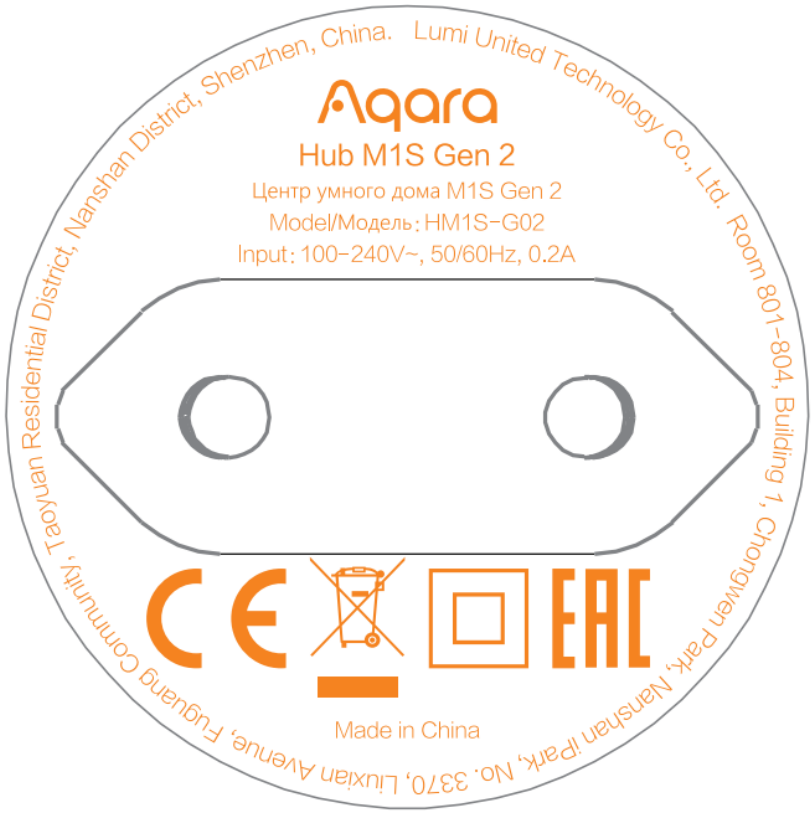
List of countries addressed

Group and national differences for the CENELEC countries have been checked.

☒**The product fulfils the requirements of EN 62368-1:2014+A11: 2017.**

Copy of marking plate (representative):

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.



Note:

The above markings are the minimum requirements required by this safety standard. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.

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% ☐ +20%/-15% ☐+____%/ -_____% ☐ None
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:_____
Considered current rating of protective device as part of building or equipment installation .....:	16A 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: _____
Class of equipment .....:	☐ Class I ☒ Class II ☐ Class III
Access location .....:	☐ restricted access location ☒ N/A
Pollution degree (PD) .....:	☐PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified maxium operating ambient:	40°C
IP protection class .....:	☐ IPX0 ☒ IP20
Power Systems .....:	☒ TN ☐ TT☐ IT - ____ V_{L-L}
Altitude during operation (m) .....:	☒ 2000 m or less ☐<5000 m
Altitude of test laboratory (m) .....:	☐ 2000 m or less ☒<50 m
Mass of equipment (kg) .....:	0.14 Kg
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 ..... :	2022-02-17
Date (s) of performance of tests ..... :	2022-02-17 to 2022-03-03

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.

Determination of the test conclusion is based on IEC Guide 115 in consideration of measurement uncertainty.

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :	☐ **Yes** ☒**Not applicable**

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

Name and address of factory (ies) ..... :	Guangdong New Energy Technology Co., Ltd. Floor1-4, Building 2, No.197 plant, East Side of Xinhua Road, Tongqiao Town, Zhongkai High-tech Zone, Huizhou City, Guangdong Province, China

GENERAL PRODUCT INFORMATION:

Product Description –
This EUT is a hub (muti-funcitional gateway), provide Wi-Fi, Zigbee function, contains one alarm speaker and eighteen LEDs.
EUT links to a serious of sensors/controlers, Wi-Fi router and cellphone by Wi-Fi or Zigbee.
For indoor use only.

Additional application considerations –

- normal conditions **N.C.**
- single fault conditions **S.F.C**
- functional insulation **FI**
- basic insulation **BI**
- double insulation **DI**
- supplementary insulation **SI**
- between parts of opposite polarity BOP
- reinforced insulation **RI**
- short circuit **SC**
- open circuit **OC**
- overload **O/L**

Indicate used abbreviations (if any)

N/A

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 secondary **circuits & components**	ES1
All primary circuits & components	ES3
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 secondary **circuits & components**	PS1
All primary circuits & components	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/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	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)**
All accessible parts	TS1
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)**
LED Light	RS1

OVERVIEW OF EMPLOYEDSAFEGUARDS				
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 secondary circuits & components	N/A	N/A	N/A
Ordinary	ES3: All primary circuits & components	N/A	N/A	Enclosure
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	PS1: All secondary circuits & components	N/A	N/A	N/A
All combustible materials within the fire enclosure	PS3: All primary circuits & components	Comply with Clause 6.3	Fire enclosure	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: Equipment mass	N/A	N/A	N/A
Ordinary	MS1: Sharp edges and Corners	N/A	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS1: All accessible parts	N/A	N/A	N/A
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	RS1: LED Light	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				

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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	(See appended 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.4, T.5)	P
4.4.4.3	Drop tests .....:	(See Annex T.7)	P
4.4.4.4	Impact tests .....:	(See Annex T.6)	N/A
4.4.4.5	Internal accessible safeguard enclosure and barrier tests.....:	No such parts.	N/A
4.4.4.6	Glass Impact tests .....:	No glass used.	N/A
4.4.4.7	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		P
4.5	Explosion	No explosion.	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		P
4.7.2	Mains plug part complies with the relevant standard.....:	EN 50075	P
4.7.3	Torque (Nm) .....:	Max. 0.032Nm	P
4.8	Products containing coin/button cell batteries	No such parts.	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
4.9	Likelihood of fire or shock due to entry of conductive object.....:	(See Annex P)	N/A

5	**ELECTRICALLY-CAUSED INJURY**		P
5.2.1	Electrical energy source classifications.....:	(See appended table 5.2)	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

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Clause	Requirement + Test	Result - Remark	Verdict
5.2.2.3	Capacitance limits ..... :	No X cap. used.	N/A
5.2.2.4	Single pulse limits ..... :	No single pulse.	N/A
5.2.2.5	Limits for repetitive pulses ..... :	No repetitive pulses.	N/A
5.2.2.6	Ringing signals ..... :	No ringing signals.	N/A
5.2.2.7	Audio signals ..... :	No audio signals.	N/A
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 ..... :	ES3 voltages less than 420 V peak	P
	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		P
5.4.1.2	Properties of insulating material		P
5.4.1.3	Humidity conditioning ..... :	(See sub-clause 5.4.8)	P
5.4.1.4	Maximum operating temperature for insulating materials ..... :	(See appended table 5.4.1.4)	P
5.4.1.5	Pollution degree ..... :	Pollution degree 2	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses	No such circuit.	N/A
5.4.1.8	Determination of working voltage		P
5.4.1.9	Insulating surfaces		P
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		P
5.4.1.10.2	Vicat softening temperature ..... :		N/A
5.4.1.10.3	Ball pressure ..... :	(See appended table 5.4.1.10.3)	P
5.4.2	Clearances		P
5.4.2.2	Determining clearance using peak working voltage	(See appended table 5.4.2.2)	P
5.4.2.3	Determining clearance using required withstand voltage ..... :	(See appended table 5.4.2.3)	P
	a) a.c. mains transient voltage ..... :	2500Vpeak	—
	b) d.c. mains transient voltage ..... :	No connections to d.c. mains.	—

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Clause	Requirement + Test	Result - Remark	Verdict
	c) external circuit transient voltage ..... :	No connections to external circuit with transient voltage.	—
	d) transient voltage determined by measurement ... :	Option was not used.	—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test	(See appended table 5.4.2.4)	N/A
5.4.2.5	Multiplication factors for clearances and test voltages ..... :	Up to 2000m.	N/A
5.4.3	Creepage distances ..... :	(See appended table 5.4.3)	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 ..... :	(See appended table 5.4.4.2)	P
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	Tube used in the transformers as functional/basic insulation.	P
5.4.4.6.1	General requirements		P
5.4.4.6.2	Separable thin sheet material		P
	Number of layers (pcs) ..... :	Min. 2pcs	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
5.4.4.7	Solid insulation in wound components		P
5.4.4.9	Solid insulation at frequencies >30 kHz ..... :	Evaluated according to 5.4.9.1	P
5.4.5	Antenna terminal insulation	No such part.	N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
	Insulation resistance (MΩ) ..... :		—
5.4.6	Insulation of internal wire as part of supplementary safeguard ..... :	(See appended table 5.4.4.2)	N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		P
	Relative humidity (%) ..... :	93	—
	Temperature (°C) ..... :	25	—
	Duration (h) ..... :	48	—

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.9	Electric strength test ..... :	(See appended table 5.4.9)	P
5.4.9.1	Test procedure for a solid insulation type test		P
5.4.9.2	Test procedure for routine tests		N/A
5.4.10	Protection against transient voltages between external circuit	No connection to external circuits with transient voltage.	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		P
5.5.2	Capacitors and RC units	Certified Y Capacitor used.	P
5.5.2.1	General requirement		P
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector..... :		N/A
5.5.3	Transformers	(See Annex G.5.3)	P
5.5.4	Optocouplers		P
5.5.5	Relays		N/A
5.5.6	Resistors		N/A
5.5.7	SPD’s	(See Annex G.8)	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..... :	(See Annex G.10.3)	N/A
5.6	Protective conductor		N/A
5.6.2	Requirement for protective conductors	Class II equipment.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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		N/A
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		P
5.7.2	Measuring devices and networks		P
5.7.2.1	Measurement of touch current .....:	(See appended table 5.7.2.2, 5.7.4)	P
5.7.2.2	Measurement of prospective touch voltage	Class II equipment.	N/A
5.7.3	Equipment set-up, supply connections and earth connections		P
	System of interconnected equipment (separate connections/single connection) .....:	Single connection	—
	Multiple connections to mains (one connection at a time/simultaneous connections) .....:	N/A	—
5.7.4	Earthed conductive accessible parts.....:	Class II equipment	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		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

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Clause	Requirement + Test	Result - Remark	Verdict
5.7.7	Summation of touch currents from 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		P
6.2.2.1	General		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 ..... :	(See appended table 6.2.2)	P
6.2.2.4	PS1 ..... :	All secondary circuits inside the equipment enclosure	P
6.2.2.5	PS2 ..... :		N/A
6.2.2.6	PS3 ..... :	All Primary circuits inside the equipment enclosure	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS ..... :	Soldering connections on PCB in primary circuit are considered as arcing PIS.	P
6.2.3.2	Resistive PIS ..... :	Components in primary circuit 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	Plug holder (See appended tables 4.1.2 and Annex S)	P
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method	Method of “Control fire spread” is used	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	General		N/A
6.4.3.2	Supplementary Safeguards		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions..... :		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		P
6.4.5	Control of fire spread in PS2 circuits		N/A
6.4.5.2	Supplementary safeguards .....:		N/A
6.4.6	Control of fire spread in PS3 circuit	(See appended tables 4.1.2 and Annex G)	P
6.4.7	Separation of combustible materials from a PIS	All combustible materials are enclosed by fire enclosure.	N/A
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		N/A
6.4.8	Fire enclosures and fire barriers		P
6.4.8.1	Fire enclosure and fire barrier material properties		P
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure	The enclosure is made of V-0 materials	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
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions(mm) .....:	Max Φ1.0mm	P
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm).....:	Max Φ1.0mm	P
	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.....:	V-0	P
6.5	Internal and external wiring		N/A
6.5.1	Requirements	No wiring in PS2 or PS3 circuits	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

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Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
7.3	Ozone exposure		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.....:		N/A
8	**MECHANICALLY-CAUSED INJURY**		P
8.1	General		P
8.2	Mechanical energy source classifications		P
8.3	Safeguards against mechanical energy sources		P
8.4	Safeguards against parts with sharp edges and corners		P
8.4.1	Safeguards	MS1	N/A
8.5	Safeguards against moving parts	No moving parts	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		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	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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
8.6.5	Horizontal force test (Applied Force).....:		N/A
	Position of feet or movable parts.....:		—
8.7	Equipment mounted to wall or ceiling		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		N/A
8.9.1	Classification		N/A
8.9.2	Applied force .....:		—
8.10	Carts, stands and similar carriers		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		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

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Clause	Requirement + Test	Result - Remark	Verdict
8.12	Telescoping or rod antennas.....		N/A
	Button/Ball diameter (mm).....:		—
9	**THERMAL BURN INJURY**		P
9.2	Thermal energy source classifications	TS1 for accessible surfaces.	P
9.3	Safeguard against thermal energy sources		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**		P
10.2	Radiation energy source classification		P
10.2.1	General classification	RS1: LED light (RG0)	P
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		N/A
10.5.1	X- radiation energy source that exists equipment :		N/A
	Normal, abnormal, single fault conditions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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		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 Test Item Particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers ..... :		N/A
B.2.3	Supply voltage and tolerances		P
B.2.5	Input test..... :	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		P

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Clause	Requirement + Test	Result - Remark	Verdict
B.3.1	General requirements..... :	(See appended table B.3)	P
B.3.2	Covering of ventilation openings		P
B.3.3	D.C. mains polarity test		N/A
B.3.4	Setting of voltage selector ..... :	No such parts	N/A
B.3.5	Maximum load at output terminals ..... :	(See appended table B.3)	P
B.3.6	Reverse battery polarity		N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.		N/A
B.3.8	Safeguards functional during and after abnormal operating conditions		P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited ..... :		N/A
B.4.3	Motor tests		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 appended table B.4)	P
B.4.4.1	Short circuit of clearances for functional insulation		P
B.4.4.2	Short circuit of creepage distances for functional insulation		P
B.4.4.3	Short circuit of functional insulation on coated printed boards		N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors	(See appended table B.4)	P
B.4.6	Short circuit or disconnect of passive components	(See appended table B.4)	P
B.4.7	Continuous operation of components		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 ... :		N/A
C	**UV RADIATION**		N/A
C.1	Protection of materials in equipment from UV radiation		N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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**		N/A
E.1	Audio amplifier normal operating conditions		N/A
	Audio signal voltage (V) .....:		—
	Rated load impedance (Ω) .....:		
E.2	Audio amplifier abnormal operating conditions		N/A
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	(See page 4 to 5)	P
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification .....:	(See page 4 to 5)	—
F.3.2.2	Model identification .....:	(See page 4 to 5)	—
F.3.3	Equipment rating markings		P
F.3.3.1	Equipment with direct connection to mains	(See page 4 to 5)	P
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of supply voltage.....:	~	—
F.3.3.4	Rated voltage .....:	100-240V	—
F.3.3.4	Rated frequency .....:	50/60Hz	—
F.3.3.6	Rated current or rated power .....:	0.2A	—
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device		N/A
F.3.5	Terminals and operating devices		P
F.3.5.1	Mains appliance outlet and socket-outlet markings..... :		N/A
F.3.5.2	Switch position identification marking ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.5.3	Replacement fuse identification and rating markings ..... :	The fuselink is located within the equipment and not replaceable by an ordinary person or an instructed person.The fuse linkis marked with “F1”	P
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		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)		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/A
F.3.7	Equipment IP rating marking .....:	No IP rating marking required.	—
F.3.8	External power supply output marking	(See page 4 to 5)	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/A
	b) Instructions given for installation or initial use		P
	c) Equipment intended to be fastened in place		N/A
	d) Equipment intended for use only in restricted access area		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 ES 2 limits		N/A
	h) Symbols used on equipment		N/A
	i) Permanently connected equipment not provided with all-pole mains switch		N/A
	j) Replaceable components or modules providing safeguard function		N/A
F.5	Instructional safeguards	Instructional safeguard is not required.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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
G.2	**Relays**		N/A
G.2.1	General requirements		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**		P
G.3.1	Thermal cut-offs		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		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 (Ω). :		—
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		P
G.3.5.1	Non-resettable devices suitably rated and marking provided		P
G.3.5.2	Single faults conditions.....:	(See appended Table B.4)	P
G.4	**Connectors**		N/A
G.4.1	Spacings		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**		P
G.5.1	Wire insulation in wound components.....	Approved TIW used	P

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°	Physical separation provided.	P
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
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).....:	Meet the requirement in G.5.3.2 and G.5.3.3	P
	Position.....:	Used in a low-voltage power supply	—
	Method of protection .....:	Non-inherently short-circuit proof transformersprotected by electronic circuit	—
G.5.3.2	Insulation		P
	Protection from displacement of windings.....:	The end turns are reliably fixed by tape, the whole transformer varnished	—
G.5.3.3	Overload test..... :	(See appended table B.3)	P
G.5.3.3.1	Test conditions		P
G.5.3.3.2	Winding Temperatures testing in the unit		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		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).....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
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
	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**		P
G.6.1	General	Certified TIW is used as secondary winding.	P
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 ..... :	(See appended table 5.4.11.1)	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

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Clause	Requirement + Test	Result - Remark	Verdict
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
G.8	**Varistors**		P
G.8.1	General requirements		P
G.8.2	Safeguard against shock	(see appended table 4.1.2)	P
G.8.3	Safeguard against fire		N/A
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.		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		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**		P
G.11.1	General requirements	Certified Y1 capacitorused between primary and secondary circuit.	P
G.11.2	Conditioning of capacitors and RC units		P
G.11.3	Rules for selecting capacitors		P
G.12	**Optocouplers**		P
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results).....:	(See appended table 4.1.2)	P
	Type test voltage Vini .....:		—
	Routine test voltage, Vini,b.....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
G.13	**Printed boards**		P
G.13.1	General requirements		P
G.13.2	Uncoated printed boards		P
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
	Compliance with cemented joint requirements (Specify construction).....:		—
G.13.5	Insulation between conductors on different surfaces		P
	Distance through insulation.....:	Min. 1.0mm	P
	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 ..... :	(See G.13)	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		N/A
b)	Impulse test using circuit 2 with Uc = to transient voltage .....:		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage .....:		—

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Clause	Requirement + Test	Result - Remark	Verdict
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 .....:		—
H	**CRITERIA FOR TELEPHONE RINGING SIGNALS**		N/A
H.1	General		N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringing signal		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**		P
	General requirements	Certified per IEC/EN 60950-1 Annex U based on Cl. 4.1.1	P
K	**SAFETY INTERLOCKS**		N/A
K.1	General requirements		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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
K.7.4	Electric strength test .....:		N/A
L	**DISCONNECT DEVICES**		P
L.1	General requirements	With integral plug as the disconnection device.	P
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		P
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		P
L.8	Multiple power sources		N/A
M	**EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS**		N/A
M.1	General requirements		N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	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
	Drop		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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 (m^3/s)..... :		—
M.8.2.3	Correction factors..... :		—
M.8.2.4	Calculation of distance *d* (mm) ..... :		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing) ..... :		N/A
N	**ELECTROCHEMICAL POTENTIALS**		N/A
	Metal(s) used ..... :		—
O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		P
	Figures O.1 to O.20 of this Annex applied ..... :	All applicable figures	—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
P	**SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS**		P
P.1	General requirements		P
P.2.2	Safeguards against entry of foreign object		P
	Location and Dimensions (mm) .....:	Max Φ1.0mm	—
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	No 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		N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C).....:		—
	Tr (°C) .....:		—
	Ta (°C).....:		—
P.4.2 b)	Abrasion testing .....:	(See G.13.6.2)	N/A
P.4.2 c)	Mechanical strength testing .....:	(See Annex T)	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
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.....:		—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
R	**LIMITED SHORT CIRCUIT TEST**		N/A
R.1	General requirements		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	V-0 material for fire enclosure	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	V-0 material for fire enclosure	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
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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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**		**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 .....:	Not applicable.	N/A
T.4	Steady force test, 100 N .....:	(See appended table T.5)	P
T.5	Steady force test, 250 N .....:	Not applicable.	N/A
T.6	Enclosure impact test	Not applicable.	N/A
	Fall test		N/A
	Swing test		N/A
T.7	Drop test .....:	(See appended table T.7)	P
T.8	Stress relief test .....:	(See appended table T.8)	P
T.9	Impact Test (glass)		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 .....:	(See sub-clause 4.4.4.9)	N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm).....:		—
U	**MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFECTS OF IMPLOSION**		N/A
U.1	General requirements		N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen.....:	(See Annex T)	N/A
V	**DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)**		P
V.1	Accessible parts of equipment		P
V.2	Accessible part criterion		P

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

4.1.2	TABLE: List of critical components	P

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Plastic enclosure	LG CHEM LTD	LUPOY GP-1006F(f1), LUPOY GP-1006F(m)(#)(f1)	Min. thickness 2.0mm, rated V-0, 110°C	UL94 IEC/EN 62368-1	UL E67171 & Test with appliance
Alt.	Covestro Deutschland AG	FR6005+(z)	Min. thickness 2.0mm, rated V-0, 125°C	UL94 IEC/EN 62368-1	UL E41613 & Test with appliance
PCB	KINGBOARD LAMINATES HOLDINGS LTD	KB-6160A	Min. thickness 1.5mm, V-0, 130°C	UL746 IEC/EN 62368-1	UL E123995 & Test with appliance
Alternative	SHENGYI TECHNOLOGY CO LTD	S1141	Min. thickness 1.5mm, V-0, 130°C	UL746 IEC/EN 62368-1	UL E109769 & Test with appliance
Alternative	Interchangeable	Interchangeable	Min. thickness 1.5mm, V-0, 130°C	UL796:2016 IEC60707:1999	S, ETL, UL& Other EU certification marks
LED	Yongji Evercolor Opto Electronics Co., Ltd.	ECF11-1414QRTGQB W/B/SG	20mA, 3Vdc comply with IEC 62471	IEC/EN 62471 IEC/EN 62368-1	Intertek Report No. 200801773SHA-001&Tested with appliance
Power plug holder	LG CHEM LTD	LUPOY GP-1006F(f1), LUPOY GP-1006F(m)(#)(f1)	Min. thickness 2.0mm, rated V-0, 110°C	UL94 IEC/EN 62368-1	UL E67171 & Test with appliance
Alt.	Covestro Deutschland AG	FR6005+(z)	Min. thickness 2.0mm, rated V-0, 125°C	UL94 IEC/EN 62368-1	UL E41613 & Test with appliance
Fuse resistor(F1)	Uniroyal Electronics Industry Co., Ltd.	KFR series	22Ω,2.0W	IEC/EN 60065	VDE 40040587
Varistor (R19)	SHANTOU HIGH-NEW TECHNOLOGY DEVELOPMNT ZONE SONGTIAN ENTERPRISE CO LTD	10D471Kd	300VAC, 125°C, 2.5kV/1.25kA, V-1	IEC/EN 61051-1 IEC/EN 61051-2	VDE 40023049
Alternative	HUIZHOU SONGLONGXINDIAN ELECTRONICS TECHNOLOGY CO LTD	10D471K	300VAC, 85°C, 2.5kV/1.25kA, V-1	IEC/EN 61051-1 IEC/EN 61051-2	VDE 40040037
CM choke (L6)	SHENZHEN ZYD ELECTRONICS CO.,LTD	EE8.3	Min.10mH, Class A	IEC/EN 62368-1	Tested with appliance

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

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Alt.	Dongguan TNK Electronic Technology CO ,LTD	TDB1389	Min.10mH, Class A	IEC/EN 62368-1	Tested with appliance
Y1 capacitor(C27)	SHANTOU HIGH-NEW TECHNOLOGY DEVELOPMNT ZONE SONGTIAN ENTERPRISE CO LTD	CD	400V~, 2200pF, 125°C, Y1 type, 25/125/21/C	IEC/EN 60384-14	VDE 40025754
Alt.	Shaanxi Huaxing Electronics Development Co. Ltd	CT7Y1	400V~, 2200pF, 125°C, Y1 type, 25/125/21/C	IEC/EN 60384-14	VDE 40015542
Opto-coupler(U5)	Everlight Electronics Co., Ltd	EL817	Ext.cl 7.0mm, cr 8.0mm Int.cr=thermal cycling DTI: Min.0.4mm	IEC/EN 60747-5-5	VDE 132249
Alternative	LITE-ON TECHNOLOGY CORP	LTV-817	Ext.cl 7.0mm, cr 8.0mm Int.cr=thermal cycling DTI: Min.0.4mm	IEC/EN 60747-5-5	VDE 40015248
Transformer(T1)	SHENZHEN ZYD ELECTRONICS CO.,LTD	EPC13	Class B	IEC/EN 62368-1	Tested with appliance
Alt.	Dongguan TNK Electronic Technology CO ,LTD	TDF109	Class B	IEC/EN 62368-1	Tested with appliance
- Bobbin	CHANG CHUN PLASTICS CO LTD	T375HF	min. thickness: 0.75mm, V-0, 150°C	UL746 IEC/EN 62368-1	UL E59481 & Test with appliance
Alt.	DONGGUAN RONGHE CO LTD	T375J	min. thickness: 0.75mm, V-0, 150°C	UL746 IEC/EN 62368-1	UL E491437 & Test with appliance
- primary magnet wire	SIHUI HENGHUI ELECTRICAL APPLIANCES CO LTD	UEW/155	155°C	UL1446 IEC/EN 62368-1	UL E337948 & Test with appliance
Alt.	ZHUHAI SUNTEK WIRE CO LTD	@*xUEW 180	180°C	UL1446 IEC/EN 62368-1	UL E234867 & Test with appliance
- triple insulated wire	SHENZHEN KAIZHONG HEDONG NEW MATERIALS CO LTD	TIW-B*	130°C, Class B, reinforced insulation	UL2353 IEC/EN 62368-1	UL E357240 & Test with appliance
- insulation tape	CHANG SHU LIANG YI TAPE INDUSTRY CO., LTD	LY-XX*	130°C	UL510 IEC/EN 62368-1	UL E246820 & Test with appliance

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

Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
Alt.	SUZHOU MAILADUONA ELECTRIC MATERIAL CO LTD	CT*(c)(g)	130°C	UL510 IEC/EN 62368-1	UL E188295 & Test with appliance
- teflon tube	DONGGUAN LING FREE HARDWARE PLASTICS PRODUCT CO LTD	LING FREE PTFE TUBE	Rated 150V, 200°C	UL224 IEC/EN 62368-1	UL E352366 & Test with appliance
Alt.	GREAT HOLDING INDUSTRIAL CO LTD	TFL	200°C	UL224 IEC/EN 62368-1	UL E156256 & Test with appliance
Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

4.8.4, 4.8.5	**TABLE: Lithium coin/button cell batteries mechanical tests**	N/A

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

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 or Vdc)	I (Apk or Arms)	Hz	
1	264 Vac	Primary circuit supplied by a.c. mains supply	Normal	--	--	--	ES3 (declared)
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	
2	264 Vac	Secondary circuit after D1	Normal	18.0Vpk	--	66.7K	ES1
			Abnormal (OL)	--	--	--	
			Single fault – SC/OC	--	--	--	
3	264 Vac	Secondary circuit after C25	Normal	12.9Vdc	--	--	ES1
			Abnormal (OL)	--	--	--	
			Single fault – SC/OC	--	--	--	

5.2.2.3 – Capacitance Limits

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class
				Capacitance, nF	Upk (V)	

5.2.2.4 – Single Pulses

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

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

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 – Test with rated output current. Abnormal – Test with max. output current. Supplementary information: SC=Short Circuit, OC=Short Circuit.							

5.4.1.4, 6.3.2, 9.0, B.2.6	**TABLE: Temperature measurements**				P
	Supply voltage (V)	90		264	—
	Ambient T_{min} (°C)	40.0		40.0	—
	Ambient T_{max} (°C)	40.0		40.0	—
	Tma (°C)	40.0		40.0	—
Maximum measured temperature T of part/at:		T (°C)			Allowed T_{max} (°C)
		Horizontal	Vertical	Horizontal	Vertical	
PCB near U3		60.9	59.8	61.4	60.0	130
R19 body		61.2	60.2	63.4	62.2	85
PCB near L6		63.0	61.8	67.9	66.1	130
C26 body		65.5	64.3	72.7	70.7	105
Transformer T1 winding		71.3	70.5	79.3	78.0	110*
Transformer T1 core		74.0	73.2	78.0	77.0	Ref.
U5 body		64.9	64.7	69.4	69.3	110
C27 body		66.2	65.8	70.3	69.9	125
PCB under D1		69.8	69.6	72.6	72.4	130
C25 body		65.7	65.4	68.0	67.6	105
PCB under U1 on power board		70.0	69.1	71.2	70.1	130
PCB under U10 on function board		62.4	60.9	64.3	62.5	130
PCB under U6 on function board		63.6	62.2	66.7	64.9	130
PCB under U13 on function board		64.8	63.5	66.6	64.8	130
Internal wire		59.5	58.2	61.7	60.2	105

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

LED body	61.0	59.9	61.9	60.4	Ref.
Plastic Enclosure inside	60.9	59.8	60.4	60.4	110
For accessible parts, below temperatures are adjusted to ambient of 25 °C					
Plastic Enclosure	36.9	34.9	37.9	35.3	77
Key switch	36.1	34.7	36.8	34.7	77
Plug holder	30.9	31.2	31.5	32.3	77

Supplementary information:
*: as the temperature of winding was measured by thermocouples, the limit value was reduced by 10°C.

Temperature T of winding:	t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed T_{max} (°C)	Insulation class
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--

Supplementary information:

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics	N/A

5.4.1.10.3	TABLE: Ball pressure test of thermoplastics		P
Allowed impression diameter (mm) ..... :		≤ 2 mm	—
Object/Part No./Material	Manufacturer/trademark	Test temperature (°C)	Impression diameter (mm)
Transformer Bobbin	CHANG CHUN PLASTICS CO LTD	125	0.9
PCB	KINGBOARD LAMINATES HOLDINGS LTD	125	1.1
LUPOY GP-1006F(f1), LUPOY GP-1006F(m)(#)(f1)/ Pin holder	LG CHEM LTD	125	1.2
PC/FR6005+(z)/ Pin holder	Covestro Deutschland AG	125	1.2
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)	Frequency (kHz)[1]	Required cl (mm)	cl (mm)[2]	Required[3] cr (mm)	cr (mm)
L to N (FI)	420	240	60Hz	1.27	3.4	2.5	3.4
Different pole of fuse resistor F1(FI)	420	240	60Hz	1.27	3.2	2.5	3.2
Primary trace to secondary trace of optocoupler(U5) (RI)	420	240	60Hz	2.54	7.3	5.0	7.3

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

Primary trace to secondary trace of Y1-Capacitor(CY5) (RI)	420	240	60Hz	2.54	6.2	5.0	6.2
Primary winding to secondary winding of transformer(T1) (RI)	552	240	66.7kHz	2.54	7.3	5.0	7.3
Core to secondary pins of transformer(T1) (RI)	552	240	66.7kHz	2.54	5.2	5.0	5.2
Primary component to secondary component (RI)	420	240	60Hz	2.54	5.2	5.0	5.2
L pin to secondary circuit (RI)	420	240	60Hz	2.54	5.2	5.0	5.2
N pin to secondary circuit (RI)	420	240	60Hz	2.54	>10	5.0	>10

Supplementary information:

Note 1: Only for frequency above 30 kHz
Note 2: See table 5.4.2.4 if this is based on electric strength test

Note 3: Provide Material group IIIb

FI- functional insulation **RI**-reinforce insulation

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

5.4.2.3	**TABLE: Minimum Clearances distances using required withstand voltage**		P
	Overvoltage Category (OV):		II
	Pollution Degree:		2

Clearance distanced between:	Required withstand voltage	Required cl (mm)	Measured cl (mm)
L to N (FI)	2500	1.5	3.4
Different pole of fuse resistor F1(FI)	2500	1.5	3.2
Primary trace to secondary trace of optocoupler(U5) (RI)	2500	3.0	7.3
Primary trace to secondary trace of Y1-Capacitor(CY5) (RI)	2500	3.0	6.2
Primary winding to secondary winding of transformer(T1) (RI)	2500	3.0	7.3
Core to secondary pins of transformer(T1) (RI)	2500	3.0	5.2
Primary component to secondary component (RI)	2500	3.0	5.2
L pin to secondary circuit (RI)	2500	3.0	5.2
N pin to secondary circuit (RI)	2500	3.0	>10
Supplementary information: **FI-** functional insulation **RI**-reinforce insulation			

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)	Frequency (kHz)	Material	Required DTI (mm)	DTI (mm)
Enclosure (RI)	420	<100kHz	PC	0.4	Min. 2.0
Bobbin (RI)	420	<100kHz	PMC	0.4	Min. 0.75
Supplementary information: **RI**-reinforce insulation					

5.4.9	**TABLE: Electric strength tests**		**P**

Test voltage applied between:	Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
Basic/supplementary insulation:			
L to N (disconnect fuse resistor)	DC	2500	No
Transformer T1 secondary to core	DC	2500	No
Reinforced insulation:			
Primary circuit to plastic enclosure	DC	4000	No
Primary circuit to secondary circuit	DC	4000	No
Transformer T1 primary to secondary	DC	4000	No

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
1 layer transformer insulation tape		DC	4000	No
Supplementary information: -				

5.5.2.2	TABLE: Stored discharge on capacitors	N/A
Supplementary information:-		

5.6.6.2	TABLE: Resistance of protective conductors and terminations	N/A

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

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
A	All primary circuit/ components	Power (W) :	-	-	PS3 (declared)
		V_A (V) :	-	-	
		I_A (A) :	-	-	
B	All secondary circuit/components (Secondary circuits after C25)	Power (W) :	9.64	-	PS1
		V_A (V) :	12.85	-	
		I_A (A) :	0.75	-	
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 (Vp)	Measured r.m.s current (Irms)	Calculated value (V_p x I_{rms})	Arcing PIS? Yes / No
Soldering connections on PCB in primary circuit	--	--	--	Yes*
Supplementary information: Soldering connections on PCB in primary circuit 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

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Clause	Requirement + Test	Result - Remark	Verdict

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
Components in primary circuit	--	--	--	--	Yes*

Supplementary Information: Components in primary 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.

8.5.5	**TABLE: High Pressure Lamp**	N/A

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

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
90/50Hz	0.0414	--	1.89	--	F1	0.0414	Maximum normal load.
100/50Hz	0.0389	0.2	1.89	--	F1	0.0389	
240/50Hz	0.0242	0.2	2.07	--	F1	0.0242	
264/50Hz	0.0232	--	2.16	--	F1	0.0232	
90/60Hz	0.0414	--	1.89	--	F1	0.0414	
100/60Hz	0.0389	0.2	1.89	--	F1	0.0389	
240/60Hz	0.0242	0.2	2.07	--	F1	0.0242	
264 /60Hz	0.0232	--	2.16	--	F1	0.0232	
Supplementary information:							

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

B.3	TABLE: Abnormal operating condition tests								P
Ambient temperature (°C)				See below					—
Power source for EUT: Manufacturer, model/type, output rating				Chroma, 61512, 18kVA					—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation	
Transformer T1 output	Overload	264	2h	F1	0.106→0	K	Transformer T1 winding:124.8 °C Transformer T1 core: 120.1°C Key switch: 36.0°C	Max load 13V/0.7A, when load exceed 0.8A, unit shut down, No damaged, No hazard. Ambient:25.0°C	
Ventilation openings	Blocked	264	3h24min s	F1	0.034	K	Transformer T1 winding:93.0° C Transformer T1 core: 91.6°C Key switch: 44.4°C	Work normally, no hazard. Ambient:25.0°C	

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.

B.4	TABLE: Fault condition tests								P
Ambient temperature (°C) .....:				25-30					—
Power source for EUT: Manufacturer, model/type, output rating ..:				Chroma, 61512, 18kVA					—
Component No.	Fault Condition	Supply voltage, (V)	Test time	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation	
Speaker	S/C	264	10min	F1	0.04	--	--	Unit shutdown, no damaged, No hazard.	
D2	S/C	264	1s	F1	＞16	--	--	Fuse opened FET damaged. No hazard.	
C23	S/C	264	1s	F1	＞16	--	--	Fuse opened FET damaged. No hazard.	

IEC 62368-1								
Clause	Requirement + Test				Result - Remark			Verdict
C26	S/C	264	1s	F1	＞16	--	--	Fuse opened FET damaged. No hazard.
T1 pin 1-3	S/C	264	10min	F1	0.004	--	--	Unit shutdown, no damaged, No hazard.
T1 pin 5-6	S/C	264	10min	F1	0.004	--	--	Unit shutdown, no damaged, No hazard.
U5 pin(3-4)	S/C	264	10min	F1	0.004	--	--	Unit shutdown, no damaged, No hazard.
U5 pin(1)	O/C	264	10min	F1	0.004	--	--	Unit shutdown, no damaged, No hazard.
U3 pin+ to -	S/C	264	10min	F1	0.004	--	--	Unit shutdown, no damaged, No hazard.
C24	S/C	264	10min	F1	0.004	--	--	Unit shutdown, no damaged, No hazard.
C25	S/C	264	10min	F1	0.004	--	--	Unit shutdown, no damaged, No hazard.
U4 pin4-1	S/C	264	10min	F1	0.004	--	--	After SC, Unit shut down, D2 damaged, repeat three times,the same result, no hazard.
U4 pin4-5,6,7,8	S/C	264	10min	F1	＞16	--	--	After short circuit, fuse(F1)opened immediately, no hazard
Supplementary information: S/C - short circuit; O/C - open circuit; O/L - overload								

Annex M	TABLE: Batteries	N/A

Annex M.4	Table: Additional safeguards for equipment containing secondary lithium batteries	N/A
Supplementary Information:		

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Clause	Requirement + Test	Result - Remark	Verdict

Annex Q.1	**TABLE: Circuits intended for interconnection with building wiring (LPS)**	N/A

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

T.2, T.3, T.4, T.5	TABLE: Steady force test				P
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation
Plastic Enclosure	Plastic	2.0mm	100	5	No hazard
Internal components	--	--	10	5	No hazrad
Supplementary information:					

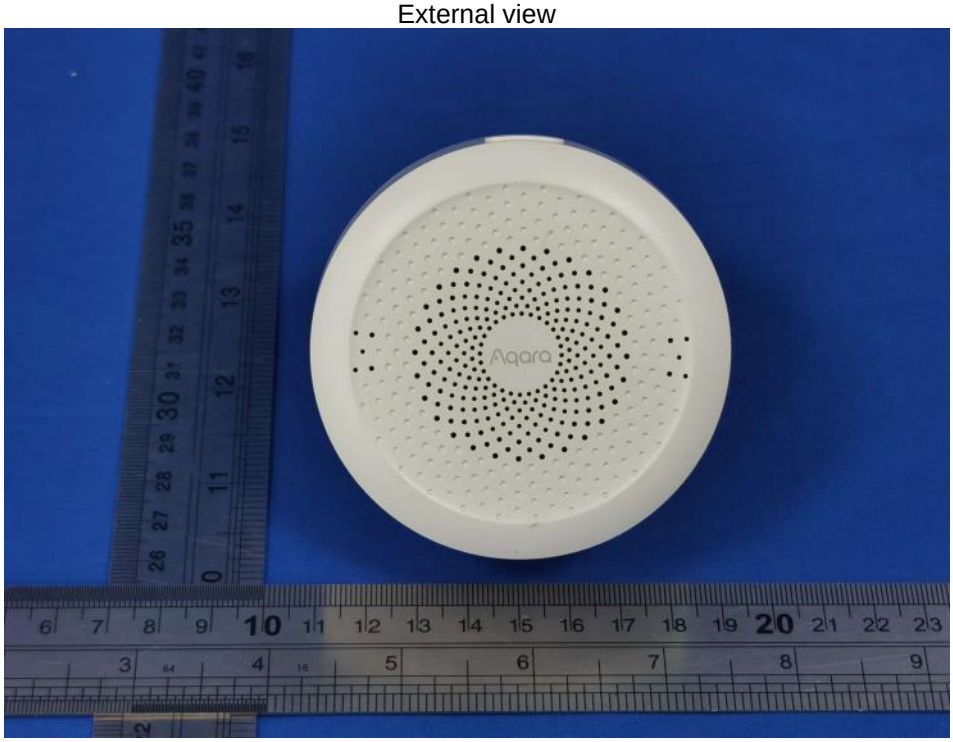
T.6, T.9	TABLE: Impact tests			N/A
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation
Supplementary information:				

T.7	TABLE: Drop tests			P
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation
Plastic enclosure	Plastic	2.0	1000	No hazard
Supplementary information:				

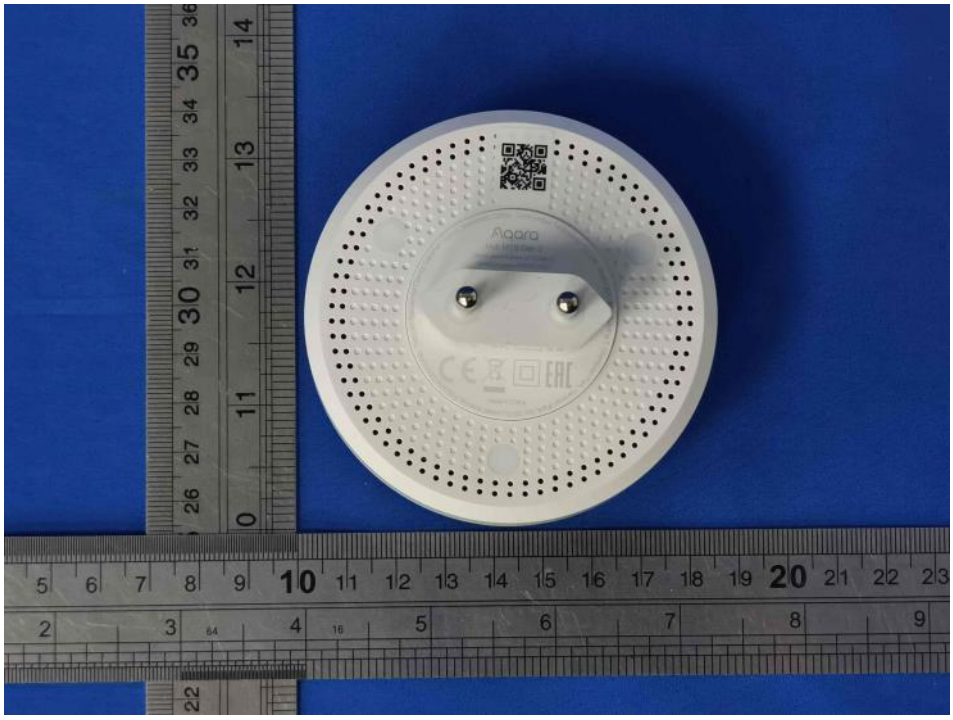
T.8	TABLE: Stress relief test				P
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation
Plastic Enclosure	Plastic	2.0	70	7	No hazard
Supplementary information:					

Appendix No.1: Photographs

External view



External view



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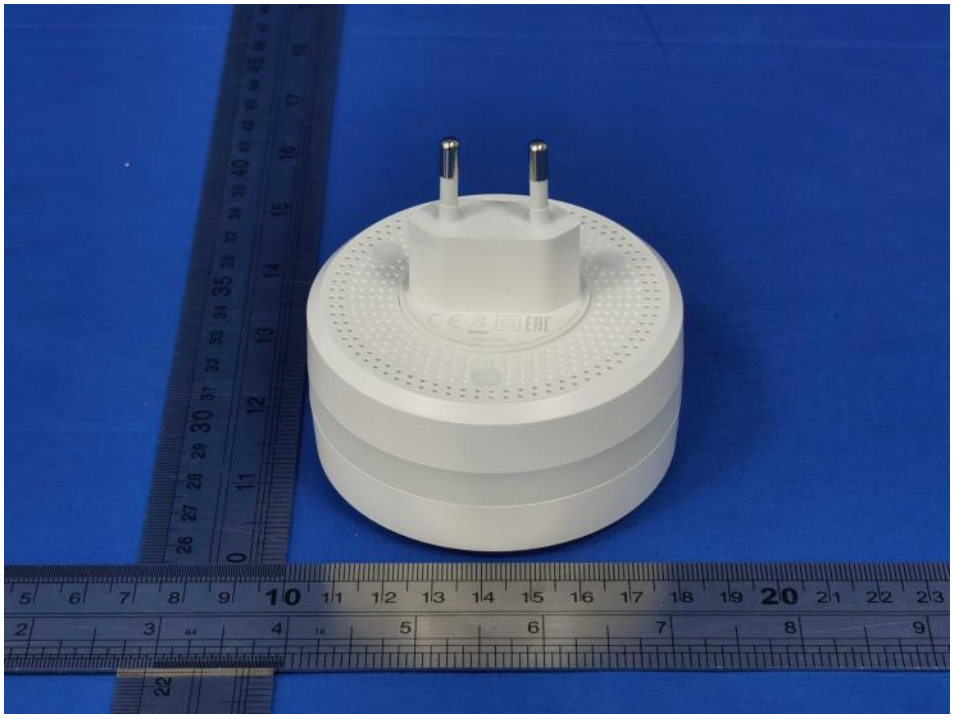
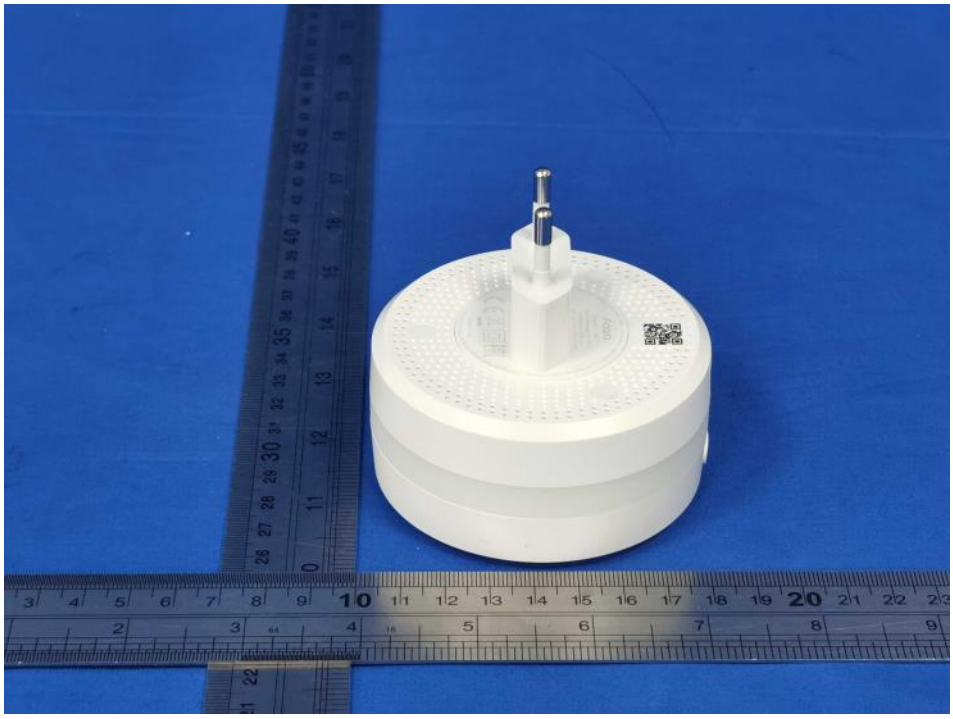
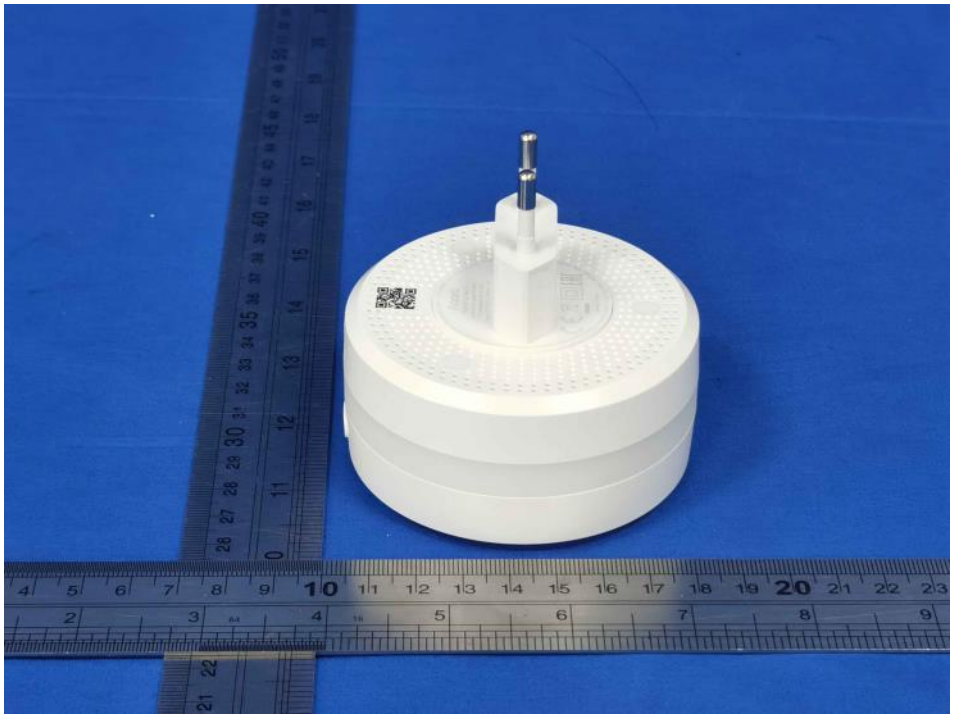


External view

External view



External view

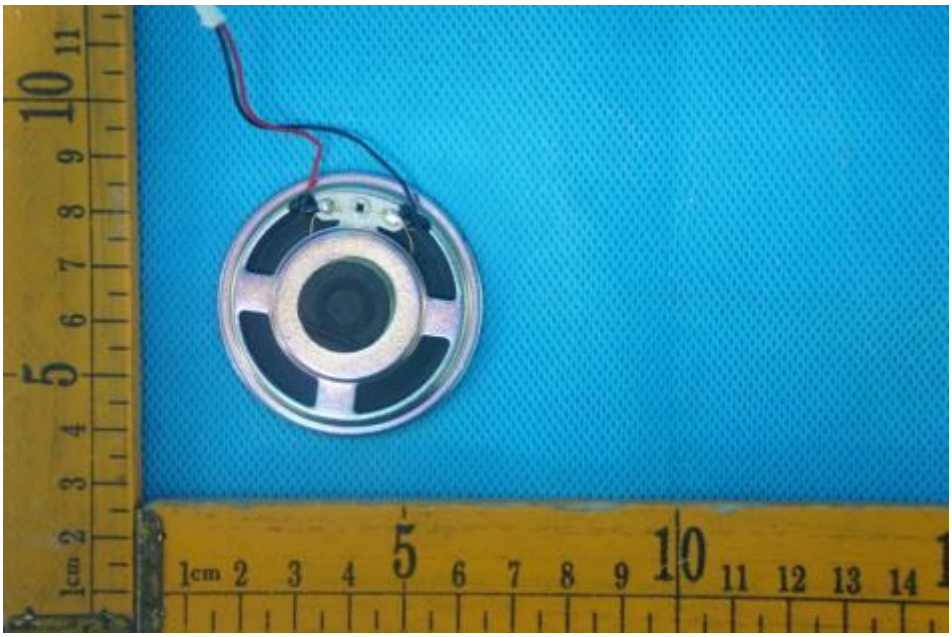


Internal view

Internal view

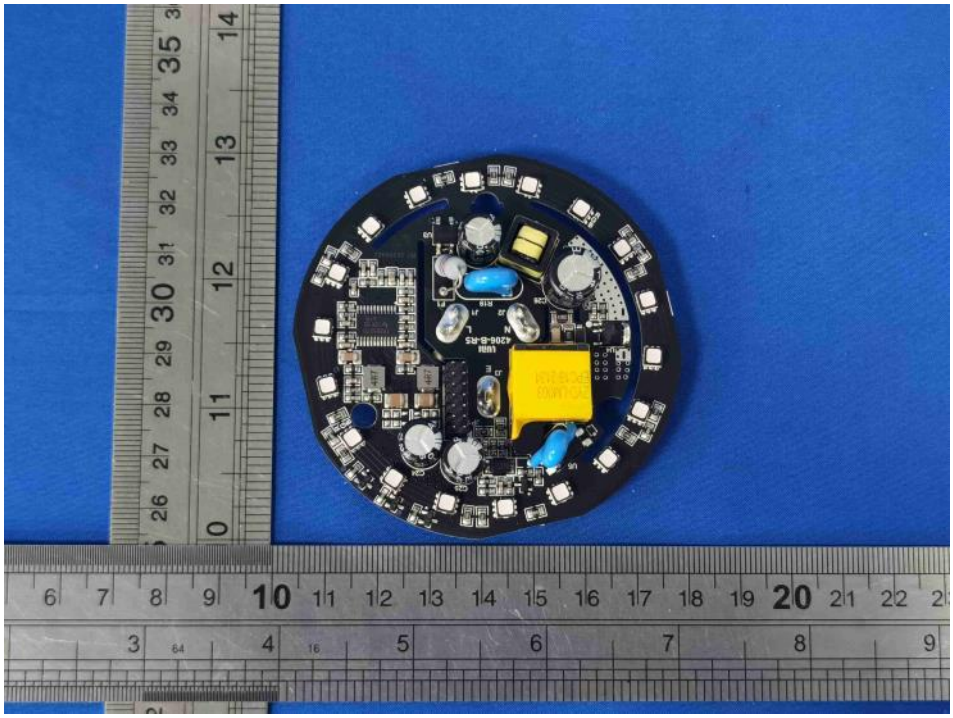
Internal view

Speaker



Speaker

PCB



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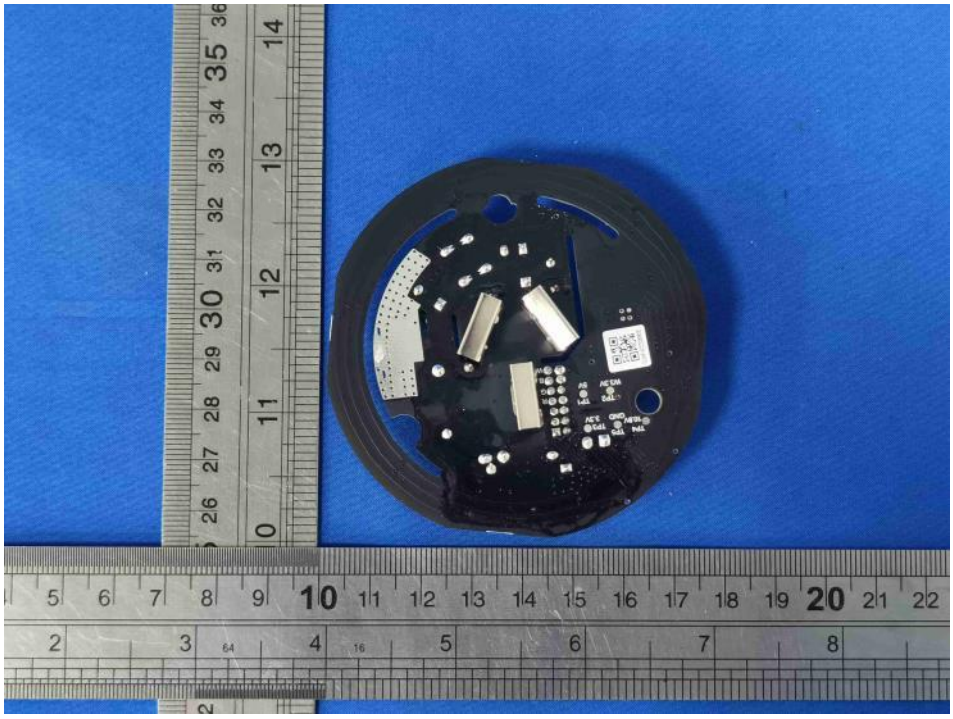
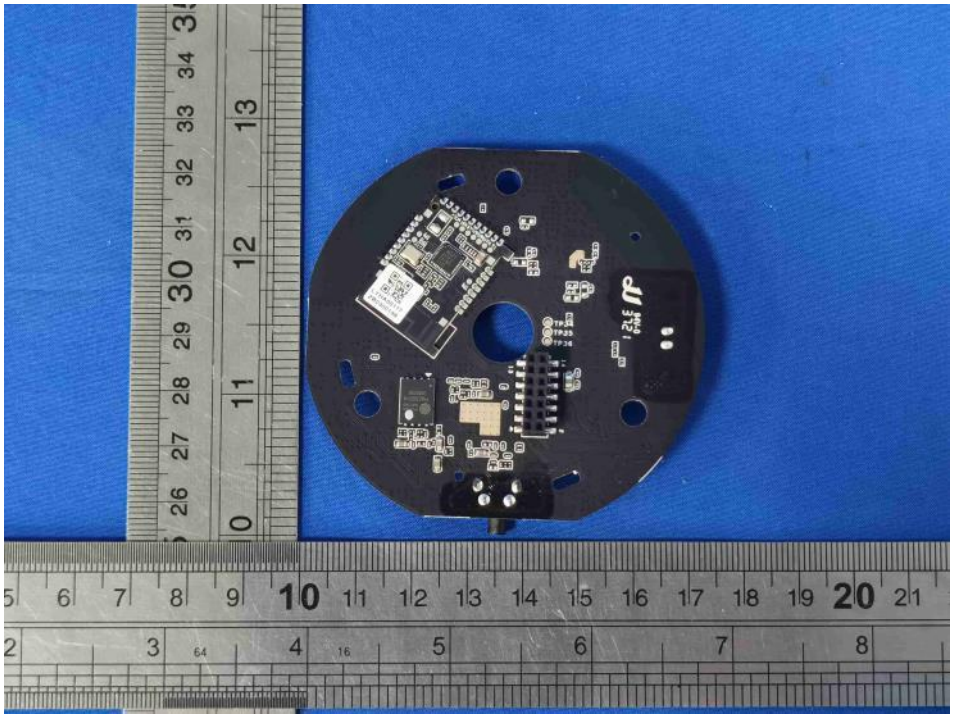


PCB



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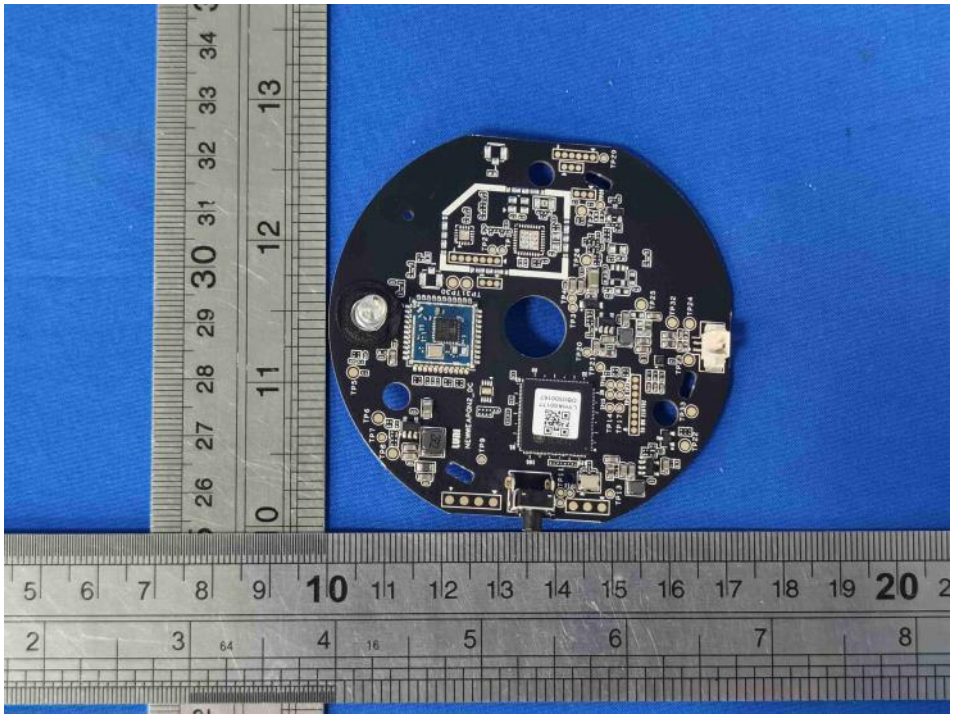
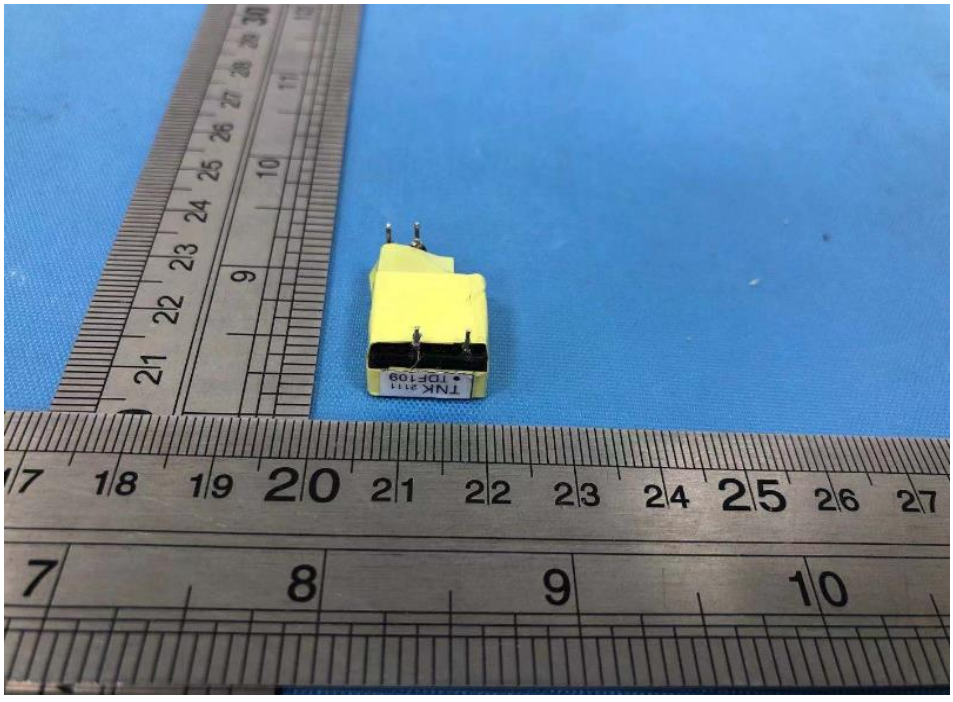


Transformer



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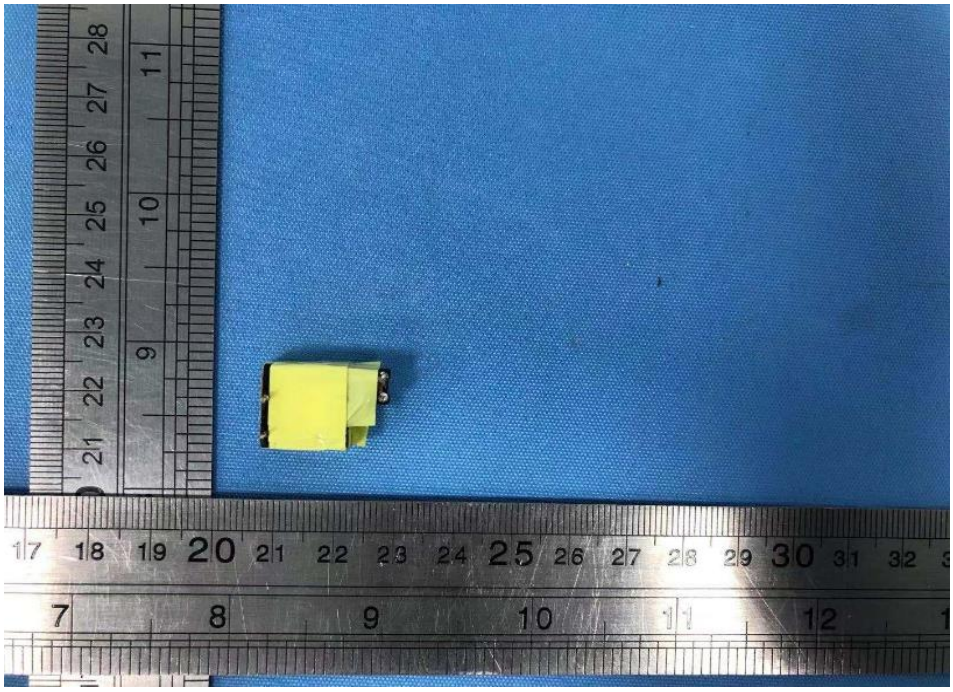

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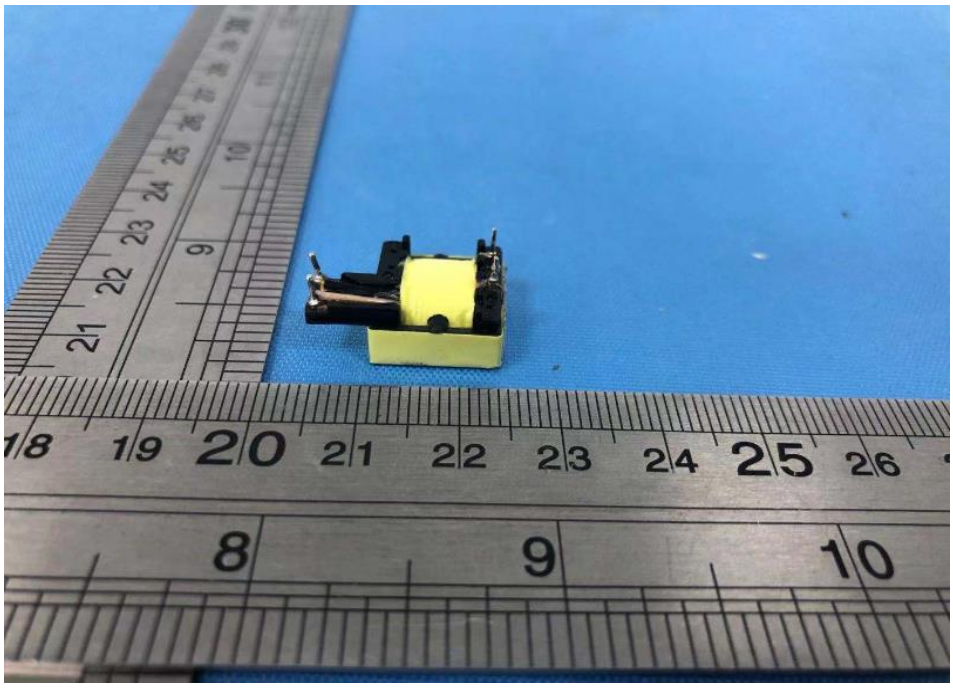

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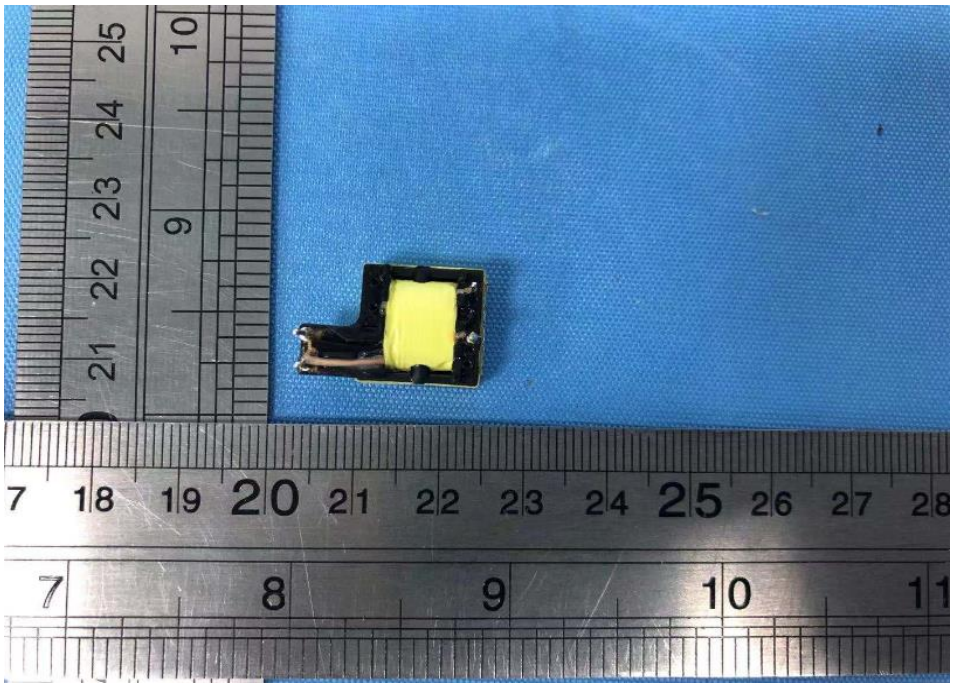

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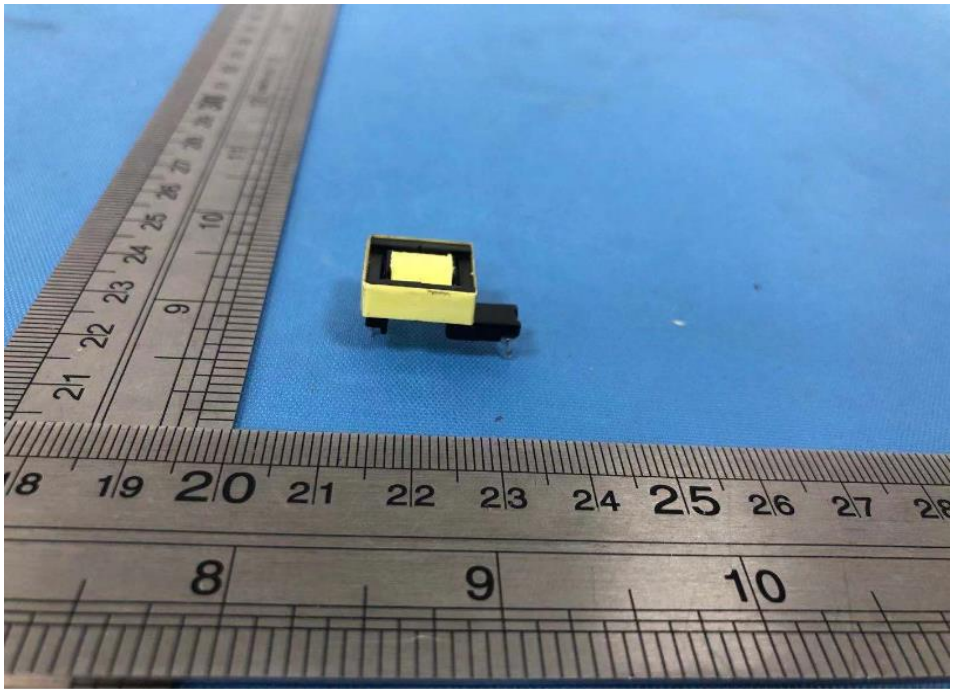

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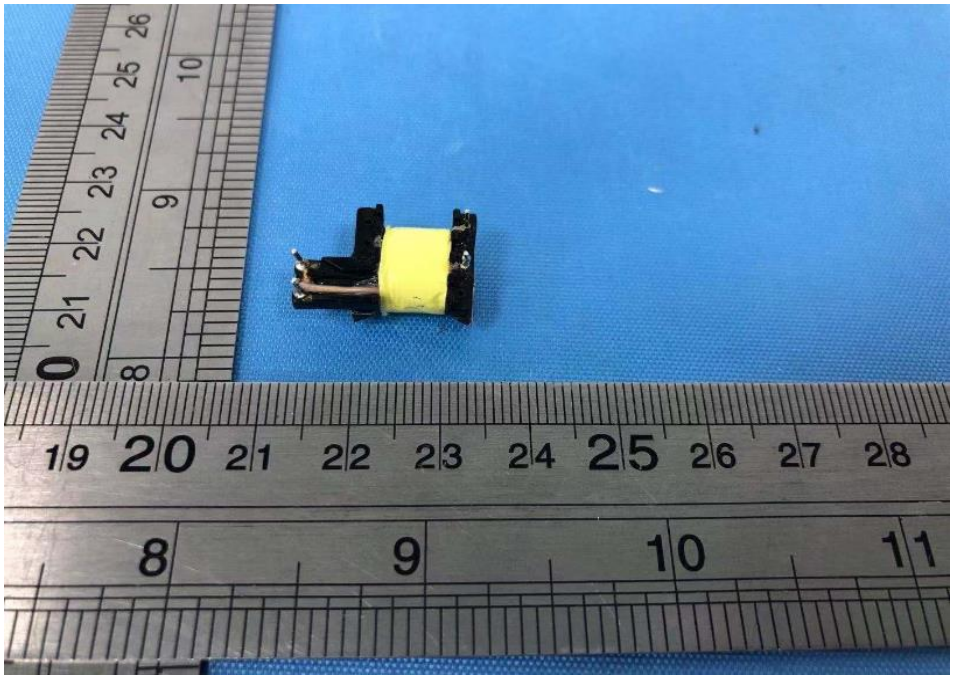

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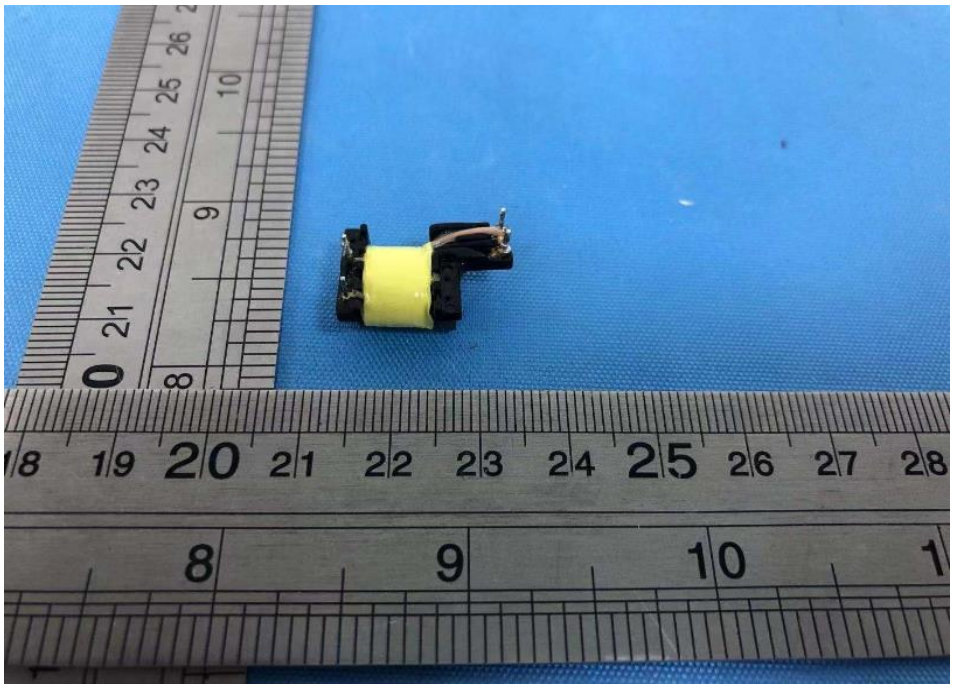

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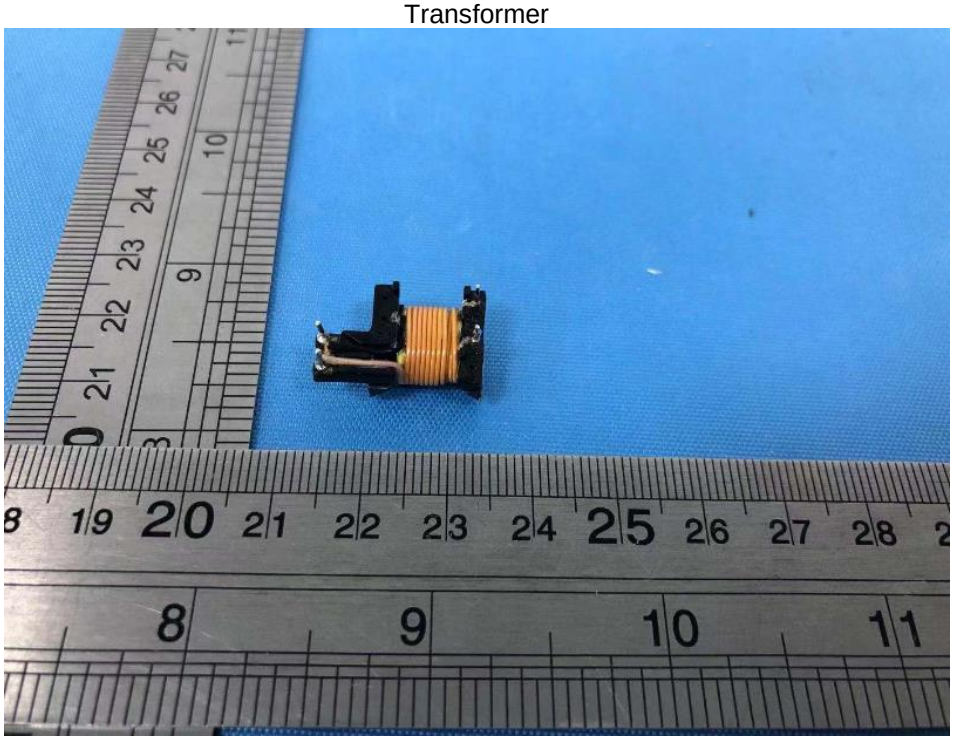

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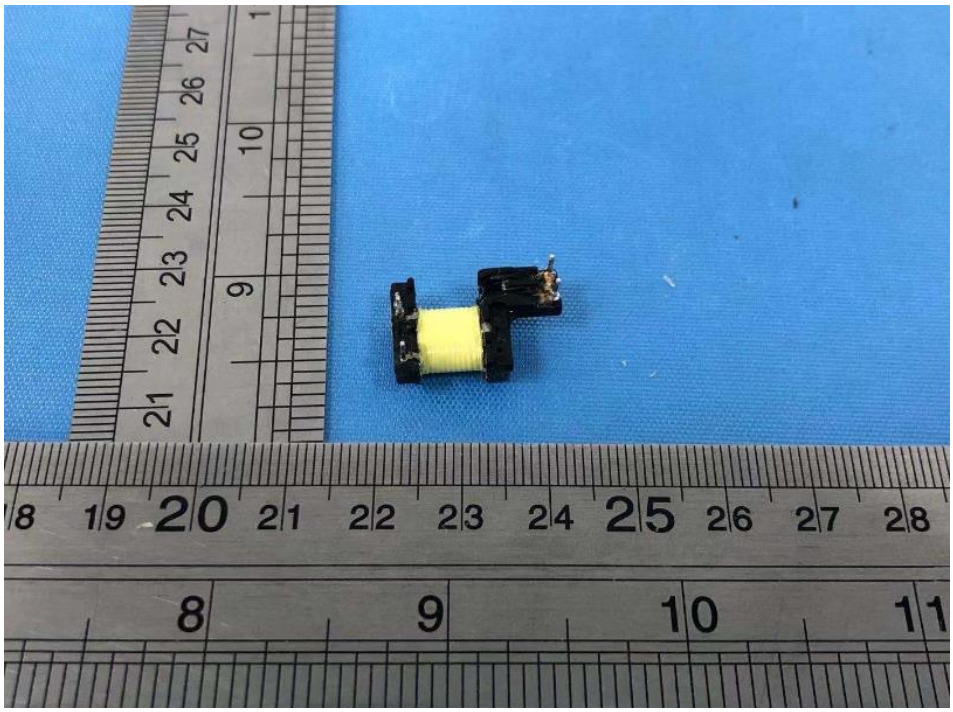

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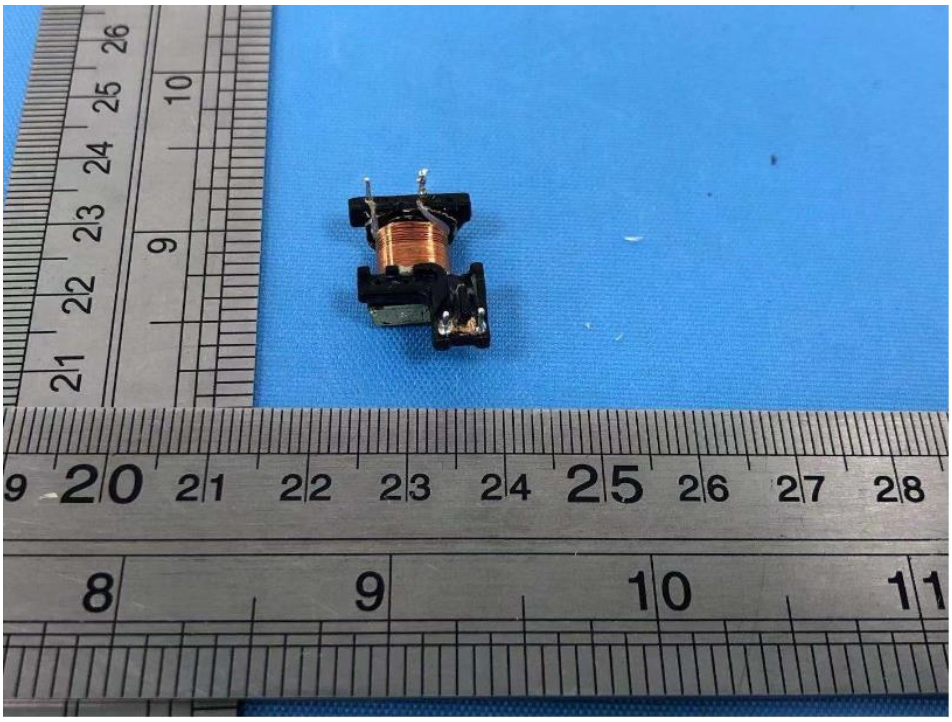

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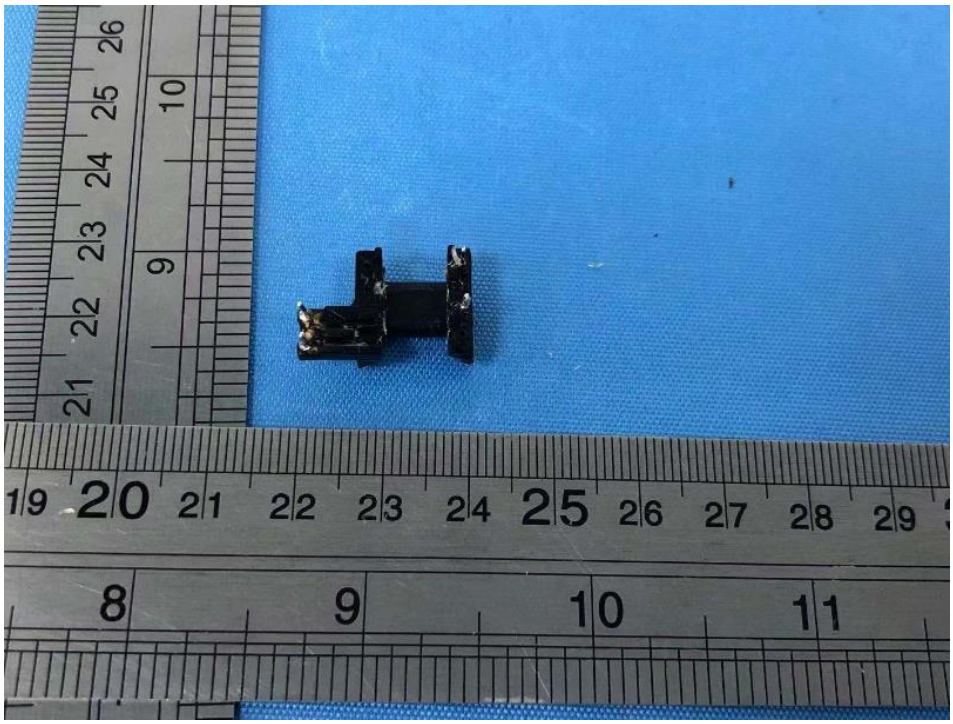


IEC 62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT

IEC 62368-1
EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES
(Audio/video, information and communication technology equipment - Part 1: Safety requirements)

Differences according to ..... : EN 62368-1:2014+A11:2017

Attachment Form No. ..... : EU_GD_IEC62368_1B_II

Attachment Originator ..... : **Nemko AS**

Master Attachment..... : Date 2017-09-22

	CENELEC COMMON MODIFICATIONS (EN)	P
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed "Z".	--
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 (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords	P
	Delete all the "country" notes in the reference document (IEC 62368-1:2014) according to the following list:	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

	For special national conditions, see Annex ZB.		P
1	**Add** the following note: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.		P

IEC 62368_1B - ATTACHMENT			
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 circuits connected to an a.c. **mains**, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment; 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.	Pluggable type A, with certified current fuse in the product.	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.		N/A
10.2.1	Add the following to [c] and [d] in table 39: For additional requirements, see 10.5.1.		N/A

IEC 62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.5.1	**Add** the following after the first paragraph: *For RS 1 compliance is checked by measurement under the following conditions:* *In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or 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.* NOTE Z1 Soldered joints and paint lockings are examples of adequate locking. *The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus.* *Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.* *For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.* NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.		N/A
10.6.1	**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.		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		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.		P

IEC 62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

Bibliography	**Add** the following standards: **Add** the following notes for the standards 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.		P
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		N/A
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 jordet stikkontakt” In **Sweden**: “Apparaten skall anslutas till jordat uttag”		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		N/A

IEC 62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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.		N/A
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 1,5kV. 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.		N/A

IEC 62368_1B - ATTACHMENT			
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).		N/A
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.		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. *Justification:* In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N/A
5.6.4.2.1	**Ireland and United Kingdom** After the indent for **pluggable equipment type A**, the following is added: – the **protective current rating** is taken to be 13 A, this being the largest rating of fuse used in the **mains** plug.		N/A
5.6.5.1	To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm^2 to 1,5 mm^2 in cross-sectional area.		N/A
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/A

IEC 62368_1B - ATTACHMENT			
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.”.		N/A

IEC 62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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 .		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		N/A
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 *Justification:* Heavy Current Regulations, Section 6c		N/A

IEC 62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
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.		N/A
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.		N/A
G.7.1	**Ireland** To the first paragraph the following is added: 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		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.		N/A

IEC 62368_1B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ZC	*ANNEX ZC, NATIONAL DEVIATIONS (EN)*		**N/A**
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. *Justification:* German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. **NOTE** Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int +49-531-592-6320, Internet: http://www.ptb.de		N/A

Appendix No.2: Equipment combined with two-pole plug (Class II)

Supplementary tests on plug portion according to EN 50075:1990

Clause	Requirement + Test	Result - Remark	Verdict
1.	**Dimensions (Clause 7 of EN 50075)**		
	Plugs shall comply with standard size. (Standard sheet 1)		P
2.	**Protection Against Electric Shock (Clause 8 of EN 50075)**		
2.1	Live parts of plugs with the exception of the bare metal parts of the pins, shall not be accessible. (Clause 8.1 of EN 50075)		P
2.2	It shall not be possible to make connection between a pin of a plug and a live socket contact of a socket-outlet while the other pin is an accessible. (Clause 8.2 of EN 50075)		P
2.3	External parts of plugs, with the exception of pins, shall be of insulating material. (Clause 8.3 of EN 50075)		P
3.	**Construction (Clause 9 of EN 50075)**		
3.1	The plug cannot be opened by hand or by using a general purpose tool. (Clause 9.1 of EN 50075)		P
3.2	Pins of plugs shall be solid and shall have adequate mechanical strength. (Clause 9.3 of EN 50075)		P
3.3	Pins of plugs shall be locked against rotation and adequately fixed into the body of the plug. (Clause 9.4 of EN 50075)		P
3.4	Plugs shall be provided with soldered, crimped or equally effective permanent connection. (Clause 9.5 of EN 50075)		P
3.5	Plug shall be shaped in such a way and made of such a material that they can easily be withdrawn by hand from a socket-outlet. (by gripping the product enclosure, Clause 9.6 of EN 50075)		P
4.	**Resistance to Humidity (Clause 10 of EN 50075)**		N/A

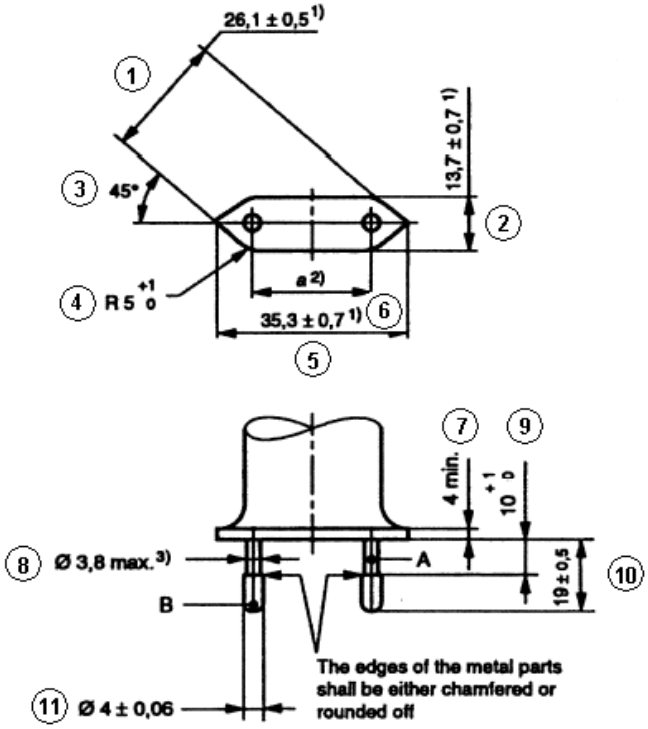
Clause	Requirement + Test	Result - Remark	Verdict
	The integrated pins were tested together with the product. (See test report for product)		
5.	**Insulation Resistance and Electric Strength (Clause 11 of EN 50075)**		N/A
	(See test report for product)		
6.	**Mechanical Strength (Clause 13 of EN 50075)**		
	Plug shall have adequate mechanical strength to withstand the stresses imposed during use.		P
6.1	The plugs are pressed between two flat surfaces with a force of 150N for 5min. 15min after removal of the force, the plug shall not show such deformation as would result in undue alteration of the dimensions which ensure safety. (Clause 13.1 of EN 50075)		P
6.2	The plug is tested in a tumbling barrel. (Clause 13.2 of EN 50075, fall number is shown in test report for product) After the test, the plug shall show no damage within the meaning of this standard, in particular: --- no part shall become detached or loosened. --- the pin shall not turn when a torque of 0.4Nm is applied. Note: A section of the pin is square constructed for preventing the rotation.		P
6.3	The pins is held in a suitable clamp in such a position that the straight part of a steel wire (D=1+-0.02mm, U-shaped) rests on the plug pin. The plug is caused to move backwards and forwards, so that the wire rubs along the pin. The number of the movements is 20 000, and the rate of the operation is 25 movements per min. (Clause 13.3 of EN 50075)		P
	After the test, the pin show no damage which may effect safety or impair the further use of the plug, in particular, the insulating sleeve shall not have punctured or rucked up.		P

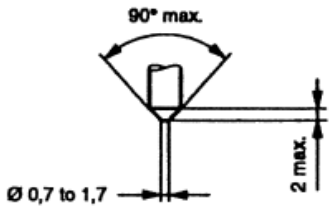
Clause	Requirement + Test	Result - Remark	Verdict
6.4	A pull force of 40N is applied for 60s on each pin in turn in the direction of the longitudinal axis of the pin. The pull is applied 60min after the plug has been placed in a heating cabinet of 70°C. After the plug cooling down to ambient temperature, any pin shall not have displaced in the body of the plug more than 1mm. (Clause 13.4 of EN 50075)		P
7.	**Resistance to Heat and to Ageing (Clause 14 of EN 50075)**		P
8.	**Current-carrying Parts and Connections (Clause 15 of EN 50075)**		
8.1	Connection, electrical and mechanical, shall withstand the mechanical stresses occurring in normal use, and electrical connections shall be designed that contact pressure is not transmitted through insulating material. (Clause 15.1 & 15.2 of EN 50075)		P
8.2	Current-carrying parts shall be of copper or an alloy containing at least 58% of copper. (Clause 15.3 of EN 50075)		P
9.	**Creepage Distance, Clearances, and Distances Through Insulation (Clause 16 of EN 50075)**		P
10.	**Resistance of Insulating Material to Abnormal Heat and to fire (Clause 17 of EN 50075)**		P

Appendix No.3: Dimension Checking for Two-pin plug according to EN50075

	DIMENSIONS Checked by means of measurement according to EN50075 Standard sheet 1 (see appendix no.9)		P
Position	**Requirement (mm)**	**Measured (mm)**	*Verdict*
1	$26.1^{\pm 0.5}$ mm	25.88	P
2	$13.7^{\pm 0.7}$ mm	14.06	P
3	45°	45°	P
4	R5 – 6	R5.16	P
5	$35.3^{\pm 0.7}$ mm	35.60	P
6	18-19,2 in the plane of the engagement face	18.47	P
	17-18 at the ends of the pins	17.58	P
7	4min	3.93	P
8	ϕ3,8max	ϕ3.56	P
9	10-11	10.52	P
10	18,5 – 19,5	19.19	P
11	ϕ3,94 - ϕ4,06	ϕ3.98	P
	Dimensions of position 1, 2 and 3 shall not be exceeded within a distance of 18mm from the engagement face of the plug	18.20	P
	The edges of the metal parts shall be either chamfered or rounded off	Rounded off	P

Appendix No.4: EN50075: 1990 Standard sheet 1





Alternative for end of pins

A. Insulating collar
B. Metal pin

Dimensions in millimetres

1) These dimensions shall not be exceeded within a distance of 18 mm from the engagement face of the plug.

2) Dimension *a* is:

18 mm to 19,2 mm in the plane of the engagement face;

17 mm to 18 mm at the ends of the pins.

3) This dimension may be increased to 4 mm within a distance of 4 mm from the engagement face of the plug.

Pin ends shall be rounded, or conical as shown in detail sketch.

The sketches are not intended to govern design except as regards the dimensions shown.