



SAFETY TEST REPORT

Report No: FCS202404288A01

Issued for

Applicant:	Mid Ocean Brands B.V.
Address:	7/F, Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong.
Product Name:	Wireless Charger
Brand Name:	N/A
Model Name:	MO2281
Series Model:	N/A
Test Standard:	EN IEC 62368-1:2020+A11:2020
Issued By: Dongguan Funas Testing Technology Co.,Ltd Add: Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan Tel: 769-27280901 Fax:769-27280901 http://www.fcs-lab.com	






Test Report issued under the responsibility of:



TEST REPORT EN IEC 62368-1:2020+A11:2020 Audio/video, information and communication technology equipment Part 1: Safety requirements	
Report Number	FCS202404288A01
Date of issue	2024-04-29
Total number of pages	91
Name of Testing Laboratory preparing the Report	Dongguan Funas Testing Technology Co.,Ltd. Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan
Applicant's name	Mid Ocean Brands B.V.
Address	7/F, Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong.
Test specification:	
Standard	EN IEC 62368-1:2020+A11:2020
Test procedure	Type test
Non-standard test method	N/A
TRF template used	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No	IEC62368_1E
Test Report Form(s) Originator	UL(US)
Master TRF	Dated 2022-04-14
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 Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the responsible for this Test Report.	



Test item description.....		Wireless Charger
Trade Mark(s)		N/A
Manufacturer.....		Mid Ocean Brands B.V. 7/F, Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong.
Model/Type reference.....		MO2281
Ratings.....		Wireless Output Power:15W Max. Input:9V 2A,5V 2A Output:DC 5V 1A,7.5V 1A 9V 1.1A, 9V 1.67A
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	Testing Laboratory:	Dongguan Funas Testing Technology Co.,Ltd
Testing location/ address.....		Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan
Tested by (name, function, signature).....		Scott Shen 
Approved by (name, function, signature)...		Wade Huang  
<input type="checkbox"/>	Testing procedure: CTF Stage 1:	
Testing location/ address.....		
Tested by (name, function, signature).....		
Approved by (name, function, signature)...		
<input type="checkbox"/>	Testing procedure: CTF Stage 2:	
Testing location/ address.....		
Tested by (name, function, signature).....		
Witnessed by (name, function, signature)..:		
Approved by (name, function, signature)...		
<input type="checkbox"/>	Testing procedure: CTF Stage 3:	
<input type="checkbox"/>	Testing procedure: CTF Stage 4:	
Testing location/ address.....		
Tested by (name, function, signature).....		
Witnessed by (name, function, signature)..:		
Approved by (name, function, signature)...		
Supervised by (name, function, signature) :		



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

- Attachment 1: National difference (22 pages)
- Attachment 2: Photograph (4 pages)

Summary of testing:

Unless otherwise indicated, all tests were conducted at Dongguan Funas Testing Technology Co.,Ltd.
Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan

Tests performed (name of test and test clause):

- 4: General requirements
- 5: Electrically-caused injury
- 6: Electrically-caused fire
- 7: Injury caused by hazardous substance
- 8: Mechanically-caused injury
- 9: Thermal burn injury
- 10: Radiation

Testing location:

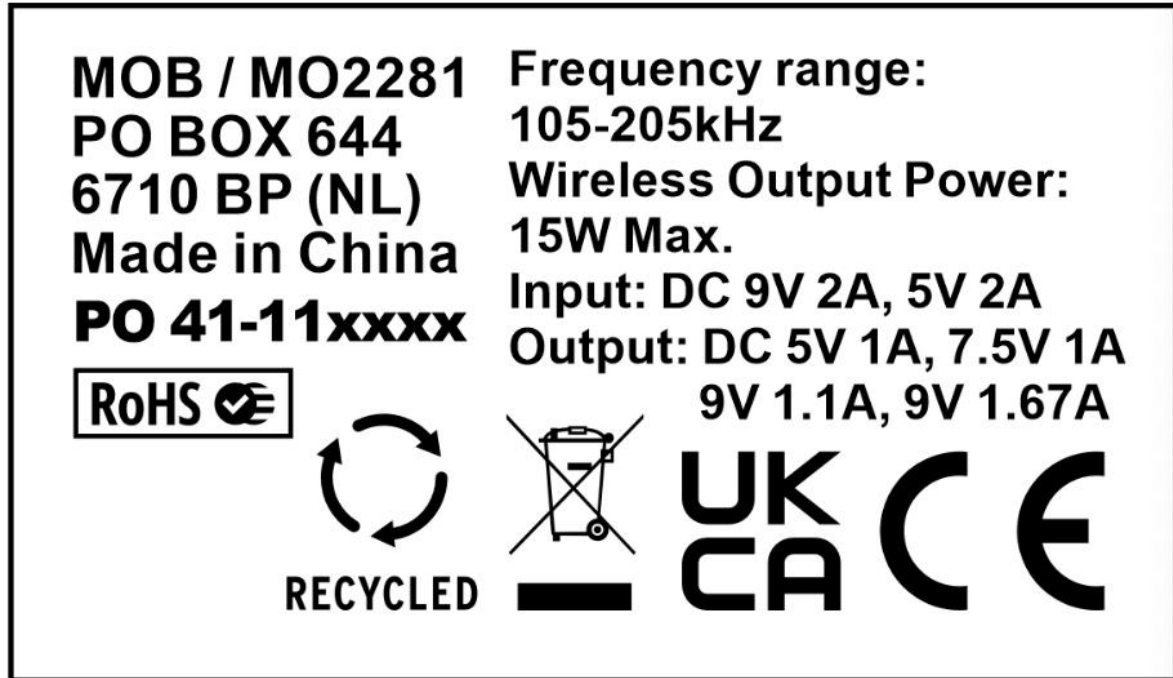
Dongguan Funas Testing Technology Co.,Ltd.
Room 105 Floor Bao hao Technology Building 1
NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan

Summary of compliance with National Differences (List of countries addressed):

European group differences and national differences

- The product fulfils the requirements of EN IEC 62368-1:2020+A11:2020**

Copy of marking plate:



Notes:

- The above markings are the min. requirements required by the safety standard. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.
- The height dimension of CE mark should not less than 5mm, the height dimension of WEEE symbol should not less than 7mm.

**Test item particulars:**

Product group	<input checked="" type="checkbox"/> end product	<input type="checkbox"/> built-in component
Classification of use by	<input checked="" type="checkbox"/> Ordinary person	<input checked="" type="checkbox"/> Children likely present
	<input type="checkbox"/> Instructed person	
	<input type="checkbox"/> Skilled person	
Supply connection	<input type="checkbox"/> AC mains	<input checked="" type="checkbox"/> DC mains
	<input type="checkbox"/> not mains connected:	
	<input type="checkbox"/> ES1	<input type="checkbox"/> ES2 <input type="checkbox"/> ES3
Supply tolerance	<input checked="" type="checkbox"/> +10%/-10%	
	<input type="checkbox"/> +20%/-15%	
	<input type="checkbox"/> + %/ - %	
	<input type="checkbox"/> None	
Supply connection – type	<input checked="" type="checkbox"/> pluggable equipment type A -	
	<input type="checkbox"/> non-detachable supply cord	
	<input checked="" type="checkbox"/> appliance coupler	
	<input type="checkbox"/> direct plug-in	
	<input type="checkbox"/> pluggable equipment type B -	
	<input type="checkbox"/> non-detachable supply cord	
	<input type="checkbox"/> appliance coupler	
	<input type="checkbox"/> permanent connection	
	<input type="checkbox"/> mating connector	<input type="checkbox"/> other:
Considered current rating of protective device	<input type="checkbox"/> 16 A; (13A for UK)	
	Location: <input type="checkbox"/> building	<input checked="" type="checkbox"/> equipment
	<input type="checkbox"/> N/A	
Equipment mobility	<input checked="" type="checkbox"/> movable	<input type="checkbox"/> hand-held <input checked="" type="checkbox"/> transportable
	<input type="checkbox"/> direct plug-in	<input type="checkbox"/> stationary <input type="checkbox"/> for building-in
	<input type="checkbox"/> wall/ceiling-mounted	<input type="checkbox"/> SRME/rack-mounted
	<input type="checkbox"/> other:	
Overvoltage category (OVC)	<input type="checkbox"/> OVC I	<input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III
	<input type="checkbox"/> OVC IV	<input type="checkbox"/> other:
Class of equipment	<input type="checkbox"/> Class I	<input checked="" type="checkbox"/> Class II <input checked="" type="checkbox"/> Class III
	<input type="checkbox"/> Not classified	<input type="checkbox"/>
Special installation location	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> restricted access area
	<input type="checkbox"/> outdoor location	<input type="checkbox"/>
Pollution degree (PD)	<input type="checkbox"/> PD 1	<input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
Manufacturer's specified T_{ma}	40 °C	<input type="checkbox"/> Outdoor: minimum °C
IP protection class	<input type="checkbox"/> IPX0	<input checked="" type="checkbox"/> IP_20__
Power systems	<input checked="" type="checkbox"/> TN	<input type="checkbox"/> TT <input type="checkbox"/> IT - V _{L-L}
	<input type="checkbox"/> not AC mains	
Altitude during operation (m)	<input checked="" type="checkbox"/> 2000 m or less	<input type="checkbox"/> 5000 m
Altitude of test laboratory (m)	<input checked="" type="checkbox"/> 2000 m or less	<input type="checkbox"/> m
Mass of equipment (kg)	Approximate 179g	



Possible test case verdicts:	6-IN-1 wireless charging
- 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..... :	2024-04-22
Date (s) of performance of tests..... :	From 2024-04-22 to 2024-04-29
General remarks:	
"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.	
Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.	
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies)..... :	Same as applicant
General product information and other remarks:	
1. ADAPTER, which designed to supply power for audio, video, information and communication technology, business and office machines, for indoor use only.	
2. The top enclosure is sealed with bottom enclosure by ultrasonic welding.	
3. The output of these adaptors are evaluated to comply with the requirements of limited power source (Clause Annex Q).	
Operating instructions, ratings labels and warnings labels are in an accepted or official language of the country in question; The equipment complies with the national standards and/or electrical codes of the country, province or city or in question.	



OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS				
Clause	Possible Hazard			
5	Electrically-caused injury			
Class and Energy Source (e.g. ES3: Primary circuit)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
ES3: Internal circuits (All primary circuits inside enclosure)	Ordinary person, Instructed person	N/A	N/A	Creepage and Clearance, Enclosure, Transformer, Y-capacitor.
ES3: Internal circuits (Secondary circuits inside enclosure)	Ordinary person, Instructed person	Separated from ES3 mains by a double safeguard or a reinforced safeguard	Touch voltage/ current didn't exceed ES1 under single fault condition	N/A
ES3: All internal circuits (Both primary circuits and secondary circuits inside enclosure)	Skilled person	N/A	N/A	N/A (Skilled safeguard)
ES1: Output terminal	Ordinary person, Instructed person	N/A	N/A	N/A
ES1: External enclosure	Ordinary person, Instructed person	N/A	N/A	N/A
6	Electrically-caused fire			
Class and Energy Source (e.g. PS2: 100 Watt circuit)	Material part (e.g. Printed board)	Safeguards		
		B	1 st S	2 nd S
PS3: All circuits except for output circuit	All combustible materials within enclosure	No parts exceeding 90% of its spontaneous Ignition temperature	1, Plastic enclosure V-0 used. 2, PCB V-1 or better used. 3, Transformer complied with Annex G.5.3 4, All other components: at least V-2 except for mounted on V-0 material or small parts of combustible material. 5, See clause6.5 (Equipment safeguards, rated VW-1)	N/A
PS2: output circuit	All combustible materials for output terminal	See 6.3	N/A	N/A



7	Injury caused by hazardous substances			
Class and Energy Source (e.g. Ozone)	Body Part (e.g., Skilled)	Safeguards		
		B	S	R
N/A (No such source)	N/A	N/A	N/A	N/A
8	Mechanically-caused injury			
Class and Energy Source (e.g. MS3: Plastic fan blades)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
MS1: Edges and corners	Ordinary	N/A	N/A	N/A
MS1: Equipment mass	Ordinary	N/A	N/A	N/A
9	Thermal burn			
Class and Energy Source (e.g. TS1: Keyboard caps)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
TS1: Accessible parts	Ordinary	N/A	N/A	N/A
10	Radiation			
Class and Energy Source (e.g. RS1: PMP sound output)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
RS1: LED light	Low power application LED used as indicator only	N/A	N/A	N/A
Supplementary Information: “B” – Basic Safeguard; “S” – Supplementary Safeguard; “R” – Reinforced Safeguard				



ENERGY SOURCE DIAGRAM

Optional. Manufacturers are to provide the energy sources diagram identify declared energy sources and identifying the demarcations are between power sources. Recommend diagram be provided included in power supply and multipart systems.

Insert diagram below. Example diagram designs are; Block diagrams; image(s) with layered data; mechanical drawings

ES **PS** **MS** **TS** **RS**



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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	Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment. See also Annex G	P
4.1.3	Equipment design and construction	Evaluation of safeguards regarding limiting the outputs to fulfill ES1 and protection in regard to risk of spread of fire, mechanical and thermal burn injury considered.	P
4.1.4	Specified ambient temperature for outdoor use (°C) :	Not outdoor equipment	N/A
4.1.5	Constructions and components not specifically covered	No this constructions and components.	N/A
4.1.8	Liquids and liquid filled components (LFC)	No such component used.	N/A
4.1.15	Markings and instructions	(See Annex F)	P
4.4.3	Safeguard robustness		P
4.4.3.1	General		P
4.4.3.2	Steady force tests	(See Clause T.2, T.4, T.5)	P
4.4.3.3	Drop tests		N/A
4.4.3.4	Impact tests	See Annex T.6	P
4.4.3.5	Internal accessible safeguard tests	The external enclosure cannot be opened without tool.	N/A
4.4.3.6	Glass impact tests		N/A
4.4.3.7	Glass fixation tests		N/A
	Glass impact test (1J)		N/A
	Push/pull test (10 N)		N/A
4.4.3.8	Thermoplastic material tests	(See Annex T.8)	P
4.4.3.9	Air comprising a safeguard	No such safeguard used	N/A
4.4.3.10	Accessibility, glass, safeguard effectiveness		N/A
4.4.4	Displacement of a safeguard by an insulating liquid		N/A
4.4.5	Safety interlocks		N/A
4.5	Explosion		P



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Clause	Requirement + Test	Result - Remark	Verdict
4.5.1	General	No explosion occurs during normal/abnormal operation and single fault conditions	P
4.5.2	No explosion during normal/abnormal operating condition	(See Clause B.2, B.3)	P
	No harm by explosion during single fault conditions	(See Clause B.4)	P
4.6	Fixing of conductors		P
	Fix conductors not to defeat a safeguard	Internal wire was secured by soldering and glue fixed additionally, so that a loosening of the terminal connection is unlikely	P
	Compliance is checked by test..... :	(See Clause T.2)	P
4.7	Equipment for direct insertion into mains socket-outlets		N/A
4.7.2	Mains plug part complies with relevant standard... :		N/A
4.7.3	Torque (Nm)..... :		N/A
4.8	Equipment containing coin/button cell batteries		N/A
4.8.1	General	No such battery used.	N/A
4.8.2	Instructional safeguard..... :		N/A
4.8.3	Battery compartment door/cover construction		N/A
	Open torque test		N/A
4.8.4.2	Stress relief test		N/A
4.8.4.3	Battery replacement test		N/A
4.8.4.4	Drop test		N/A
4.8.4.5	Impact test		N/A
4.8.4.6	Crush test		N/A
4.8.5	Compliance		N/A
	30N force test with test probe		N/A
	20N force test with test hook		N/A
4.9	Likelihood of fire or shock due to entry of conductive object		N/A
4.10	Component requirements		N/A
4.10.1	Disconnect Device		N/A
4.10.2	Switches and relays		N/A
5	ELECTRICALLY-CAUSED INJURY		P
5.2	Classification and limits of electrical energy sources		P
5.2.2	ES1, ES2 and ES3 limits		P



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Clause	Requirement + Test	Result - Remark	Verdict
5.2.2.2	Steady-state voltage and current limits..... :	(See appended table 5.2)	P
5.2.2.3	Capacitance limits..... :	No such capacitor	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 analogue telephone network ringing signals	N/A
5.2.2.7	Audio signals		N/A
5.3	Protection against electrical energy sources		P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	See only 4.3 and 5.3 to 5.5 which applies to protection between the accessible parts and hazardous parts of other circuits. Except for the model assembled with AC mains bare conductor.	P
5.3.1 a)	Accessible ES1/ES2 derived from ES2/ES3 circuits		P
5.3.1 b)	Skilled persons not unintentional contact ES3 bare conductors		N/A
5.3.2.1	Accessibility to electrical energy sources and safeguards	Only ES1 circuit can be accessed for this product.	P
	Accessibility to outdoor equipment bare parts		N/A
5.3.2.2	Contact requirements		N/A
	Test with test probe from Annex V		—
5.3.2.2 a)	Air gap – electric strength test potential (V)..... :	Checked by V.1.2 (figure V.1)	P
5.3.2.2 b)	Air gap – distance (mm) :	No opening	N/A
5.3.2.3	Compliance		P
5.3.2.4	Terminals for connecting stripped wire	No such terminals.	N/A
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material		P
5.4.1.3	Material is non-hygroscopic	See Sub-clause 5.4.8	P
5.4.1.4	Maximum operating temperature for insulating materials..... :	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	P
5.4.1.5	Pollution degrees..... :	2	P
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.5.3	Thermal cycling test		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage..... :	(See appended table 5.4.1.8)	P
5.4.1.9	Insulating surfaces		P
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		N/A
5.4.1.10.2	Vicat test..... :		N/A
5.4.1.10.3	Ball pressure test..... :	(See appended table 5.4.1.10.3)	P
5.4.2	Clearances		P
5.4.2.1	General requirements		P
	Clearances in circuits connected to AC Mains, Alternative method	(See Annex X)	P
5.4.2.2	Procedure 1 for determining clearance		P
	Temporary overvoltage	2000Vpk	—
5.4.2.3	Procedure 2 for determining clearance		
5.4.2.3.2.2	a.c. mains transient voltage..... :	2500V for Overvoltage Cat. II	—
5.4.2.3.2.3	d.c. mains transient voltage	No such transient	—
5.4.2.3.2.4	External circuit transient voltage..... :	No such transient	—
5.4.2.3.2.5	Transient voltage determined by measurement..... :		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test	(See appended table 5.4.2)	N/A
5.4.2.5	Multiplication factors for clearances and test voltages		N/A
5.4.2.6	Clearance measurement..... :	(See appended table 5.4.2)	P
5.4.3	Creepage distances		P
5.4.3.1	General		P
5.4.3.3	Material group..... :		—
5.4.3.4	Creepage distances measurement..... :	(See appended table 5.4.3)	P
5.4.4	Solid insulation	See below	P
5.4.4.1	General requirements		P
5.4.4.2	Minimum distance through insulation	(See appended table 5.4.4.2)	P



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Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.3	Insulating compound forming solid insulation	No such component used in the EUT	N/A
5.4.4.4	Solid insulation in semiconductor devices	Approved opto-coupler used	P
5.4.4.5	Insulating compound forming cemented joints		N/A
5.4.4.6	Thin sheet material	See below	P
5.4.4.6.1	General requirements	Two layers of insulation tape between winding and core of transformer is used for reinforced insulation and are not expected to be subject to handling or abrasion during ordinary or instructed person servicing.	P
5.4.4.6.2	Separable thin sheet material	Where two layers are provided as reinforced insulation any one layer passed the electric strength test for reinforced insulation	P
	Number of layers (pcs)	2	P
5.4.4.6.3	Non-separable thin sheet material	No such thin sheet material within the EUT	N/A
	Number of layers (pcs)		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	See G.5.1 and G.6	P
5.4.4.9	Solid insulation at frequencies >30 kHz, E_P , K_R , d , V_{PW} (V).....	Alternative method used	N/A
	Alternative by electric strength test, tested voltage (V), K_R	(See appended table 5.4.4.9)	P
5.4.5	Antenna terminal insulation	Performed between mains and output connector which may be connected to an equipment with antenna terminal	P
5.4.5.1	General		P
5.4.5.2	Voltage surge test	Surge test with 50 discharges at a maximum rate of 12/min from a 1nF capacitor charged to 10kV performed. Measured insulation resistance between mains supply to output terminals after the surge test, see below for details.	P



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Clause	Requirement + Test	Result - Remark	Verdict
5.4.5.3	Insulation resistance (MΩ)..... :	100 MΩ	P
	Electric strength test..... :	(See appended table 5.4.9)	P
5.4.6	Insulation of internal wire as part of supplementary safeguard		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning	See below	P
	Relative humidity (%), temperature (°C), duration (h)..... :	95%, 40°C, 120h	—
5.4.9	Electric strength test		P
5.4.9.1	Test procedure for type test of solid insulation..... :	(See appended table 5.4.9)	P
5.4.9.2	Test procedure for routine test	No routine tests considered. To be considered during the relevant national approval.	N/A
5.4.10	Safeguards against transient voltages from external circuits		N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test..... :		N/A
5.4.10.2.3	Steady-state test..... :		N/A
5.4.10.3	Verification for insulation breakdown for impulse test..... :		N/A
5.4.11	Separation between external circuits and earth	No such circuit	N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	SPDs bridge separation between external circuit and earth		N/A
	Rated operating voltage U_{op} (V)..... :		—
	Nominal voltage U_{peak} (V)..... :		—
	Max increase due to variation U_{sp} :		—
	Max increase due to ageing U_{sa} :		—
5.4.11.3	Test method and compliance..... :	(See appended table 5.4.9)	N/A
5.4.12	Insulating liquid		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
5.4.12.1	General requirements		N/A
5.4.12.2	Electric strength of an insulating liquid..... :	(See appended table 5.4.9)	N/A
5.4.12.3	Compatibility of an insulating liquid..... :	(See appended table 5.4.9)	N/A
5.4.12.4	Container for insulating liquid..... :		N/A
5.5	Components as safeguards		P
5.5.1	General	See the following details.	P
5.5.2	Capacitors and RC units	(See appended table 4.1.2)	P
5.5.2.1	General requirement		P
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector..... :	(See appended table 5.5.2.2)	N/A
5.5.3	Transformers	See Annex G.5.3	P
5.5.4	Optocouplers	(See sub-clause 5.4 or Clause G.12)	P
5.5.5	Relays	No such component provided	N/A
5.5.6	Resistors		N/A
5.5.7	SPDs	(See Clause G.8) Approved MOV1 is used between line to neutral	P
5.5.8	Insulation between the mains and an external circuit consisting of a coaxial cable..... :		N/A
5.5.9	Safeguards for socket-outlets in outdoor equipment		N/A
	RCD rated residual operating current (mA)..... :		—
5.6	Protective conductor		N/A
5.6.2	Requirement for protective conductors		N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm ²) :		—
	Protective earthing conductor serving as a reinforced safeguard		N/A
	Protective earthing conductor serving as a double safeguard		N/A
5.6.4	Requirements for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm ²)..... :		—



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



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Clause	Requirement + Test	Result - Remark	Verdict
	a) Equipment connected to earthed external circuits, current (mA)..... :		N/A
	b) Equipment connected to unearthed external circuits, current (mA)..... :		N/A
5.8	Backfeed safeguard in battery backed up supplies		N/A
	Mains terminal ES..... :	(See appended table 5.8)	N/A
	Air gap (mm)..... :		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
6	ELECTRICALLY- CAUSED FIRE		P
6.2	Classification of PS and PIS		P
6.2.2	Power source circuit classifications.....:	(See appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources	(See appended table 6.2.2)	P
6.2.3.1	Arcing PIS	(See appended table 6.2.3.1)	P
6.2.3.2	Resistive PIS	(See appended table 6.2.3.2)	P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials.....:	No ignition and no such temperature attained within the equipment. (See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6)	P
	Combustible materials outside fire enclosure.....:	Only output connector complying with 6.4.6.	P
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard method	Method of “control of fire spread” is used. Fire enclosure provided.	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	Supplementary safeguards		N/A
6.4.3.2	Single Fault Conditions.....:	(See appended table B.4)	N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		N/A
6.4.5	Control of fire spread in PS2 circuits		P
6.4.5.2	Supplementary safeguards		P



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Clause	Requirement + Test	Result - Remark	Verdict
6.4.6	Control of fire spread in PS3 circuits	<p>Compliance detailed as follows:</p> <ul style="list-style-type: none"> - Printed board: rated V-1. - All other components: at least V-2 except for parts mounted on V-0 material or small parts of combustible material (with mass less than 4g) or components complying with relevant IEC standard. V-0 enclosure used as fire enclosure. - Wire insulation: complying with Clause 6.5 The output wire is complied to UL 758 standard, which test method and testing condition equal to IEC/EN 60695-11-21. - Isolating transformer: complying with G.5.3. 	P
6.4.7	Separation of combustible materials from a PIS	V-0 enclosure used as fire enclosure.	P
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	See below	P
6.4.8.2	Fire enclosure and fire barrier material properties	The V-0 material is used for the fire enclosure.	P
6.4.8.2.1	Requirements for a fire barrier	No fire barrier.	N/A
6.4.8.2.2	Requirements for a fire enclosure	The V-0 material is used for the fire enclosure.	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	No openings	N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top openings and properties		N/A
	Openings dimensions (mm)..... :		N/A
6.4.8.3.4	Bottom openings and properties		N/A
	Openings dimensions (mm)..... :		N/A
	Flammability tests for the bottom of a fire enclosure	(See Clause S.3)	N/A
	Instructional Safeguard..... :		N/A
6.4.8.3.5	Side openings and properties		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
	Openings dimensions (mm)..... :		N/A
6.4.8.3.6	Integrity of a fire enclosure, condition met: a), b) or c)..... :		N/A
6.4.8.4	Separation of a PIS from a fire enclosure and a fire barrier distance (mm) or flammability rating..... :	The fire enclosure is made of V-0 class material.	P
6.4.9	Flammability of insulating liquid..... :	No insulating liquid	N/A
6.5	Internal and external wiring		P
6.5.1	General requirements		P
6.5.2	Requirements for interconnection to building wiring :	No such interconnection	N/A
6.5.3	Internal wiring size (mm ²) for socket-outlets..... :		N/A
6.6	Safeguards against fire due to the connection to additional equipment		P

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

8	MECHANICALLY-CAUSED INJURY		P
8.2	Mechanical energy source classifications		P
8.3	Safeguards against mechanical energy sources		N/A
8.4	Safeguards against parts with sharp edges and corners		N/A
8.4.1	Safeguards	Mass<7kg, no moving parts in the equipment – see below regarding edges and corners.	N/A
	Instructional Safeguard..... :		N/A
8.4.2	Sharp edges or corners	Edges and corners of the enclosure are rounded.	N/A
8.5	Safeguards against moving parts		N/A
8.5.1	Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts	No moving part	N/A
	MS2 or MS3 part required to be accessible for the function of the equipment		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
	Moving MS3 parts only accessible to skilled person		N/A
8.5.2	Instructional safeguard..... :		N/A
8.5.4	Special categories of equipment containing moving parts		N/A
8.5.4.1	General		N/A
8.5.4.2	Equipment containing work cells with MS3 parts		N/A
8.5.4.2.1	Protection of persons in the work cell		N/A
8.5.4.2.2	Access protection override		N/A
8.5.4.2.2.1	Override system		N/A
8.5.4.2.2.2	Visual indicator		N/A
8.5.4.2.3	Emergency stop system		N/A
	Maximum stopping distance from the point of activation (m) :		N/A
	Space between end point and nearest fixed mechanical part (mm) :		N/A
8.5.4.2.4	Endurance requirements		N/A
	Mechanical system subjected to 100 000 cycles of operation		N/A
	- Mechanical function check and visual inspection		N/A
	- Cable assembly :		N/A
8.5.4.3	Equipment having electromechanical device for destruction of media		N/A
8.5.4.3.1	Equipment safeguards		N/A
8.5.4.3.2	Instructional safeguards against moving parts..... :		N/A
8.5.4.3.3	Disconnection from the supply		N/A
8.5.4.3.4	Cut type and test force (N)..... :		N/A
8.5.4.3.5	Compliance		N/A
8.5.5	High pressure lamps		N/A
	Explosion test..... :		N/A
8.5.5.3	Glass particles dimensions (mm)..... :		N/A
8.6	Stability of equipment		N/A
8.6.1	General	MS1	N/A
	Instructional safeguard..... :	Not required	N/A



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Clause	Requirement + Test	Result - Remark	Verdict
8.6.2	Static stability		N/A
8.6.2.2	Static stability test..... :		N/A
8.6.2.3	Downward force test		N/A
8.6.3	Relocation stability		N/A
	Wheels diameter (mm)..... :		—
	Tilt test		N/A
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test..... :		N/A
8.7	Equipment mounted to wall, ceiling or other structure		N/A
8.7.1	Mount means type..... :	Not mounted to wall, ceiling or other structure	N/A
8.7.2	Test methods		N/A
	Test 1, additional downwards force (N)..... :		N/A
	Test 2, number of attachment points and test force (N)..... :		N/A
	Test 3 Nominal diameter (mm) and applied torque (Nm)..... :		N/A
8.8	Handles strength		N/A
8.8.1	General	No handle	N/A
8.8.2	Handle strength test		N/A
	Number of handles..... :		—
	Force applied (N)..... :		—
8.9	Wheels or casters attachment requirements		N/A
8.9.2	Pull test	Not such equipment	N/A
8.10	Carts, stands and similar carriers		N/A
8.10.1	General	Not such equipment	N/A
8.10.2	Marking and instructions..... :		N/A
8.10.3	Cart, stand or carrier loading test		N/A
	Loading force applied (N)..... :		N/A
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Force applied (N)..... :		—
8.10.6	Thermoplastic temperature stability		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
8.11	Mounting means for slide-rail mounted equipment (SRME)		N/A
8.11.1	General	Not such equipment	N/A
8.11.2	Requirements for slide rails		N/A
	Instructional Safeguard..... :		N/A
8.11.3	Mechanical strength test		N/A
8.11.3.1	Downward force test, force (N) applied..... :		N/A
8.11.3.2	Lateral push force test		N/A
8.11.3.3	Integrity of slide rail end stops		N/A
8.11.4	Compliance		N/A
8.12	Telescoping or rod antennas		N/A
	Button/ball diameter (mm)..... :		—

9	THERMAL BURN INJURY		P
9.2	Thermal energy source classifications		P
9.3	Touch temperature limits		P
9.3.1	Touch temperatures of accessible parts..... :	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	P
9.3.2	Test method and compliance		P
9.4	Safeguards against thermal energy sources		P
9.5	Requirements for safeguards		P
9.5.1	Equipment safeguard		P
9.5.2	Instructional safeguard..... :		N/A
9.6	Requirements for wireless power transmitters		N/A
9.6.1	General		N/A
9.6.2	Specification of the foreign objects		N/A
9.6.3	Test method and compliance..... :	(See appended table 9.6)	N/A

10	RADIATION		P
10.2	Radiation energy source classification		P
10.2.1	General classification	RS1, LED lights only	P
	Lasers..... :		—
	Lamps and lamp systems..... :		—
	Image projectors..... :		—



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Clause	Requirement + Test	Result - Remark	Verdict
	X-Ray.....:		—
	Personal music player.....:		—
10.3	Safeguards against laser radiation		N/A
	The standard(s) equipment containing laser(s) comply.....:		N/A
10.4	Safeguards against optical radiation from lamps and lamp systems (including LED types)		N/A
10.4.1	General requirements		N/A
	Instructional safeguard provided for accessible radiation level needs to exceed		N/A
	Risk group marking and location.....:		N/A
	Information for safe operation and installation		N/A
10.4.2	Requirements for enclosures		N/A
	UV radiation exposure.....:	(See Annex C)	N/A
10.4.3	Instructional safeguard.....:		N/A
10.5	Safeguards against X-radiation		
10.5.1	Requirements		N/A
	Instructional safeguard for skilled persons.....:		—
10.5.3	Maximum radiation (pA/kg).....:	(See appended tables B.3 & B.4)	—
10.6	Safeguards against acoustic energy sources		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output $L_{Aeq,T}$, dB(A).....:		N/A
	Unweighted RMS output voltage (mV).....:		N/A
	Digital output signal (dBFS).....:		N/A
10.6.3	Requirements for dose-based systems		N/A
10.6.3.1	General requirements		N/A
10.6.3.2	Dose-based warning and automatic decrease		N/A
10.6.3.3	Exposure-based warning and requirements		N/A
	30 s integrated exposure level (MEL30).....:		N/A
	Warning for MEL \geq 100 dB(A).....:		N/A
10.6.4	Measurement methods		N/A
10.6.5	Protection of persons		N/A
	Instructional safeguards.....:		N/A
10.6.6	Requirements for listening devices (headphones,		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
	earphones, etc.)		
10.6.6.1	Corded listening devices with analogue input		N/A
	Listening device input voltage (mV)..... :		N/A
10.6.6.2	Corded listening devices with digital input		N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A)..... :		N/A
10.6.6.3	Cordless listening devices		N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A)..... :		N/A

B	NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS		P
B.1	General		P
B.1.5	Temperature measurement conditions	(See appended table B.1.5)	P
B.2	Normal operating conditions		P
B.2.1	General requirements..... :	(See Test Item Particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers..... :	(See Annex E)	N/A
B.2.3	Supply voltage and tolerances	Rated voltage $\pm 10\%$	P
B.2.5	Input test..... :	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General	(See appended table B.3)	P
B.3.2	Covering of ventilation openings		N/A
	Instructional safeguard..... :		N/A
B.3.3	DC mains polarity test		N/A
B.3.4	Setting of voltage selector	No such selector	N/A
B.3.5	Maximum load at output terminals	(See appended table B.3, B.4)	P
B.3.6	Reverse battery polarity		N/A
B.3.7	Audio amplifier abnormal operating conditions		N/A
B.3.8	Safeguards functional during and after abnormal operating conditions..... :	(See appended table B.3, B.4)	P
B.4	Simulated single fault conditions		P
B.4.1	General		P
B.4.2	Temperature controlling device		N/A
B.4.3	Blocked motor test	No motor used.	N/A
B.4.4	Functional insulation		P



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Clause	Requirement + Test	Result - Remark	Verdict
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	No coated printed board	N/A
B.4.5	Short-circuit and interruption of electrodes in tubes and semiconductors		P
B.4.6	Short circuit or disconnection of passive components		P
B.4.7	Continuous operation of components		N/A
B.4.8	Compliance during and after single fault conditions :	(See appended table B.3, B.4)	P
B.4.9	Battery charging and discharging 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 test		N/A
C.2.4	Xenon-arc light-exposure test		N/A
D	TEST GENERATORS		P
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		P
D.3	Electronic pulse generator		N/A
E	TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS		N/A
E.1	Electrical energy source classification for audio signals		N/A
	Maximum non-clipped output power (W)..... :		—
	Rated load impedance (Ω) :		—
	Open-circuit output voltage (V)..... :		—
	Instructional safeguard..... :	See Clause F.5	—
E.2	Audio amplifier normal operating conditions		N/A
	Audio signal source type..... :		—
	Audio output power (W)..... :		—




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Clause	Requirement + Test	Result - Remark	Verdict
	Audio output voltage (V)..... :		—
	Rated load impedance (Ω)		—
	Requirements for temperature measurement	(See Table B.1.5)	N/A
E.3	Audio amplifier abnormal operating conditions	(See Table B.3, B.4)	N/A
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General		P
	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 according to IEC, ISO or manufacturer specific		P
F.3	Equipment markings		P
F.3.1	Equipment marking locations		P
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification	(See copy of marking plate)	P
F.3.2.2	Model identification	(See copy of marking plate)	P
F.3.3	Equipment rating markings	(See copy of marking plate)	P
F.3.3.1	Equipment with direct connection to mains		P
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of the supply voltage..... :	(See copy of marking plate)	P
F.3.3.4	Rated voltage..... :	(See copy of marking plate)	P
F.3.3.5	Rated frequency..... :	See copy of marking plate)	P
F.3.3.6	Rated current or rated power..... :	(See copy of marking plate)	P
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device		N/A
F.3.5	Terminals and operating devices		P
F.3.5.1	Mains appliance outlet and socket-outlet markings	No mains appliance outlets or socket-outlets	N/A
F.3.5.2	Switch position identification marking..... :	Accordance with IEC 60417.	P
F.3.5.3	Replacement fuse identification and rating markings	The fuses are located within the equipment and not replaceable by an ordinary person or an instructed person. The fuse rating marked on PCB with F1: T2AL, 250V	P
	Instructional safeguards for neutral fuse..... :		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
F.3.5.4	Replacement battery identification marking..... :		N/A
F.3.5.5	Neutral conductor terminal		N/A
F.3.5.6	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification		P
F.3.6.1	Class I equipment	Class III	N/A
F.3.6.1.1	Protective earthing conductor terminal.....:		N/A
F.3.6.1.2	Protective bonding conductor terminals		N/A
F.3.6.2	Equipment class marking..... :		P
F.3.6.3	Functional earthing terminal marking..... :		N/A
F.3.7	Equipment IP rating marking..... :	IP20	—
F.3.8	External power supply output marking..... :	(See copy of marking plate)	P
F.3.9	Durability, legibility and permanence of marking	See below	P
F.3.10	Test for permanence of markings	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 sec. And then again for 15 sec. With the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade. After each test, the marking remained legible.	P
F.4	Instructions		P
	a) Information prior to installation and initial use		P
	b) Equipment for use in locations where children not likely to be present		N/A
	c) Instructions for installation and interconnection		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Equipment intended to be fastened in place		N/A
	f) Instructions for audio equipment terminals		N/A
	g) Protective earthing used as a safeguard		N/A
	h) Protective conductor current exceeding ES2 limits		N/A
	i) Graphic symbols used on equipment		P
	j) Permanently connected equipment not provided with all-pole mains switch		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
	k) Replaceable components or modules providing safeguard function		N/A
	l) Equipment containing insulating liquid		N/A
	m) Installation instructions for outdoor equipment		N/A
F.5	Instructional safeguards		N/A
G	COMPONENTS		P
G.1	Switches		N/A
G.1.1	General	No such component	N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.1.3	Test method and compliance		N/A
G.2	Relays		N/A
G.2.1	Requirements	No such component	N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supplying power to other equipment		N/A
G.2.4	Test method and compliance		N/A
G.3	Protective devices		P
G.3.1	Thermal cut-offs	No such component	N/A
	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Test method and compliance		N/A
G.3.2	Thermal links		N/A
G.3.2.1	a) Thermal links tested separately according to IEC 60691 with specifics		N/A
	b) Thermal links tested as part of the equipment		N/A
G.3.2.2	Test method and compliance		N/A
G.3.3	PTC thermistors	No such component	N/A
G.3.4	Overcurrent protection devices	(See appended table 4.1.2 and B.4)	P
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.4		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions..... :		N/A
G.4	Connectors		P



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Clause	Requirement + Test	Result - Remark	Verdict
G.4.1	Spacings		P
G.4.2	Mains connector configuration.....:	The appliance inlet and Mains plug used within their rating considered acceptable without further evaluation	P
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely	Output connector with a shape that insertion into a mains connector or socket is unlikely to occur.	P
G.5	Wound components		P
G.5.1	Wire insulation in wound components	Certified triple insulation wire used.	P
G.5.1.2	Protection against mechanical stress	Separate by insulation tape and tube	P
G.5.2	Endurance test		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Test time (days per cycle).....:		—
	Test temperature (°C).....:		—
G.5.2.3	Wound components supplied from the mains		N/A
G.5.2.4	No insulation breakdown		N/A
G.5.3	Transformers	Comply with the requirements as below	P
G.5.3.1	Compliance method.....:	T1	P
	Position.....:	Electronic protection	P
	Method of protection.....:		P
G.5.3.2	Insulation		P
	Protection from displacement of windings.....:	Fixed by bobbin and insulation tape	—
G.5.3.3	Transformer overload tests		N/A
G.5.3.3.1	Test conditions	Tested in the complete equipment	P
G.5.3.3.2	Winding temperatures	(See appended table B.3&B.4)	P
G.5.3.3.3	Winding temperatures - alternative test method		N/A
G.5.3.4	Transformers using FIW		N/A
G.5.3.4.1	General		N/A
	FIW wire nominal diameter.....:		—
G.5.3.4.2	Transformers with basic insulation only		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
G.5.3.4.3	Transformers with double insulation or reinforced insulation..... :		N/A
G.5.3.4.4	Transformers with FIW wound on metal or ferrite core		N/A
G.5.3.4.5	Thermal cycling test and compliance		N/A
G.5.3.4.6	Partial discharge test		N/A
G.5.3.4.7	Routine test		N/A
G.5.4	Motors	No motors used.	N/A
G.5.4.1	General requirements		N/A
G.5.4.2	Motor overload test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4.2	Locked-rotor overload test		N/A
	Test duration (days) :		—
G.5.4.5	Running overload test for DC motors		N/A
G.5.4.5.2	Tested in the unit		N/A
G.5.4.5.3	Alternative method		N/A
G.5.4.6	Locked-rotor overload test for DC motors		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature :		N/A
G.5.4.6.3	Alternative method		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage :		—
G.6	Wire Insulation		P
G.6.1	General	Approved TIW used in transformer as secondary winding	P
G.6.2	Enamelled winding wire insulation		N/A
G.7	Mains supply cords		N/A
G.7.1	General requirements		N/A
	Type..... :		—
G.7.2	Cross sectional area (mm ² or AWG)..... :		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



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Clause	Requirement + Test	Result - Remark	Verdict
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N)..... :		N/A
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm)..... :		N/A
G.7.3.2.4	Strain relief and cord anchorage material		N/A
G.7.4	Cord Entry		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Test method and compliance		N/A
	Overall diameter or minor overall dimension, <i>D</i> (mm)..... :		—
	Radius of curvature after test (mm)..... :		—
G.7.6	Supply wiring space		N/A
G.7.6.1	General requirements		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Requirements		N/A
G.7.6.2.2	Test with 8 mm strand		N/A
G.8	Varistors		P
G.8.1	General requirements	Approved surge suppressors varistor (MOV1, optional) used; (See appended table 4.1.2)	P
G.8.2	Safeguards against fire		P
G.8.2.1	General		P
G.8.2.2	Varistor overload test		P
G.8.2.3	Temporary overvoltage test		N/A
G.9	Integrated circuit (IC) current limiters		N/A
G.9.1	Requirements		N/A
	IC limiter output current (max. 5A)..... :		—
	Manufacturers' defined drift :		—
G.9.2	Test Program		N/A
G.9.3	Compliance		N/A
G.10	Resistors		N/A
G.10.1	General		N/A
G.10.2	Conditioning		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
G.10.3	Resistor test		N/A
G.10.4	Voltage surge test		N/A
G.10.5	Impulse test		N/A
G.10.6	Overload test		N/A
G.11	Capacitors and RC units		P
G.11.1	General requirements		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 with specifics	Approved optocoupler used, see table 4.1.2 for detail.	P
	Type test voltage $V_{ini,a}$:	Min. 4000VDC	—
	Routine test voltage, $V_{ini,b}$:	Min. 4000VDC	—
G.13	Printed boards		P
G.13.1	General requirements	See the following details.	P
G.13.2	Uncoated printed boards	The insulation between conductors on the outer surfaces of an uncoated printed board or over the outer surface of coated printed boards complied with the minimum clearance and creepage requirements of 5.4.2 and 5.4.3.	P
G.13.3	Coated printed boards	No coated printed board or multilayer board applied for within the equipment.	N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation..... :		N/A
	Number of insulation layers (pcs) :		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2	Test method and compliance		N/A
G.14	Coating on components terminals		N/A
G.14.1	Requirements :	(See Clause G.13)	N/A
G.15	Pressurized liquid filled components		N/A
G.15.1	Requirements		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
G.15.2	Test methods and compliance		N/A
G.15.2.1	Hydrostatic pressure test		N/A
G.15.2.2	Creep resistance test		N/A
G.15.2.3	Tubing and fittings compatibility test		N/A
G.15.2.4	Vibration test		N/A
G.15.2.5	Thermal cycling test		N/A
G.15.2.6	Force test		N/A
G.15.3	Compliance		N/A
G.16	IC including capacitor discharge function (ICX)		N/A
G.16.1	Condition for fault tested is not required		N/A
	ICX with associated circuitry tested in equipment		N/A
	ICX tested separately		N/A
G.16.2	Tests		N/A
	Smallest capacitance and smallest resistance specified by ICX manufacturer for impulse test..... :		—
	Mains voltage that impulses to be superimposed on :		—
	Largest capacitance and smallest resistance for ICX tested by itself for 10000 cycles test..... :		—
G.16.3	Capacitor discharge test..... :		N/A
H	CRITERIA FOR TELEPHONE RINGING SIGNALS		N/A
H.1	General		N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringling signal		N/A
H.3.1.1	Frequency (Hz) :		—
H.3.1.2	Voltage (V) :		—
H.3.1.3	Cadence; time (s) and voltage (V) :		—
H.3.1.4	Single fault current (mA):..... :		—
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V)..... :		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
J	INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION		P
J.1	General		P
	Winding wire insulation..... :	Approved triple insulated wires complied with Annex J of EN IEC 62368-1:2020+A11:2020	—
	Solid round winding wire, diameter (mm)..... :		N/A
	Solid square and rectangular (flatwise bending) winding wire, cross-sectional area (mm ²)..... :		N/A
J.2/J.3	Tests and Manufacturing	(See separate test report)	—
K	SAFETY INTERLOCKS		N/A
K.1	General requirements		N/A
	Instructional safeguard..... :		N/A
K.2	Components of safety interlock safeguard mechanism		N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
K.5.1	Under single fault condition		N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Test method and compliance..... :		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements		N/A
	In circuit connected to mains, separation distance for contact gaps (mm)..... :		N/A
	In circuit isolated from mains, separation distance for contact gaps (mm)..... :		N/A
	Electric strength test before and after the test of K.7.2..... :	(See appended table 5.4.9)	N/A
K.7.2	Overload test, Current (A)..... :		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A
L	DISCONNECT DEVICES		P
L.1	General requirements	The mains plug and AC inlet used as disconnect device	P
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
L.4	Single-phase equipment	The mains plug and AC inlet disconnects both poles simultaneously.	P
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices	Direct plug-in equipment.	P
L.8	Multiple power sources		N/A
	Instructional safeguard..... :		N/A
M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		N/A
M.1	General requirements		N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Batteries and their cells comply with relevant IEC standards..... :		N/A
M.3	Protection circuits for batteries provided within the equipment		N/A
M.3.1	Requirements		N/A
M.3.2	Test method		N/A
	Overcharging of a rechargeable battery		N/A
	Excessive discharging		N/A
	Unintentional charging of a non-rechargeable battery		N/A
	Reverse charging of a rechargeable battery		N/A
M.3.3	Compliance	(See appended table M.3)	N/A
M.4	Additional safeguards for equipment containing a portable secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Requirements		N/A
M.4.2.2	Compliance..... :	(See appended table M.4.2)	N/A
M.4.3	Fire enclosure..... :		N/A
M.4.4	Drop test of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation and procedure for the drop test		N/A
M.4.4.3	Drop, Voltage on reference and dropped batteries (V); voltage difference during 24 h period (%):		N/A
M.4.4.4	Check of the charge/discharge function		N/A
M.4.4.5	Charge / discharge cycle test		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
M.4.4.6	Compliance		N/A
M.5	Risk of burn due to short-circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Test method and compliance		N/A
M.6	Safeguards against short-circuits		N/A
M.6.1	External and internal faults		N/A
M.6.2	Compliance		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
	Calculated hydrogen generation rate..... :		N/A
M.7.2	Test method and compliance		N/A
	Minimum air flow rate, Q (m ³ /h)..... :		N/A
M.7.3	Ventilation tests		N/A
M.7.3.1	General		N/A
M.7.3.2	Ventilation test – alternative 1		N/A
	Hydrogen gas concentration (%)..... :		N/A
M.7.3.3	Ventilation test – alternative 2		N/A
	Obtained hydrogen generation rate..... :		N/A
M.7.3.4	Ventilation test – alternative 3		N/A
	Hydrogen gas concentration (%)..... :		N/A
M.7.4	Marking..... :		N/A
M.8	Protection against internal ignition from external spark sources of batteries with aqueous electrolyte		N/A
M.8.1	General		N/A
M.8.2	Test method		N/A
M.8.2.1	General		N/A
M.8.2.2	Estimation of hypothetical volume V_z (m ³ /s)..... :		—
M.8.2.3	Correction factors..... :		—
M.8.2.4	Calculation of distance d (mm) :		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse		N/A
	Instructional safeguard..... :		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
N	ELECTROCHEMICAL POTENTIALS		N/A
	Material(s) used..... :		—
O	MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		P
	Value of X (mm)..... :		—
P	SAFEGUARDS AGAINST CONDUCTIVE OBJECTS		N/A
P.1	General		N/A
P.2	Safeguards against entry or consequences of entry of a foreign object		N/A
P.2.1	General		N/A
P.2.2	Safeguards against entry of a foreign object		N/A
	Location and Dimensions (mm)		—
P.2.3	Safeguards against the consequences of entry of a foreign object		N/A
P.2.3.1	Safeguard requirements		N/A
	The ES3 and PS3 keep-out volume in Figure P.3 not applicable to transportable equipment		N/A
	Transportable equipment with metalized plastic parts..... :		N/A
P.2.3.2	Consequence of entry test..... :		N/A
P.3	Safeguards against spillage of internal liquids		N/A
P.3.1	General		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Compliance		N/A
P.4	Metallized coatings and adhesives securing parts		N/A
P.4.1	General		N/A
P.4.2	Tests		N/A
	Conditioning, T _c (°C)..... :		—
	Duration (weeks)..... :		—
Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		P
Q.1	Limited power sources		P
Q.1.1	Requirements		P
	a) Inherently limited output		N/A
	b) Impedance limited output		P



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Clause	Requirement + Test	Result - Remark	Verdict
	c) Regulating network limited output	A regulating network limits the output in compliance with table Q.1 both under normal operating conditions and after any single fault.	P
	d) Overcurrent protective device limited output		N/A
	e) IC current limiter complying with G.9		N/A
Q.1.2	Test method and compliance.....:	(See appended table Q.1)	P
	Current rating of overcurrent protective device (A):		N/A
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A):		N/A
	Current limiting method.....:		—
R	LIMITED SHORT CIRCUIT TEST		N/A
R.1	General		N/A
R.2	Test setup		N/A
	Overcurrent protective device for test.....:		—
R.3	Test method		N/A
	Cord/cable used for test.....:		—
R.4	Compliance		N/A
S	TESTS FOR RESISTANCE TO HEAT AND FIRE		N/A
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material.....:		—
	Wall thickness (mm).....:		—
	Conditioning (°C).....:		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material.....:		—
	Wall thickness (mm).....:		—
	Conditioning (°C).....:		—
S.3	Flammability test for the bottom of a fire enclosure		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
S.3.1	Mounting of samples		N/A
S.3.2	Test method and compliance		N/A
	Mounting of samples		—
	Wall thickness (mm).....		—
S.4	Flammability classification of materials		N/A
S.5	Flammability test for fire enclosure materials of equipment with a steady state power exceeding 4 000 W		N/A
	Samples, material.....		—
	Wall thickness (mm).....		—
	Conditioning (°C).....		—
T	MECHANICAL STRENGTH TESTS		P
T.1	General		P
T.2	Steady force test, 10 N	(See appended table T.2)	P
T.3	Steady force test, 30 N	(See appended table T.3)	N/A
T.4	Steady force test, 100 N	(See appended table T.4)	P
T.5	Steady force test, 250 N	(See appended table T.5)	N/A
T.6	Enclosure impact test	(See appended table T.6)	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	Glass Impact Test.....	(See appended table T.9)	N/A
T.10	Glass fragmentation test		N/A
	Number of particles counted.....		N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm)		N/A
U	MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N/A
U.1	General		N/A
	Instructional safeguard :		N/A
U.2	Test method and compliance for non-intrinsically protected CRTs		N/A
U.3	Protective screen		N/A
V	DETERMINATION OF ACCESSIBLE PARTS		P
V.1	Accessible parts of equipment		P



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Clause	Requirement + Test	Result - Remark	Verdict
V.1.1	General		P
V.1.2	Surfaces and openings tested with jointed test probes		P
V.1.3	Openings tested with straight unjointed test probes		N/A
V.1.4	Plugs, jacks, connectors tested with blunt probe		N/A
V.1.5	Slot openings tested with wedge probe		N/A
V.1.6	Terminals tested with rigid test wire		N/A
V.2	Accessible part criterion		P
X	ALTERNATIVE METHOD FOR DETERMINING CLEARANCES FOR INSULATION IN CIRCUITS CONNECTED TO AN AC MAINS NOT EXCEEDING 420 V PEAK (300 V RMS)		N/A
	Clearance.....: (See appended table X)		N/A
Y	CONSTRUCTION REQUIREMENTS FOR OUTDOOR ENCLOSURES		N/A
Y.1	General		N/A
Y.2	Resistance to UV radiation		N/A
Y.3	Resistance to corrosion		N/A
Y.3.1	Metallic parts of outdoor enclosures are resistant to effects of water-borne contaminants by.....:		N/A
Y.3.2	Test apparatus		N/A
Y.3.3	Water – saturated sulphur dioxide atmosphere		N/A
Y.3.4	Test procedure.....:		N/A
Y.3.5	Compliance		N/A
Y.4	Gaskets		N/A
Y.4.1	General		N/A
Y.4.2	Gasket tests		N/A
Y.4.3	Tensile strength and elongation tests		N/A
	Alternative test methods.....:		N/A
Y.4.4	Compression test		N/A
Y.4.5	Oil resistance		N/A
Y.4.6	Securing means	(See Annex P.4)	N/A
Y.5	Protection of equipment within an outdoor enclosure		N/A
Y.5.1	General		N/A
Y.5.2	Protection from moisture		N/A
	Relevant tests of IEC 60529 or Y.5.3.....:		N/A
Y.5.3	Water spray test		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
Y.5.4	Protection from plants and vermin		N/A
Y.5.5	Protection from excessive dust		N/A
Y.5.5.1	General		N/A
Y.5.5.2	IP5X equipment		N/A
Y.5.5.3	IP6X equipment		N/A
Y.6	Mechanical strength of enclosures		N/A
Y.6.1	General		N/A
Y.6.2	Impact test..... :	(See Table T.6)	N/A



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Clause	Requirement + Test	Result - Remark	Verdict
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5.2	TABLE: Classification of electrical energy sources						P
Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
			U (V)	I (mA)	Type ¹⁾	Additional Info ²⁾	
Models RJT-AS240125							
264V/60Hz	Input terminal, All Internal circuits	Normal:	--	--	SS	--	ES3
		Abnormal:	--	--	SS	--	
		Single fault – SC/OC:	--	--	SS	--	
264V/60Hz	Output “+” to “-”	Normal	20.11Vrms	--	SS	--	ES1
		Abnormal – Overload	19.44Vrms	--	SS	--	
		Single fault – Q1 pin D to S SC	0Vrms	--	SS	--	
		Single fault – U1 pin 1-2 SC	0Vrms	--	SS	--	
		Single fault – U1 pin 3-4 SC	0Vrms	--	SS	--	
		Single fault – U1 pin 1 OC	0Vrms	--	SS	--	
		Single fault – U1 pin 3 OC	0Vrms	--	SS	--	
		Single fault – D4 SC	0Vrms	--	SS	--	
264V/60Hz	Output “+/-” to earth (Only used CY1)	Normal	252Vpk	0.362mApk#	SS	60	ES1
		Abnormal: Over load	253Vpk	0.366mApk#	SS	60	
		Single fault – Fuse open*	254Vpk	0.368mApk#	SS	60	
264V/60Hz	Output “+/-” to earth (With CY2 and CY3)	Normal	197Vpk	0.178mApk#	SS	60	ES1
		Abnormal: Over load	198Vpk	0.178mApk#	SS	60	
		Single fault – Fuse open*	198Vpk	0.192mApk#	SS	60	
		Single fault – SC CY2	254Vpk	0.361mApk&	SS	60	
264V/60Hz	Accessible	Normal	--	0.005mApk#	SS	60	ES1



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Clause	Requirement + Test			Result - Remark		Verdict
	enclosure with metal foil to earth (with CY1)	Abnormal: Over load	--	0.005mApk#	SS	60
		Single fault – Fuse open*	--	0.005mApk#	SS	60
264V/60Hz	Accessible enclosure with metal foil to earth (with CY2 and CY3)	Normal	--	0.005mApk#	SS	60
		Abnormal: Over load	--	0.005mApk#	SS	60
		Single fault – Fuse open*	--	0.005mApk#	SS	60
		Single fault – SC CY2	--	0.005mApk&	SS	60
ES1						
Supplementary information:						
<p>1) Type: Steady state (SS), Capacitance (CP), Single pulse (SP), Repetitive pulses (RP), etc. 2) Additional Info: Frequency, Pulse duration, Pulse off time, Capacitance value, etc. #: Current is measured using the measuring network specified in Figure 4 of IEC 60990:1999. @: Current is measured using the measuring network specified in Figure 5 of IEC 60990:1999. *: Refer to table B.4 for details of fuse open condition.</p> <p>Output terminal does not exceed ES1 limits, and the maximum output voltage did not increase by more than 3V or 10% of rated output voltage.</p>						

5.4.1.8	TABLE: Working voltage measurement				P
Location	RMS voltage (V)	Peak voltage (V)	Frequency (Hz)	Comments	
T1 pin 4-6	216	348	61.4k		
T1 pin 1-6	256	544	61.4k	Max. Peak, Max. RMS	
T1 pin 2-6	219	356	61.4k		
T1 pin 3-6	222	424	61.4k		
T1 pin 4-7	215	372	61.4k		
T1 pin 1-7	250	536	61.4k		
T1 pin 2-7	219	360	61.4k		
T1 pin 3-7	218	392	61.4k		
CY1 pri. to CY2 sec. pin	216	352	60		
U1 pin 1 to 3	220	356	60		
U1 pin 1 to 4	219	352	60		
U1 pin 2 to 3	220	356	60		
U1 pin 2 to 4	219	352	60		
Supplementary information:					



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Clause	Requirement + Test	Result - Remark	Verdict
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5.4.1.10.2 TABLE: Vicat softening temperature of thermoplastics				N/A
Method..... :				—
Object/ Part No./Material	Manufacturer/trademark	Thickness (mm)	T softening (°C)	
Supplementary information:				

5.4.1.10.3 TABLE: Ball pressure test of thermoplastics					P
Allowed impression diameter (mm)..... :					≤ 2 mm
Object/Part No./Material	Manufacturer/trademark	Thickness (mm)	Test temperature (°C)	Impression diameter (mm)	
Plug holder & enclosure / 940(f1)	SABIC INNOVATIVE PLASTICS US L L C	1.5	125	1.2	
Supplementary information:					

5.4.2, 5.4.3 TABLE: Minimum Clearances/Creepage distance								P
Clearance (cl) and creepage distance (cr) at/of/between:	U _p (V)	U _{rms} (V)	Freq ¹⁾ (Hz)	Required cl (mm)	cl (mm)	E.S. ²⁾ (V)	Required cr (mm)	cr (mm)
Line and Neutral before F1 (BI)	<420	240	0.06	1.9	3.7	--	2.4	3.7
Two terminals of F1 (BI)	<420	240	0.06	1.9	4.3	--	2.4	4.3
Primary trace to secondary trace under CY2 (BI) (CY2&CY3 in series used condition)	<420	240	0.06	1.9	4.9	--	2.4	4.9
Primary trace to secondary trace under CY3 (SI) (CY2&CY3 in series used condition)	<420	240	0.06	1.9	5.4	--	2.4	5.4
Primary trace to secondary trace under CY1 (RI) (Only CY1 used condition)	<420	240	0.06	3.8	10.3	--	4.8	10.3



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Primary trace to secondary trace under U1 (RI)	<420	240	0.06	3.8	6.8	--	4.8	6.8
Primary trace to secondary trace under T1 (RI)	552	270	61.4	3.8	7.0	--	5.4	7.0
T1 primary winding to secondary pin (RI) #	552	270	61.4	3.8	7.2	--	5.4	7.2
T1 core to secondary pin (RI) #	552	270	61.4	3.8	6.6	--	5.4	6.6
T1 core to CY2 secondary pin (BI)	552	270	61.4	1.9	2.8	--	2.4	2.8
T1 core to secondary component LF2 (RI)	552	270	61.4	3.8	8.3	--	5.4	8.3
T1 core to secondary component D4 (RI)	552	270	61.4	3.8	10.0	--	5.4	10.0
T1 core to secondary component C10 (RI)	552	270	61.4	3.8	11.6	--	5.4	11.6
T1 primary winding to secondary component LF2(RI)	552	270	61.4	3.8	8.6	--	5.4	8.6
T1 primary winding to secondary component C11(RI)	552	270	61.4	3.8	7.0	--	5.4	9.5
Primary component to accessible enclosure (RI)	<420	240	0.06	3.8	8.8	--	4.8	8.8

Supplementary information:

- 1) Only for frequency above 30 kHz
- 2) Complete Electric Strength voltage (E.S. (V) when 5.4.2.4 applied)
- Note 1: Only for frequency above 30 kHz unless otherwise specified.
- Note 2: See table 5.4.2.4 if this is based on electric strength test.
- Note 3: Provide Material Group IIIb.
- Note 4: BI: basic insulation; SI: supplementary insulation; RI: reinforced insulation.
- Note 5: Ferrite core of transformer T1 considered as primary live part.
- Note 6: *Both frequencies lower than 30 kHz and higher than 30 kHz are present. Limit from Table 11 based on the temporary overvoltage (2000Vpeak) which is higher than Table 12.
- Note 7: # means all models of transformer were considered.
- Note 8: Unit was evaluated for altitude up to 5000m above sea level correction factor for clearance is 1.48.
- Note 9: All types of transformer construction and PCB layout were considered and passed for above test.
- Note 10: & means min. Clearance and creepage distance for EU/US/BS/CN/JP/KR/BR/India detachable plug.
- Note 11: If no specified, the worst conditions were recorded.



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5.4.4.2	TABLE: Minimum distance through insulation				N/A
Distance through insulation (DTI) at/of	Peak voltage (V)	Insulation	Required DTI (mm)	Measured DTI (mm)	
Plastic enclosure	552	RI	0.4	Min. 1.5	
U1	<420	RI	0.4	Min. 0.4	
Supplementary information:					
RI: reinforced insulation.					

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

5.4.9	TABLE: Electric strength tests				P
Test voltage applied between:	Voltage shape (Surge, Impulse, AC, DC, etc.)	Test voltage (V)	Breakdown Yes / No		
Functional:					
--	--	--	--	--	--
Basic/supplementary:					
L and N before fuse (Fuse disconnected) (Basic) @	DC	2500	No		
Mylar shee (Basic) #	DC	2500	No		
Reinforced:					
L/N to output terminal @	DC	4000	No		
L/N to outer plastic enclosure with metal foil @	DC	4000	No		
Transformer T1: pri. winding to sec. winding #	DC	4000	No		
Transformer T1: core to sec. winding #	DC	4000	No		
One layer of insulation tape transformer T1 #	DC	4000	No		
Supplementary information:					
1. #: All sources of alternative component and materials listed in table 4.1.2 were considered and passed for above test.					
2. @: Test models:					
3. #: Test repeated for all alternate materials and components listed in table 4.1.2.					
4. All types of transformer construction and PCB layout were considered and passed for above test.					



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Clause	Requirement + Test	Result - Remark	Verdict
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5.5.2.2	TABLE: Stored discharge on capacitors					N/A
Location	Supply voltage (V)	Operating and fault condition ¹⁾	Switch position	Measured voltage (Vpk)	ES Class	

Supplementary information:
 X-capacitors installed for testing:
 bleeding resistor rating:
 ICX:
 1) Normal operating condition (e.g., normal operation, or open fuse), SC= short circuit, OC= open circuit

5.6.6	TABLE: Resistance of protective conductors and terminations				N/A
Location	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)	

Supplementary information:



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Clause	Requirement + Test	Result - Remark	Verdict
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5.7.4		TABLE: Unearthed accessible parts				N/A
Location	Operating and fault conditions	Supply Voltage (V)	Parameters			ES class
			Voltage (V _{rms} or V _{pk})	Current (A _{rms} or A _{pk})	Freq. (Hz)	
Output "+/-" to earth (Only used CY1)	Normal	264V/60Hz	252Vpk	0.362mA _{pk} #	60	ES1
	Abnormal: Over load	264V/60Hz	253Vpk	0.366mA _{pk} #	60	
	Single fault – Fuse open*	264V/60Hz	254Vpk	0.368mA _{pk} #	60	
Output "+/-" to earth (With CY2 and CY3)	Normal	264V/60Hz	197Vpk	0.178mA _{pk} #	60	ES1
	Abnormal: Over load	264V/60Hz	198Vpk	0.178mA _{pk} #	60	
	Single fault – Fuse open*	264V/60Hz	198Vpk	0.192mA _{pk} #	60	
	Single fault – SC CY2	264V/60Hz	254Vpk	0.361mA _{pk} &	60	
Accessible enclosure with metal foil to earth (with CY1)	Normal	264V/60Hz	--	0.005mA _{pk} #	60	ES1
	Abnormal: Over load	264V/60Hz	--	0.005mA _{pk} #	60	
	Single fault – Fuse open*	264V/60Hz	--	0.005mA _{pk} #	60	
Accessible enclosure with metal foil to earth (with CY2 and CY3)	Normal	264V/60Hz	--	0.005mA _{pk} #	60	ES1
	Abnormal: Over load	264V/60Hz	--	0.005mA _{pk} #	60	
	Single fault – Fuse open*	264V/60Hz	--	0.005mA _{pk} #	60	
	Single fault – SC CY2	264V/60Hz	--	0.005mA _{pk} &	60	
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit						



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5.7.5	TABLE: Earthed accessible conductive part			N/A
Supply voltage (V).....:				—
Phase(s)	<input type="checkbox"/> Single Phase; <input type="checkbox"/> Three Phase: <input type="checkbox"/> Delta <input type="checkbox"/> Wye			
Power Distribution System	<input type="checkbox"/> TN <input type="checkbox"/> TT <input type="checkbox"/> IT			
Location	Fault Condition No in IEC 60990 clause 6.2.2	Touch current (mA)	Comment	
Supplementary Information:				

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

6.2.2	TABLE: Power source circuit classifications					P
Location	Operating and fault condition	Voltage (V)	Current (A)	Max. Power ¹⁾ (W)	Time (S)	PS class
Primary circuits supplied by AC mains	--	--	--	--	--	PS3 (declared)
Output terminal #	Normal	23.674	3.67	86.9	5	PS2
Output terminal &	Single fault –SC R7	0	0	0	0	PS1
	Single fault – SC: U1 pin 1 to 2	0	0	0	0	PS1
	Single fault – SC: U1 pin 3 to 4	0	0	0	0	PS1
	Single fault – OC: U1 pin 1	0	0	0	0	PS1
	Single fault – SC: R31	0	0	0	0	PS1
	Single fault – SC: R27	0	0	0	0	PS1
Supplementary information:						



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Clause	Requirement + Test	Result - Remark	Verdict
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Abbreviation: SC= short circuit; OC= open circuit

1) Measured after 3 s for PS1 and measured after 5 s for PS2 and PS3.

#: Test method-power measurement for worst-case fault.

&: Test method-power measurement for worst-case power source fault.

6.2.3.1	TABLE: Determination of Arcing PIS				P
Location	Open circuit voltage after 3 s (Vpk)	Measured r.m.s current (A)	Calculated value	Arcing PIS? Yes / No	
Input terminal, All primary and secondary circuits inside enclosure	--	--	--	Yes	
Output terminal	<50	>0.3	>15	No	
Supplementary information:					
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 resistive PIS			P
Location	Operating and fault condition	Dissipate power (W)	Arcing PIS? Yes / No	
Input terminal, All primary and secondary circuits inside enclosure	--	--	Yes	
Output terminal	--	<100	Yes	
Supplementary information:				
Abbreviation: SC= short circuit; OC= open circuit				
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, <u>or</u> (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault.				



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Clause	Requirement + Test	Result - Remark	Verdict
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8.5.5	TABLE: High pressure lamp				N/A			
Lamp manufacturer	Lamp type	Explosion method	Longest axis of glass particle (mm)	Particle found beyond 1 m Yes / No				
Supplementary information:								
9.6	TABLE: Temperature measurements for wireless power transmitters				N/A			
Supply voltage (V).....:					—			
Max. transmit power of transmitter (W).....:					—			
Foreign objects	w/o receiver and direct contact		with receiver and direct contact		with receiver and at distance of 2 mm		with receiver and at distance of 5 mm	
	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)
Supplementary information:								

5.4.1.4, 9.3, B.1.5, B.2.6	TABLE: Temperature measurements				P	
Supply voltage (V).....:	90V/60Hz Label up	90V/60Hz Label down	264V/50Hz Label up	264V/50Hz Label up	—	
Ambient temperature during test T_{amb} (°C).....:	See below	See below	See below	See below	—	
Maximum measured temperature T of part/at:	T (°C)				Allowed T_{max} (°C)	
Plug holder	65.0	66.7	61.8	62.3	Ref.	
MOV1	80.0	77.1	74.4	70.1	85	
LF1 winding	93.3	86.2	81.3	73.5	130	
C1	97.3	95.4	88.0	84.5	105	
C2	97.9	94.0	94.3	88.2	105	
PCB near Q1	121.0	121.4	120.0	118.6	130	
U1	93.4	94.1	95.7	95.3	100	
T1 winding	102.8	100.2	101.1	99.8	110	
T1 core	100.6	98.6	98.4	97.7	110	
CY1	100.2	96.6	102.1	96.6	125	
PCB near D4	107.8	106.0	111.6	108.5	130	



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Clause	Requirement + Test					Result - Remark	Verdict
C10		76.3	76.4	78.4	77.4	105	
LF2 winding		72.2	73.9	73.5	74.6	130	
Output wire		71.8	73.0	72.4	73.3	80	
PCB under BD1		112.2	108.5	106.6	100.8	130	
Enclosure inside of T1 top		84.2	82.0	86.3	83.4	Ref.	
Enclosure inside of T1 bottom		85.4	83.5	87.4	84.0	Ref.	
Ambient		40.0	40.0	40.0	40.0	--	
Enclosure outside near T1 top		52.2	50.6	54.6	50.0	77*	
Enclosure outside near T1 bottom		56.5	54.8	58.5	53.4	77*	
Ambient		25.0	25.0	25.0	25.0	--	
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:							
<ul style="list-style-type: none"> - Thermal coupler method used for above temperature tests. - The maximum operation ambient temperature is 40°C. - Horizontal means the adaptor is plugged into horizontal socket-outlet; Vertical means the adaptor is plugged into vertical wall socket-outlet. 							
*External surfaces touched occasionally for very short periods: 1s<t<10s.							

B.2.5		TABLE: Input test							P
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status	
Model: RJT-AS240125									
90	50	0.664	--	35.7	-	F1	0.664	Load with 24.0V1.25A	
90	60	0.663	--	35.7	-	F1	0.663		
100	50	0.604	1.0	35.3	-	F1	0.604		
100	60	0.604	1.0	35.3	-	F1	0.604		
240	50	0.309	1.0	34.1	-	F1	0.309		
240	60	0.308	1.0	34.1	-	F1	0.308		
264	50	0.294	--	34.3	-	F1	0.294		
264	60	0.293	--	34.3	-	F1	0.293		
Model: RJT-AS120250									
90	50	0.681	--	36.4	-	F1	0.681	Load with 12.0V2.5A	
90	60	0.680	--	36.4	-	F1	0.680		
100	50	0.627	1.0	35.7	-	F1	0.627		



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Clause	Requirement + Test					Result - Remark		Verdict
100	60	0.627	1.0	35.7	-	F1	0.627	
240	50	0.320	1.0	34.7	-	F1	0.320	
240	60	0.319	1.0	34.7	-	F1	0.319	
264	50	0.292	--	34.7	-	F1	0.300	
264	60	0.293	--	34.7	-	F1	0.293	
Supplementary information:								

B.3, B.4		TABLE: Abnormal operating and fault condition tests						P
Ambient temperature T _{amb} (°C)..... :							—	
Power source for EUT: Manufacturer, model/type, output rating... :							—	
Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation		
Model: RJT-AS240125								
Output	O-L	264	5 h 20 min	F1	0.506 → 0.534 → 0.568 → 0.01	T1 winding: 116.2°C, T1 core: 111.4°C, Ambient: 40.0°C, Enclosure outside near T1 top: 59.3°C, Enclosure outside near T1 bottom: 62.3°C, Ambient: 25.0°C. The maximum output current was loaded to 0.84A and ran for thermal equilibrium under it. Overloaded to 0.86A unit shut down. No damaged, no hazard. Max. output voltage: 48.04VDC.		
BD1 pin 1 to 2 #	SC	264	< 1 s	F1	0.506 → 0	F1 opened immediately, no hazard. No-load output voltage: 0V.		
C1 #	SC	264	< 1 s	F1	0.506 → 0	F1 opened immediately, no hazard. No-load output voltage: 0V.		
C2 #	SC	264	< 1 s	F1	0.506 → 0	F1 opened immediately, no hazard. No-load output voltage: 0V.		
Q1 pin D to S #	SC	264	< 1 s	F1	0.506 → 0	F1 opened immediately, Q1 damaged, no hazard. No-load output voltage: 0V.		



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Clause	Requirement + Test				Result - Remark	Verdict
Q1 pin D to G #	SC	264	< 1 s	F1	0.506 → 0	F1 opened immediately, Q1 damaged, no hazard. No-load output voltage: 0V.
Q1 pin S to G	SC	264	10 min	F1	0.506 → 0.006	Unit shut down immediately, recoverable, no damaged, no hazard. No-load output voltage: 0V.
R7 #	SC	264	< 1 s	F1	0.506 → 0	F1 opened immediately, Q1 damaged, no hazard. No-load output voltage: 0V.
IC1 pin 5 to 1	SC	264	10 min	F1	0.506 → 0.006	Unit shut down immediately, recoverable, no damaged, no hazard. No-load output voltage: 0V.
IC1 pin 5 to 2	SC	264	10 min	F1	0.506 → 0.006	Unit shut down immediately, recoverable, no damaged, no hazard. No-load output voltage: 0V.
IC1 pin 5 to 3	SC	264	10 min	F1	0.506 → 0.006	Unit shut down immediately, recoverable, no damaged, no hazard. No-load output voltage: 0V.
T1 pin 4 to 1	SC	264	10 min	F1	0.506 → 0.006	Unit shut down immediately, recoverable, no damaged, no hazard. No-load output voltage: 0V.
T1 pin 2 to 3	SC	264	10 min	F1	0.506 → 0.006	Unit shut down immediately, recoverable, no damaged, no hazard. No-load output voltage: 0V.
T1 pin 6 to 7	SC	264	10 min	F1	0.506 → 0.006	Unit shut down immediately, recoverable, no damaged, no hazard. No-load output voltage: 0V.
U1 pin 1 to 2	SC	264	10 min	F1	0.506 → 0.006	Unit shut down immediately, recoverable, no damaged, no hazard. No-load output voltage: 0V.
U1 pin 3 to 4	SC	264	10 min	F1	0.506 → 0.006	Unit shut down immediately, recoverable, no damaged, no hazard. No-load output voltage: 0V.
U1 pin 1	OC	264	10 min	F1	0.506 → 0.006	Unit shut down immediately, recoverable, no damaged, no hazard. No-load output voltage: 0V.
U1 pin 3	OC	264	10 min	F1	0.506 →	Unit shut down immediately,



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					0.006	recoverable, no damaged, no hazard. No-load output voltage: 0V.
D4	SC	264	10 min	F1	0.506 → 0.006	Unit shut down immediately, recoverable, no damaged, no hazard. No-load output voltage: 0V.
R31	SC	264	10 min	F1	0.506 → 0.006	Unit shut down immediately, recoverable, no damaged, no hazard. No-load output voltage: 0V.
R27	SC	264	10 min	F1	0.506 → 0.006	Unit shut down immediately, recoverable, no damaged, no hazard. No-load output voltage: 0V.
Output terminal	SC	264	10 min	F1	0.506 → 0.006	Unit shut down immediately, recoverable, no damaged, no hazard. No-load output voltage: 0V.

Supplementary information:

1. 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.
2. O-L: overload.
3. The Hi-pot test conducted successfully after the completion of fault condition test.
4. Temperature limits under the fault condition: T1 winding limit: 165°C (class B), Enclosure outside: 87°C, For other parts: 300°C.
5. Output terminal does not exceed ES1 limits, and the maximum output voltage did not increase by more than 3V or 10% of rated output voltage.
 - 1) SC: short circuit, OC: open circuit.
 - 2) The Hi-pot test conducted successfully after the completion of fault condition test.
 - 3) # means all types of fuse-link listed in table 4.1.2 are considered for test and same result came out. Fuse open circuit current >6.0A. Also means for NTC1 with or without condition, both condition came out the same result.
 - 4) Output terminal does not exceed ES1 limits, and the maximum output voltage did not increase by more than 3V or 10% of rated output voltage.
 - 5) All tests were considered in AC 90V also, same result generated.



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Clause	Requirement + Test	Result - Remark	Verdict
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M.3	TABLE: Protection circuits for batteries provided within the equipment						P
Is it possible to install the battery in a reverse polarity position?.....:		No possible.				—	
Equipment Specification	Charging						
	Voltage (V)				Current (A)		
	5				0.1		
Manufacturer/type	Battery specification						
	Non-rechargeable batteries			Rechargeable batteries			
	Discharging current (A)	Unintentional charging current (A)	Charging		Discharging current (A)	Reverse charging current (A)	
			Voltage (V)	Current (A)			
Shenzhen Sanqixin Electronics Co.,LTD/602030	--	--	4.2	0.3	0.3	--	
Note: The tests of M.3.2 are applicable only when above appropriate data is not available.							
Specified battery temperature (°C).....:		Battery surface: 0-45°C				--	
Component No.	Fault condition	Charge/discharge mode	Test time	Temp. (°C)	Current (A)	Voltage (V)	Observation
Unit	Normal	Charge	7h	See table 5.4.1.4	0.096	5V	Empty battery, Operating normally. Input charge current 0.096A. The cell current 0.11A.. No chemicals leak, explosion, molten metal emission or expulsion observed.
Unit	SC (P+,P-)	Charge	7h	--	0.095	5V	Unit shutdown immediately, The battery cannot be discharged. recoverable, no hazard.
Unit	Normal	Discharge	7h	See table 5.4.1.4	0.01	4.18	Operating normally., the current flowing through the cell changed from0.01A. No chemicals leak, explosion, molten metal emission or expulsion observed
Unit	SC (P+,P-)	Discharge	7h	--	0.01	4.18	Unit shutdown immediately, Input charge current 0A. The cell current 0A..recoverable, no



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			hazard.
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Supplementary information:

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

M.4.2	TABLE: Charging safeguards for equipment containing a secondary lithium battery				P
	Maximum specified charging voltage (V).....	:	4.20V		---
	Maximum specified charging current (A)	:	0.3		---
	Highest specified charging temperature (°C)	:	45		----
	Lowest specified charging temperature (°C)	:	0		---
Battery manufacturer/type	Operating and fault condition	Measurement			Observation
		Charging voltage (V)	Charging current (A)	Temp. (°C)	
Shenzhen Sanqixin Electronics Co.,LTD/602030	Normal operation	4.18	0.096	See table 5.4.1.4	Unit normal work. No chemicals leak, explosion, molten metal emission or expulsion observed. battery current 0.1A
	Single fault – Tested ambient: from 25°C to 45 °C	4.17	0.097	--	When the ambient temperature reaches 40°C and the temperature reaches 45°C, power bank is protected. Unit shutdown. The current flowing through the cell changed from 0.1A to 0A. No chemicals leak, explosion, molten metal emission or expulsion observed.
	Single fault – Tested ambient: from 25°C to 0 °C	4.18	0.096	--	When the ambient temperature reaches 0°C and the temperature reaches 0°C, power bank is protected. Unit normal work. The current flowing through the cell changed from 0.096A to 0.02A. No chemicals leak, explosion, molten metal emission or expulsion observed.
	Abnormal (after drop test)	4.17	0.095	--	Unit normal work. No chemicals leak, explosion, molten metal emission or expulsion observed. battery current 0.1A



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Clause	Requirement + Test	Result - Remark	Verdict
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Supplementary information:

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

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

Output Circuit	Condition	U _{oc} (V)	Time (s)	I _{sc} (A)		S (VA)	
				Meas.	Limit	Meas.	Limit

Model: RJT-AS240125

24.0VDC output	Normal operation	24.07	5	3.67	8	86.9	100
	Single fault of R7 SC	0	5	0	8	0	100
	Single fault of R31 SC	0	5	0	8	0	100
	Single fault of R27 SC	0	5	0	8	0	100
	Single fault of U1 pin 1 to 2 SC	0	5	0	8	0	100
	Single fault of U1 pin 3 to 4 SC	0	5	0	8	0	100
	Single fault of U1 pin 1 OC	0	5	0	8	0	100
	Single fault of U1 pin 3 OC	0	5	0	8	0	100

Model: RJT-AS120250

12.0VDC output	Normal operation	12.27	5	3.32	8	39.05	100
	Single fault of R7 SC	0	5	0	8	0	100
	Single fault of R31 SC	0	5	0	8	0	100
	Single fault of R27 SC	0	5	0	8	0	100
	Single fault of U1 pin 1 to 2 SC	0	5	0	8	0	100
	Single fault of U1 pin 3 to 4 SC	0	5	0	8	0	100
	Single fault of U1 pin 1 OC	0	5	0	8	0	100
	Single fault of U1 pin 3 OC	0	5	0	8	0	100

Supplementary Information:

SC=Short circuit, OC=Open circuit.

T.2, T.3, T.4, T.5	TABLE: Steady force test	P
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Clause	Requirement + Test	Result - Remark	Verdict
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Location/Part	Material	Thickness (mm)	Probe	Force (N)	Test Duration (s)	Observation
Internal components, output wire	--	--	--	10	5	Clearances and creepage distances still complied with the requirements of this standard
Each side of enclosure	Plastic	1.5	A circular plane surface 30 mm in diameter	100	5	Enclosure remained intact
Each side of enclosure	Plastic	1.5	A circular plane surface 30 mm in diameter	250	5	Enclosure remained intact

Supplementary information:

Test models:

T.6, T.9	TABLE: Impact test				P
Location/Part	Material	Thickness (mm)	Height (mm)	Observation	
Top enclosure	Plastic	Min. 1.5	1300	No damaged	
Side enclosure	Plastic	Min. 1.5	1300	No damaged	
Bottom enclosure	Plastic	Min. 1.5	1300	No damaged	

Supplementary information:

Test models:

T.7	TABLE: Drop test				P
Location/Part	Material	Thickness (mm)	Height (mm)	Observation	
Top enclosure	Plastic	Min. 1.5	1000	No damaged	
Side enclosure	Plastic	Min. 1.5	1000	No damaged	
Bottom enclosure	Plastic	Min. 1.5	1000	No damaged	

Supplementary information:

Test models:



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Clause	Requirement + Test	Result - Remark	Verdict
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T.8	TABLE: Stress relief test					P
Location/Part	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
Enclosure of completed product	Plastic	1.5	99.0	7	No distortion, No damaged	
Supplementary information:						
Test models:						

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



4.1.2	TABLE: Critical components information					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾	
PCB	Shenzhen JLC Electronics Co., Ltd.	FR-4	V-0;130°C	UL796	UL E524507	
MOS	SHENZHEN NEWTOP SEMICONDUCT OR CO.,LTD	6G03L	30V 6A MOS	SGS	SZXEC2101 692002	
U1	Shenzhen Yaodatian Technology Co., Ltd	MCU707		UL E621823	UL E621823	
Supplementary information:						
1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.						

IEC62368_1E - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT EN IEC 62368-1:2020+A11:2020 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment - Part 1: Safety requirements)			
Differences according to..... EN IEC 62368-1:2020+A11:2020			
Attachment Form No..... EU_GD_IEC62368_1E			
Attachment Originator..... UL(Demko)			
Master Attachment..... 2021-02-04			
Copyright © 2021 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.			
CENELEC COMMON MODIFICATIONS (EN)			—
	Clause numbers in the cells that are shaded light grey are clause references in EN IEC 62368-1:2020+A11:2020. All other clause numbers in that column, except for those in the paragraph below, refers to EN IEC 62368-1:2020+A11:2020. Clauses, subclauses, notes, tables, figures and annexes which are additional to those in EN IEC 62368-1:2020+A11:2020 are prefixed “Z”.		P
	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords		P
1	Modification to Clause 3 .		—
3.3.19	Sound exposure <i>Replace 3.3.19 of EN IEC 62368-1:2020+A11:2020 with the following definitions:</i>		N/A

EN IEC 62368-1:2020+A11:2020			
Clause	Requirement + Test	Result - Remark	Verdict
3.3.19.1	<p>momentary exposure level, MEL metric for estimating 1 s sound exposure level from the HD 483-1 S2 test signal applied to both channels, based on EN 50332-1:2013, 4.2.</p> <p>Note 1 to entry: MEL is measured as A-weighted levels in dB. Note 2 to entry: See B.3 of EN 50332-3:2017 for additional information.</p>		N/A
3.3.19.3	<p>sound exposure, E A-weighted sound pressure (<i>p</i>) squared and integrated over a stated period of time, <i>T</i></p> <p>Note 1 to entry: The SI unit is Pa² s.</p> $E = \int_0^T p(t)^2 dt$		N/A
3.3.19.4	<p>sound exposure level, SEL logarithmic measure of sound exposure relative to a reference value, <i>E₀</i>, typically the 1 kHz threshold of hearing in humans.</p> <p>Note 1 to entry: <i>SEL</i> is measured as A-weighted levels in dB.</p> $SEL = 10 \lg \left(\frac{E}{E_0} \right) \text{ dB}$ <p>Note 2 to entry: See B.4 of EN 50332-3:2017 for additional information.</p>		N/A
3.3.19.5	<p>digital signal level relative to full scale, dBFS levels reported in dBFS are always r.m.s. Full scale level, 0 dBFS, is the level of a dc-free 997-Hz sine wave whose undithered positive peak value is positive digital full scale, leaving the code corresponding to negative digital full scale unused</p> <p>Note 1 to entry: It is invalid to use dBFS for non-r.m.s. levels. Because the definition of full scale is based on a sine wave, the level of signals with a crest factor lower than that of a sine wave may exceed 0 dBFS. In particular, square wave signals may reach +3,01 dBFS.</p>		N/A
2	Modification to Clause 10		—
10.6	<p>Safeguards against acoustic energy sources Replace 10.6 of EN IEC 62368-1:2020+A11:2020 with the following:</p>		N/A


EN IEC 62368-1:2020+A11:2020			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.1.1	<p>Introduction</p> <p>Safeguard requirements for protection against long-term exposure to excessive sound pressure levels from personal music players closely coupled to the ear are specified below. Requirements for earphones and headphones intended for use with personal music players are also covered. A personal music player is a portable equipment intended for use by an ordinary person, that:</p> <ul style="list-style-type: none"> – is designed to allow the user to listen to audio or audiovisual content / material; and – uses a listening device, such as headphones or earphones that can be worn in or on or around the ears; and – has a player that can be body worn (of a size suitable to be carried in a clothing pocket) and is intended for the user to walk around with while in continuous use (for example, on a street, in a subway, at an airport, etc.). <p>EXAMPLES Portable CD players, MP3 audio players, mobile phones with MP3 type features, PDAs or similar equipment.</p> <p>Personal music players shall comply with the requirements of either 10.6.2 or 10.6.3.</p> <p>NOTE 1 Protection against acoustic energy sources from telecom applications is referenced to ITU-T P.360.</p>		N/A

EN IEC 62368-1:2020+A11:2020			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>NOTE 2 It is the intention of the Committee to allow the alternative methods for now, but to only use the dose measurement method as given in 10.6.5 in future. Therefore, manufacturers are encouraged to implement 10.6.5 as soon as possible.</p> <p>Listening devices sold separately shall comply with the requirements of 10.6.6. These requirements are valid for music or video mode only. The requirements do not apply to:</p> <ul style="list-style-type: none"> – professional equipment; <p>NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment.</p> <ul style="list-style-type: none"> – hearing aid equipment and other devices for assistive listening; – the following type of analogue personal music players: <ul style="list-style-type: none"> • long distance radio receiver (for example, a multiband radio receiver or world band radio receiver, an AM radio receiver), and • cassette player/recorder; <p>NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies.</p> <ul style="list-style-type: none"> – a player while connected to an external amplifier that does not allow the user to walk around while in use. <p>For equipment that is clearly designed or intended primarily for use by children, the limits of the relevant toy standards may apply.</p> <p>The relevant requirements are given in EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.</p>		

EN IEC 62368-1:2020+A11:2020			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.1.2	<p>Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz</p> <p>The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz).</p> <p>For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body mounted devices, attention is drawn to EN 50360 and EN 50566.</p>		N/A
10.6.2	Classification of devices without the capacity to estimate sound dose		N/A
10.6.2.1	<p>General</p> <p>This standard is transitioning from short-term based (30 s) requirements to long-term based (40 hour) requirements. These clauses remain in effect only for devices that do not comply with sound dose estimation as stipulated in EN 50332-3.</p> <p>For classifying the acoustic output $LA_{eq,T}$, measurements are based on the A-weighted equivalent sound pressure level over a 30 s period.</p> <p>For music where the average sound pressure (long term $LA_{eq,T}$) measured over the duration of the song is lower than the average produced by the programme simulation noise, measurements may be done over the duration of the complete song. In this case, T becomes the duration of the song.</p> <p>NOTE Classical music, acoustic music and broadcast typically has an average sound pressure (long term $LA_{eq,T}$) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the content and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song does not exceed the required limit.</p> <p>For example, if the player is set with the programme simulation noise to 85 dB, but the average music level of the song is only 65 dB, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dB.</p>		N/A

EN IEC 62368-1:2020+A11:2020			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.2.2	<p>RS1 limits (to be superseded, see 10.6.3.2)</p> <p>RS1 is a class 1 acoustic energy source that does not exceed the following:</p> <ul style="list-style-type: none"> – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 85 dB when playing the fixed “programme simulation noise” described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 27 mV (analogue interface) or -25 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1. – The RS1 limits will be updated for all devices as per 10.6.3.2. 		N/A
10.6.2.3	<p>RS2 limits (to be superseded, see 10.6.3.3)</p> <p>RS2 is a class 2 acoustic energy source that does not exceed the following:</p> <ul style="list-style-type: none"> – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or when the combination of player and listening device is known by other means such as setting or automatic 130 detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 100 dB(A) when playing the fixed “programme simulation noise” as described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 150 mV (analogue interface) or -10 dBFS (digital interface) when playing the fixed “programme simulation noise” as described in EN 50332-1. 		N/A
10.6.2.4	<p>RS3 limits</p> <p>RS3 is a class 3 acoustic energy source that exceeds RS2 limits.</p>		N/A
10.6.3	Classification of devices (new)		N/A
10.6.3.1	<p>General</p> <p>Previous limits (10.6.2) created abundant false negative and false positive PMP sound level warnings. New limits, compliant with The Commission Decision of 23 June 2009, are given below.</p>		N/A

EN IEC 62368-1:2020+A11:2020			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.3.2	<p>RS1 limits (new)</p> <p>RS1 is a class 1 acoustic energy source that does not exceed the following:</p> <ul style="list-style-type: none"> – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 80 dB when playing the fixed “programme simulation noise” described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 15 mV (analogue interface) or -30 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1. 		N/A
10.6.3.3	<p>RS2 limits (new)</p> <p>RS2 is a class 2 acoustic energy source that does not exceed the following:</p> <ul style="list-style-type: none"> – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the weekly sound exposure level, as described in EN 50332-3, shall be ≤ 80 dB when playing the fixed "programme simulation noise" described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output level, integrated over one week, as described in EN50332-3, shall be ≤ 15 mV (analogue interface) or -30 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1. 		N/A
10.6.4	Requirements for maximum sound exposure		N/A
10.6.4.1	<p>Measurement methods</p> <p>All volume controls shall be turned to maximum during tests.</p> <p>Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable.</p>		N/A

EN IEC 62368-1:2020+A11:2020			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.4.2	<p>Protection of persons</p> <p>Except as given below, protection requirements for parts accessible to ordinary persons, instructed persons and skilled persons are given in 4.3.</p> <p>NOTE 1 Volume control is not considered a safeguard.</p> <p>Between RS2 and an ordinary person, the basic safeguard may be replaced by an instructional safeguard in accordance with Clause F.5, except that the instructional safeguard shall be placed on the equipment, or on the packaging, or in the instruction manual.</p> <p>Alternatively, the instructional safeguard may be given through the equipment display during use.</p> <p>The elements of the instructional safeguard shall be as follows:</p> <ul style="list-style-type: none"> – element 1a: the symbol , IEC 60417-6044 (2011-01) – element 2: “High sound pressure” or equivalent wording – element 3: “Hearing damage risk” or equivalent wording – element 4: “Do not listen at high volume levels for long periods.” or equivalent wording <p>An equipment safeguard shall prevent exposure of an ordinary person to an RS2 source without intentional physical action from the ordinary person and shall automatically return to an output level not exceeding what is specified for an RS1 source when the power is switched off.</p> <p>The equipment shall provide a means to actively inform the user of the increased sound level when the equipment is operated with an output exceeding RS1. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an output exceeding RS1. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time.</p> <p>NOTE 2 Examples of means include visual or audible signals. Action from the user is always needed.</p> <p>NOTE 3 The 20 h listening time is the accumulative listening time, independent of how often and how long the personal music player has been switched off.</p> <p>A skilled person shall not be unintentionally exposed to RS3.</p>		N/A

EN IEC 62368-1:2020+A11:2020			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.5	Requirements for dose-based systems		N/A
10.6.5.1	General requirements Personal music players shall give the warnings as provided below when tested according to EN 50332-3, using the limits from this clause. The manufacturer may offer optional settings to allow the users to modify when and how they wish to receive the notifications and warnings to promote a better user experience without defeating the safeguards. This allows the users to be informed in a method that best meets their physical capabilities and device usage needs. If such optional settings are offered, an administrator (for example, parental restrictions, business/educational administrators, etc.) shall be able to lock any optional settings into a specific configuration. The personal music player shall be supplied with easy to understand explanation to the user of the dose management system, the risks involved, and how to use the system safely. The user shall be made aware that other sources may significantly contribute to their sound exposure, for example work, transportation, concerts, clubs, cinema, car races, etc.		N/A
10.6.5.2	Dose-based warning and requirements When a dose of 100 % CSD is reached, and at least at every 100 % further increase of CSD, the device shall warn the user and require an acknowledgement. In case the user does not acknowledge, the output level shall automatically decrease to compliance with class RS1. The warning shall at least clearly indicate that listening above 100 % CSD leads to the risk of hearing damage or loss.		N/A

EN IEC 62368-1:2020+A11:2020			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.5.3	<p>Exposure-based requirements</p> <p>With only dose-based requirements, cause and effect could be far separated in time, defying the purpose of educating users about safe listening practice. In addition to dose-based requirements, a PMP shall therefore also put a limit to the short-term sound level a user can listen at.</p> <p>The exposure-based limiter (EL) shall automatically reduce the sound level not to exceed 100 dB(A) or 150 mV integrated over the past 180 s, based on methodology defined in EN 50332-3. The EL settling time (time from starting level reduction to reaching target output) shall be 10 s or faster.</p> <p>Test of EL functionality is conducted according to EN 50332-3, using the limits from this clause. For equipment provided as a package (player with its listening device), the level integrated over 180 s shall be 100 dB or lower. For equipment provided with a standardized connector, the unweighted level integrated over 180 s shall be no more than 150 mV for an analogue interface and no more than -10 dBFS for a digital interface.</p> <p>NOTE In case the source is known not to be music (or test signal), the EL may be disabled.</p>		N/A
10.6.6	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.6.1	<p>Corded listening devices with analogue input</p> <p>With 94 dB LAeq acoustic pressure output of the listening device, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the input voltage of the listening device when playing the fixed “programme simulation noise” as described in EN 50332-1 shall be ≥ 75 mV.</p> <p>NOTE The values of 94 dB and 75 mV correspond with 85 dB and 27 mV or 100 dB and 150 mV.</p>		N/A
10.6.6.2	<p>Corded listening devices with digital input</p> <p>With any playing device playing the fixed “programme simulation noise” described in EN 50332-1, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the LAeq,T acoustic output of the listening device shall be ≤ 100 dB with an input signal of -10 dBFS.</p>		N/A

EN IEC 62368-1:2020+A11:2020																																																															
Clause	Requirement + Test	Result - Remark	Verdict																																																												
10.6.6.3	<p>Cordless listening devices</p> <p>In cordless mode, – with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and – respecting the cordless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and – with volume and sound settings in the receiving device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the above mentioned programme simulation noise, the $L_{Aeq,T}$ acoustic output of the listening device shall be ≤ 100 dB with an input signal of -10 dBFS.</p>		N/A																																																												
10.6.6.4	<p>Measurement method</p> <p><i>Measurements shall be made in accordance with EN 50332-2 as applicable.</i></p>		N/A																																																												
3	Modification to the whole document		—																																																												
	<p>Delete all the “country” notes in the reference document according to the following list:</p> <table border="1"> <tbody> <tr> <td>0.2.1</td> <td>Note 1 and 2</td> <td>1</td> <td>Note 4 and 5</td> <td>3.3.8.1</td> <td>Note 2</td> </tr> <tr> <td>3.3.8.3</td> <td>Note 1</td> <td>4.1.15</td> <td>Note</td> <td>4.7.3</td> <td>Note 1 and 2</td> </tr> <tr> <td>5.2.2.2</td> <td>Note</td> <td>5.4.2.3.2.2 Table 12</td> <td>Note c</td> <td>5.4.2.3.2.4</td> <td>Note 1 and 3</td> </tr> <tr> <td>5.4.2.3.2.4 Table 13</td> <td>Note 2</td> <td>5.4.2.5</td> <td>Note 2</td> <td>5.4.5.1</td> <td>Note</td> </tr> <tr> <td>5.4.10.2.1</td> <td>Note</td> <td>5.4.10.2.2</td> <td>Note</td> <td>5.4.10.2.3</td> <td>Note</td> </tr> <tr> <td>5.5.2.1</td> <td>Note</td> <td>5.5.8</td> <td>Note</td> <td>5.6.4.2.1</td> <td>Note 2 and 3 and 4</td> </tr> <tr> <td>5.6.8</td> <td>Note 2</td> <td>5.7.8</td> <td>Note</td> <td>5.7.7.1</td> <td>Note 1 and Note 2</td> </tr> <tr> <td>8.5.4.2.3</td> <td>Note</td> <td>10.2.1 Table 39</td> <td>Note 3 and 4 and 5</td> <td>10.5.3</td> <td>Note 2</td> </tr> <tr> <td>10.6.4</td> <td>Note 3</td> <td>F.3.3.6</td> <td>Note 3</td> <td>Y.4.1</td> <td>Note</td> </tr> <tr> <td>Y.4.5</td> <td>Note</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		0.2.1	Note 1 and 2	1	Note 4 and 5	3.3.8.1	Note 2	3.3.8.3	Note 1	4.1.15	Note	4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 12	Note c	5.4.2.3.2.4	Note 1 and 3	5.4.2.3.2.4 Table 13	Note 2	5.4.2.5	Note 2	5.4.5.1	Note	5.4.10.2.1	Note	5.4.10.2.2	Note	5.4.10.2.3	Note	5.5.2.1	Note	5.5.8	Note	5.6.4.2.1	Note 2 and 3 and 4	5.6.8	Note 2	5.7.8	Note	5.7.7.1	Note 1 and Note 2	8.5.4.2.3	Note	10.2.1 Table 39	Note 3 and 4 and 5	10.5.3	Note 2	10.6.4	Note 3	F.3.3.6	Note 3	Y.4.1	Note	Y.4.5	Note					P
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5.2.2.2	Note	5.4.2.3.2.2 Table 12	Note c	5.4.2.3.2.4	Note 1 and 3																																																										
5.4.2.3.2.4 Table 13	Note 2	5.4.2.5	Note 2	5.4.5.1	Note																																																										
5.4.10.2.1	Note	5.4.10.2.2	Note	5.4.10.2.3	Note																																																										
5.5.2.1	Note	5.5.8	Note	5.6.4.2.1	Note 2 and 3 and 4																																																										
5.6.8	Note 2	5.7.8	Note	5.7.7.1	Note 1 and Note 2																																																										
8.5.4.2.3	Note	10.2.1 Table 39	Note 3 and 4 and 5	10.5.3	Note 2																																																										
10.6.4	Note 3	F.3.3.6	Note 3	Y.4.1	Note																																																										
Y.4.5	Note																																																														
4	Modification to Clause 1		—																																																												
1	<p>Add the following note:</p> <p><i>NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.</i></p>		P																																																												
5	Modification to 4.Z1		—																																																												

EN IEC 62368-1:2020+A11:2020			
Clause	Requirement + Test	Result - Remark	Verdict
4.Z1	<p>Add the following new subclause after 4.9:</p> <p>To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. mains, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for pluggable equipment type B or permanently connected equipment, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for pluggable equipment type A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>		P
6	Modification to 5.4.2.3.2.4		—
5.4.2.3.2.4	<p>Add the following to the end of this subclause:</p> <p>The requirement for interconnection with external circuit is in addition given in EN 50491-3:2009.</p>		N/A
7	Modification to 10.2.1		—
10.2.1	<p>Add the following to ^{c)} and ^{d)} in table 39:</p> <p>For additional requirements, see 10.5.1.</p>		N/A
8	Modification to 10.5.1		—

EN IEC 62368-1:2020+A11:2020			
Clause	Requirement + Test	Result - Remark	Verdict
10.5.1	<p>Add the following after the first paragraph:</p> <p>For RS 1 compliance is checked by measurement under the following conditions:</p> <p>In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or pre-sets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.</p> <p>NOTE Z1 Soldered joints and paint lockings are examples of adequate locking.</p> <p>The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus.</p> <p>Moreover, the measurement shall be made under fault conditions causing an increase of the high voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.</p> <p>For RS1, the dose-rate shall not exceed 1 μSv/h taking account of the background level.</p> <p>NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.</p>		N/A
9	Modification to G.7.1		—
G.7.1	<p>Add the following note:</p> <p>NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.</p>		N/A
10	Modification to Bibliography		—

EN IEC 62368-1:2020+A11:2020			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>Add the following notes for the standards indicated:</p> <p>IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4. IEC 60664-5 NOTE Harmonized as EN 60664-5. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1 NOTE Harmonized as EN 61508-1. IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6. IEC 61643-1 NOTE Harmonized as EN 61643-1. IEC 61643-21 NOTE Harmonized as EN 61643-21. IEC 61643-311 NOTE Harmonized as EN 61643-311. IEC 61643-321 NOTE Harmonized as EN 61643-321. IEC 61643-331 NOTE Harmonized as EN 61643-331.</p>		P
11	ADDITION OF ANNEXES		—
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		N/A
4.1.15	<p>Denmark, Finland, Norway and Sweden</p> <p>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.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In Denmark: "Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord." In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In Norway: "Apparatet må tilkoples jordet stikkontakt" In Sweden: "Apparaten skall anslutas till jordat uttag"</p>		N/A
4.7.3	<p>United Kingdom</p> <p>To the end of the subclause the following is added:</p> <p>The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex</p>		N/A

EN IEC 62368-1:2020+A11:2020			
Clause	Requirement + Test	Result - Remark	Verdict
5.2.2.2	<p>Denmark</p> <p>After the 2nd paragraph add the following:</p> <p>A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.</p>		N/A
5.4.11.1 and Annex G	<p>Finland and Sweden</p> <p>To the end of the subclause the following is added:</p> <p>For separation of the telecommunication network from earth the following is applicable:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), 		N/A

EN IEC 62368-1:2020+A11:2020			
Clause	Requirement + Test	Result - Remark	Verdict
	<p>and</p> <ul style="list-style-type: none"> is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5 kV. <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11; the additional testing shall be performed on all the test specimens as described in EN 60384-14; <p>the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.</p>		
5.5.2.1	<p>Norway</p> <p>After the 3rd paragraph the following is added:</p> <p>Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).</p>		N/A
5.5.6	<p>Finland, Norway and Sweden</p> <p>To the end of the subclause the following is added:</p> <p>Resistors used as basic safeguard or bridging basic insulation in class I pluggable equipment type A shall comply with G.10.1 and the test of G.10.2.</p>		N/A
5.6.1	<p>Denmark</p> <p>Add to the end of the subclause</p> <p>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.</p> <p>Justification:</p> <p>In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.</p>		N/A

EN IEC 62368-1:2020+A11:2020			
Clause	Requirement + Test	Result - Remark	Verdict
5.6.4.2.1	<p>Ireland and United Kingdom</p> <p>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.</p>		N/A
5.6.4.2.1	<p>France</p> <p>After the indent for pluggable equipment type A, the following is added: – in certain cases, the protective current rating of the circuit supplied from the mains is taken as 20 A instead of 16 A.</p>		N/A
5.6.5.1	<p>To the second paragraph the following is added:</p> <p>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 mm² to 1,5 mm² in cross-sectional area.</p>		N/A
5.6.8	<p>Norway</p> <p>To the end of the subclause the following is added: Equipment connected with an earthed mains plug is classified as class I equipment. See the Norway marking requirement in 4.1.15. The symbol IEC 60417-6092, as specified in F.3.6.2, is accepted.</p>		N/A
5.7.6	<p>Denmark</p> <p>To the end of the subclause the following is added:</p> <p>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.</p>		N/A
5.7.6.2	<p>Denmark</p> <p>To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .</p>		N/A

EN IEC 62368-1:2020+A11:2020			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.7.1	<p>Norway and Sweden</p> <p>To the end of the subclause the following is added: The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system.</p> <p>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example.</p> <p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in:</p> <p>“Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)”</p> <p>NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>“Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkøpelt utstyr – og er tilkøpelt et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.”</p> <p>Translation to Swedish: ”Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”</p>		N/A

EN IEC 62368-1:2020+A11:2020			
Clause	Requirement + Test	Result - Remark	Verdict
8.5.4.2.3	<p>United Kingdom</p> <p>Add the following after the 2nd dash bullet in 3rd paragraph:</p> <p>An emergency stop system complying with the requirements of IEC 60204-1 and ISO 13850 is required where there is a risk of personal injury.</p>		N/A
B.3.1 and B.4	<p>Ireland and United Kingdom</p> <p>The following is applicable:</p> <p>To protect against excessive currents and short-circuits in the primary circuit of direct plug-in equipment, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the direct plug-in equipment, until the requirements of Annexes B.3.1 and B.4 are met</p>		N/A

EN IEC 62368-1:2020+A11:2020			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	<p>Denmark</p> <p>To the end of the subclause the following is added:</p> <p>Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a polyphase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.</p> <p>Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a.</p> <p>Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.</p> <p>Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a</p> <p><i>Justification:</i> Heavy Current Regulations, Section 6c</p>		N/A
G.4.2	<p>United Kingdom</p> <p>To the end of the subclause the following is added:</p> <p>The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.</p>		N/A

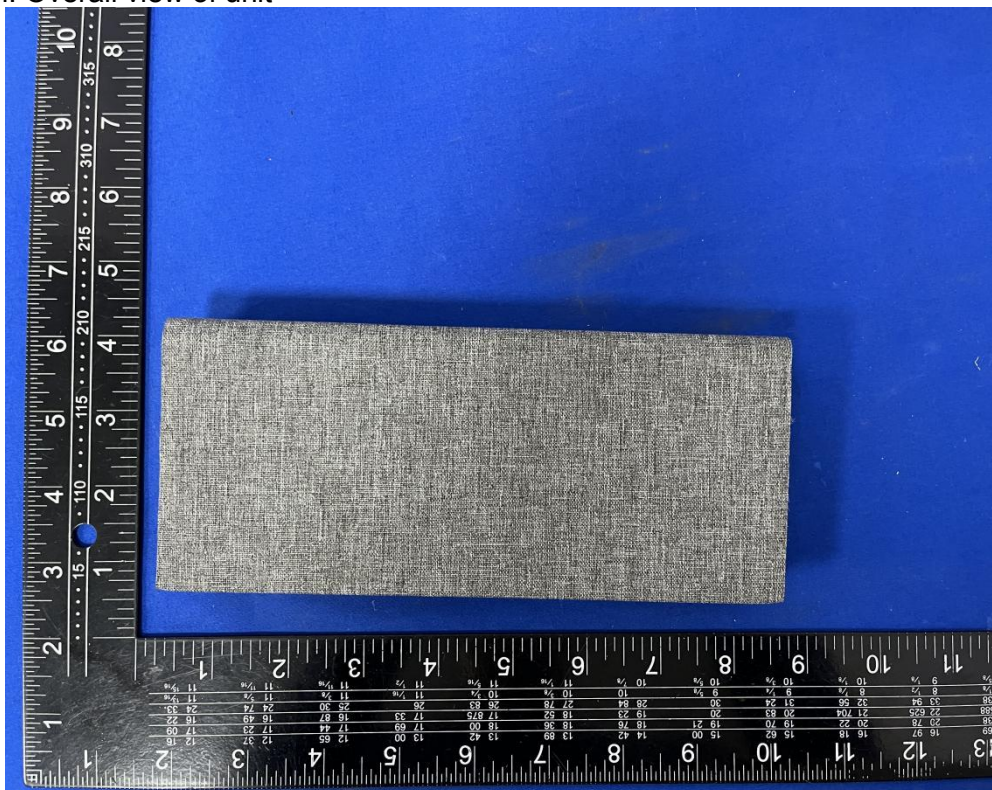
EN IEC 62368-1:2020+A11:2020			
Clause	Requirement + Test	Result - Remark	Verdict
G.7.1	<p>United Kingdom</p> <p>To the first paragraph the following is added:</p> <p>Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc. (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations.</p> <p>NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>		N/A
G.7.1	<p>Ireland</p> <p>To the first paragraph the following is added:</p> <p>Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard</p>		N/A
G.7.2	<p>Ireland and United Kingdom</p> <p>To the first paragraph the following is added:</p> <p>A power supply cord with a conductor of 1,25 mm² is allowed for equipment which is rated over 10 A and up to and including 13 A.</p>		N/A
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		N/A
10.5.2	<p>Germany</p> <p>The following requirement applies:</p> <p>For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking.</p> <p><i>Justification:</i> German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM.</p> <p>NOTE Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int+49-531-592-6320, Internet: http://www.ptb.de</p>		N/A
ZD	IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS (EN)		N/A

EN IEC 62368-1:2020+A11:2020				
Clause	Requirement + Test	Result - Remark		Verdict
	Type of flexible cord	Code designations		N/A
		IEC	CENELEC	
	PVC insulated cords			
	Flat twin tinsel cord	60227 IEC 41	H03VH-Y	
	Light polyvinyl chloride sheathed flexible cord	60227 IEC 52	H03VV-F H03VVH2-F	
	Ordinary polyvinyl chloride sheathed flexible cord	60227 IEC 53	H05VV-F H05VVH2-F	
	Rubber insulated cords			
	Braided cord	60245 IEC 51	H03RT-F	
	Ordinary tough rubber sheathed flexible cord	60245 IEC 53	H05RR-F	
	Ordinary polychloroprene sheathed flexible cord	60245 IEC 57	H05RN-F	
	Heavy polychloroprene sheathed flexible cord	60245 IEC 66	H07RN-F	
	Cords having high flexibility			
	Rubber insulated and sheathed cord	60245 IEC 86	H03RR-H	
	Rubber insulated, crosslinked PVC sheathed cord	60245 IEC 87	H03RV4-H	
	Crosslinked PVC insulated and sheathed cord	60245 IEC 88	H03V4V4-H	
	Cords insulated and sheathed with halogen-free thermoplastic compounds			
	Light halogen-free thermoplastic insulated and sheathed flexible cords		H03Z1Z1-F H03Z1Z1H2-F	
	Ordinary halogen-free thermoplastic insulated and sheathed flexible cords		H05Z1Z1-F H05Z1Z1H2-F	

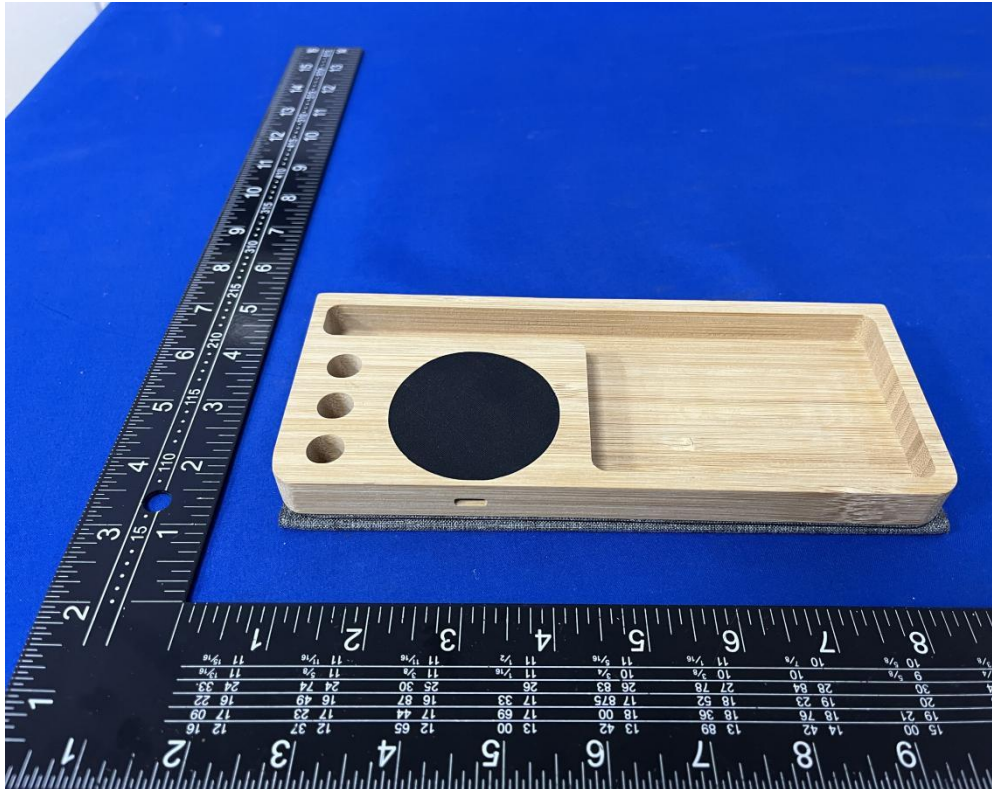
Description: Overall view of unit



Description: Overall view of unit



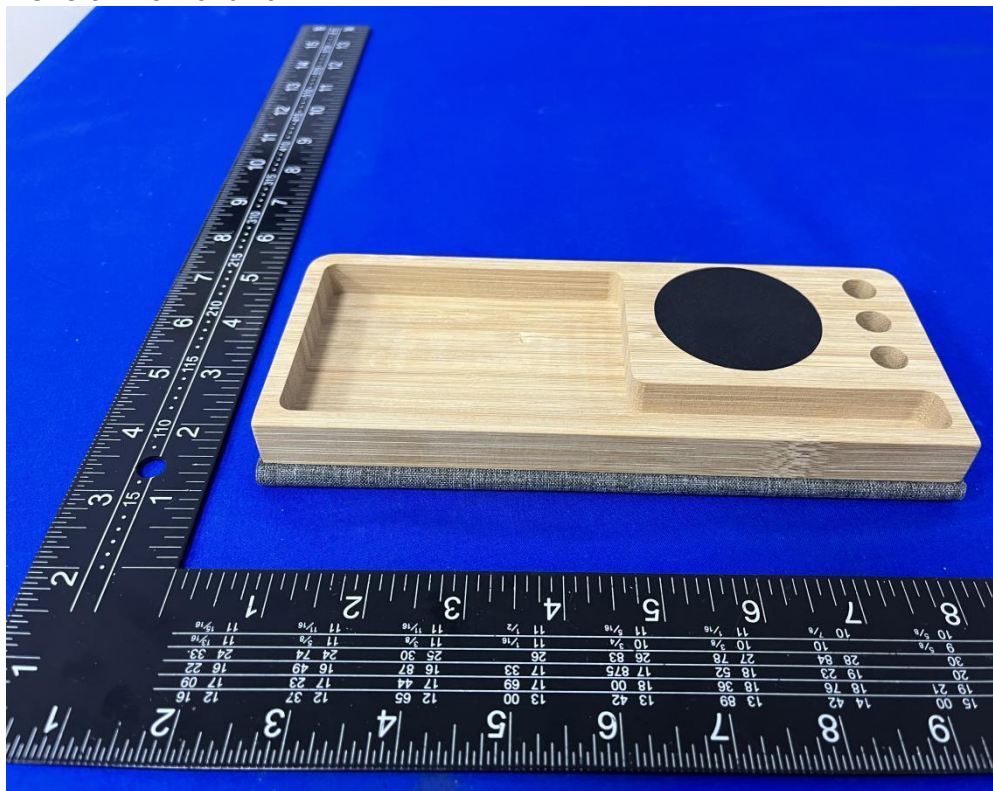
Description: Overall view of unit



Description: Overall view of unit



Description: Overall view of unit



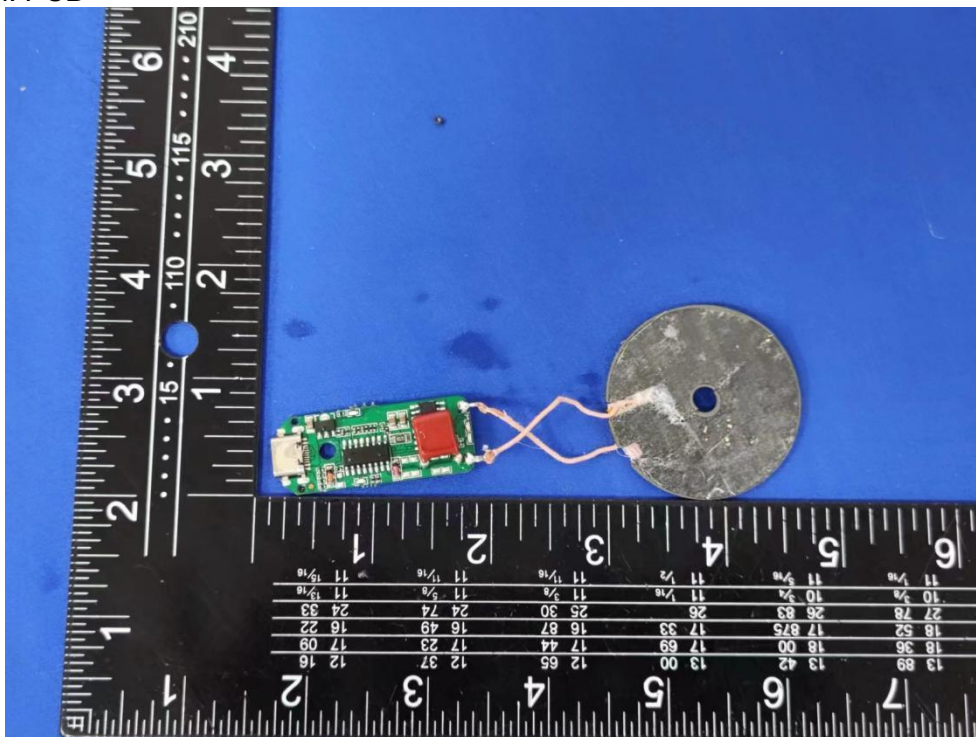
Description: Overall view of unit



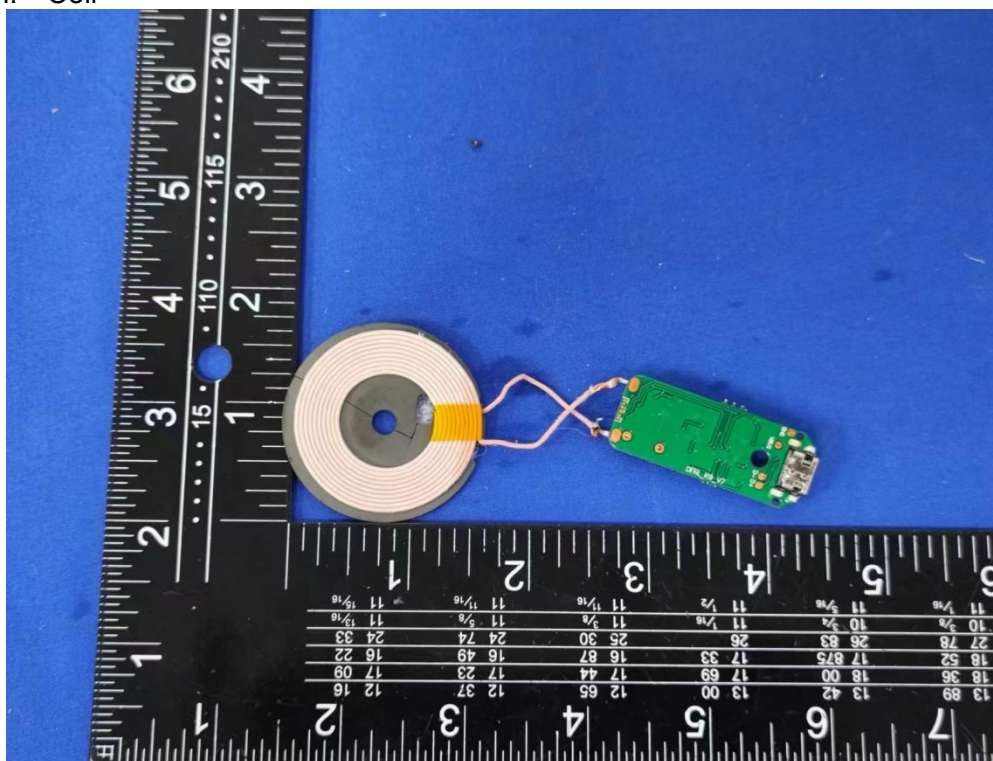
Description: interior view



Description: PCB



Description: Coil



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