SAFETY TEST REPORT

Report No: FCS202212051A01

Issued for

Applicant::	GUANGZHOU IDEALPLUSING INFORMATION TECHNOLOGY CO., LTD
Address:	Building 1, NO.38 Gaopu Road, Tianhe, Guangzhou, Guangdong Province, China. 510520.
Product Name:	AC DC POWER SUPPLY
Brand Name:	IDEALPLUSING
Model Name:	IPS-ATD16250
Series Model:	IPS-ATD1000W Series,IPS-ATD1500W Series, IPS-ATD2000W Series,IPS-ATD3000W Series, IPS-ATD4000W Series,IPS-ATD5000WSeries, IPS-ATD6KW Series,IPS-ATD8KW Series,IPS-ATD9KW Series,IPS-ATD10KW Series,IPS-ATD12KW Series, IPS-ATD15KW Series,IPS-ATD16KW Series, IPS-ATD18KW Series,IPS-ATD20KW Series, IPS-ATD30KW Series,IPS-ATD50KW Series, IPS-ATD60KW Series,IPS-ATD80KW Series, IPS-ATD90KW Series,IPS-ATD100KW Series, IPS-ATD120KW Series,PS-ATD150KW Series, IPS-ATD200KW Series
Test Standard:	EN IEC 62368-1:2020+A11:2020
Issued By: Flux Compliance Service Laboratory 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

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

Report Number. .....:	FCS202212051A01
Tested by (+ signature) .....:	Alan Ho
Reviewed by (+ signature) .....:	Jamy Liu
Approved by (+ signature) .....:	Jack Wang
Date of issue.....:	Aug. 10,2022
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Testing laboratory .....:	Flux Compliance Service Laboratory.
Address .....:	Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan
Applicant's name.....:	GUANGZHOU IDEALPLUSING INFORMATION TECHNOLOGY CO., LTD
Address .....:	Building 1, NO.38 Gaopu Road, Tianhe, Guangzhou, Guangdong Province, China. 510520.
Test specification:	
Standard .....:	IEC 62368-1:2018
Test procedure .....:	IEC Scheme
Non-standard test method.:	N/A
Test Report Form No.....:	IEC62368_1E
Test Report Form(s) Originator .....:	UL(US)
Master TRF.....:	2014-03

This test report is specially limited to the above client company and product model only. It may not be duplicated without prior written consent of FCS Test.

Test item description ..... :	AC DC POWER SUPPLY
Trade Mark .....:	IDEALPLUSING
Manufacturer .....:	GUANGZHOU IDEALPLUSING INFORMATION TECHNOLOGY CO., LTD
Address	Building 1, NO.38 Gaopu Road, Tianhe, Guangzhou, Guangdong Province, China. 510520.
Model/Type reference.....:	Reference home page
Ratings .....:	Input: AC 220V 50/60Hz Output: 16VDC 250A 4000W

Summary of testing:	
Tests performed (name of test and test clause): EN IEC 62368-1:2020+A11:2020 The submitted samples were found to comply with the requirements of above specification.	**Testing location:** Flux Compliance Service Laboratory. Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye,West Road Hi-Tech Industrial, Song shan lake Dongguan

Comment:

This report also includes:

- National differences:EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

- Photo documentation:Photographs of the EUT

Copy of marking plate

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

(Additional requirements for markings. See 1.7 NOTE)

AC DC POWER SUPPLY
Model: IPS-ATD16250
Input: AC 220V 50/60Hz Output: 16VDC 250A 4000W

Building 1, NO.38 Gaopu Road, Tianhe, Guangzhou,
Guangdong Province, China. 510520.
Made in China

Remark on above marking:
1, The height of CE symbols is more than 5 mm;

Test item particulars:	
Product group .....:	☒ end product ☐ built-in component
Classification of use by.....:	☒ Ordinary person ☐ Children likely present ☐ Instructed person ☐ Skilled person
Supply connection..... :	☐ AC mains ☒ DC mains ☐ not mains connected: ☐ ES1 ☐ ES2 ☐ ES3
Supply tolerance .....:	☐ +10%/-10% ☐ +20%/-15% ☒ +30%/ --15% ☐ None
Supply connection – type .....:	☐ pluggable equipment type A - ☐ non-detachable supply cord ☐ appliance coupler ☐ direct plug-in ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☐ permanent connection ☒ mating connector☐ other:
Considered current rating of protective device .....:	☐ US, CA, FR: 20A; UK: 13A; Others: 40A; ☐ Location: ☒ building ☐ equipment ☐ N/A
Equipment mobility..... :	☒ movable ☐ hand-held ☐ transportable ☐ direct plug-in ☐ stationary ☐ for building-in ☐ wall/ceiling-mounted ☐ SRME/rack-mounted ☐ other:
Overvoltage category (OVC) .....:	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other:
Class of equipment .....:	☒ Class I ☐ Class II ☐ Class III ☐ Not classified ☐
Special installation location .....:	☐ N/A ☐ restricted access area ☐ outdoor location☐
Pollution degree (PD) .....:	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified T_{ma}.....:	35 °C ☐ Outdoor: minimum °C
IP protection class .....:	☒ IPX0 ☐ IP___
Power systems .....:	☒ TN ☐ TT ☐ IT - V_{L-L} ☐ not AC mains
Altitude during operation (m) .....:	☒ 2000 m or less ☐ 5000 m
Altitude of test laboratory (m) .....:	☒ 2000 m or less ☐ m
Mass of equipment (kg) .....:	10kg Max.

Possible test case verdicts:	
- test case does not apply to the test object.... :	N/A
☐	
- test object does meet the requirement..... :	P (Pass)
- test object does not meet the requirement.... :	F (Fail)
Testing:	
Date of receipt of test item..... :	2022-12-08
Date (s) of performance of tests.....:	2022-12-08 to 2022-12-12

General remarks: ☐	
"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. Throughout this report a comma / ☒ point is used as the decimal separator.	
General product information: 1. The Front and rear enclosure is secured to body enclosure by screw. 2. The specified Max. ambient temperature is +35°C.	
Additional application considerations-(Considerations used to test a component or sub-assembly)- N/A	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided :	Yes ☒ Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies) :	GUANGZHOU IDEALPLUSING INFORMATION TECHNOLOGY CO., LTD Building 1, NO.38 Gaopu Road, Tianhe, Guangzhou, Guangdong Province, China. 510520.

OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS				
Clause	**Possible Hazard**			
5	Electrically-caused injury			
Class and Energy Source (e.g. ES3: Primary circuit)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
ES3: primary circuit	Ordinary	N/A	N/A	Enclosure See 5.4.2, 5.4.3, 5.4.5, 5.5.3, 5.5.4
6	Electrically-caused fire			
Class and Energy Source (e.g. PS2: 100 Watt circuit)	Material part (e.g. Printed board)	Safeguards		
		B	1st S	2nd S
PS3 circuit	Enclosure	See 6.3	V-0	N/A
PS3 circuit	PCB	See 6.3	V-1	N/A
PS2/PS3 circuit	The other components/materials	See 6.3	See 6.4.5, 6.4.6	N/A
7	Injury caused by hazardous substances			
Class and Energy Source (e.g. Ozone)	Body Part (e.g., Skilled)	Safeguards		
		B	S	R
N/A	N/A	N/A	N/A	N/A
8	Mechanically-caused injury			
Class and Energy Source (e.g. MS3: Plastic fan blades)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
MS1: Edges and corners	Ordinary	N/A	N/A	N/A
MS1: Mass of the unit	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
TS3: Internal parts/circuits	Ordinary	N/A	N/A	Enclosure
TS1: Plastic enclosure	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
N/A	N/A	N/A	N/A	N/A

Supplementary Information: (1) See attached energy source diagram for additional details. “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
Circuit diagram ☒ **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 preventing access to ES3 parts, limiting the source supplying outputs to fulfill ES1, and protection in regard to risk of ignition, mechanical-caused injury and thermal burn considered.	P
4.1.4	Specified ambient temperature for outdoor use (°C)..... :	This equipment is not intended to use in outdoor.	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 this component.	N/A
4.1.15	Markings and instructions	(See Annex F)	P
4.4.3	Safeguard robustness	See below	P
4.4.3.1	General		P
4.4.3.2	Steady force tests	(See Clause T.2, T.3, T.4, T.5)	P
4.4.3.3	Drop tests	(See Annex T.7)	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 damaging the product.	N/A
4.4.3.6	Glass impact tests	No such glass used.	N/A
4.4.3.7	Glass fixation tests	No such glass used.	N/A
	Glass impact test (1J)		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Push/pull test (10 N)		N/A
4.4.3.8	Thermoplastic material tests	(See Annex T.8)	N/A
4.4.3.9	Air comprising a safeguard	(See Annex T)	P
4.4.3.10	Accessibility, glass, safeguard effectiveness	After tests of 4.4.3.2, 4.4.3.3, 4.4.3.8, no safeguard damaged.	P
4.4.4	Displacement of a safeguard by an insulating liquid	No this insulating liquid.	N/A
4.4.5	Safety interlocks	No this safety interlocks.	N/A
4.5	**Explosion**		P
4.5.1	General	No explosion occur.	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		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 coin/button cell batteries 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

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Clause	Requirement + Test	Result - Remark	Verdict
	20N force test with test hook		N/A
4.9	**Likelihood of fire or shock due to entry of conductive object**		P
4.10	**Component requirements**		P
4.10.1	Disconnect Device	(See Annex L)	P
4.10.2	Switches and relays		P
5	**ELECTRICALLY-CAUSED INJURY**		P
5.2	**Classification and limits of electrical energy sources**		P
5.2.2	ES1, ES2 and ES3 limits		P
5.2.2.2	Steady-state voltage and current limits..... :	(See appended table 5.2)	P
5.2.2.3	Capacitance limits..... :	No such Capacitors.	N/A
5.2.2.4	Single pulse limits.....:	No such single pulses generated in the EUT or applied to it.	N/A
5.2.2.5	Limits for repetitive pulses.....:	No such repetitive pulses within the EUT	N/A
5.2.2.6	Ringing signals	No such ringing signals within the EUT	N/A
5.2.2.7	Audio signals	No such 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.	P
5.3.1 a)	Accessible ES1/ES2 derived from ES2/ES3 circuits	Accessible ES1/ES2 derived from ES2/ES3 circuits by double safeguard or reinforced safeguard, and the current or voltage levels complied with ES1/ES2 limits.	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 and the enclosure (safeguard) are accessed to person.	P
	Accessibility to outdoor equipment bare parts		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.3.2.2	Contact requirements	No openings allowing entry of a probe. No access with test probe to any ES3 circuit or parts.	P
	Test with test probe from Annex V	(See Annex V)	—
5.3.2.2 a)	Air gap – electric strength test potential (V)..... :	(See appended table 5.4.9)	N/A
5.3.2.2 b)	Air gap – distance (mm) ..... :		N/A
5.3.2.3	Compliance		P
5.3.2.4	Terminals for connecting stripped wire	No stripped wire used.	N/A
5.4	**Insulation materials and requirements**		P
5.4.1.2	Properties of insulating material	The choice and application have taken into account as specified in this Clause 5 and Annex T and natural rubber, hygroscopic materials or asbestos are not used as insulation.	P
5.4.1.3	Material is non-hygroscopic	No hygroscopic material used.	P
5.4.1.4	Maximum operating temperature for insulating materials..... :	(See appended table 5.4.1.4)	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	Pollution degree 2 is applied. No insulating compound applied (however see 5.5.4).	N/A
5.4.1.5.3	Thermal cycling test	See above	N/A
5.4.1.6	Insulation in transformers with varying dimensions	No such transformer within the EUT	N/A
5.4.1.7	Insulation in circuits generating starting pulses	No such starting pulses within the EUT	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	Phenolic material used in transformers	P
5.4.1.10.2	Vicat test.....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.10.3	Ball pressure test.....:	(See appended table 5.4.1.10.3)	P
5.4.2	Clearances	The highest value in Cl 5.4.2.2 and Cl 5.4.2.3 be used.	P
5.4.2.1	General requirements	See table 5.4.2	P
	Clearances in circuits connected to AC Mains, Alternative method		N/A
5.4.2.2	Procedure 1 for determining clearance	Temporary overvoltage 2000Vpeak assumed. (See appended table 5.4.2)	P
	Temporary overvoltage .....:	II	—
5.4.2.3	Procedure 2 for determining clearance	(See appended table 5.4.2)	P
5.4.2.3.2.2	a.c. mains transient voltage..... :	2500 Vpk.	—
5.4.2.3.2.3	d.c. mains transient voltage ..... :	No connections to d.c. mains.	—
5.4.2.3.2.4	External circuit transient voltage..... :	No connections to external circuit with transient voltage.	—
5.4.2.3.2.5	Transient voltage determined by measurement .....:	Transient voltages from an AC mains	—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test .....:	Using procedure 2 to determine the clearance according to 5.4.2.3.	N/A
5.4.2.5	Multiplication factors for clearances and test voltages..... :	1.48	P
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.....:	IIIb	—
5.4.3.4	Creepage distances measurement.....:	(See appended table 5.4.3)	P
5.4.4	Solid insulation		P
5.4.4.1	General requirements		P
5.4.4.2	Minimum distance through insulation ..... :	(See appended table 5.4.4.2)	P
5.4.4.3	Insulating compound forming solid insulation	No such insulation applied.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.4	Solid insulation in semiconductor devices	No such devices used.	N/A
5.4.4.5	Insulating compound forming cemented joints	No such construction within the EUT.	N/A
5.4.4.6	Thin sheet material	Thin sheet material used on transformer.	P
5.4.4.6.1	General requirements		P
5.4.4.6.2	Separable thin sheet material		P
	Number of layers (pcs) .....:	2 layers	P
5.4.4.6.3	Non-separable thin sheet material	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.5.3 and G.6.1	P
5.4.4.9	Solid insulation at frequencies >30 kHz, E_P, K_R, d, V_{PW} (V).....:	See appended table 5.4.9	P
	Alternative by electric strength test, tested voltage (V), K_R.....:	(See appended Tables 5.4.4.9 and 5.4.9)	P
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
5.4.5.3	Insulation resistance (MΩ)..... :		N/A
	Electric strength test..... :		N/A
5.4.6	Insulation of internal wire as part of supplementary safeguard	No such insulation of internal wire as part of supplementary safeguard.	N/A
5.4.7	Tests for semiconductor components and for cemented joints	No tests necessary –see only 5.4.4.4.	N/A
5.4.8	Humidity conditioning	Test was performed on product with each source of transformer listed in table 4.1.2	P
	Relative humidity (%), temperature (°C), duration (h)..... :	95%, 40°C, 120hrs	—

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.9	Electric strength test	(See appended table 5.4.9) Electric strength tests were conducted after 5.4.8 humidity conditioning test for each manufacturer source in table 4.1.2	P
5.4.9.1	Test procedure for type test of solid insulation .....:	(See appended table 5.4.9)	P
5.4.9.2	Test procedure for routine test		N/A
5.4.10	Safeguards against transient voltages from external circuits	No such 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 connections for external circuit applied within the EUT	N/A
5.4.11.1	Exceptions to separation between external circuits and earth	No such connections to external circuit as above.	N/A
5.4.11.2	Requirements		N/A
	SPDs bridge separation between external circuit and earth		N/A
	Rated operating voltage U_{op} (V).....:		—
	Nominal voltage U_{peak} (V).....:		—
	Max increase due to variation ΔU_{sp} ..... :		—
	Max increase due to ageing ΔU_{sa} ..... :		—
5.4.11.3	Test method and compliance.....:		N/A
5.4.12	Insulating liquid	No such insulating liquid.	N/A
5.4.12.1	General requirements		N/A
5.4.12.2	Electric strength of an insulating liquid.....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.12.3	Compatibility of an insulating liquid.....:		N/A
5.4.12.4	Container for insulating liquid..... :		N/A
5.5	**Components as safeguards**		P
5.5.1	General	See below.	P
5.5.2	Capacitors and RC units	Approved capacitor provided. See G.11.1 for compliance and their application.	P
5.5.2.1	General requirement		N/A
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 Annex G.12)	P
5.5.5	Relays	No such component provided	N/A
5.5.6	Resistors		P
5.5.7	SPDs	No such component provided	N/A
5.5.8	Insulation between the mains and an external circuit consisting of a coaxial cable.....:	No such external circuits.	N/A
5.5.9	Safeguards for socket-outlets in outdoor equipment	No outdoor equipment	N/A
	RCD rated residual operating current (mA).....:		—
5.6	**Protective conductor**		P
5.6.2	Requirement for protective conductors		P
5.6	**Protective conductor**		P
5.6.2	Requirement for protective conductors		P
5.6.2.1	General requirements		P
5.6.2.2	Colour of insulation		P
5.6.3	Requirement for protective earthing conductors		P
	Protective earthing conductor size (mm^2) ..... :		—
	Protective earthing conductor serving as a reinforced safeguard		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Protective earthing conductor serving as a double safeguard		N/A
5.6.4	Requirements for protective bonding conductors		P
5.6.4.1	Protective bonding conductors		P
	Protective bonding conductor size (mm^2)..... :		—
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		P
5.6.6	Resistance of the protective bonding system		P
5.6.6.1	Requirements		P
5.6.6.2	Test Method.....:		P
5.6.6.3	Resistance (Ω) or voltage drop..... :		P
5.6.7	Reliable connection of a protective earthing conductor		P
5.6.8	Functional earthing		N/A
	Conductor size (mm^2)..... :		N/A
	Class II with functional earthing marking ..... :		N/A
	Appliance inlet cl & cr (mm)..... :		N/A
5.7	**Prospective touch voltage, touch current and protective conductor current**		P
5.7.2	Measuring devices and networks		P
5.7.2.1	Measurement of touch current	Figure 4 of IEC 60990:1999 was used in determining of the limit of ES1. (See appended table 5.2)	P
5.7.2.2	Measurement of voltage		P
5.7.3	Equipment set-up, supply connections and earth connections	Clause 4, 5.3 and 5.4 of IEC60990:1999 applied.	P
5.7.4	Unearthed accessible parts..... :		P
5.7.5	Earthed accessible conductive parts.....:		P

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Clause	Requirement + Test	Result - Remark	Verdict
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	No 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	No external circuits.	N/A
	a) Equipment connected to earthed external circuits, current (mA)..... :		N/A
	b) Equipment connected to unearthed external circuits, current (mA)..... :		N/A
5.8	**Backfeed safeguard in battery backed up supplies**		N/A
	Mains terminal ES..... :	No such battery backed up supplies	N/A
	Air gap (mm)..... :		N/A
6	**ELECTRICALLY- CAUSED FIRE**		P
6.2	**Classification of PS and PIS**		P
6.2.2	Power source circuit classifications..... :	PS (power source) classification determined by measuring the maximum power in Figures 34 and 35 for load and power source circuits. (See appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS ..... :	(See appended table 6.2.3.1)	P
6.2.3.2	Resistive PIS .....:	(See appended table 6.2.3.2)	P
6.3	**Safeguards against fire under normal operating and abnormal operating conditions**		P

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Clause	Requirement + Test	Result - Remark	Verdict
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 B.1.5 and B.3)	P
	Combustible materials outside fire enclosure...:	No such materials	N/A
6.4	**Safeguards against fire under single fault conditions**		P
6.4.1	Safeguard method	Method by control of fire spread applied, V-0 fire enclosure provided.	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits	No PS1 circuits.	N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits	Method by control of fire spread applied as 6.4.1.	N/A
6.4.3.1	Supplementary safeguards		N/A
6.4.3.2	Single Fault Conditions.....:		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits	No safeguards are needed for protection against PS1.	P
6.4.5	Control of fire spread in PS2 circuits	Compliance detailed as follows: – Printed board: rated min. V-1 – Wire insulation: complying with Clause 6 (See Table 4.1.2 for tubing used). The input wire is complied to UL 758 standard, which test method and testing condition equal to IEC/EN 60695-11-21. – All other components: at least V-2 except for parts mounted on min. V-1 material or small parts of combustible material (with mass less than 4g) or components complying to relevant IEC standard. – Isolating transformer: complying with G.5.3.	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	See compliance of 6.4.5 -V-0 Fire Enclosure used.	P
6.4.7	Separation of combustible materials from a PIS	Fire enclosure provided for all internal parts.	N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier	No specific barrier provided.	N/A
6.4.8	Fire enclosures and fire barriers	V-0 Fire Enclosure used.	P
6.4.8.2	Fire enclosure and fire barrier material properties	See below.	P
6.4.8.2.1	Requirements for a fire barrier	V-0	P
6.4.8.2.2	Requirements for a fire enclosure	The V-0 fire enclosure is used. See above.	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		P
6.4.8.3.1	Fire enclosure and fire barrier openings		P
6.4.8.3.2	Fire barrier dimensions		P
6.4.8.3.3	Top openings and properties		N/A
	Openings dimensions (mm)..... :	No openings.	N/A
6.4.8.3.4	Bottom openings and properties		N/A
	Openings dimensions (mm)..... :	No openings.	N/A
	Flammability tests for the bottom of a fire enclosure		N/A
	Instructional Safeguard.....:		N/A
6.4.8.3.5	Side openings and properties		P
	Openings dimensions (mm)..... :		P
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 .....:	V-0	P
6.4.9	Flammability of insulating liquid.....:		N/A
6.5	**Internal and external wiring**		P
6.5.1	General requirements	Internal wires comply with UL 758, which has the equivalent requirement with IEC/TS 60695-11-21.	P

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Clause	Requirement + Test	Result - Remark	Verdict
6.5.2	Requirements for interconnection to building wiring..... :		N/A
6.5.3	Internal wiring size (mm^2) for socket-outlets... :		N/A
6.6	**Safeguards against fire due to the connection to additional equipment**		P
7	**INJURY CAUSED BY HAZARDOUS SUBSTANCES**		N/A
7.2	**Reduction of exposure to hazardous substances**		N/A
7.3	**Ozone exposure**		N/A
7.4	**Use of personal safeguards or personal protective equipment (PPE)**		N/A
	Personal safeguards and instructions..... :		—
7.5	**Use of instructional safeguards and instructions**		N/A
	Instructional safeguard (ISO 7010).....:		—
7.6	**Batteries and their protection circuits**		N/A
8	**MECHANICALLY-CAUSED INJURY**		P
8.2	**Mechanical energy source classifications**		P
8.3	**Safeguards against mechanical energy sources**		N/A
8.4	**Safeguards against parts with sharp edges and corners**		N/A
8.4.1	Safeguards		N/A
	Instructional Safeguard.....:	Instructional safeguard is not required.	N/A
8.4.2	Sharp edges or corners	The sharp edges and corners of the equipment are considered as MS1.	P
8.5	**Safeguards against moving parts**		N/A
8.5.1	Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts	No moving parts.	N/A
	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
	Moving MS3 parts only accessible to skilled person		N/A
8.5.2	Instructional safeguard..... :		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
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	The weight of the equipment are considered as MS1.	N/A
	Instructional safeguard..... :	Instructional safeguard is not required.	N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
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.....:		N/A
8.7.2	Test methods		N/A
	Test 1, additional downwards force (N).....:		N/A
	Test 2, number of attachment points and test force (N).....:		N/A
	Test 3 Nominal diameter (mm) and applied torque (Nm)..... :		N/A
8.8	**Handles strength**		N/A
8.8.1	General		N/A
8.8.2	Handle strength test		N/A
	Number of handles.....:		—
	Force applied (N).....:		—
8.9	**Wheels or casters attachment requirements**		N/A
8.9.2	Pull test		N/A
8.10	**Carts, stands and similar carriers**		N/A
8.10.1	General		N/A
8.10.2	Marking and instructions..... :		N/A
8.10.3	Cart, stand or carrier loading test		N/A
	Loading force applied (N).....:		N/A
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Force applied (N).....:		—
8.10.6	Thermoplastic temperature stability		N/A
8.11	**Mounting means for slide-rail mounted equipment (SRME)**		N/A
8.11.1	General		N/A
8.11.2	Requirements for slide rails		N/A
	Instructional Safeguard.....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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)..... :	No such parts.	—
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..... :	No part considered to be accessible other than enclosure and output cable. The equipment evaluated by temperature test (See appended table 5.4.1.4)	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	Enclosure provided to limit the transfer of thermal energy of internal parts under normal operating conditions and abnormal operating conditions.	P
9.5.2	Instructional safeguard..... :	Instructional safeguard is not required.	N/A
9.6	**Requirements for wireless power transmitters**		N/A
9.6.1	General	No wireless power transmitters.	N/A
9.6.2	Specification of the foreign objects		N/A
9.6.3	Test method and compliance..... :		N/A
10	**RADIATION**		N/A
10.2	**Radiation energy source classification**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10.2.1	General classification	No such radiation generated from the equipment.	N/A
	Lasers.....:		—
	Lamps and lamp systems.....:		—
	Image projectors..... :		—
	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..... :		N/A
10.4.3	Instructional safeguard..... :		N/A
10.5	**Safeguards against X-radiation**		N/A
10.5.1	Requirements	No such x-radiation generated from the equipment	N/A
	Instructional safeguard for skilled persons..... :		—
10.5.3	Maximum radiation (pA/kg)..... :		—
10.6	**Safeguards against acoustic energy sources**		N/A
10.6.1	General	Not such equipment.	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

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Clause	Requirement + Test	Result - Remark	Verdict
10.6.3.2	Dose-based warning and automatic decrease		N/A
10.6.3.3	Exposure-based warning and requirements		N/A
	30 s integrated exposure level (MEL30)..... :		N/A
	Warning for MEL ≥ 100 dB(A)..... :		N/A
10.6.4	Measurement methods		N/A
10.6.5	Protection of persons		N/A
	Instructional safeguards..... :		N/A
10.6.6	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.6.1	Corded listening devices with analogue input		N/A
	Listening device input voltage (mV).....:		N/A
10.6.6.2	Corded listening devices with digital input		N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A).....:		N/A
10.6.6.3	Cordless listening devices		N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A).....:		N/A

B	**NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS**		P
B.1	**General**		P
B.1.5	Temperature measurement conditions	(See appended table B.1.5)	P
B.2	**Normal operating conditions**		P
B.2.1	General requirements..... :	(See summary of testing for tested models, each loaded according to its output ratings. See also appended table B.2.5.)	P
	Audio Amplifiers and equipment with audio amplifiers.....:	Not such equipment.	N/A
B.2.3	Supply voltage and tolerances	+10 % and −10 % considered.	P
B.2.5	Input test..... :	(See appended table B.2.5)	P
B.3	**Simulated abnormal operating conditions**		P
B.3.1	General	(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	The EUT is not connected to a D.C. mains	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
B.3.4	Setting of voltage selector	No voltage selector was used.	N/A
B.3.5	Maximum load at output terminals	(See appended table B.3)	P
B.3.6	Reverse battery polarity	No battery within the EUT	N/A
B.3.7	Audio amplifier abnormal operating conditions	Not such equipment.	N/A
B.3.8	Safeguards functional during and after abnormal operating conditions..... :	(See appended table B.3)	P
B.4	**Simulated single fault conditions**		P
B.4.1	General	No such device used.	N/A
B.4.2	Temperature controlling device		N/A
B.4.3	Blocked motor test	No motors used.	--
B.4.4	Functional insulation	See below.	P
B.4.4.1	Short circuit of clearances for functional insulation	(See appended table B.4)	P
B.4.4.2	Short circuit of creepage distances for functional insulation	(See appended table B.4)	P
B.4.4.3	Short circuit of functional insulation on coated printed boards	No coated printed boards used.	N/A
B.4.5	Short-circuit and interruption of electrodes in tubes and semiconductors	(See appended table B.4 for faults on electronic components)	P
B.4.6	Short circuit or disconnection of passive components	(See appended table B.4)	P
B.4.7	Continuous operation of components	The EUT is continuous operating type and no such components intended for short time operation or intermittent operation	N/A
B.4.8	Compliance during and after single fault conditions..... :	(See appended table B.4)	P
B.4.9	Battery charging and discharging under single fault conditions	No battery involved in the EUT	N/A
C	**UV RADIATION**		N/A
C.1	**Protection of materials in equipment from UV radiation**		N/A
C.1.2	Requirements	No UV generated from the equipment.	N/A
C.1.3	Test method		N/A
C.2	**UV light conditioning test**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
C.2.1	Test apparatus..... :		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure test		N/A
C.2.4	Xenon-arc light-exposure test		N/A
D	**TEST GENERATORS**		N/A
D.1	**Impulse test generators**		N/A
D.2	**Antenna interface test generator**		N/A
D.3	**Electronic pulse generator**		N/A
E	**TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS**		N/A
E.1	**Electrical energy source classification for audio signals**		N/A
	Maximum non-clipped output power (W)..... :	Not such equipment.	—
	Rated load impedance (Ω) ..... :		—
	Open-circuit output voltage (V).....:		—
	Instructional safeguard..... :		—
E.2	**Audio amplifier normal operating conditions**		N/A
	Audio signal source type..... :		—
	Audio output power (W).....:		—
	Audio output voltage (V).....:		—
	Rated load impedance (Ω) ..... :		—
	Requirements for temperature measurement		N/A
E.3	Audio amplifier abnormal operating conditions		N/A
F	**EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS**		P
F.1	**General**		P
	Language ..... :	English & German.	—
F.2	**Letter symbols and graphical symbols**		
F.2.1	Letter symbols according to IEC60027-1	Letter symbols for quantities and units are complied with IEC 60027- 1.	P
F.2.2	Graphic symbols according to IEC, ISO or manufacturer specific	Graphical symbols are complied with IEC 60417, ISO 3864-2, ISO 7000 or ISO 7010.	P
F.3	**Equipment markings**		P

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.1	Equipment marking locations	The required marking is located on the enclosure of the equipment and is easily visible.	P
F.3.2	Equipment identification markings	See copy of marking plate.	P
F.3.2.1	Manufacturer identification .....:	See copy of marking plate.	--
F.3.2.2	Model identification .....:	See copy of marking plate.	--
F.3.3	Equipment rating markings	See the following details.	P
F.3.3.1	Equipment with direct connection to mains	The equipment is direct connected to DC mains, see F.3.3.3 to F.3.3.6.	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.	--
F.3.3.4	Rated voltage.....:	See copy of marking plate.	--
F.3.3.5	Rated frequency.....:	See copy of marking plate.	--
F.3.3.6	Rated current or rated power.....:	See copy of marking plate.	--
F.3.3.7	Equipment with multiple supply connections	Only one mains supply connection provided.	N/A
F.3.4	Voltage setting device	No voltage setting device.	N/A
F.3.5	Terminals and operating devices	See below.	P
F.3.5.1	Mains appliance outlet and socket-outlet markings.....:	No outlet used.	N/A
F.3.5.2	Switch position identification marking.....:	“I”,”0”	P
F.3.5.3	Replacement fuse identification and rating markings.....:	The current fuse is located within the equipment and not replaceable by an ordinary person or an instructed person.	P
	Instructional safeguards for neutral fuse.....:		N/A
F.3.5.4	Replacement battery identification marking.... :	No such battery on the equipment.	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	See below.	P
F.3.6.1	Class I equipment		N/A
F.3.6.1.1	Protective earthing conductor terminal.....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.6.1.2	Protective bonding conductor terminals .....:		N/A
F.3.6.2	Equipment class marking..... :	Symbol IEC 60417-5172 used.	P
F.3.6.3	Functional earthing terminal marking..... :		N/A
F.3.7	Equipment IP rating marking..... :	IPX0	N/A
F.3.8	External power supply output marking.....:	See copy of marking plate.	P
F.3.9	Durability, legibility and permanence of marking	Marking is considered to be legible and easily discernible. See also the following details.	P
F.3.10	Test for permanence of markings	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 sec. And then again for 15 sec, with the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade. There was no curling and lifting of the label edge. After each test, the marking remained legible.	P
F.4	**Instructions**		P
	a) Information prior to installation and initial use		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	No such terminals provided.	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	No such symbols used as a safeguard considered.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	i) Graphic symbols used on equipment	Not permanently connected equipment.	N/A
	j) Permanently connected equipment not provided with all-pole mains switch	No such markings.	N/A
	k) Replaceable components or modules providing safeguard function		N/A
	l) Equipment containing insulating liquid		N/A
	m) Installation instructions for outdoor equipment		N/A
F.5	Instructional safeguards		N/A
G	**COMPONENTS**		P
G.1	**Switches**		P
G.1.1	General		P
G.1.2	Ratings, endurance, spacing, maximum load		P
G.1.3	Test method and compliance		P
G.2	**Relays**		N/A
G.2.1	Requirements	No relay used.	N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supplying power to other equipment		N/A
G.2.4	Test method and compliance		N/A
G.3	**Protective devices**		P
G.3.1	Thermal cut-offs		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		P
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		P
G.3.2.2	Test method and compliance		P
G.3.3	PTC thermistors	No PTC thermistor used.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.3.4	Overcurrent protection devices	Current fuse complying with IEC 60127 as overcurrent protection device and protected within 1 s.	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
G.4.1	Spacings	No such connector with insulated surfaces accessible within the EUT	N/A
G.4.2	Mains connector configuration.....:	Mains plug complied with standard see attachment 3-7 for details. Other mains plug shall be evaluated when submitted to national approval.	N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely	Output connector with a shape that insert into a mains connector is unlikely to occur.	P
G.5	**Wound components**		P
G.5.1	Wire insulation in wound components		P
G.5.1.2	Protection against mechanical stress	Physical separation provided by insulation 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		P
G.5.3.1	Compliance method.....:	The transformer meets the requirements given in G.5.3.2 and G.5.3.3.	P
	Position.....:	T1,T2,T3,T4,T5	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Method of protection..... :	By protection circuit design.	P
G.5.3.2	Insulation	Primary windings and secondary windings are separated by Reinforced insulation (The core is considered as primary part as it is not isolated from Primary)	P
	Protection from displacement of windings..... :	The end-turn of each winding is fixed by tube	—
G.5.3.3	Transformer overload tests	(See appended table B.3)	P
G.5.3.3.1	Test conditions	(See appended table B.3)	P
G.5.3.3.2	Winding temperatures	Tested in the complete equipment.	P
G.5.3.3.3	Winding temperatures - alternative test method	Alternative test method was not considered.	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
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**		N/A
G.5.4.1	General requirements	No motor used.	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

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Clause	Requirement + Test	Result - Remark	Verdict
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	Triple insulated winding in T1 secondary windings used as reinforced safeguard in the isolating transformer that has separately complied with Annex J.	P
G.6.2	Enamelled winding wire insulation	Insulation does not rely on solvent- based enamel.	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
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

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Clause	Requirement + Test	Result - Remark	Verdict
	Overall diameter or minor overall dimension, *D* (mm).....:		—
	Radius of curvature after test (mm)..... :		—
G.7.6	Supply wiring space		N/A
G.7.6.1	General requirements		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Requirements		N/A
G.7.6.2.2	Test with 8 mm strand		N/A
G.8	**Varistors**		N/A
G.8.1	General requirements		N/A
G.8.2	Safeguards against fire		N/A
G.8.2.1	General		N/A
G.8.2.2	Varistor overload test		N/A
G.8.2.3	Temporary overvoltage test		N/A
G.9	**Integrated circuit (IC) current limiters**		N/A
G.9.1	Requirements		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
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	Capacitors used in accordance with their rating and complied with subclasses of IEC 60384-14. (see appended table 4.1.2)	P
G.11.2	Conditioning of capacitors and RC units		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.11.3	Rules for selecting capacitors	The selection followed with tables G.9 and G.12.	P
G.12	**Optocouplers**		P
	Optocouplers comply with IEC 60747-5-5 with specifics	The optocoupler complied with standard IEC/EN 60747-5-5. (see appended table 4.1.2)	P
	Type test voltage $V_{ini,a}$.....:	Min 4000Vpeak	—
	Routine test voltage, $V_{ini,b}$..... :	Min 4000Vpeak	—
G.13	**Printed boards**		P
G.13.1	General requirements	See the following details.	P
G.13.2	Uncoated printed boards	The insulation between conductors on the outer surfaces of an uncoated printed board complied with the minimum clearance and creepage requirements	P
G.13.3	Coated printed boards	No coated printed board or multilayer board applied for within the equipment.	N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation.....:		N/A
	Number of insulation layers (pcs) ..... :		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2	Test method and compliance		N/A
G.14	**Coating on components terminals**		N/A
G.14.1	Requirements .....:	No coating on component terminals considered to affect creepage or clearances.	N/A
G.15	**Pressurized liquid filled components**		N/A
G.15.1	Requirements	No such device provided within the equipment.	N/A
G.15.2	Test methods and compliance		N/A
G.15.2.1	Hydrostatic pressure test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.15.2.2	Creep resistance test		N/A
G.15.2.3	Tubing and fittings compatibility test		N/A
G.15.2.4	Vibration test		N/A
G.15.2.5	Thermal cycling test		N/A
G.15.2.6	Force test		N/A
G.15.3	Compliance		N/A
G.16	**IC including capacitor discharge function (ICX)**		N/A
G.16.1	Condition for fault tested is not required	No such components	N/A
	ICX with associated circuitry tested in equipment		N/A
	ICX tested separately		N/A
G.16.2	Tests		N/A
	Smallest capacitance and smallest resistance specified by ICX manufacturer for impulse test .....:		—
	Mains voltage that impulses to be superimposed on..... :		—
	Largest capacitance and smallest resistance for ICX tested by itself for 10000 cycles test...:		—
G.16.3	Capacitor discharge test.....:		N/A
H	**CRITERIA FOR TELEPHONE RINGING SIGNALS**		N/A
H.1	**General**		N/A
H.2	**Method A**		N/A
H.3	**Method B**		N/A
H.3.1	Ringing signal	No telephone ringing signal generated within the equipment.	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

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Clause	Requirement + Test	Result - Remark	Verdict
H.3.2.3	Monitoring voltage (V).....:		N/A
J	**INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION**		P
J.1	**General**		P
	Winding wire insulation.....:	Parapet provides sufficient distance to physical separation. See Table 4.1.2.	—
	Solid round winding wire, diameter (mm)..... :	(See appended table 4.1.2)	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

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Clause	Requirement + Test	Result - Remark	Verdict

L	**DISCONNECT DEVICES**		N/A
L.1	**General requirements**		N/A
L.2	**Permanently connected equipment**		N/A
L.3	**Parts that remain energized**		N/A
L.4	**Single-phase equipment**		N/A
L.5	**Three-phase equipment**		N/A
L.6	**Switches as disconnect devices**		N/A
L.7	**Plugs as disconnect devices**		N/A
L.8	**Multiple power sources**		N/A
	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		N/A
M.4	**Additional safeguards for equipment containing a portable secondary lithium battery**		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Requirements		N/A
M.4.2.2	Compliance.....:		N/A
M.4.3	Fire enclosure.....:		N/A
M.4.4	Drop test of equipment containing a secondary lithium battery		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
M.4.4.2	Preparation and procedure for the drop test		N/A
M.4.4.3	Drop, Voltage on reference and dropped batteries (V); voltage difference during 24 h period (%): ..... :		N/A
M.4.4.4	Check of the charge/discharge function		N/A
M.4.4.5	Charge / discharge cycle test		N/A
M.4.4.6	Compliance		N/A
M.5	**Risk of burn due to short-circuit during carrying**		N/A
M.5.1	Requirement		N/A
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)... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
M.8.2.3	Correction factors..... :		—
M.8.2.4	Calculation of distance *d* (mm) .....:		—
M.9	**Preventing electrolyte spillage**		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse		N/A
	Instructional safeguard..... :		N/A
N	**ELECTROCHEMICAL POTENTIALS**		N/A
	Material(s) used..... :		—
O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		P
	Value of *X* (mm).....:	1.0	—
P	**SAFEGUARDS AGAINST CONDUCTIVE OBJECTS**		P
P.1	**General**		P
P.2	**Safeguards against entry or consequences of entry of a foreign object**		P
P.2.1	General		P
P.2.2	Safeguards against entry of a foreign object		P
	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

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Clause	Requirement + Test	Result - Remark	Verdict
	Conditioning, T_C (°C).....:		—
	Duration (weeks).....:		—
Q	**CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING**		N/A
Q.1	**Limited power sources**		N/A
Q.1.1	Requirements		N/A
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A
	c) Regulating network limited output		N/A
	d) Overcurrent protective device limited output		N/A
	e) IC current limiter complying with G.9		N/A
Q.1.2	Test method and compliance.....:	(See appended table Q.1)	N/A
	Current rating of overcurrent protective device (A) .....:		N/A
Q.2	**Test for external circuits – paired conductor cable**	No such circuit for connection to the EUT	N/A
	Maximum output current (A) ..... :		N/A
	Current limiting method.....:		—
R	**LIMITED SHORT CIRCUIT TEST**		N/A
R.1	**General**	No such consideration.	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.....:	Approved fire enclosure with V-0 material used.	—
	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

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Clause	Requirement + Test	Result - Remark	Verdict
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	**Flammability test for fire enclosure and fire barrier integrity**		N/A
	Samples, material.....:		—
	Wall thickness (mm).....:		—
	Conditioning (°C)..... :		—
S.3	**Flammability test for the bottom of a fire enclosure**		N/A
S.3.1	Mounting of samples		N/A
S.3.2	Test method and compliance		N/A
	Mounting of samples .....:		—
	Wall thickness (mm).....:		—
S.4	**Flammability classification of materials**		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, T.3, T.4, T.5)	P
T.3	**Steady force test, 30 N .....:**	No internal enclosure.	N/A
T.4	**Steady force test, 100 N .....:**	(See appended table T.2, T.3, T.4, T.5)	N/A
T.5	**Steady force test, 250 N .....:**		P
T.6	**Enclosure impact test**		P
	Fall test	(See appended table T.6)	P
	Swing test		N/A
T.7	**Drop test ..... :**		N/A
T.8	**Stress relief test.....:**		N/A
T.9	**Glass Impact Test..... :**	No glass used.	N/A
T.10	**Glass fragmentation test**		N/A
	Number of particles counted.....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

T.11	**Test for telescoping or rod antennas**		N/A
	Torque value (Nm) ..... :	No such antennas provided within the equipment.	N/A
U	**MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION**		N/A
U.1	**General**		N/A
	Instructional safeguard :	No CRT provided.	N/A
U.2	**Test method and compliance for non-intrinsically protected CRTs**		N/A
U.3	**Protective screen**		N/A
V	**DETERMINATION OF ACCESSIBLE PARTS**		P
V.1	**Accessible parts of equipment**		P
V.1.1	General	No access with test probes to any hazardous parts	P
V.1.2	Surfaces and openings tested with jointed test probes		P
V.1.3	Openings tested with straight unjointed test probes		P
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	**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

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Clause	Requirement + Test	Result - Remark	Verdict
Y.3.5	Compliance		N/A
Y.4	**Gaskets**		N/A
Y.4.1	General		N/A
Y.4.2	Gasket tests		N/A
Y.4.3	Tensile strength and elongation tests		N/A
	Alternative test methods..... :		N/A
Y.4.4	Compression test		N/A
Y.4.5	Oil resistance		N/A
Y.4.6	Securing means		N/A
Y.5	**Protection of equipment within an outdoor enclosure**		N/A
Y.5.1	General		N/A
Y.5.2	Protection from moisture		N/A
	Relevant tests of IEC 60529 or Y.5.3..... :		N/A
Y.5.3	Water spray test		N/A
Y.5.4	Protection from plants and vermin		N/A
Y.5.5	Protection from excessive dust		N/A
Y.5.5.1	General		N/A
Y.5.5.2	IP5X equipment		N/A
Y.5.5.3	IP6X equipment		N/A
Y.6	**Mechanical strength of enclosures**		N/A
Y.6.1	General		N/A
Y.6.2	Impact test..... :		N/A

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

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

3.3.19.1	**momentary exposure level, MEL** metric for estimating 1 s sound exposure level from the HD 483-1 S2 test signal applied to both channels, based on EN 50332-1:2013, 4.2. Note 1 to entry: MEL is measured as A-weighted levels in dB. Note 2 to entry: See B.3 of EN 50332-3:2017 for additional information.		N/A

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

IEC 62368-1 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
10.6.1.1	**Introduction** **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: – 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.). EXAMPLES Portable CD players, MP3 audio players, mobile phones with MP3 type features, PDAs or similar equipment. Personal music players shall comply with the requirements of either 10.6.2 or 10.6.3. NOTE 1 Protection against acoustic energy sources from telecom applications is referenced to ITU-T P.360. 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. 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: – professional equipment; 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.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	– hearing aid equipment and other devices for assistive listening; – the following type of analogue personal music players: • long distance radio receiver (for example, a multiband radio receiver or world band radio receiver, an AM radio receiver), and • cassette player/recorder; 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. – a player while connected to an external amplifier that does not allow the user to walk around while in use. For equipment that is clearly designed or intended primarily for use by children, the limits of the relevant toy standards may apply The relevant requirements are given in EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.		
10.6.1.2	**Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz** The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz). For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body mounted devices, attention is drawn to EN 50360 and EN 50566.		N/A
10.6.2	**Classification of devices without the capacity to estimate sound dose**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10.6.2.1	**General** 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. For classifying the acoustic output $L_{Aeq,T}$, measurements are based on the A-weighted equivalent sound pressure level over a 30 s period. For music where the average sound pressure (long term $L_{Aeq,T}$) measured over the duration of the song is lower than the average produced by the programme simulation noise, measurements may be done over the duration of the complete song. In this case, T becomes the duration of the song. NOTE Classical music, acoustic music and broadcast typically has an average sound pressure (long term $L_{Aeq,T}$) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the content and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song does not exceed the required limit. 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.		N/A
10.6.2.2	**RS1 limits (to be superseded, see 10.6.3.2)** RS1 is a class 1 acoustic energy source that does not exceed the following: – 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

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Clause	Requirement + Test	Result - Remark	Verdict
10.6.2.3	**RS2 limits (to be superseded, see 10.6.3.3)** RS2 is a class 2 acoustic energy source that does not exceed the following: – 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	**RS3 limits** RS3 is a class 3 acoustic energy source that exceeds RS2 limits.		N/A
10.6.3	**Classification of devices (new)**		N/A
10.6.3.1	**General** 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.		N/A
10.6.3.2	**RS1 limits (new)** RS1 is a class 1 acoustic energy source that does not exceed the following: – 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

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Clause	Requirement + Test	Result - Remark	Verdict
10.6.3.3	**RS2 limits (new)** RS2 is a class 2 acoustic energy source that does not exceed the following: – 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	**Measurement methods** All volume controls shall be turned to maximum during tests. Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable.		N/A
10.6.4.2	**Protection of persons** Except as given below, protection requirements for parts **accessible** to **ordinary persons**, **instructed persons** and **skilled persons** are given in 4.3. NOTE 1 Volume control is not considered a **safeguard.** 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. Alternatively, the **instructional safeguard** may be given through the equipment display during use.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The elements of the **instructional safeguard** shall be as follows: – 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 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. 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. NOTE 2 Examples of means include visual or audible signals. Action from the user is always needed. 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. A **skilled person** shall not be unintentionally exposed to RS3.		
10.6.5	**Requirements for dose-based systems**		N/A

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

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Clause	Requirement + Test	Result - Remark	Verdict
10.6.5.3	**Exposure-based requirements** 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. 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. 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. NOTE In case the source is known not to be music (or test signal), the EL may be disabled.		N/A

10.6.6	**Requirements for listening devices (headphones, earphones, etc.)**		N/A
10.6.6.1	**Corded listening devices with analogue input** With 94 dB L_{Aeq} acoustic pressure output of the listening device, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the input voltage of the listening device when playing the fixed “programme simulation noise” as described in EN 50332-1 shall be ≥ 75 mV. NOTE The values of 94 dB and 75 mV correspond with 85 dB and 27 mV or 100 dB and 150 mV.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10.6.6.2	**Corded listening devices with digital input** With any playing device playing the fixed "programme simulation noise" described in EN 50332-1, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the $L_{Aeq,T}$ acoustic output of the listening device shall be ≤ 100 dB with an input signal of -10 dBFS.		N/A
10.6.6.3	**Cordless listening devices** In cordless mode, – with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and – respecting the cordless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and – with volume and sound settings in the receiving device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the above mentioned programme simulation noise, the $L_{Aeq,T}$ acoustic output of the listening device shall be ≤ 100 dB with an input signal of -10 dBFS.		N/A
10.6.6.4	**Measurement method** *Measurements shall be made in accordance with EN 50332-2 as applicable.*		N/A
3	**Modification to the whole document**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

Delete all the "country" notes in the reference document according to the following list:

0.2.1	Note 1 and 2	1	Note 4 and 5	3.3.8.1	Note 2
3.3.8.3	Note 1	4.1.15	Note	4.7.3	Note 1 and 2
5.2.2.2	Note	5.4.2.3.2.2 Table 12	Note c	5.4.2.3.2.4	Note 1 and 3
5.4.2.3.2.4 Table 13	Note 2	5.4.2.5	Note 2	5.4.5.1	Note
5.4.10.2.1	Note	5.4.10.2.2	Note	5.4.10.2.3	Note
5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3 and 4
5.6.8	Note 2	5.7.6	Note	5.7.7.1	Note 1 and Note 2
8.5.4.2.3	Note	10.2.1 Table 39	Note 3 and 4 and 5	10.5.3	Note 2
~~10.6.1~~	Note 3	F.3.3.6	Note 3	Y.4.1	Note
Y.4.5	Note				

N/A

4	**Modification to Clause 1**		N/A
1	***Add** the following note:* *NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.*		N/A

5	**Modification to 4.Z1**	N/A

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

8	**Modification to 10.5.1**	

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

10	**Modification to Bibliography**	N/A

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

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Clause	Requirement + Test	Result - Remark	Verdict
4.7.3	**United Kingdom** To the end of the subclause the following is added: The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex		N/A
5.2.2.2	**Denmark** After the 2nd paragraph add the following: A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A
5.4.11.1 and Annex G	**Finland and Sweden** To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5 kV.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11; • the additional testing shall be performed on all the test specimens as described in EN 60384-14; the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.		N/A
5.5.2.1	**Norway** After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A
5.5.6	**Finland, Norway** and **Sweden** To the end of the subclause the following is added: Resistors used as **basic safeguard** or bridging **basic insulation** in **class I pluggable equipment type A** shall comply with G.10.1 and the test of G.10.2.		N/A
5.6.1	**Denmark** **Add** to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. *Justification:* In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N/A

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

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

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Clause	Requirement + Test	Result - Remark	Verdict
	"Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet." Translation to Swedish: "Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.".		N/A
8.5.4.2.3	**United Kingdom** Add the following after the 2nd dash bullet in 3rd paragraph: 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.		N/A
B.3.1 and B.4	**Ireland and United Kingdom** The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of **direct plug-in equipment**, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the **direct plug-in equipment**, until the requirements of Annexes B.3.1 and B.4 are met		N/A

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

IEC 62368-1 - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
G.7.1	**United Kingdom** To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc. (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
G.7.1	**Ireland** To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard		N/A
G.7.2	**Ireland and United Kingdom** To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm^2 is allowed for equipment which is rated over 10 A and up to and including 13 A.		N/A
ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		N/A
10.5.2	**Germany** The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking. *Justification*: German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. **NOTE** Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int+49-531-592-6320, Internet: http://www.ptb.de		N/A

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

ZD	**IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS (EN)**	N/A
		N/A

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

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

4.1.2	TABLE: List of critical components				P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity1)
Plastic Enclosure (Side)	Chi Mei Corporation	PA-765A(+)	V-0;Min. thickness: 2.1 mm	UL 94, UL746C	UL E56070
Output Socket	Rich Bay Co., Ltd.	RG-02	16A, 250Vac	IEC 60884-1:2002 IEC 60884-1:2002/AMD1:2006 IEC 60884-1:2002/AMD2:2013	VDE 082796
PCB	WING SHING ELECTRONIC & PCB LTD	YS-1B / YS-2C YS-3	V-0;130℃ V-0;130℃	UL 796	UL E190407
Optical isolator	Everlight Electronics co Ltd	EL-817	Double Protection, 5000Vac isolation	DIN EN IEC 60747-5-5 (VDE 0884-5):2021-10; EN IEC 60747-5-5:2020 UL 1577	VDE 132249 UL E214129
(Alternative)	Sharp Corp Electronic Components and Devices Group	PC817	Input-output isolation 5000V rms;	UL 1577	UL E64380
(Alternative)	NingBo Qunxin Microelectronics Co., LTD	PC817	Input-output isolation 5000V rms;	DIN EN IEC 60747-5-5 (VDE 0884-5):2021-10; EN IEC 60747-5-5:2020	VDE 266024

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

Y-cap. (CY1)	JYH CHUNG ELECTRONICS CO LTD	JD	AC 250 V; 2200pF; Y1 type	UL 60384-14 DIN EN 60384-14/A1 (VDE 0565-1-1/A1):2017-04; EN 60384-14:2013/A1:2016 IEC 60384-14:2013 IEC 60384-14:2013/AMD1:2016 DIN EN 60384-14 (VDE 0565-1-1):2014-04; EN 60384-14:2013-08	VDE 137027 UL E187963
(Alternative)	HAOHUA ELECTRONIC COMPANY	CT7	AC 250 V; 2200pF; Y1 type	UL 60384-14 DIN EN 60384-14/A1 (VDE 0565-1-1/A1):2017-04; EN 60384-14:2013/A1:2016 IEC 60384-14:2013 IEC 60384-14:2013/AMD1:2016 DIN EN 60384-14 (VDE 0565-1-1):2014-04; EN 60384-14:2013-08	VDE 40003902 UL E233106

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

X-Cap	Shenzhen Ruidiwei Technology Co., Ltd.	MKP	2.2uF ; 275Vac; X2 type	DIN EN 60384-14/A1 (VDE 0565-1-1/A1):2017-04; EN 60384-14:2013/A1:2016 IEC 60384-14:2013 IEC 60384-14:2013/AMD1:2016 DIN EN 60384-14 (VDE 0565-1-1):2014-04; EN 60384-14:2013-08	VDE 40036287
Transformer (T1,T2,T3,T4, T5)	Samlex Electric (Dong Guan) Co., Ltd.	T	CLASS B	Applicable parts of IEC/EN 62368-1 and according to IEC 60085	Tested in appliance
- Bobbin	Lanxess AG	PA66 A30SF30	V-0, 130℃ Min thickness 0.5mm	UL 94	E245249
- Insulating tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	PZ	130°C,	UL 224	UL E165111
- Insulating tube	SHENZHEN UNITED POWER ELECTRONIC CO LTD	FSG-1	VW-1	UL 224	UL E238355
-Varnish	HANG CHEUNG PETROCHEMICAL LTD	8562(a)	155°C	UL 1446	UL E200154
Input lead wire	HERWELL ELECTRIC WIRE CO LTD	1007 or 1015	24/26AWG, 80°C, 300V, VW-1 for 1007 12/14/16AWG, 105°C, 600V, VW-1 for 1015	UL 758	UL E301305

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Clause	Requirement + Test	Result - Remark	Verdict

(Alternative)	RAN SUN INDUSTRIAL CO	1007 or 1015	24/26AWG, 80°C, 300V, VW-1 for 1007 12/14/16AWG, 105°C, 600V, VW-1 for 1015	UL 758	UL E157882
(Alternative)	LORD HERO CO LTD	1007 or 1015	24/26AWG, 80°C, 300V, VW-1 for 1007 12/14/16AWG, 105°C, 600V, VW-1 for 1015	UL 758	UL E111969
(Alternative)	JET POWER ELECTRICAL CO LTD	1007 or 1015	24/26AWG, 80°C, 300V, VW-1 for 1007 12/14/16AWG, 105°C, 600V, VW-1 for 1015	UL 758	UL E166138
(Alternative)	WONDERFUL HI-TECH CO LTD	1007 or 1015	24/26AWG, 80°C, 300V, VW-1 for 1007 12/14/16AWG, 105°C, 600V, VW-1 for 1015	UL 758	UL E77981
(Alternative)	SHUN HUI ELECTRONIC CO LTD	1007 or 1015	24/26AWG, 80°C, 300V, VW-1 for 1007 12/14/16AWG, 105°C, 600V, VW-1 for 1015	UL 758	UL E251672
(Alternative)	UNITY ELECTRICAL INDUSTRIAL LTD	1007 or 1015	24/26AWG, 80°C, 300V, VW-1 for 1007 12/14/16AWG, 105°C, 600V, VW-1 for 1015	UL 758	UL E209522

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

(Alternative)	TOP INDUSTRIAL CO LTD	1007 or 1015	24/26AWG, 80°C, 300V, VW-1 for 1007 12/14/16AWG, 105°C, 600V, VW-1 for 1015	UL 758	UL E184488
Inductor L1	DONGGUAN XIN JU ELECTRONICS CO LTD	--	1mH, 125°C	IEC/EN 62368-1	Tested in appliance
-Magnet wire of L1	JINYANG ENAMELLED ROUND WINDING WIRES CO LTD OF JIEYANG	PEW-H@	180°C	UL 1446	UL E488662
Electrolytic Capacitor	Interchangeable	Interchangeable	105°C 400V	IEC/EN 62368-1	Tested with appliance
Bridge Rectifier	Interchangeable	Interchangeable	16A 600V	IEC/EN 62368-1	Tested with appliance
Fan	SHENZHEN POWERYEAR TECHNOLOGY CO LTD	PY8025H12B	16V, 4500rpm	IEC/EN 62368-1	Tested with appliance
(Alternative)	CHIEFLY CHOICE CO LTD	CC8025H12B	16V, 4800RPM	IEC/EN 62368-1	Tested with appliance
Supplementary information: Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

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Clause	Requirement + Test	Result - Remark	Verdict

4.8.4, 4.8.5	**TABLE: Lithium coin/button cell batteries mechanical tests**		N
(The following mechanical tests are conducted in the sequence noted.)			
4.8.4.2	**TABLE: Stress Relief test**		—
Part	**Material**	**Oven Temperature (°C)**	**Comments**
-	-	--	- -
4.8.4.3	**TABLE: Battery replacement test**		—
Battery part no. ..... :			—
Battery Installation/withdrawal		Battery Installation/Removal Cycle	Comments
--		1	- -
		2	- -
		3	- -
		4	- -
		5	- -
		6	- -
		8	- -
		9	- -
		10	- -
4.8.4.4	**TABLE: Drop test**		—
Impact Area	Drop Distance	Drop No.	Observations
-	-	1	-
-	-	2	-
-	-	3	-
4.8.4.5	**TABLE: Impact**		—
Impacts per surface	**Surface tested**	**Impact energy (Nm)**	**Comments**
-	-	-	-
4.8.4.6	**TABLE: Crush test**		—

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Clause	Requirement + Test	Result - Remark	Verdict

Test position	Surface tested	Crushing Force (N)	Duration force applied (s)
-	-	-	-
Supplementary information:			

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

5.2	TABLE: Classification of electrical energy sources						P
Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
			U (V)	I (mA)	Type[1)]	Additional Info [2)]	
220Va.c 50Hz	Input	Normal	220V	--	SS	AC	ES1
		Abnormal	--	--	SS	--	
		Single fault	--	--	SS	--	
16Vdc	Output	Normal	DC 16V	--	SS	50	ES3
		Abnormal Output overload (see table B.3 for details)	DC 16V	--	SS	50	
		Single fault: Short circuit or open circuit (Refer to fault condition on table B.4, output shutdown)	0Vdc	--	SS	50	
		Single fault: Short circuit (Refer to fault condition on table B.4, F1 open)	0Vdc	--	SS	50	
Supplementary information:							

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Clause	Requirement + Test	Result - Remark	Verdict

1) Type: Steady state (SS), Capacitance (CP), Single pulse (SP), Repetitive pulses (RP), etc.
2) Additional Info: Frequency, Pulse duration, Pulse off time, Capacitance value, etc.

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

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)
Input terminal	See table 4.1.2	See Table 4.1.2.	125	1.1
Supplementary information:				
Other materials of T1 bobbin are no need to conduct this test., see appended table 4.1.2, And no other parts are necessary to be tested.				

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)
Trace between L and N (B)	420	250	60	1.5	4.5	--	2.5	4.5
Primary component (T1) trace to secondary component (T1) (R)	420	250	60	3.0	5.9	--	5.0	5.9
Primary component (T2) trace to secondary component (T2) (R)	420	250	60	3.0	5.9	--	5.0	5.9
Primary component (T3) trace to secondary component (T3) (R)	420	250	60	3.0	5.9	--	5.0	5.9

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Clause	Requirement + Test	Result - Remark	Verdict

Primary component (T4) trace to secondary component (T4) (R)	420	250	60	3.0	5.9	--	5.0	5.9
Primary component (T5) trace to secondary component (T5) (R)	420	250	60	3.0	5.9	--	5.0	5.9
Primary circuit to secondary circuit of CY1 (R)	420	250	60	3.0	5.2	--	5.0	5.2
Primary circuit to secondary circuit of OPT1 (R)	420	250	60	3.0	7.8	--	5.0	7.8

Supplementary information:

1) Only for frequency above 30 kHz

2) Complete Electric Strength voltage (E.S. (V) when 5.4.2.4 applied)

3) Provide Material Group: IIIb

B=Basic insulation, S=Supplementary insulation, R=Reinforced insulation.

1. Triple insulated wire used in secondary side. Core of transformer (T1) is considered as primary.
2. Unless otherwise specified, the worst conditions of Cl. & Cr. in above mentioned locations have been considered and listed.

*The equipment is intended to be operated under altitude up to 2000m, so the clearance is multiplied by the altitude correction factor (1.0, linear interpolation used), specified in table A.2 of IEC 60664-1.

5.4.4.2	**TABLE: Minimum distance through insulation**			P
Distance through insulation (DTI) at/of	Peak voltage (V)	Insulation	Required DTI (mm)	Measured DTI (mm)
Bobbin in transformer	420	Phenolic	0.4	1)
Enclosure	420	1)	0.4	1)
Insulation tape	560	Polyethylene	See only 5.4.4.9	See only 5.4.4.9

Supplementary information:

1). See appended table 4.1.2 for details.

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

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Clause	Requirement + Test	Result - Remark	Verdict

--	--	--	--	--	--	--
Supplementary information:						

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:		Voltage shape (Surge, Impulse, AC, DC, etc.)	Test voltage (V)	Breakdown Yes / No
Basic/supplementary:				
L and N of input (with fuse opened)		DC	2500	No
Reinforced:				
Input to output terminal		DC	4000	No
output terminal to plastic enclosure wrapped with metal foil		DC	4000	No
Primary to secondary of transformer		DC	4000	No
Secondary to core of transformer		DC	4000	No
Insulation tape (single layer)		DC	4000	No
Supplementary information:				
Core of transformer was considered as primary. Test after humidity treatment, heating test, and for the first 2 reinforced insulation items after each fault condition test. Test were performed on product with each source listed in table 4.1.2. The DC voltage source was performed on all testing once in forward and once in reverse. Each transformer in table 4.1.2 was applied and passed the relevant tests.				

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

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Clause	Requirement + Test	Result - Remark	Verdict

Location	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)
--	--	--	--	--
Supplementary information:				

5.7.4	TABLE: Unearthed accessible parts					P
Location	Operating and fault conditions	Supply Voltage (V)	Parameters			ES class
			Voltage (V_{rms} or V_{pk})	Current (A_{rms} or A_{pk})	Freq. (Hz)	
Enclosure plastic to L and N	Normal	16VDC	--	0.005mApk	50	ES1
	Abnormal Output overload		--	0.005mApk	50	ES1
	Single fault: R5 S-C		--	0.005mApk	50	ES1
	Single fault: (U1 pin in-out) S-C		--	0.005mApk	50	ES1
	Single fault: (Q1 pin A-K) S-C		--	0.005mApk	50	ES1
Input terminal to L and N	Normal	16VDC	--	0.05mApk	60	ES1
	Abnormal Output overload		--	0.05mApk	60	ES1
	Single fault: R5 S-C		--	0.05mApk	60	ES1
	Single fault: (U1 pin in-out) S-C		--	0.05mApk	60	ES1
	Single fault: (Q1 pin A-K) S-C		--	0.05mApk	60	ES1
Output terminal to earth	Normal	16VDC	--	0.08mApk	60	ES1
	Abnormal Output overload		--	0.08mApk	60	ES1

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Clause	Requirement + Test	Result - Remark	Verdict

	Single fault: R5 S-C		--	0.08mApk	60	ES1
	Single fault: (U1 pin in-out) S-C		--	0.08mApk	60	ES1
	Single fault: (Q1 pin A-K) S-C		--	0.08mApk	60	ES1
Supplementary information:						
Abbreviation: S-C= short circuit; O-C= open circuit						

5.7.5	TABLE: Earthed accessible conductive part			N/A
Supply voltage (V).....:				—
Phase(s) .....:	[ ] Single Phase; [ ] Three Phase: [ ] Delta [ ] Wye			
Power Distribution System .....:	[ ] TN [ ]TT [ ] 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: --						

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
Output	Normal operation	230	8.7	2000	5	PS3
Output	Single fault: OPT1 pin1-2 shorted circuit	0#	0#	0#	3	PS1
Supplementary information:						

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Clause	Requirement + Test	Result - Remark	Verdict

Unit shut down immediately.
1) Measured after 3 s for PS1 and measured after 5 s for PS2 and PS3.

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
Primary circuits and secondary circuit / parts	--	--	--	Yes (Declaration)
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 (Vp) and normal operating condition rms current (Irms) is greater than 15. All conductors and devices are considered as PIS.				

6.2.3.2	TABLE: Determination of resistive PIS		P
Location	Operating and fault condition	Dissipate power (W)	Arcing PIS? Yes / No
All internal circuits/components	--	--	Yes (Declaration)
Supplementary information:			
Abbreviation: SC= short circuit; OC= open circuit All primary and secondary circuit are considered as resistive PIS A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter. If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification. A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, or (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault. All conductors and devices are considered as PIS.			

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:				

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Clause	Requirement + Test	Result - Remark	Verdict

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).....:	16VDC		—		—
Ambient temperature during test T_{amb} (°C) ..... :	35.0		—		—
Maximum measured temperature T of part/at:	T (°C)				Allowed T_{max} (°C)
Input wire	73.2	—	—	—	80
Winding of transformer (T1)	85.6	—	—	—	110
Core of transformer (T1)	81.2	—	—	—	110
Winding of transformer (T2)	86.9	—	—	—	110
Core of transformer (T2)	83.4	—	—	—	110
Winding of transformer (T3)	87.8	—	—	—	110
Core of transformer (T3)	84.2	—	—	—	110
Winding of transformer (T4)	84.6	—	—	—	110
Core of transformer (T4)	82.1	—	—	—	110
Winding of transformer (T5)	86.5	—	—	—	110
Core of transformer (T5)	83.3	—	—	—	110
PCB near T2	80.3	—	—	—	130
L1 winding	89.9	—	—	—	110
L3 winding	75.6	—	—	—	110

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Clause	Requirement + Test	Result - Remark	Verdict

C11 body	89.9	—	—	—	105
CY1 Body(R52)	79.3	—	—	—	125
C13 Body	68.9	—	—	—	105
OPT1 Body	75.6	—	—	—	110
OPT2 Body	77.2	—	—	—	110
PCB near M21	71.2	—	—	—	130
PCB near M1	73.3	—	—	—	130
Enclosure inside near T2 (top)	93.1	—	—	—	120
Enclosure inside near T2 (bottom)	78.7	—	—	—	120
Ambient	**35.0**	—	—	—	**--**
Enclosure outside near Input	58.1	—	—	—	77*
Enclosure outside near T2	55.0	—	—	—	60*
Output coupler	68.2	—	—	—	77
Ambient	**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:

* Temperature limit for TS1 of accessible enclosure according to Table 38.

Note 1: The apparatus was submitted and evaluated for maximum manufacturer's recommended ambient (Tma) of 35 °C.

Note 2: The temperatures were measured under the worst case normal mode defined in clause B.2.1.

Note 3.Temperature limits are calculated as follows:

Winding components providing safety isolation:

Class B Tmax = 120 - 10=110 °C

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
16Vdc	--	198	200	2376	--	F1,F2,F3,F4,F5,F6,F7,F8,F9,F10	198	Load with 220Vac, 4000W

Supplementary information:

The maximum measured current under rated voltage did not exceed 110% of the rated current.

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Clause	Requirement + Test	Result - Remark	Verdict

B.3, B.4	TABLE: Abnormal operating and fault condition tests						P
Ambient temperature T_{amb} (°C)....:					25 °C, if not specified		—
Power source for EUT: Manufacturer, model/type, output rating....:					--		—
Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation	
OUTPUT	SC	12	10min	--	0	Unit shutdown immediately, recoverable, no hazard.	
Supplementary information:							
Test table is provided to record fault conditions for all applicable energy sources including Thermal burn injury. Column "Abnormal/Fault." Specify if test condition by indicating "Single Fault" then the condition for Clause B.4. 1) SC: Short-circuited; OC: Open-circuited; OL: over-load. 2) The test result shown all safeguards remained effective and didn't lead to a single fault condition during abnormal operating condition; In addition all safeguards complied with applicable requirements in this standard after restoration of normal operating conditions. 3) The test result showed no Class 1 or 2 energysource become Class 3 level during and after single fault condition. 4) # The tests where fuse opened were repeated with each source of fuse and with same result observed. 5) Output voltage measured under fault conditions were not increase by more than 10% of its rated output voltage under normal operating condition.							

M.3	TABLE: Protection circuits for batteries provided within the equipment						N/A
Is it possible to install the battery in a reverse polarity position?....:					--		—
Equipment Specification	Charging						
	Voltage (V)				Current (A)		
	--				--		
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)			
--	--	--	--	--	--	--	

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Clause	Requirement + Test	Result - Remark	Verdict

Note: The tests of M.3.2 are applicable only when above appropriate data is not available.							
Specified battery temperature (°C)..... :				--			--
Component No.	Fault condition	Charge/ discharge mode	Test time	Temp. (°C)	Current (A)	Voltage (V)	Observation
--	--	--	--	--	--	--	--
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**				**N/A**
Maximum specified charging voltage (V)..... :		--			—
Maximum specified charging current (A) ..... :		--			—
Highest specified charging temperature (°C) ..... :		--			
Lowest specified charging temperature (°C) ..... :		--			
Battery manufacturer/type	Operating and fault condition	Measurement			Observation
		Charging voltage (V)	Charging current (A)	Temp. (°C)	--
--	--	--	--	--	--
Supplementary information:					
Abbreviation: SC= short circuit; OC= open circuit; MSCV= maximum specified charging voltage; MSCC= maximum specified charging current; HSCT= highest specified charging temperature; LSCT= lowest specified charging temperature					

Q.1	**TABLE: Circuits intended for interconnection with building wiring (LPS)**						N/A
Output Circuit	Condition	U_{oc} (V)	Time (s)	I_{sc} (A)		S (VA)	
				Meas.	Limit	Meas.	Limit
--	--	--	--	--	--	--	--
Supplementary Information:							
SC − short circuit * Fuse opened immediately. * * Fuse F1 opened immediately							

T.2, T.3, T.4, T.5	**TABLE: Steady force test**	P

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Clause	Requirement + Test	Result - Remark	Verdict

Location/Part	Material	Thickness (mm)	Probe	Force (N)	Test Duration (s)	Observation
Enclosure top	Metal	Min.1.6mm	--	250	5	Enclosure remained intact, no crack/ opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.
Enclosure side (Plastic)	1)	1)	--	100	5	Enclosure remained intact, no crack/ opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.
Enclosure bottom	Metal	Min.1.6mm	--	250	5	Enclosure remained intact, no crack/ opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.
Internal components near the gap between primary and secondary	--	--	--	10	5	No insulation breakdown. No reduction the clearances and creepage distances
Supplementary information:						
1). See appended table 4.1.2. Each source of enclosure in table 4.1.2 was applied and passed the relevant tests.						

T.6, T.9	TABLE: Impact test	P

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Clause	Requirement + Test	Result - Remark	Verdict

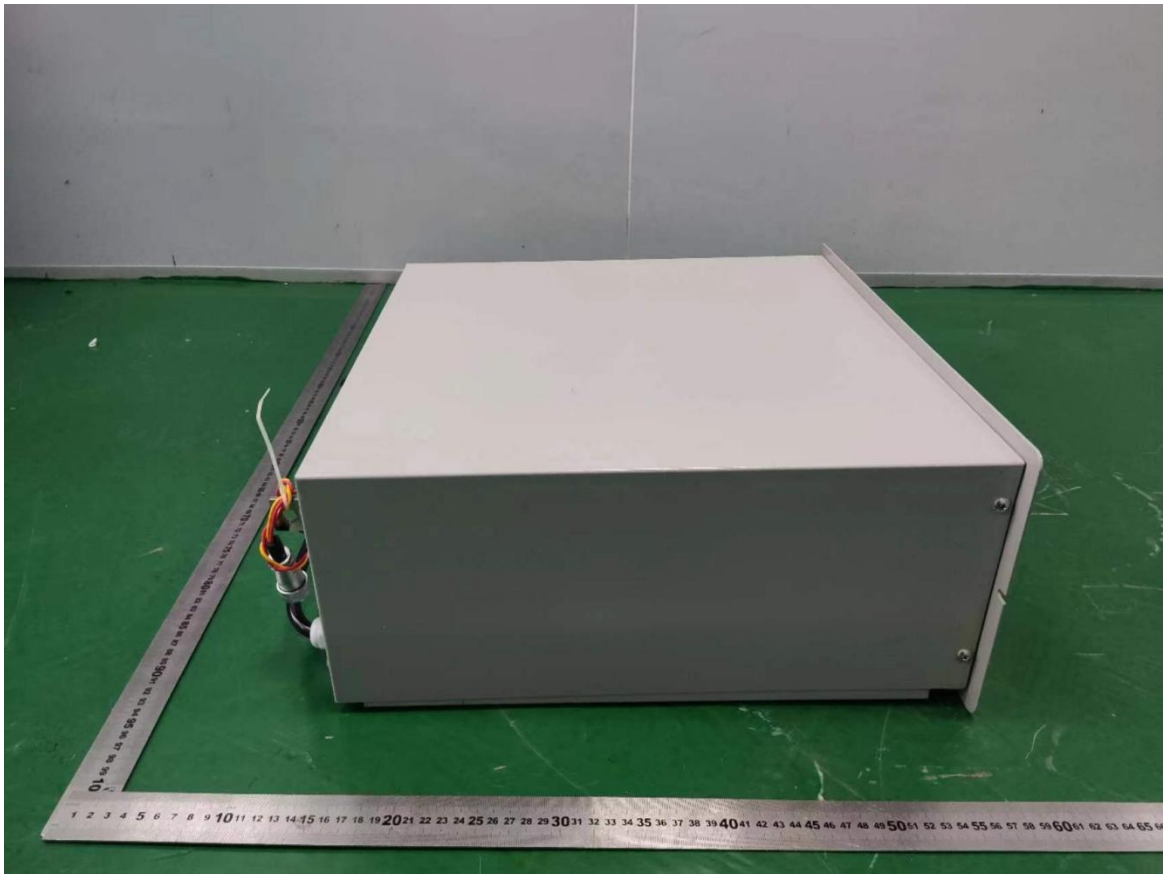
Location/Part	Material	Thickness (mm)	Height (mm)	Observation
Three sides of enclosure	1)	1)	1300	After the test, enclosure remained intact, no cracking/opening developed in the enclosure joint. Internal ES3, TS3 were not accessible after test. No insulation breakdown.
Supplementary information:				

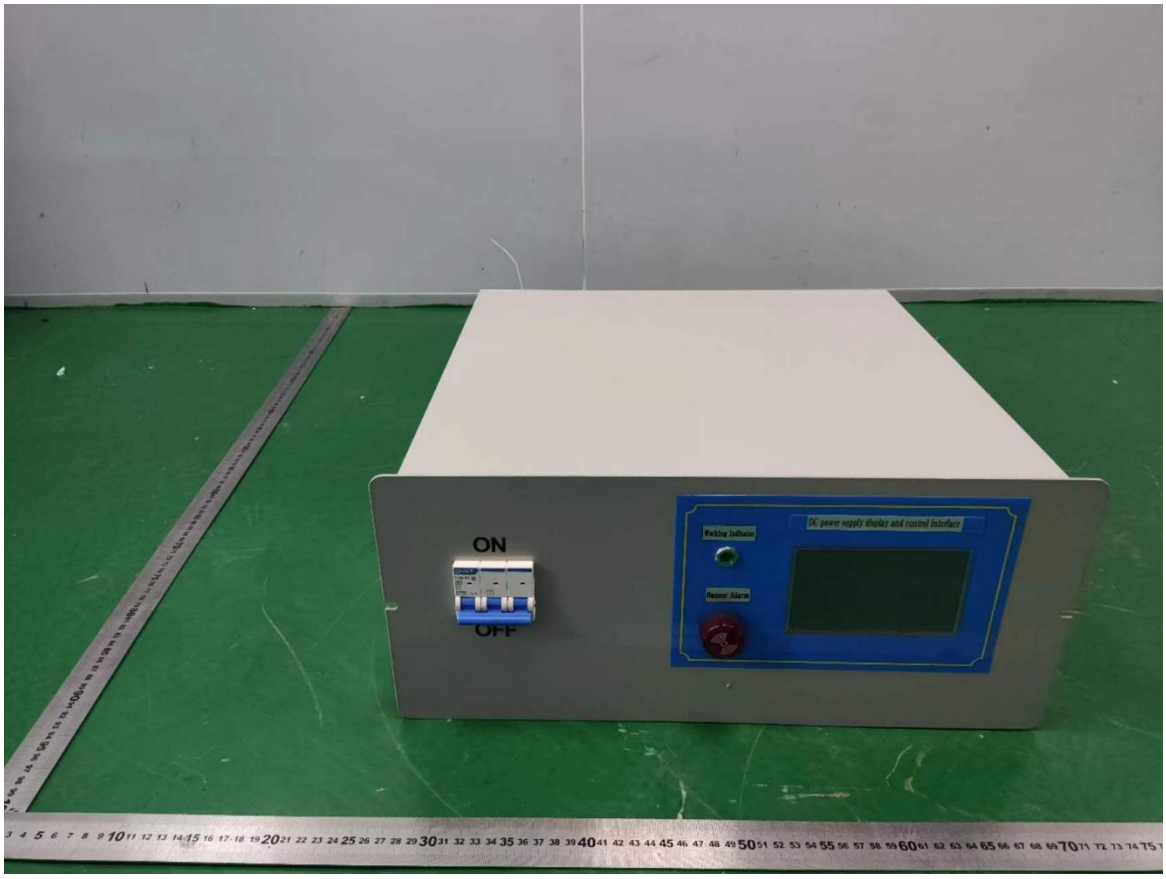
T.7	TABLE: Drop test				N/A
Location/Part	Material	Thickness (mm)	Height (mm)	Observation	
--	--	--	--	--	
Supplementary information:					
1). See appended table 4.1.2. Each source of enclosure in table 4.1.2 was applied and passed the relevant tests.					

T.8	TABLE: Stress relief test				P
Location/Part	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation
EUT	Plastic	1)	104	7	After the test, enclosure remained intact, no cracking/opening developed in the enclosure joint. Internal ES3, TS3 were not accessible after test. No insulation breakdown.
Supplementary information:					

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:			

APPENDIX 2-Photographs of the EUT





APPENDIX 2-Photographs of the EUT

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