

# TEST REPORT

## IEC 62368-1

Audio/video, information and communication technology equipment

Part 1: Safety requirements

Report Number .....: BTL-UKCA-1-S2403C177A

Tested by (+ signature) .....: Jimmy Lv

Approved by (+ signature) .....: Ben Liu

Date of issue .....: 2024-12-10

Total number of pages .....: 94

Testing Laboratory .....: **BTL Inc. (Dongguan)**

Address .....: No.3, Jinshagang 1st Road, Dalang, Dongguan, Guangdong, China.

Testing Location .....: Room 108, Building 2, No.1, Yile Road, Songshan Lake Zone, Dongguan, Guangdong, China.

Applicant's name .....: **Suparo Industries Ltd**

Address .....: Weir Street, Blackburn, BB2 2AN, United Kingdom

**Test specification:**

Standard .....: BS EN IEC 62368-1:2020+A11:2020;  
IEC 62368-1:2018

Test procedure .....: N/A

Non-standard test method .....: N/A

Test Report Form No. ....: IEC62368\_1C\_1(UKCA)

Master TRF .....: Dated 2020-05

Test item description .....: 1) 30W USB-C Wall Charger  
2) 35W USB-C Wall Charger

Trade Mark .....: Suparo

Manufacturer .....: **Foshan G-power Technology Co., Ltd**

B4-601, 602, 603, 604, 702, 704, SXC, No.1 Fusheng West Rd, Dafuji Comm, Ronggui Str, Shunde Dist, Foshan City, Guangdong P.R. China

Model/Type reference .....: 1) S30, S30W, S30B  
2) P1135BUK

Ratings .....: Input: 100-240V~, 50/60Hz, 1.0A;  
Output: See model list on pages 4-5 for details.



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





- Group differences and National differences (22 pages)
- Photo Documentation (5 pages)

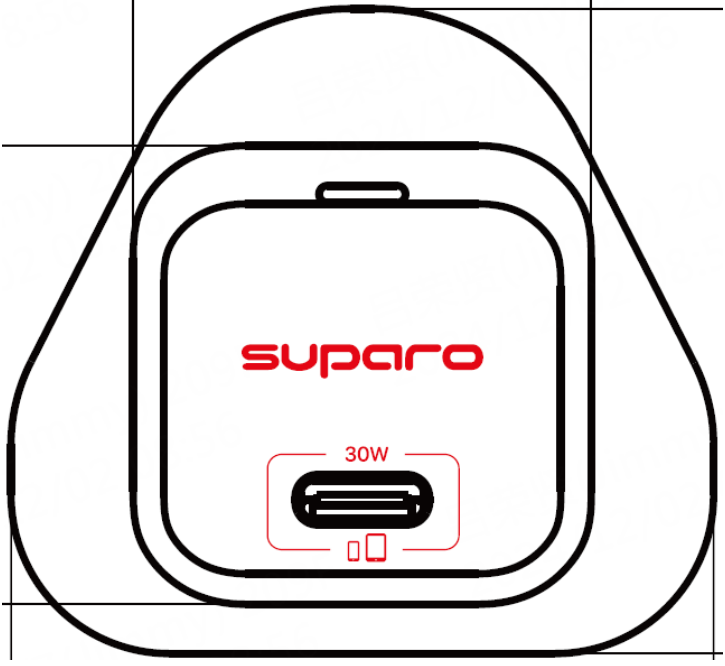
**Copy of marking plate:**

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.

**30W USB-C Wall charger**  
**Model: S30**  
**Input: AC 100-240V, 50/60Hz, 1.0A**  
**USB-C Output: 5V=3A, 9V=3A, 12V=2.5A**  
**15V=2A, 20V=1.5A, PPS: 3.3V-11V=3A**  
**Suparo Industries Ltd.**  
**Weir Street, Blackburn, BB2**  
**2AN, United Kingdom**  
**Made in China**



<b>Test item particulars:</b>			
<b>Product group</b> .....	<input checked="" type="checkbox"/> end product	<input type="checkbox"/> built-in component	
<b>Classification of use by</b> .....	<input checked="" type="checkbox"/> Ordinary person	<input checked="" type="checkbox"/> Children likely present	
	<input type="checkbox"/> Instructed person		
	<input type="checkbox"/> Skilled person		
<b>Supply connection</b> .....	<input checked="" type="checkbox"/> AC mains	<input type="checkbox"/> DC mains	
	<input type="checkbox"/> not mains connected:		
	<input type="checkbox"/> ES1	<input type="checkbox"/> ES2	<input type="checkbox"/> ES3
<b>Supply tolerance</b> .....	<input checked="" type="checkbox"/> +10%/-10%		
	<input type="checkbox"/> +20%/-15%		
	<input type="checkbox"/> +    %/ -    %		
	<input type="checkbox"/> None		
<b>Supply connection – type</b> .....	<input checked="" type="checkbox"/> pluggable equipment type A -		
	<input type="checkbox"/> non-detachable supply cord		
	<input type="checkbox"/> appliance coupler		
	<input checked="" type="checkbox"/> direct plug-in		
	<input type="checkbox"/> pluggable equipment type B -		
	<input type="checkbox"/> non-detachable supply cord		
	<input type="checkbox"/> appliance coupler		
	<input type="checkbox"/> permanent connection		
	<input type="checkbox"/> mating connector	<input type="checkbox"/> other:	
<b>Considered current rating of protective device</b> .....	<input checked="" type="checkbox"/> 16A (13A for UK);		
	Location:	<input checked="" type="checkbox"/> building	<input type="checkbox"/> equipment
	<input type="checkbox"/> N/A		
<b>Equipment mobility</b> .....	<input type="checkbox"/> movable	<input type="checkbox"/> hand-held	<input type="checkbox"/> transportable
	<input checked="" type="checkbox"/> direct plug-in	<input type="checkbox"/> stationary	<input type="checkbox"/> for building-in
	<input type="checkbox"/> wall/ceiling-mounted	<input type="checkbox"/> SRME/rack-mounted	
	<input type="checkbox"/> other:		
<b>Overvoltage category (OVC)</b> .....	<input type="checkbox"/> OVC I	<input checked="" type="checkbox"/> OVC II	<input type="checkbox"/> OVC III
	<input type="checkbox"/> OVC IV	<input type="checkbox"/> other:	
<b>Class of equipment</b> .....	<input type="checkbox"/> Class I	<input checked="" type="checkbox"/> Class II	<input type="checkbox"/> Class III
	<input type="checkbox"/> Not classified	<input type="checkbox"/>	
<b>Special installation location</b> .....	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> restricted access area	
	<input type="checkbox"/> outdoor location	<input type="checkbox"/>	
<b>Pollution degree (PD)</b> .....	<input type="checkbox"/> PD 1	<input checked="" type="checkbox"/> PD 2	<input type="checkbox"/> PD 3
<b>Manufacturer's specified T<sub>ma</sub></b> .....	25 °C	<input type="checkbox"/> Outdoor: minimum	°C
<b>IP protection class</b> .....	<input checked="" type="checkbox"/> IPX0	<input type="checkbox"/> IP__	
<b>Power systems</b> .....	<input checked="" type="checkbox"/> TN	<input type="checkbox"/> TT	<input type="checkbox"/> IT -    V <sub>L-L</sub>
	<input type="checkbox"/> not AC mains		
<b>Altitude during operation (m)</b> .....	<input checked="" type="checkbox"/> 2000 m or less	<input type="checkbox"/> 5000 m	
<b>Altitude of test laboratory (m)</b> .....	<input checked="" type="checkbox"/> 2000 m or less	<input type="checkbox"/> m	
<b>Mass of equipment (kg)</b> .....	0.04 kg 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 .....: N/A  
 Date (s) of performance of tests .....: N/A

**General remarks:**

The test results presented in this report relate only to the object tested.  
 This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.  
 When determining the test conclusion, the nominal variations in some test parameters have little effect on the uncertainty of the measurement result. The decision rules are based on IEC Guide 115 with complying the relevant requirements of environment and equipment.  
 "(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.

Name and address of factory (ies) ..... : **Foshan G-power Technology Co., Ltd**  
 B4-601, 602, 603, 604, 702, 704, SXC, No.1 Fusheng  
 West Rd, Dafuji Comm, Ronggui Str, Shunde Dist,  
 Foshan City, Guangdong P.R. China

**General product information and other remarks:**

**Product Description:**

1. The product covered in this report is a 30W USB-C Wall Charger or 35W USB-C Wall Charger, class II equipment use for information technology equipment or audio/video equipment.
2. The product's top enclosure is secured to bottom enclosure by ultrasonic welding.
3. Pre-production samples without serial numbers.
4. Specified maximum ambient temperature is 25°C.
5. The equipment was evaluated for a maximum operating altitude of 2000m.
6. The plug-in part is fixed to the enclosure and the plug portion (incorporate pins) is moulded together with enclosure that effectively prevents any disintegration or conductive parts remaining in the socket.

**Model difference:**

All models are the same except for model name, output ratings, see below model list for detail.  
 Unless otherwise specified, the model P1135BUK is the selected models for tests.

Model	Product name	Output Rating	Plug type	With LED or no
S30, S30W, S30B	30W USB-C Wall Charger	30W Max.	British plug	with

P1135BUK	35W USB-C Wall Charger	35W Max.	British plug	with
<p>Remark:</p> <p>Output Rating: Output (30W Max.):  Output: 5.0Vdc, 3.0A; 9.0Vdc, 3.0A; 12.0Vdc, 2.5A; 15.0Vdc, 2.0A; 20.0Vdc, 1.5A;  PPS: 5-11.0Vdc, 3.0A(Max 30W)</p> <p>Output Rating: Output (35W Max.):  Output: 5.0Vdc, 3.0A; 9.0Vdc, 3.0A; 12.0Vdc, 2.91A; 15.0Vdc, 2.33A; 20.0Vdc, 1.75A;  PPS: 5-11.0Vdc, 3.0A(Max 35W)</p> <p><b>Additional application considerations – (Considerations used to test a component or sub-assembly) –</b></p> <ul style="list-style-type: none"> <li>- Products have variety colour of enclosures</li> </ul> <p><b>Report Summary –</b></p> <ul style="list-style-type: none"> <li>- This report is deemed to reissue from original report BTL-LVD-1-S2403C177 (issued 2024-07-19) and due to below items: <ol style="list-style-type: none"> <li>a. Change the Applicant's name and Address.</li> <li>b. Change the Manufacturer name and Address.</li> <li>c. Change the product name and model (describes the Test item description).</li> </ol> </li> </ul>				

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: All circuits except for output circuits	Ordinary	N/A	N/A	Enclosure See 5.4.2, 5.4.3, 5.4.4, 5.5.3 and 5.5.4
ES1: Output terminals	Ordinary	N/A	N/A	N/A
6	Electrically-caused fire			
Class and Energy Source (e.g. PS2: 100 Watt circuit)	Material part (e.g. Printed board)	Safeguards		
		B	1 <sup>st</sup> S	2 <sup>nd</sup> S
PS3 circuit	Enclosure	See 6.3	V-0 or better	N/A
PS3 circuit	PCB	See 6.3	V-1 or better	N/A
PS3 circuit	Internal wiring	See 6.3	See 6.5	N/A
PS3 circuit	The other components / materials	See 6.3	See 6.4.5, 6.4.6, 6.4.8	N/A
PS2 circuit	Output connector	See 6.3	See 6.4.5	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: Mass of the unit<7kg	Ordinary	N/A	N/A	N/A
MS1: Edges and corners	Ordinary	N/A	N/A	N/A
9	Thermal burn			
Class and Energy Source (e.g. TS1: Keyboard caps)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
TS1: Plastic enclosure	Ordinary	N/A	N/A	N/A
10	Radiation			
Class and Energy Source	Body Part	Safeguards		



(e.g. RS1: PMP sound output)	(e.g., Ordinary)	B	S	R
LED indicator: Exempt group	Ordinary	N/A	N/A	N/A
Supplementary Information: “B” – Basic Safeguard; “S” – Supplementary Safeguard; “R” – Reinforced Safeguard				

**ENERGY SOURCE DIAGRAM**

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

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

ES     PS     MS     TS     RS

Details see “OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS” TABLE.

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
<b>4</b>	<b>GENERAL REQUIREMENTS</b>		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/EN and/or national standards are used correctly within their ratings. Components not covered by IEC/EN 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) .....:	Indoor use	N/A
4.1.5	Constructions and components not specifically covered		N/A
4.1.8	Liquids and liquid filled components (LFC)		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 Annex T.2, T.4)	P
4.4.3.3	Drop tests	(See Annex T.7)	P
4.4.3.4	Impact tests	Direct plug in equipment.	N/A
4.4.3.5	Internal accessible safeguard tests	The external enclosure cannot be opened otherwise damaging the product.	N/A
4.4.3.6	Glass impact tests		N/A
4.4.3.7	Glass fixation tests		N/A
	Glass impact test (1J)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Push/pull test (10 N)		N/A
4.4.3.8	Thermoplastic material tests	(See Annex T.8)	P
4.4.3.9	Air comprising a safeguard	(See Annex T)	P
4.4.3.10	Accessibility, glass, safeguard effectiveness		P
4.4.4	Displacement of a safeguard by an insulating liquid		N/A
4.4.5	Safety interlocks		N/A
<b>4.5</b>	<b>Explosion</b>		P
4.5.1	General		P
4.5.2	No explosion during normal/abnormal operating condition	No explosion occurs during normal/abnormal operation and single fault conditions.	P
	No harm by explosion during single fault conditions	(See Clause B.3, B.4)	P
<b>4.6</b>	<b>Fixing of conductors</b>	See below.	P
	Fix conductors not to defeat a safeguard		P
	Compliance is checked by test ..... :	10 N applied to all components other than the parts serving as an enclosure (See appended table 5.4.2, 5.4.3 and T.2).	P
<b>4.7</b>	<b>Equipment for direct insertion into mains socket-outlets</b>		P
4.7.2	Mains plug part complies with relevant standard .. :	The dimension and construction of the injection part of UK plug was tested and in compliance with requirement	P
4.7.3	Torque (Nm) ..... :	P1135BUK: Max. 0.015Nm	P
<b>4.8</b>	<b>Equipment containing coin/button cell batteries</b>		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

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Clause	Requirement + Test	Result - Remark	Verdict
4.8.4.4	Drop test		N/A
4.8.4.5	Impact test		N/A
4.8.4.6	Crush test		N/A
4.8.5	Compliance		N/A
	30N force test with test probe		N/A
	20N force test with test hook		N/A
<b>4.9</b>	<b>Likelihood of fire or shock due to entry of conductive object</b>		P
<b>4.10</b>	<b>Component requirements</b>		P
4.10.1	Disconnect Device	(See Annex L)	P
4.10.2	Switches and relays		N/A

<b>5</b>	<b>ELECTRICALLY-CAUSED INJURY</b>		P
<b>5.2</b>	<b>Classification and limits of electrical energy sources</b>		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 .....		N/A
5.2.2.4	Single pulse limits .....		N/A
5.2.2.5	Limits for repetitive pulses .....		N/A
5.2.2.6	Ringing signals	No such ringing signals	N/A
5.2.2.7	Audio signals	No such audio signals	N/A
<b>5.3</b>	<b>Protection against electrical energy sources</b>		P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	See only sub-clauses 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		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 is accessible part for this product.	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		—
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		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
<b>5.4</b>	<b>Insulation materials and requirements</b>		<b>P</b>
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	Humidity conditioning test was conducted, refer to 5.4.8	P
5.4.1.4	Maximum operating temperature for insulating materials .....	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	P
5.4.1.5	Pollution degrees .....	PD2	P
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling test		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage .....	(See appended table 5.4.1.8)	P
5.4.1.9	Insulating surfaces		P
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		P
5.4.1.10.2	Vicat test.....		N/A
5.4.1.10.3	Ball pressure test .....	(See appended table 5.4.1.10.3)	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.2	Clearances	The highest value of 5.4.3.3 and 5.4.2.3 was used.	P
5.4.2.1	General requirements		P
	Clearances in circuits connected to AC Mains, Alternative method		N/A
5.4.2.2	Procedure 1 for determining clearance		P
	Temporary overvoltage .....	2000Vpk	—
5.4.2.3	Procedure 2 for determining clearance		P
5.4.2.3.2.2	a.c. mains transient voltage .....	2500 Vpk considered for Overvoltage Cat. II	—
5.4.2.3.2.3	d.c. mains transient voltage .....	No 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 .....		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test .....		N/A
5.4.2.5	Multiplication factors for clearances and test voltages .....	2000m, factor 1.0	P
5.4.2.6	Clearance measurement .....	(See appended table 5.4.2, 5.4.3)	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 5.4.2, 5.4.3)	P
5.4.4	Solid insulation	See below.	P
5.4.4.1	General requirements		P
5.4.4.2	Minimum distance through insulation .....	(See appended table 5.4.4.2)	P
5.4.4.3	Insulating compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices	See table 4.1.2 for details.	P
5.4.4.5	Insulating compound forming cemented joints	(See appended table 5.4.4.2)	P
5.4.4.6	Thin sheet material	Insulation tape	P
5.4.4.6.1	General requirements		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.6.2	Separable thin sheet material	Reinforced insulation consisting of two layers of tape, each layer shall pass the electric strength test for reinforced insulation.	P
	Number of layers (pcs) .....	2	P
5.4.4.6.3	Non-separable thin sheet material		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 only.	P
5.4.4.9	Solid insulation at frequencies >30 kHz, $E_P$ , $K_R$ , $d$ , $V_{PW}$ (V) .....	(See appended table 5.4.4.9)	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		P
5.4.5.1	General		P
5.4.5.2	Voltage surge test		P
5.4.5.3	Insulation resistance ( $M\Omega$ ) .....	500 $M\Omega$	P
	Electric strength test .....		N/A
5.4.6	Insulation of internal wire as part of supplementary safeguard		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning	All source of insulation sheet, plastic material for enclosure and insulation tape listed in table 4.1.2. were considered	P
	Relative humidity (%), temperature ( $^{\circ}C$ ), duration (h) .....	93%, 40 $^{\circ}C$ , 120 h (as client request).	—
5.4.9	Electric strength test	(See appended table 5.4.9)	P
5.4.9.1	Test procedure for type test of solid insulation .....	(See appended table 5.4.9)	P

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.9.2	Test procedure for routine test	Should be considered and conducted during production at factory.	N/A
5.4.10	Safeguards against transient voltages from external circuits	No connection to external circuits with transient voltage.	N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test .....		N/A
5.4.10.2.3	Steady-state test.....		N/A
5.4.10.3	Verification for insulation breakdown for impulse test.....		N/A
5.4.11	Separation between external circuits and earth		N/A
5.4.11.1	Exceptions to separation between external circuits and earth	No such external circuit.	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 $\Delta U_{sp}$ .....		—
	Max increase due to ageing $\Delta U_{sa}$ .....		—
5.4.11.3	Test method and compliance .....		N/A
5.4.12	Insulating liquid		N/A
5.4.12.1	General requirements		N/A
5.4.12.2	Electric strength of an insulating liquid .....		N/A
5.4.12.3	Compatibility of an insulating liquid .....		N/A
5.4.12.4	Container for insulating liquid .....		N/A
<b>5.5</b>	<b>Components as safeguards</b>		<b>P</b>
5.5.1	General	See below.	P
5.5.2	Capacitors and RC units	Approved Y capacitors used.	P
5.5.2.1	General requirement		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector .....		N/A
5.5.3	Transformers	(See Annex G.5.3)	P
5.5.4	Optocouplers	(See subclause 5.4 or Annex G.12)	P
5.5.5	Relays		N/A
5.5.6	Resistors		N/A
5.5.7	SPDs		N/A
5.5.8	Insulation between the mains and an external circuit consisting of a coaxial cable .....		N/A
5.5.9	Safeguards for socket-outlets in outdoor equipment		N/A
	RCD rated residual operating current (mA) .....		—
<b>5.6</b>	<b>Protective conductor</b>	Class II equipment.	N/A
5.6.2	Requirement for protective conductors		N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm <sup>2</sup> ) .....		—
	Protective earthing conductor serving as a reinforced safeguard		N/A
	Protective earthing conductor serving as a double safeguard		N/A
5.6.4	Requirements for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm <sup>2</sup> ). .....		—
5.6.4.2	Protective current rating (A).....		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Terminal size for connecting protective earthing conductors (mm).....		N/A
	Terminal size for connecting protective bonding conductors (mm) .....		N/A
5.6.5.2	Corrosion		N/A

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



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Clause	Requirement + Test	Result - Remark	Verdict
<b>5.8</b>	<b>Backfeed safeguard in battery backed up supplies</b>		N/A
	Mains terminal ES.....:		N/A
	Air gap (mm).....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
<b>6</b>	<b>ELECTRICALLY- CAUSED FIRE</b>		P
<b>6.2</b>	<b>Classification of PS and PIS</b>		P
6.2.2	Power source circuit classifications .....	(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
<b>6.3</b>	<b>Safeguards against fire under normal operating and abnormal operating conditions</b>		P
6.3.1	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials .....	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6 and B.3, B.4)	P
	Combustible materials outside fire enclosure .....		N/A
<b>6.4</b>	<b>Safeguards against fire under single fault conditions</b>		P
6.4.1	Safeguard method	Method by control of fire spread applied, Fire enclosure provided.	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	Supplementary safeguards		N/A
6.4.3.2	Single Fault Conditions .....		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		N/A
6.4.5	Control of fire spread in PS2 circuits	Compliance detailed as follows: <ul style="list-style-type: none"> <li>- <u>Printed board</u>: rated min. V-1 or better</li> <li>- <u>All other components</u>: at least V-2 except for mounted on min. V-1 material or small parts of combustible material.</li> <li>- <u>Isolating transformer</u>: complying with G.5.3.</li> </ul>	P
6.4.5.2	Supplementary safeguards	See above	P

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.6	Control of fire spread in PS3 circuits	Compliance detailed as follows: <ul style="list-style-type: none"> <li>- <u>Printed board</u>: rated min. V-1 or better</li> <li>- <u>All other components</u>: at least V-2 except for mounted on min. V-1 material or small parts of combustible material.</li> <li>- <u>Isolating transformer</u>: complying with G.5.3.</li> <li>- <u>Enclosure material</u>: V-0</li> </ul>	P
6.4.7	Separation of combustible materials from a PIS		N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		NA
6.4.8	Fire enclosures and fire barriers	See below.	P
6.4.8.2	Fire enclosure and fire barrier material properties	The V-0 material is used for the fire enclosure (overall enclosure).	P
6.4.8.2.1	Requirements for a fire barrier	No fire barrier.	N/A
6.4.8.2.2	Requirements for a fire enclosure	The V-0 fire enclosure is used.	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		P
6.4.8.3.1	Fire enclosure and fire barrier openings	No Fire enclosure opening	P
6.4.8.3.2	Fire barrier dimensions	No fire barrier	N/A
6.4.8.3.3	Top openings and properties		N/A
	Openings dimensions (mm)..... :		N/A
6.4.8.3.4	Bottom openings and properties		N/A
	Openings dimensions (mm)..... :		N/A
	Flammability tests for the bottom of a fire enclosure		N/A
	Instructional Safeguard..... :		N/A
6.4.8.3.5	Side openings and properties		N/A
	Openings dimensions (mm)..... :		N/A
6.4.8.3.6	Integrity of a fire enclosure, condition met: a), b) or c)..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.4	Separation of a PIS from a fire enclosure and a fire barrier distance (mm) or flammability rating ..... :	Fire enclosure material V-0 min.	P
6.4.9	Flammability of insulating liquid..... :		N/A
<b>6.5</b>	<b>Internal and external wiring</b>		P
6.5.1	General requirements	Internal wires has VW-1 flammability which considered to equivalent to IEC/TS 60695-11-21	P
6.5.2	Requirements for interconnection to building wiring ..... :		N/A
6.5.3	Internal wiring size (mm <sup>2</sup> ) for socket-outlets..... :		N/A
<b>6.6</b>	<b>Safeguards against fire due to the connection to additional equipment</b>		P

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

<b>8</b>	<b>MECHANICALLY-CAUSED INJURY</b>		P
<b>8.2</b>	<b>Mechanical energy source classifications</b>		P
<b>8.3</b>	<b>Safeguards against mechanical energy sources</b>		N/A
<b>8.4</b>	<b>Safeguards against parts with sharp edges and corners</b>		P
8.4.1	Safeguards		P
	Instructional Safeguard..... :	Instructional safeguard is not required.	N/A
8.4.2	Sharp edges or corners		N/A
<b>8.5</b>	<b>Safeguards against moving parts</b>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.1	Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts	No moving part.	N/A
	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
	Moving MS3 parts only accessible to skilled person		N/A
8.5.2	Instructional safeguard.....:		N/A
8.5.4	Special categories of equipment containing moving parts		N/A
8.5.4.1	General		N/A
8.5.4.2	Equipment containing work cells with MS3 parts		N/A
8.5.4.2.1	Protection of persons in the work cell		N/A
8.5.4.2.2	Access protection override		N/A
8.5.4.2.2.1	Override system		N/A
8.5.4.2.2.2	Visual indicator		N/A
8.5.4.2.3	Emergency stop system		N/A
	Maximum stopping distance from the point of activation (m).....:		N/A
	Space between end point and nearest fixed mechanical part (mm).....:		N/A
8.5.4.2.4	Endurance requirements		N/A
	Mechanical system subjected to 100 000 cycles of operation		N/A
	- Mechanical function check and visual inspection		N/A
	- Cable assembly.....:		N/A
8.5.4.3	Equipment having electromechanical device for destruction of media		N/A
8.5.4.3.1	Equipment safeguards		N/A
8.5.4.3.2	Instructional safeguards against moving parts.....:		N/A
8.5.4.3.3	Disconnection from the supply		N/A
8.5.4.3.4	Cut type and test force (N).....:		N/A
8.5.4.3.5	Compliance		N/A
8.5.5	High pressure lamps		N/A
	Explosion test.....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.5.5.3	Glass particles dimensions (mm) .....		N/A
<b>8.6</b>	<b>Stability of equipment</b>		N/A
8.6.1	General	Classification MS1 according to table 35, line 5 and no stability requirements.	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
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
<b>8.7</b>	<b>Equipment mounted to wall, ceiling or other structure</b>		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
<b>8.8</b>	<b>Handles strength</b>		N/A
8.8.1	General		N/A
8.8.2	Handle strength test		N/A
	Number of handles.....		—
	Force applied (N) .....		N/A
<b>8.9</b>	<b>Wheels or casters attachment requirements</b>		N/A
8.9.2	Pull test		N/A
<b>8.10</b>	<b>Carts, stands and similar carriers</b>		N/A
8.10.1	General		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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) .....		N/A
8.10.6	Thermoplastic temperature stability		N/A
<b>8.11</b>	<b>Mounting means for slide-rail mounted equipment (SRME)</b>		N/A
8.11.1	General		N/A
8.11.2	Requirements for slide rails		N/A
	Instructional Safeguard.....:		N/A
8.11.3	Mechanical strength test		N/A
8.11.3.1	Downward force test, force (N) applied.....:		N/A
8.11.3.2	Lateral push force test		N/A
8.11.3.3	Integrity of slide rail end stops		N/A
8.11.4	Compliance		N/A
<b>8.12</b>	<b>Telescoping or rod antennas</b>		N/A
	Button/ball diameter (mm) .....		—

<b>9</b>	<b>THERMAL BURN INJURY</b>		P
<b>9.2</b>	<b>Thermal energy source classifications</b>		P
<b>9.3</b>	<b>Touch temperature limits</b>		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, 9.3, B.1.5, B.2.6)	P
9.3.2	Test method and compliance	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	P
<b>9.4</b>	<b>Safeguards against thermal energy sources</b>		P

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Clause	Requirement + Test	Result - Remark	Verdict
<b>9.5</b>	<b>Requirements for safeguards</b>		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
<b>9.6</b>	<b>Requirements for wireless power transmitters</b>		N/A
9.6.1	General		N/A
9.6.2	Specification of the foreign objects		N/A
9.6.3	Test method and compliance .....		N/A

<b>10</b>	<b>RADIATION</b>		P
<b>10.2</b>	<b>Radiation energy source classification</b>		P
10.2.1	General classification	Indicating LED is low power application classified as RS1.	P
	Lasers .....		—
	Lamps and lamp systems .....		—
	Image projectors .....		—
	X-Ray .....		—
	Personal music player .....		—
<b>10.3</b>	<b>Safeguards against laser radiation</b>		N/A
	The standard(s) equipment containing laser(s) comply .....		N/A
<b>10.4</b>	<b>Safeguards against optical radiation from lamps and lamp systems (including LED types)</b>		N/A
10.4.1	General requirements	See above.	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

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Clause	Requirement + Test	Result - Remark	Verdict
10.4.3	Instructional safeguard .....		N/A
<b>10.5</b>	<b>Safeguards against X-radiation</b>		N/A
10.5.1	Requirements		N/A
	Instructional safeguard for skilled persons .....		—
10.5.3	Maximum radiation (pA/kg).....		—
<b>10.6</b>	<b>Safeguards against acoustic energy sources</b>		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output $L_{Aeq,T}$ , dB(A).....		N/A
	Unweighted RMS output voltage (mV).....		N/A
	Digital output signal (dBFS) .....		N/A
10.6.3	Requirements for dose-based systems		N/A
10.6.3.1	General requirements		N/A
10.6.3.2	Dose-based warning and automatic decrease		N/A
10.6.3.3	Exposure-based warning and requirements		N/A
	30 s integrated exposure level (MEL30) .....		N/A
	Warning for MEL $\geq$ 100 dB(A) .....		N/A
10.6.4	Measurement methods		N/A
10.6.5	Protection of persons		N/A
	Instructional safeguards .....		N/A
10.6.6	Requirements for listening devices (headphones, 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>B</b>	<b>NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS</b>		<b>P</b>

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Clause	Requirement + Test	Result - Remark	Verdict
<b>B.1</b>	<b>General</b>		P
B.1.5	Temperature measurement conditions	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	P
<b>B.2</b>	<b>Normal operating conditions</b>		P
B.2.1	General requirements.....:	(See test item particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers .....	Not such equipment.	N/A
B.2.3	Supply voltage and tolerances	Rated voltage $\pm$ 10 %	P
B.2.5	Input test.....:	(See appended table B.2.5)	P
<b>B.3</b>	<b>Simulated abnormal operating conditions</b>		P
B.3.1	General	(See appended table B.3, B.4)	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
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, B.4)	P
B.3.6	Reverse battery polarity		N/A
B.3.7	Audio amplifier abnormal operating conditions		N/A
B.3.8	Safeguards functional during and after abnormal operating conditions .....	All safeguards remained effective	P
<b>B.4</b>	<b>Simulated single fault conditions</b>		P
B.4.1	General		P
B.4.2	Temperature controlling device	No such device used.	N/A
B.4.3	Blocked motor test	No motors used.	N/A
B.4.4	Functional insulation	(See appended table B.3, B.4)	P
B.4.4.1	Short circuit of clearances for functional insulation	(See appended table B.3, B.4)	P
B.4.4.2	Short circuit of creepage distances for functional insulation	(See appended table B.3, B.4)	P
B.4.4.3	Short circuit of functional insulation on coated printed boards		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
B.4.5	Short-circuit and interruption of electrodes in tubes and semiconductors	(See appended table B.3, B.4)	P
B.4.6	Short circuit or disconnection of passive components	(See appended table B.3, B.4)	P
B.4.7	Continuous operation of components	The EUT is continuous operating type and no such components intended for short time operation or intermittent operation	N/A
B.4.8	Compliance during and after single fault conditions .....	(See appended table B.3, B.4)	P
B.4.9	Battery charging and discharging under single fault conditions		N/A
<b>C</b>	<b>UV RADIATION</b>		N/A
<b>C.1</b>	<b>Protection of materials in equipment from UV radiation</b>		N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
<b>C.2</b>	<b>UV light conditioning test</b>		N/A
C.2.1	Test apparatus .....		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure test		N/A
C.2.4	Xenon-arc light-exposure test		N/A
<b>D</b>	<b>TEST GENERATORS</b>		P
<b>D.1</b>	<b>Impulse test generators</b>		N/A
<b>D.2</b>	<b>Antenna interface test generator</b>		P
<b>D.3</b>	<b>Electronic pulse generator</b>		N/A
<b>E</b>	<b>TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS</b>		N/A
<b>E.1</b>	<b>Electrical energy source classification for audio signals</b>		N/A
	Maximum non-clipped output power (W) .....		—
	Rated load impedance ( $\Omega$ ) .....		—
	Open-circuit output voltage (V) .....		—
	Instructional safeguard .....		—
<b>E.2</b>	<b>Audio amplifier normal operating conditions</b>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Audio signal source type .....		—
	Audio output power (W).....		—
	Audio output voltage (V).....		—
	Rated load impedance ( $\Omega$ ) .....		—
	Requirements for temperature measurement		N/A
E.3	Audio amplifier abnormal operating conditions		N/A
<b>F</b>	<b>EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS</b>		<b>P</b>
<b>F.1</b>	<b>General</b>		<b>P</b>
	Language .....	English version checked, other language shall be evaluated during national approval.	—
<b>F.2</b>	<b>Letter symbols and graphical symbols</b>		<b>P</b>
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
<b>F.3</b>	<b>Equipment markings</b>		<b>P</b>
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 below	P
F.3.2.1	Manufacturer identification .....	See copy of marking plate	P
F.3.2.2	Model identification .....	See model list in general product information for details	P
F.3.3	Equipment rating markings	See model list in general product information for details	P
F.3.3.1	Equipment with direct connection to mains	The equipment is direct connected to AC mains, see F.3.3.3 to F.3.3.6.	P

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of the supply voltage .....	See model list in general product information for details	P
F.3.3.4	Rated voltage .....	See model list in general product information for details	P
F.3.3.5	Rated frequency .....	See model list in general product information for details	P
F.3.3.6	Rated current or rated power .....	See model list in general product information for details	P
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 .....	No switch used.	N/A
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. The current fuse is anyway marked with: F1 T3.15AL/250V on PCB.	P
	Instructional safeguards for neutral fuse .....		N/A
F.3.5.4	Replacement battery identification marking .....	No batteries.	N/A
F.3.5.5	Neutral conductor terminal		N/A
F.3.5.6	Terminal marking location		P
F.3.6	Equipment markings related to equipment classification		P
F.3.6.1	Class I equipment	Class II	N/A
F.3.6.1.1	Protective earthing conductor terminal.....		N/A
F.3.6.1.2	Protective bonding conductor terminals .....		N/A
F.3.6.2	Equipment class marking .....	Class II equipment without functional earth. Symbol IEC 60417-5172 (2003-02) used.	P

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Clause	Requirement + Test	Result - Remark	Verdict
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.	P
<b>F.4</b>	<b>Instructions</b>		P
	a) Information prior to installation and initial use	User manual is available.	P
	b) Equipment for use in locations where children not likely to be present		N/A
	c) Instructions for installation and interconnection		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Equipment intended to be fastened in place		N/A
	f) Instructions for audio equipment terminals		N/A
	g) Protective earthing used as a safeguard		N/A
	h) Protective conductor current exceeding ES2 limits		N/A
	i) Graphic symbols used on equipment		P
	j) Permanently connected equipment not provided with all-pole mains switch	Not permanently connected equipment.	N/A
	k) Replaceable components or modules providing safeguard function	No such markings.	N/A
	l) Equipment containing insulating liquid		N/A
	m) Installation instructions for outdoor equipment		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
<b>F.5</b>	Instructional safeguards		P
<b>G</b>	<b>COMPONENTS</b>		P
<b>G.1</b>	<b>Switches</b>		N/A
G.1.1	General		N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.1.3	Test method and compliance		N/A
<b>G.2</b>	<b>Relays</b>		N/A
G.2.1	Requirements		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
<b>G.3</b>	<b>Protective devices</b>		P
G.3.1	Thermal cut-offs	No 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		N/A
G.3.2.1	a) Thermal links tested separately according to IEC 60691 with specifics		N/A
	b) Thermal links tested as part of the equipment		N/A
G.3.2.2	Test method and compliance		N/A
G.3.3	PTC thermistors	No PTCs	N/A
G.3.4	Overcurrent protection devices	Current fuse is complying IEC 60127-1, IEC 60127-3.	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.....:	(See appended table B.3, B.4)	N/A
<b>G.4</b>	<b>Connectors</b>		P

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Clause	Requirement + Test	Result - Remark	Verdict
G.4.1	Spacings		P
G.4.2	Mains connector configuration .....	Direct plug-in unit.	P
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		P
<b>G.5</b>	<b>Wound components</b>		P
G.5.1	Wire insulation in wound components	Approved triple-insulated winding wire used in T1 for secondary winding.	P
G.5.1.2	Protection against mechanical stress	Insulation tube used separate primary winding and secondary winding where they are crossing.	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	P
	Method of protection.....	See G.5.3.2 and G.5.3.3.	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).	N/A
	Protection from displacement of windings .....	By insulation tape	—
G.5.3.3	Transformer overload tests	(See appended table B.3, B.4)	P

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.3.3.1	Test conditions	Transformer is tested in the complete unit.	P
G.5.3.3.2	Winding temperatures		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	No FIW used.	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		N/A
G.5.4.2	Motor overload test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4.2	Locked-rotor overload test		N/A
	Test duration (days) .....		—
G.5.4.5	Running overload test for DC motors		N/A
G.5.4.5.2	Tested in the unit		N/A
G.5.4.5.3	Alternative method		N/A
G.5.4.6	Locked-rotor overload test for DC motors		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature .....		N/A
G.5.4.6.3	Alternative method		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.4.9	Series motors		N/A
	Operating voltage .....		—
<b>G.6</b>	<b>Wire Insulation</b>		P
G.6.1	General	Triple insulated wires winding used in the isolating transformer that has separately complied with Annex J.	P
G.6.2	Enamelled winding wire insulation	Solvent-based enamel is not considered to provide basic insulation, supplementary insulation or reinforced insulation.	P
<b>G.7</b>	<b>Mains supply cords</b>		N/A
G.7.1	General requirements		N/A
	Type.....		—
G.7.2	Cross sectional area (mm <sup>2</sup> 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
	Overall diameter or minor overall dimension, <i>D</i> (mm) .....		—
	Radius of curvature after test (mm).....		—
G.7.6	Supply wiring space		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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
<b>G.8</b>	<b>Varistors</b>		N/A
G.8.1	General requirements	No VDR used.	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
<b>G.9</b>	<b>Integrated circuit (IC) current limiters</b>		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
<b>G.10</b>	<b>Resistors</b>		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
<b>G.11</b>	<b>Capacitors and RC units</b>		P
G.11.1	General requirements	Capacitor 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	(see appended table 4.1.2)	P
G.11.3	Rules for selecting capacitors	The selection following with table G.12	P

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Clause	Requirement + Test	Result - Remark	Verdict
<b>G.12</b>	<b>Optocouplers</b>		P
	Optocouplers comply with IEC 60747-5-5 with specifics	Approved optocoupler used. (see appended table 4.1.2)	P
	Type test voltage $V_{ini,a}$ .....	Considered	—
	Routine test voltage, $V_{ini,b}$ .....		—
<b>G.13</b>	<b>Printed boards</b>		P
G.13.1	General requirements	Approved printed board used	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
<b>G.14</b>	<b>Coating on components terminals</b>		N/A
G.14.1	Requirements .....	(See Clause G.13)	N/A
<b>G.15</b>	<b>Pressurized liquid filled components</b>		N/A
G.15.1	Requirements		N/A
G.15.2	Test methods and compliance		N/A
G.15.2.1	Hydrostatic pressure test		N/A
G.15.2.2	Creep resistance test		N/A
G.15.2.3	Tubing and fittings compatibility test		N/A
G.15.2.4	Vibration test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.15.2.5	Thermal cycling test		N/A
G.15.2.6	Force test		N/A
G.15.3	Compliance		N/A
<b>G.16</b>	<b>IC including capacitor discharge function (ICX)</b>		N/A
G.16.1	Condition for fault tested is not required		N/A
	ICX with associated circuitry tested in equipment		N/A
	ICX tested separately		N/A
G.16.2	Tests		N/A
	Smallest capacitance and smallest resistance specified by ICX manufacturer for impulse test .....		—
	Mains voltage that impulses to be superimposed on .....		—
	Largest capacitance and smallest resistance for ICX tested by itself for 10000 cycles test .....		—
G.16.3	Capacitor discharge test .....		N/A
<b>H</b>	<b>CRITERIA FOR TELEPHONE RINGING SIGNALS</b>		N/A
<b>H.1</b>	<b>General</b>		N/A
<b>H.2</b>	<b>Method A</b>		N/A
<b>H.3</b>	<b>Method B</b>		N/A
H.3.1	Ringling signal		N/A
H.3.1.1	Frequency (Hz) .....		—
H.3.1.2	Voltage (V) .....		—
H.3.1.3	Cadence; time (s) and voltage (V) .....		—
H.3.1.4	Single fault current (mA): .....		—
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V) .....		N/A
<b>J</b>	<b>INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION</b>		P
<b>J.1</b>	<b>General</b>		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Winding wire insulation.....:	Triple insulated wires winding used as reinforced safeguard in the isolating transformer. See table 4.1.2.	—
	Solid round winding wire, diameter (mm).....:		N/A
	Solid square and rectangular (flatwise bending) winding wire, cross-sectional area (mm <sup>2</sup> ) .....		N/A
<b>J.2/J.3</b>	Tests and Manufacturing		N/A
<b>K</b>	<b>SAFETY INTERLOCKS</b>		N/A
<b>K.1</b>	<b>General requirements</b>		N/A
	Instructional safeguard.....:		N/A
<b>K.2</b>	<b>Components of safety interlock safeguard mechanism</b>		N/A
<b>K.3</b>	<b>Inadvertent change of operating mode</b>		N/A
<b>K.4</b>	<b>Interlock safeguard override</b>		N/A
<b>K.5</b>	<b>Fail-safe</b>		N/A
K.5.1	Under single fault condition		N/A
<b>K.6</b>	<b>Mechanically operated safety interlocks</b>		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Test method and compliance .....		N/A
<b>K.7</b>	<b>Interlock circuit isolation</b>		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 .....		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
<b>L</b>	<b>DISCONNECT DEVICES</b>		P

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Clause	Requirement + Test	Result - Remark	Verdict
L.1	<b>General requirements</b>	AC plug as disconnected device.	P
L.2	<b>Permanently connected equipment</b>		N/A
L.3	<b>Parts that remain energized</b>	No accessible parts on the supply side of the disconnect device.	P
L.4	<b>Single-phase equipment</b>	Disconnect device disconnects all poles simultaneously.	P
L.5	<b>Three-phase equipment</b>		N/A
L.6	<b>Switches as disconnect devices</b>		N/A
L.7	<b>Plugs as disconnect devices</b>	See above	P
L.8	<b>Multiple power sources</b>	Only one a.c. mains connection.	N/A
	Instructional safeguard.....:		N/A
<b>M</b>	<b>EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS</b>		N/A
<b>M.1</b>	<b>General requirements</b>		N/A
<b>M.2</b>	<b>Safety of batteries and their cells</b>		N/A
M.2.1	Batteries and their cells comply with relevant IEC standards.....:		N/A
<b>M.3</b>	<b>Protection circuits for batteries provided within the equipment</b>		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
<b>M.4</b>	<b>Additional safeguards for equipment containing a portable secondary lithium battery</b>		N/A
M.4.1	General		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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
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
<b>M.5</b>	<b>Risk of burn due to short-circuit during carrying</b>		N/A
M.5.1	Requirement		N/A
M.5.2	Test method and compliance		N/A
<b>M.6</b>	<b>Safeguards against short-circuits</b>		N/A
M.6.1	External and internal faults		N/A
M.6.2	Compliance		N/A
<b>M.7</b>	<b>Risk of explosion from lead acid and NiCd batteries</b>		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 <sup>3</sup> /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

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Clause	Requirement + Test	Result - Remark	Verdict
M.7.4	Marking.....:		N/A
<b>M.8</b>	<b>Protection against internal ignition from external spark sources of batteries with aqueous electrolyte</b>		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 <sup>3</sup> /s) .....		—
M.8.2.3	Correction factors .....		—
M.8.2.4	Calculation of distance $d$ (mm) .....		—
<b>M.9</b>	<b>Preventing electrolyte spillage</b>		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
<b>M.10</b>	Instructions to prevent reasonably foreseeable misuse		N/A
	Instructional safeguard .....		N/A
<b>N</b>	<b>ELECTROCHEMICAL POTENTIALS</b>		N/A
	Material(s) used.....:	Class II	—
<b>O</b>	<b>MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES</b>		P
	Value of $X$ (mm) .....	Measurement is in accordance with applicable figures.	—
<b>P</b>	<b>SAFEGUARDS AGAINST CONDUCTIVE OBJECTS</b>		P
<b>P.1</b>	<b>General</b>	No opening	P
<b>P.2</b>	<b>Safeguards against entry or consequences of entry of a foreign object</b>		P
P.2.1	General		P
P.2.2	Safeguards against entry of a foreign object	No opening	P
	Location and Dimensions (mm) .....	No opening	—
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

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Clause	Requirement + Test	Result - Remark	Verdict
	Transportable equipment with metalized plastic parts.....:		N/A
P.2.3.2	Consequence of entry test .....		N/A
<b>P.3</b>	<b>Safeguards against spillage of internal liquids</b>		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
<b>P.4</b>	<b>Metallized coatings and adhesives securing parts</b>		N/A
P.4.1	General		N/A
P.4.2	Tests		N/A
	Conditioning, T <sub>c</sub> (°C) .....		—
	Duration (weeks) .....		—
<b>Q</b>	<b>CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING</b>		P
<b>Q.1</b>	<b>Limited power sources</b>	See appended table Q.1	P
Q.1.1	Requirements		P
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A
	c) Regulating network limited output	A regulating network limits the output in compliance with table Q.1 both under normal operating conditions and after any single fault.	P
	d) Overcurrent protective device limited output		N/A
	e) IC current limiter complying with G.9		N/A
Q.1.2	Test method and compliance .....	(See appended table Q.1)	P
	Current rating of overcurrent protective device (A) .....		N/A
<b>Q.2</b>	<b>Test for external circuits – paired conductor cable</b>		N/A
	Maximum output current (A) .....		N/A
	Current limiting method .....		—

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Clause	Requirement + Test	Result - Remark	Verdict
<b>R</b>	<b>LIMITED SHORT CIRCUIT TEST</b>		N/A
<b>R.1</b>	<b>General</b>		N/A
<b>R.2</b>	<b>Test setup</b>		N/A
	Overcurrent protective device for test .....		—
<b>R.3</b>	<b>Test method</b>		N/A
	Cord/cable used for test .....		—
<b>R.4</b>	<b>Compliance</b>		N/A
<b>S</b>	<b>TESTS FOR RESISTANCE TO HEAT AND FIRE</b>		N/A
<b>S.1</b>	<b>Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W</b>		N/A
	Samples, material.....	V-0 material	—
	Wall thickness (mm) .....		—
	Conditioning (°C) .....		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
<b>S.2</b>	<b>Flammability test for fire enclosure and fire barrier integrity</b>		N/A
	Samples, material.....		—
	Wall thickness (mm) .....		—
	Conditioning (°C) .....		—
<b>S.3</b>	<b>Flammability test for the bottom of a fire enclosure</b>		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) .....		—
<b>S.4</b>	<b>Flammability classification of materials</b>		N/A
<b>S.5</b>	<b>Flammability test for fire enclosure materials of equipment with a steady state power exceeding 4 000 W</b>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Samples, material.....:		—
	Wall thickness (mm).....:		—
	Conditioning (°C).....:		—
<b>T</b>	<b>MECHANICAL STRENGTH TESTS</b>		<b>P</b>
<b>T.1</b>	<b>General</b>		<b>P</b>
<b>T.2</b>	<b>Steady force test, 10 N .....</b>	(See appended table T.2, T.3, T.4, T.5)	<b>P</b>
<b>T.3</b>	<b>Steady force test, 30 N .....</b>		<b>N/A</b>
<b>T.4</b>	<b>Steady force test, 100 N .....</b>	(See appended table T.2, T.3, T.4, T.5)	<b>P</b>
<b>T.5</b>	<b>Steady force test, 250 N .....</b>		<b>N/A</b>
<b>T.6</b>	<b>Enclosure impact test</b>		<b>N/A</b>
	Fall test		<b>N/A</b>
	Swing test		<b>N/A</b>
<b>T.7</b>	<b>Drop test .....</b>	(See appended table T.7)	<b>P</b>
<b>T.8</b>	<b>Stress relief test .....</b>	(See appended table T.8)	<b>P</b>
<b>T.9</b>	<b>Glass Impact Test.....</b>		<b>N/A</b>
<b>T.10</b>	<b>Glass fragmentation test</b>		<b>N/A</b>
	Number of particles counted .....		<b>N/A</b>
<b>T.11</b>	<b>Test for telescoping or rod antennas</b>		<b>N/A</b>
	Torque value (Nm) .....		<b>N/A</b>
<b>U</b>	<b>MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION</b>		<b>N/A</b>
<b>U.1</b>	<b>General</b>		<b>N/A</b>
	Instructional safeguard :		<b>N/A</b>
<b>U.2</b>	<b>Test method and compliance for non-intrinsically protected CRTs</b>		<b>N/A</b>
<b>U.3</b>	<b>Protective screen</b>		<b>N/A</b>
<b>V</b>	<b>DETERMINATION OF ACCESSIBLE PARTS</b>		<b>P</b>
<b>V.1</b>	<b>Accessible parts of equipment</b>		<b>P</b>
<b>V.1.1</b>	<b>General</b>		<b>P</b>

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Clause	Requirement + Test	Result - Remark	Verdict
V.1.2	Surfaces and openings tested with jointed test probes		P
V.1.3	Openings tested with straight unjointed test probes	No opening	N/A
V.1.4	Plugs, jacks, connectors tested with blunt probe		N/A
V.1.5	Slot openings tested with wedge probe		N/A
V.1.6	Terminals tested with rigid test wire		N/A
<b>V.2</b>	<b>Accessible part criterion</b>		P
<b>X</b>	<b>ALTERNATIVE METHOD FOR DETERMINING CLEARANCES FOR INSULATION IN CIRCUITS CONNECTED TO AN AC MAINS NOT EXCEEDING 420 V PEAK (300 V RMS)</b>		N/A
	Clearance..... :	(See appended table X)	N/A
<b>Y</b>	<b>CONSTRUCTION REQUIREMENTS FOR OUTDOOR ENCLOSURES</b>		N/A
<b>Y.1</b>	<b>General</b>		N/A
<b>Y.2</b>	<b>Resistance to UV radiation</b>		N/A
<b>Y.3</b>	<b>Resistance to corrosion</b>		N/A
Y.3.1	Metallic parts of outdoor enclosures are resistant to effects of water-borne contaminants by .....		N/A
Y.3.2	Test apparatus		N/A
Y.3.3	Water – saturated sulphur dioxide atmosphere		N/A
Y.3.4	Test procedure..... :		N/A
Y.3.5	Compliance		N/A
<b>Y.4</b>	<b>Gaskets</b>		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
<b>Y.5</b>	<b>Protection of equipment within an outdoor enclosure</b>		N/A
Y.5.1	General		N/A
Y.5.2	Protection from moisture		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
	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
<b>Y.6</b>	<b>Mechanical strength of enclosures</b>		N/A
Y.6.1	General		N/A
Y.6.2	Impact test.....:		N/A

IEC 62368-1							
Clause	Requirement + Test	Result - Remark				Verdict	
<b>5.2</b>	<b>TABLE: Classification of electrical energy sources</b>						<b>P</b>
Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
			U (V)	I (mA)	Type <sup>1)</sup>	Additional Info <sup>2)</sup>	
264Va.c, 60Hz	Sec. output "+" to "-" (output: 5V)	Normal	5.004	--	SS	DC	ES1
		Abnormal: output overload	Max. 5.004	--	SS	DC	
		Single fault – RS3 SC	5.004	--	SS	DC	
		Single fault –C7 SC	5.004	--	SS	DC	
		Single fault – R14 SC	5.004	--	SS	DC	
		Single fault –U3 Pin 7 to Pin 8 SC	5.004	--	SS	DC	
		Single fault –U3 Pin 4 to Pin 8 SC	5.004	--	SS	DC	
		Single fault –U1 Pin 1 to Pin 4 SC	0	--	SS	--	
		Single fault –U1 Pin 1 to Pin 2 SC	0	--	SS	--	
		Single fault –U2 Pin 1 to Pin 2 SC	0	--	SS	--	
		Single fault –U2 Pin 3 to Pin 4 SC	0	--	SS	--	
		Single fault –U2 pin 1 OC	0	--	SS	--	
		Single fault –U2 pin 3 OC	0	--	SS	--	

IEC 62368-1						
Clause	Requirement + Test	Result - Remark				Verdict
		Single fault –U4 Pin 2 to Pin 11,12,13,14,15, 20 SC	0	--	SS	--
264Va.c, 60Hz	Sec. output "+" to "-" (output: 20V)	Normal	20.019	--	SS	DC
		Abnormal: output overload	Max. 20.019	--	SS	DC
		Single fault – RS3 SC	20.019	--	SS	DC
		Single fault –C7 SC	20.019	--	SS	DC
		Single fault – R14 SC	20.019	--	SS	DC
		Single fault –U3 Pin 7 to Pin 8 SC	20.019	--	SS	DC
		Single fault –U3 Pin 4 to Pin 8 SC	20.019	--	SS	DC
		Single fault –U1 Pin 1 to Pin 4 SC	0	--	SS	--
		Single fault –U1 Pin 1 to Pin 2 SC	0	--	SS	--
		Single fault –U2 Pin 1 to Pin 2 SC	0	--	SS	--
		Single fault –U2 Pin 3 to Pin 4 SC	0	--	SS	--
		Single fault –U2 pin 1 OC	0	--	SS	--
		Single fault –U2 pin 3 OC	0	--	SS	--

IEC 62368-1							
Clause	Requirement + Test	Result - Remark					Verdict
		Single fault –U4 Pin 2 to Pin 11,12,13,14,15, 20 SC	0	--	SS	--	
264Va.c, 60Hz	Sec. output "+" to "earth"	Normal	--	0.169mApk	SS	60Hz	ES1
		Abnormal: output overload	--	0.170mApk	SS	60Hz	
		Single fault – RS3 SC	--	0.184mApk	SS	60Hz	
		Single fault –C7 SC	--	0.184mApk	SS	60Hz	
		Single fault – R14 SC	--	0.184mApk	SS	60Hz	
		Single fault –U3 Pin 7 to Pin 8 SC	--	0.184mApk	SS	60Hz	
		Single fault –U3 Pin 4 to Pin 8 SC	--	0.184mApk	SS	60Hz	
		Single fault –U1 Pin 1 to Pin 4 SC	--	0.184mApk	SS	60Hz	
		Single fault –U1 Pin 1 to Pin 2 SC	--	0.184mApk	SS	60Hz	
		Single fault –U2 Pin 1 to Pin 2 SC	--	0.184mApk	SS	60Hz	
		Single fault –U2 Pin 3 to Pin 4 SC	--	0.184mApk	SS	60Hz	
		Single fault –U2 pin 1 OC	--	0.184mApk	SS	60Hz	
		Single fault –U2 pin 3 OC	--	0.184mApk	SS	60Hz	

IEC 62368-1							
Clause	Requirement + Test			Result - Remark			Verdict
		Single fault –U4 Pin 2 to Pin 11,12,13,14,15, 20 SC	--	0.184mApk	SS	60Hz	
264Va.c, 60Hz	Sec. output “-” to “earth”	Normal	--	0.169mApk	SS	60Hz	ES1
		Abnormal: output overload	--	0.170mApk	SS	60Hz	
		Single fault – RS3 SC	--	0.184mApk	SS	60Hz	
		Single fault –C7 SC	--	0.184mApk	SS	60Hz	
		Single fault – R14 SC	--	0.184mApk	SS	60Hz	
		Single fault –U3 Pin 7 to Pin 8 SC	--	0.184mApk	SS	60Hz	
		Single fault –U3 Pin 4 to Pin 8 SC	--	0.184mApk	SS	60Hz	
		Single fault –U1 Pin 1 to Pin 4 SC	--	0.184mApk	SS	60Hz	
		Single fault –U1 Pin 1 to Pin 2 SC	--	0.184mApk	SS	60Hz	
		Single fault –U2 Pin 1 to Pin 2 SC	--	0.184mApk	SS	60Hz	
		Single fault –U2 Pin 3 to Pin 4 SC	--	0.184mApk	SS	60Hz	
		Single fault –U2 pin 1 OC	--	0.184mApk	SS	60Hz	
		Single fault –U2 pin 3 OC	--	0.184mApk	SS	60Hz	

IEC 62368-1							
Clause	Requirement + Test	Result - Remark					Verdict
		Single fault –U4 Pin 2 to Pin 11,12,13,14,15, 20 SC	--	0.184mApk	SS	60Hz	
264Va.c, 60Hz	Sec. output “+” to “-” (PPS output: 5V)	Normal	5.048	--	SS	DC	ES1
		Abnormal: output overload	Max. 5.048	--	SS	DC	
		Single fault – RS3 SC	5.048	--	SS	DC	
		Single fault –C7 SC	5.048	--	SS	DC	
		Single fault – R14 SC	5.048	--	SS	DC	
		Single fault –U3 Pin 7 to Pin 8 SC	5.048	--	SS	DC	
		Single fault –U3 Pin 4 to Pin 8 SC	5.048	--	SS	DC	
		Single fault –U1 Pin 1 to Pin 4 SC	0	--	SS	--	
		Single fault –U1 Pin 1 to Pin 2 SC	0	--	SS	--	
		Single fault –U2 Pin 1 to Pin 2 SC	0	--	SS	--	
		Single fault –U2 Pin 3 to Pin 4 SC	0	--	SS	--	
		Single fault –U2 pin 1 OC	0	--	SS	--	
		Single fault –U2 pin 3 OC	0	--	SS	--	

IEC 62368-1							
Clause	Requirement + Test	Result - Remark					Verdict
		Single fault –U4 Pin 2 to Pin 11,12,13,14,15, 20 SC	0	--	SS	--	
264Va.c, 60Hz	Sec. output "+" to "-" (PPS output: 11V)	Normal	11.02	--	SS	DC	ES1
		Abnormal: output overload	Max. 11.02	--	SS	DC	
		Single fault – RS3 SC	11.02	--	SS	DC	
		Single fault –C7 SC	11.02	--	SS	DC	
		Single fault – R14 SC	11.02	--	SS	DC	
		Single fault –U3 Pin 7 to Pin 8 SC	11.02	--	SS	DC	
		Single fault –U3 Pin 4 to Pin 8 SC	11.02	--	SS	DC	
		Single fault –U1 Pin 1 to Pin 4 SC	0	--	SS	--	
		Single fault –U1 Pin 1 to Pin 2 SC	0	--	SS	--	
		Single fault –U2 Pin 1 to Pin 2 SC	0	--	SS	--	
		Single fault –U2 Pin 3 to Pin 4 SC	0	--	SS	--	
		Single fault –U2 pin 1 OC	0	--	SS	--	
		Single fault –U2 pin 3 OC	0	--	SS	--	

IEC 62368-1						
Clause	Requirement + Test	Result - Remark				Verdict
		Single fault –U4 Pin 2 to Pin 11,12,13,14,15, 20 SC	0	--	SS	--
264Va.c, 60Hz	Sec. output “+” to “earth”	Normal	--	0.169mApk	SS	60Hz
		Abnormal: output overload	--	0.170mApk	SS	60Hz
		Single fault – RS3 SC	--	0.184mApk	SS	60Hz
		Single fault –C7 SC	--	0.184mApk	SS	60Hz
		Single fault – R14 SC	--	0.184mApk	SS	60Hz
		Single fault –U3 Pin 7 to Pin 8 SC	--	0.184mApk	SS	60Hz
		Single fault –U3 Pin 4 to Pin 8 SC	--	0.184mApk	SS	60Hz
		Single fault –U1 Pin 1 to Pin 4 SC	--	0.184mApk	SS	60Hz
		Single fault –U1 Pin 1 to Pin 2 SC	--	0.184mApk	SS	60Hz
		Single fault –U2 Pin 1 to Pin 2 SC	--	0.184mApk	SS	60Hz
		Single fault –U2 Pin 3 to Pin 4 SC	--	0.184mApk	SS	60Hz
		Single fault –U2 pin 1 OC	--	0.184mApk	SS	60Hz
		Single fault –U2 pin 3 OC	--	0.184mApk	SS	60Hz

IEC 62368-1							
Clause	Requirement + Test	Result - Remark					Verdict
		Single fault –U4 Pin 2 to Pin 11,12,13,14,15, 20 SC	--	0.184mApk	SS	60Hz	
264Va.c, 60Hz	Sec. output “-” to “earth”	Normal	--	0.169mApk	SS	60Hz	ES1
		Abnormal: output overload	--	0.170mApk	SS	60Hz	
		Single fault – RS3 SC	--	0.184mApk	SS	60Hz	
		Single fault –C7 SC	--	0.184mApk	SS	60Hz	
		Single fault – R14 SC	--	0.184mApk	SS	60Hz	
		Single fault –U3 Pin 7 to Pin 8 SC	--	0.184mApk	SS	60Hz	
		Single fault –U3 Pin 4 to Pin 8 SC	--	0.184mApk	SS	60Hz	
		Single fault –U1 Pin 1 to Pin 4 SC	--	0.184mApk	SS	60Hz	
		Single fault –U1 Pin 1 to Pin 2 SC	--	0.184mApk	SS	60Hz	
		Single fault –U2 Pin 1 to Pin 2 SC	--	0.184mApk	SS	60Hz	
		Single fault –U2 Pin 3 to Pin 4 SC	--	0.184mApk	SS	60Hz	
		Single fault –U2 pin 1 OC	--	0.184mApk	SS	60Hz	
		Single fault –U2 pin 3 OC	--	0.184mApk	SS	60Hz	

IEC 62368-1							
Clause	Requirement + Test				Result - Remark		Verdict
		Single fault –U4 Pin 2 to Pin 11,12,13,14,15, 20 SC	--	0.184mApk	SS	60Hz	
Supplementary information:							
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.							
3) SC=Short Circuit, OC=Open Circuit.							

5.4.1.8	TABLE: Working voltage measurement				P
Location	RMS voltage (V)	Peak voltage (V)	Frequency (Hz)	Comments	
For output load with 9.0V/3.0A	--	--	--	--	
T1 pin 3 to pin A	235	552	--	--	
T1 pin 4 to pin A	229	368	--	--	
T1 pin 6 to pin A	239	484	--	--	
T1 pin 7 to pin A	210	340	--	--	
T1 pin 3 to pin B	240	<b>664</b>	<b>75.8K</b>	<b>Max. Vpeak for T1</b>	
T1 pin 4 to pin B	231	420	--	--	
T1 pin 6 to pin B	<b>248</b>	510	<b>75.8K</b>	<b>Max. Vrms for T1</b>	
T1 pin 7 to pin B	210	352	--	--	
U2 pin 1 to 3	224	356	--	--	
U2 pin 1 to 4	224	364	--	--	
U2 pin 2 to 3	226	364	--	--	
U2 pin 2 to 4	224	360	--	--	
CY1 primary to secondary	222	360	--	--	
For output load with 12.0V/2.91A	--	--	--	--	
T1 pin 3 to pin A	240	540	--	--	
T1 pin 4 to pin A	233	376	--	--	
T1 pin 6 to pin A	245	492	--	--	
T1 pin 7 to pin A	206	340	--	--	
T1 pin 3 to pin B	247	<b>600</b>	<b>87.1K</b>	<b>Max. Vpeak for T1</b>	

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Clause	Requirement + Test		Result - Remark	Verdict
T1 pin 4 to pin B	234	436	--	--
T1 pin 6 to pin B	<b>256</b>	496	<b>87.1K</b>	<b>Max. Vrms for T1</b>
T1 pin 7 to pin B	207	350	--	--
U2 pin 1 to 3	222	362	--	--
U2 pin 1 to 4	222	362	--	--
U2 pin 2 to 3	231	370	--	--
U2 pin 2 to 4	228	368	--	--
CY1 primary to secondary	224	364	--	--
For output load with 20.0V/1.75A	--	--	--	--
T1 pin 3 to pin A	247	576	--	--
T1 pin 4 to pin A	238	380	--	--
T1 pin 6 to pin A	248	552	--	--
T1 pin 7 to pin A	201	336	--	--
T1 pin 3 to pin B	256	<b>650</b>	<b>89.3K</b>	<b>Max. Vpeak for T1</b>
T1 pin 4 to pin B	240	464	--	--
T1 pin 6 to pin B	<b>263</b>	560	<b>89.3K</b>	<b>Max. Vrms for T1</b>
T1 pin 7 to pin B	203	352	--	--
U2 pin 1 to 3	226	360	--	--
U2 pin 1 to 4	225	360	--	--
U2 pin 2 to 3	233	376	--	--
U2 pin 2 to 4	235	376	--	--
CY1 primary to secondary	222	360	--	--
For output load with 11.0V/3.0A	--	--	--	--
T1 pin 3 to pin A	237	536	--	--
T1 pin 4 to pin A	232	371	--	--
T1 pin 6 to pin A	241	488	--	--
T1 pin 7 to pin A	207	340	--	--
T1 pin 3 to pin B	244	<b>621</b>	<b>79.8K</b>	<b>Max. Vpeak for T1</b>
T1 pin 4 to pin B	230	428	--	--
T1 pin 6 to pin B	<b>251</b>	502	<b>79.8K</b>	<b>Max. Vrms for T1</b>
T1 pin 7 to pin B	206	351	--	--

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Clause	Requirement + Test	Result - Remark		Verdict
U2 pin 1 to 3	224	361	--	--
U2 pin 1 to 4	224	361	--	--
U2 pin 2 to 3	233	371	--	--
U2 pin 2 to 4	234	371	--	--
CY1 primary to secondary	224	360	--	--
Supplementary information:				
Test voltage: 240 V				
Test frequency: 60 Hz				

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)	
Plug holder	LG CHEM LTD/ LUPOY EF1006F(m)(f1)	Min. 2.5	125	1.3	
Supplementary information:					
The others bobbin material of transformer and line choke is phenolic, no test is needed.					

5.4.2, 5.4.3	TABLE: Minimum Clearances/Creepage distance							P
Clearance (cl) and creepage distance (cr) at/of/between:	U <sub>p</sub> (V)	U <sub>rms</sub> (V)	Freq <sup>1)</sup> (Hz)	Required cl (mm)	cl (mm)	E.S. <sup>2)</sup> (V)	Required cr (mm)	cr (mm)
Basic/ Supplementary Insulation								

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Clause	Requirement + Test				Result - Remark			Verdict
Primary trace of different polarity before F1	420	250	0.06k	1.5	3.1	--	2.5	3.1
PCB trace under F1	420	250	0.06k	1.5	3.1	--	2.5	3.1
L trace before F1 to primary trace	420	250	0.06k	1.5	3.4	--	2.5	3.4
Reinforced Insulation:								
CY1 primary trace to secondary trace	420	250	0.06k	3.0	7.6	--	5.0	7.6
Primary trace to secondary trace under U2	420	250	0.06k	3.0	7.4	--	5.0	7.4
Primary circuit to secondary circuit (PCB under T1)	664	263	89.3k	3.0	7.9	--	5.4	7.9
T1 core to secondary pins	664	263	89.3k	3.0	7.9	--	5.4	7.9
Primary windings to Secondary pins (T1)	664	263	89.3k	3.0	7.9	--	5.4	7.9
T1 primary windings/core to Secondary EC3 board	664	263	89.6k	3.0	9.8	--	5.4	9.8
Primary component (L1) to Secondary trace	420	250	0.06k	3.0	6.6	--	5.0	6.6
Primary component (EC1) to Secondary component USB	420	250	0.06k	3.0	6.8	--	5.0	6.8
Primary component (C6) to Enclosure Outside	664	263	89.6k	3.0	7.7	--	5.4	7.7
Supplementary information:								
1) Only for frequency above 30 kHz 2) Complete Electric Strength voltage (E.S. (V) when 5.4.2.4 applied) 3) Transformer core was considered as primary conductor. Transformer information refer to appended table. 4) Unless otherwise specified, the worst conditions of Cl. & Cr. in above mentioned locations have been considered and listed.								

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Clause	Requirement + Test	Result - Remark	Verdict

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)	
Enclosure	664	Reinforce insulation	0.4	1)	
Opto-coupler	420	Reinforce insulation	0.4	1)	
Insulation tape used for transformer T1 (all sources)	664	Reinforce insulation	Min. 2 layers	2 layers	
Bobbin of transformer (T1) (all sources)	664	Reinforce insulation	0.4	1)	
Mylar sheet (all sources)	664	Reinforce insulation	0.4	1)	
Supplementary information:					
1) See appended Table 4.1.2 for details.					

5.4.4.9	TABLE: Solid insulation at frequencies >30 kHz						P
Insulation material	$E_P$	Frequency (kHz)	$K_R$	Thickness $d$ (mm)	Insulation	$V_{PW}$ (Vpk)	
Bobbin (phenolic)	--	89.6	0.71	1)	Reinforce insulation	664	
Insulation tape used for transformer T1	--	89.6	0.46	2 Layers	Reinforce insulation	664	
Plastic enclosure	--	89.6	0.35	--	Reinforce insulation	664	
Mylar sheet (all sources)	--	89.6	0.46	--	Reinforce insulation	664	
Supplementary information:							
<p>Transformer bobbin: <math>1.2 \times 2 \times V_{PW} / K_R = 1.2 \times 2 \times 664 / 0.71 = 2245V_{peak}</math></p> <p>Insulation tape/ Mylar sheet (all sources): <math>1.2 \times 2 \times V_{PW} / K_R = 1.2 \times 2 \times 664 / 0.46 = 3465V_{peak}</math></p> <p>Plastic enclosure: <math>1.2 \times 2 \times V_{PW} / K_R = 1.2 \times 2 \times 664 / 0.35 = 4554V_{peak}</math></p> <p>Electric strength test voltage of clause 5.4.9 were more than requirement of clause 5.4.4.9.</p> <p>All electric strength requirement covered by table 5.4.9 test, details see table 5.4.9.</p> <p>1) See appended table 4.1.2 for details.</p>							

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Clause	Requirement + Test	Result - Remark	Verdict

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	
L to N (fused disconnected)	DC	2500	No	
Unit: Primary to secondary	DC	4000	No	
Unit: Primary to plastic enclosure with foil	DC	4000	No	
Enclosure inside to outside (All sources)	DC	4554	No	
Transformer T1: Primary to secondary	DC	4000	No	
Transformer T1: Secondary to core	DC	4000	No	
One layers insulation tape of T1 (All sources)	DC	4000	No	
Transformer T1: Bobbin	DC	4000	No	
Mylar sheet (all sources)	DC	4000	No	
Supplementary information:				
1) Transformer core was considered as primary conductor.				
2) All source of enclosure and insulation tape listed in table 4.1.2. were considered.				

5.5.2.2	TABLE: Stored discharge on capacitors					N/A
Location	Supply voltage (V)	Operating and fault condition <sup>1)</sup>	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 ( $\Omega$ )
--	--	--	--	--
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)	
Output "+ / -" to earth	Normal	264Vac, 60Hz	--	0.165mA <sub>pk</sub> /0.169mA <sub>pk</sub>	60	ES1
	Abnormal Output overload	264Vac, 60Hz	--	0.168mA <sub>pk</sub> /0.170mA <sub>pk</sub>	60	ES1
	Single fault: S-C/O-C (Refer to fault condition on table B.3, B.4, output shutdown)	264Vac, 60Hz	--	0.176mA <sub>pk</sub> /0.184mA <sub>pk</sub>	60	ES1
	Single fault: S-C/O-C (Refer to fault condition on table B.3, B.4, fuse open)	264Vac, 60Hz	--	0.178mA <sub>pk</sub> /0.184mA <sub>pk</sub>	60	ES1
Plastic enclosure to earth	Normal	264Vac, 60Hz	--	0.021mA <sub>pk</sub> /0.022mA <sub>pk</sub>	60	ES1
	Abnormal Output overload	264Vac, 60Hz	--	0.023mA <sub>pk</sub> /0.025mA <sub>pk</sub>	60	ES1
	Single fault: S-C/O-C (Refer to fault condition on table B.3, B.4, output shutdown)	264Vac, 60Hz	--	0.027mA <sub>pk</sub> /0.029mA <sub>pk</sub>	60	ES1
	Single fault: S-C/O-C (Refer to fault condition on table B.3, B.4, fuse open)	264Vac, 60Hz	--	0.030mA <sub>pk</sub> /0.031mA <sub>pk</sub>	60	ES1

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

6.2.2	TABLE: Power source circuit classifications					P
Location	Operating and fault condition	Voltage (V)	Current (A)	Max. Power <sup>1)</sup> (W)	Time (S)	PS class
See below <sup>1)</sup>	--	--	--	--	--	--
Supplementary information:						
Supplementary information:						
Abbreviation: SC=Short Circuit, OC=Open Circuit.						
1) Measured after 3 s for PS1 and measured after 5 s for PS2 and PS3.						
1) All circuits are considered PS3 except for output connector, Output connector complied with Annex Q.1 which is considered to be PS2.						

6.2.3.1	TABLE: Determination of Arcing PIS	P
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IEC 62368-1				
Clause	Requirement + Test	Result - Remark		Verdict
Location	Open circuit voltage after 3 s (Vpk)	Measured r.m.s current (A)	Calculated value	Arcing PIS? Yes / No
All primary circuits/components	--	--	--	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 ( $V_p$ ) and normal operating condition rms current ( $I_{rms}$ ) is greater than 15.				

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

8.5.5	TABLE: High pressure lamp				N/A
Lamp manufacturer	Lamp type	Explosion method	Longest axis of glass particle (mm)	Particle found beyond 1 m Yes / No	
--	--	--	--	--	
--	--	--	--	--	
Supplementary information:					
--					

9.6	TABLE: Temperature measurements for wireless power transmitters			N/A
Supply voltage (V)..... :	--			--

IEC 62368-1								
Clause	Requirement + Test				Result - Remark		Verdict	
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)..... :	See below		See below		—
Ambient temperature during test $T_{amb}$ (°C) .... :	See below		See below		—
Maximum measured temperature $T$ of part/at:	$T$ (°C)				Allowed $T_{max}$ (°C)
--	90V/60Hz Horizontal (Output 9.0Vdc/3.0A)		90V/60Hz Vertical (Output 9.0Vdc/3.0A)		--
--	See below	Shift to 25°C	See below	Shift to 25°C	--
01. Plug holder	33.4	36.1	33.5	36.0	120
02. Input wire	46.9	49.6	46.2	48.7	125
03. PWB near BD1	72.9	75.6	71.9	74.4	130
04. LF1 coil	71.1	73.8	69.2	71.7	130
05. PWB near U4	75.6	78.3	73.4	75.9	130
06. CY1 body	70.4	73.1	69.2	71.7	125
07. T1 coil	73.6	76.3	72.2	74.7	110
08. T1 core	71.9	74.6	70.3	72.8	110
09. EC3 body	72.4	75.1	71.4	73.9	105
10. EC1 body	72.8	75.5	71.5	74.0	105
11. EC2 body	75.1	77.8	73.3	75.8	105
12. L1 coil	72.5	75.2	69.9	72.4	130

IEC 62368-1						
Clause	Requirement + Test			Result - Remark		Verdict
13. Mylar near U3	69.9	72.6	68.4	70.9	110	
14. PWB near U3	81.1	83.8	80.1	82.6	130	
15. U2 body	77.3	80.0	75.8	78.3	125	
16. PWB near U1	80.6	83.3	78.8	81.3	130	
17. Inside plastic enclosure near T1	69.7	72.4	67.7	70.2	120	
18. Outside plastic enclosure near T1	54.5	57.2	50.3	52.8	77	
19. Ambient	22.3	25.0	22.5	25.0	--	
--	264V/50Hz Horizontal (Output 9.0Vdc/3.0A)		264V/50Hz Vertical (Output 9.0Vdc/3.0A)		--	
--	See below	Shift to 25°C	See below	Shift to 25°C	--	
01. Plug holder	29.0	31.4	30.7	33.0	120	
02. Input wire	40.3	42.7	42.3	44.6	125	
03. PWB near BD1	64.8	67.2	70.0	72.3	130	
04. LF1 coil	60.8	63.2	63.3	65.6	130	
05. PWB near U4	61.3	63.7	64.3	66.6	130	
06. CY1 body	60.2	62.6	65.2	67.5	125	
07. T1 coil	67.4	69.8	69.9	72.2	110	
08. T1 core	65.2	67.6	66.8	69.1	110	
09. EC3 body	66.0	68.4	70.2	72.5	105	
10. EC1 body	64.4	66.8	68.1	70.4	105	
11. EC2 body	64.0	66.4	66.5	68.8	105	
12. L1 coil	61.0	63.4	64.9	67.2	130	
13. Mylar near U3	62.2	64.6	64.2	66.5	110	
14. PWB near U3	75.9	78.3	79.0	81.3	130	
15. U2 body	72.3	74.7	74.6	76.9	125	
16. PWB near U1	71.6	74.0	73.4	75.7	130	
17. Inside plastic enclosure near T1	67.2	69.6	68.2	70.5	120	
18. Outside plastic enclosure near T1	53.9	56.3	52.1	54.4	77	
19. Ambient	22.6	25.0	22.7	25.0	--	
--	90V/60Hz Horizontal		90V/60Hz Vertical		--	

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
--	See below	Shift to 25°C	See below	Shift to 25°C	--
01. Plug holder	42.3	43.7	39.1	42.1	120
02. Input wire	61.5	62.9	58.2	61.2	125
03. PWB near BD1	93.9	95.3	92.3	95.3	130
04. LF1 coil	93.2	94.6	89.8	92.8	130
05. PWB near U4	98.9	100.3	95.2	98.2	130
06. CY1 body	91.6	93.0	89.2	92.2	125
07. T1 coil	97.5	98.9	94.5	97.5	110
08. T1 core	96.0	97.4	92.0	95.0	110
09. EC3 body	94.8	96.2	93.2	96.2	105
10. EC1 body	95.7	97.1	93.5	96.5	105
11. EC2 body	98.6	100.0	94.9	97.9	105
12. L1 coil	94.6	96.0	90.6	93.6	130
13. Mylar near U3	92.5	93.9	88.6	91.6	110
14. PWB near U3	106.6	108.0	104.3	107.3	130
15. U2 body	104.1	105.5	101.1	104.1	125
16. PWB near U1	109.8	111.2	105.6	108.6	130
17. Inside plastic enclosure near T1	94.1	95.5	90.0	93.0	120
18. Outside plastic enclosure near T1	73.1	74.5	71.3	74.3	77
19. Ambient	23.6	25.0	22.0	25.0	--
--	264V/50Hz Horizontal (Output 12.0Vdc/2.91A)		264V/50Hz Vertical (Output 12.0Vdc/2.91A)		--
--	See below	Shift to 25°C	See below	Shift to 25°C	--
01. Plug holder	37.1	39.5	36.4	40.2	120
02. Input wire	51.7	54.1	51.0	54.8	125
03. PWB near BD1	84.1	86.5	83.1	86.9	130
04. LF1 coil	77.1	79.5	76.4	80.2	130

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
05. PWB near U4	77.8	80.2	77.3	81.1	130
06. CY1 body	78.7	81.1	77.9	81.7	125
07. T1 coil	85.3	87.7	84.7	88.5	110
08. T1 core	81.8	84.2	81.2	85.0	110
09. EC3 body	85.5	87.9	84.6	88.4	105
10. EC1 body	83.1	85.5	82.4	86.2	105
11. EC2 body	80.5	82.9	79.8	83.6	105
12. L1 coil	78.0	80.4	77.2	81.0	130
13. Mylar near U3	77.9	80.3	77.2	81.0	110
14. PWB near U3	95.2	97.6	94.6	98.4	130
15. U2 body	90.9	93.3	90.4	94.2	125
16. PWB near U1	90.3	92.7	89.6	93.4	130
17. Inside plastic enclosure near T1	83.9	86.3	83.2	87.0	120
18. Outside plastic enclosure near T1	66.0	68.4	65.3	69.1	77
19. Ambient	22.6	25.0	21.2	25.0	--
--	90V/60Hz Horizontal (Output 20.0Vdc/1.75A)		90V/60Hz Vertical (Output 20.0Vdc/1.75A)		--
--	See below	Shift to 25°C	See below	Shift to 25°C	--
01. Plug holder	33.1	36.5	32.9	35.9	120
02. Input wire	49.3	52.7	49.0	52.0	125
03. PWB near BD1	79.6	83.0	79.9	82.9	130
04. LF1 coil	79.3	82.7	79.0	82.0	130
05. PWB near U4	84.5	87.9	84.3	87.3	130
06. CY1 body	76.7	80.1	76.9	79.9	125
07. T1 coil	83.6	87.0	83.4	86.4	110
08. T1 core	82.3	85.7	82.0	85.0	110
09. EC3 body	81.0	84.4	81.1	84.1	105
10. EC1 body	81.2	84.6	81.3	84.3	105
11. EC2 body	84.8	88.2	84.6	87.6	105

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
12. L1 coil	79.6	83.0	79.7	82.7	130
13. Mylar near U3	79.4	82.8	79.1	82.1	110
14. PWB near U3	92.9	96.3	92.9	95.9	130
15. U2 body	90.2	93.6	90.0	93.0	125
16. PWB near U1	94.7	98.1	94.3	97.3	130
17. Inside plastic enclosure near T1	81.0	84.4	80.7	83.7	120
18. Outside plastic enclosure near T1	64.4	67.8	63.4	66.4	77
19. Ambient	21.6	25.0	22.0	25.0	--
--	264V/50Hz Horizontal (Output 20.0Vdc/1.75A)		264V/50Hz Vertical (Output 20.0Vdc/1.75A)		--
--	See below	Shift to 25°C	See below	Shift to 25°C	--
01. Plug holder	30.5	32.8	31.7	34.6	120
02. Input wire	43.5	45.8	44.6	47.5	125
03. PWB near BD1	66.2	68.5	68.5	71.4	130
04. LF1 coil	66.5	68.8	67.5	70.4	130
05. PWB near U4	67.3	69.6	68.7	71.6	130
06. CY1 body	63.5	65.8	65.6	68.5	125
07. T1 coil	73.2	75.5	74.2	77.1	110
08. T1 core	72.2	74.5	72.7	75.6	110
09. EC3 body	69.1	71.4	71.0	73.9	105
10. EC1 body	68.4	70.7	70.0	72.9	105
11. EC2 body	70.3	72.6	71.5	74.4	105
12. L1 coil	65.0	67.3	67.1	70.0	130
13. Mylar near U3	68.5	70.8	69.4	72.3	110
14. PWB near U3	80.8	83.1	82.3	85.2	130
15. U2 body	79.1	81.4	80.2	83.1	125
16. PWB near U1	80.2	82.5	81.1	84.0	130
17. Inside plastic enclosure near T1	74.5	76.8	74.8	77.7	120
18. Outside plastic enclosure near T1	60.9	63.2	58.5	61.4	77

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Clause	Requirement + Test		Result - Remark		Verdict
19. Ambient	22.7	25.0	22.1	25.0	--
--	90V/50Hz Horizontal (Output 11.0Vdc/3.0A)		90V/50Hz Vertical (Output 11.0Vdc/3.0A)		--
--	See below	Shift to 25°C	See below	Shift to 25°C	--
01. Plug holder	33.9	35.7	35.2	36.8	120
02. Input wire	49.5	51.3	52.0	53.6	125
03. PWB near BD1	79.6	81.4	83.9	85.5	130
04. LF1 coil	78.8	80.6	82.4	84.0	130
05. PWB near U4	84.1	85.9	87.5	89.1	130
06. CY1 body	77.3	79.1	81.4	83.0	125
07. T1 coil	82.3	84.1	86.1	87.7	110
08. T1 core	81.0	82.8	84.1	85.7	110
09. EC3 body	80.2	82.0	84.6	86.2	105
10. EC1 body	80.8	82.6	84.9	86.5	105
11. EC2 body	83.7	85.5	87.7	89.3	105
12. L1 coil	79.0	80.8	83.8	85.4	130
13. Mylar near U3	78.1	79.9	81.6	83.2	110
14. PWB near U3	90.6	92.4	94.9	96.5	130
15. U2 body	87.9	89.7	91.4	93.0	125
16. PWB near U1	93.0	94.8	96.2	97.8	130
17. Inside plastic enclosure near T1	79.0	80.8	82.2	83.8	120
18. Outside plastic enclosure near T1	62.0	63.8	63.2	64.8	77
19. Ambient	23.2	25.0	23.4	25.0	--
--	264V/50Hz Horizontal (Output 11.0Vdc/3.0A)		264V/50Hz Vertical (Output 11.0Vdc/3.0A)		--
--	See below	Shift to 25°C	See below	Shift to 25°C	--
01. Plug holder	31.5	34.1	30.4	33.5	120
02. Input wire	43.9	46.5	42.7	45.8	125

IEC 62368-1							
Clause	Requirement + Test				Result - Remark		Verdict
03. PWB near BD1	71.3	73.9	69.9	73.0	130		
04. LF1 coil	67.5	70.1	65.9	69.0	130		
05. PWB near U4	68.3	70.9	66.8	69.9	130		
06. CY1 body	67.4	70.0	66.2	69.3	125		
07. T1 coil	74.4	77.0	72.8	75.9	110		
08. T1 core	72.0	74.6	70.1	73.2	110		
09. EC3 body	72.7	75.3	71.3	74.4	105		
10. EC1 body	71.3	73.9	69.9	73.0	105		
11. EC2 body	70.6	73.2	69.0	72.1	105		
12. L1 coil	67.2	69.8	65.6	68.7	130		
13. Mylar near U3	68.4	71.0	66.9	70.0	110		
14. PWB near U3	82.9	85.5	81.2	84.3	130		
15. U2 body	79.2	81.8	77.3	80.4	125		
16. PWB near U1	79.6	82.2	77.9	81.0	130		
17. Inside plastic enclosure near T1	73.7	76.3	71.5	74.6	120		
18. Outside plastic enclosure near T1	57.8	60.4	54.5	57.6	77		
19. Ambient	22.4	25.0	21.9	25.0	--		
Temperature T of winding:	t <sub>1</sub> (°C)	R <sub>1</sub> (Ω)	t <sub>2</sub> (°C)	R <sub>2</sub> (Ω)	T (°C)	Allowed T <sub>max</sub> (°C)	Insulation class
--	--	--	--	--	--	--	--
Supplementary information:							
<p>Note 1: The temperatures were measured under the worse case normal mode defined in table B.2.5.</p> <p>Note 2: The apparatus was submitted and evaluated for maximum manufacturer's recommended ambient (T<sub>ma</sub>).</p> <p>Note 3: Except thermal burn, all temperatures above for T(°C) have been retrieved by measurement and have been calculated/adjusted to T<sub>ma</sub> as follows:  <math>T + (T_{ma} - T_{amb})</math>, where T is the maximum temperature measured during test, T<sub>amb</sub> is the ambient temperature during test and T<sub>ma</sub> is the maximum ambient temperature by the manufacturer's specification.            Winding components:            T1 of class B → T<sub>max</sub>=120°C-10°C (thermocouple)=110°C</p> <p>Note 4: *) Thermal burn, all temperatures above for T(°C) have been retrieved by measurement and have been calculated/adjusted to room ambient 25°C in accordance with sub-clause 9.2.5.</p>							

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Clause	Requirement + Test						Result - Remark	Verdict
<b>B.2.5</b>	<b>TABLE: Input test</b>							<b>P</b>
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
90	50	0.350	--	17.90	--	F1	0.350	Output load with 5.0V/3.0A
90	60	0.355	--	17.90	--	F1	0.355	
100	50	0.324	1.0	17.80	--	F1	0.324	
100	60	0.326	1.0	17.80	--	F1	0.326	
240	50	0.170	1.0	18.00	--	F1	0.170	
240	60	0.168	1.0	18.00	--	F1	0.168	
264	50	0.159	--	18.20	--	F1	0.159	
264	60	0.157	--	18.20	--	F1	0.157	
90	50	0.559	--	30.90	--	F1	0.559	Output load with 9.0V/3.0A
90	60	0.566	--	30.90	--	F1	0.566	
100	50	0.512	1.0	30.60	--	F1	0.512	
100	60	0.522	1.0	30.70	--	F1	0.522	
240	50	0.255	1.0	30.00	--	F1	0.255	
240	60	0.253	1.0	30.00	--	F1	0.253	
264	50	0.237	--	30.10	--	F1	0.237	
264	60	0.236	--	30.10	--	F1	0.236	
90	50	0.713	--	40.00	--	F1	0.713	Output load with 12.0V/2.91A
90	60	0.714	--	39.90	--	F1	0.714	
100	50	0.644	1.0	39.60	--	F1	0.644	
100	60	0.649	1.0	39.60	--	F1	0.649	
240	50	0.321	1.0	38.60	--	F1	0.321	
240	60	0.317	1.0	38.70	--	F1	0.317	
264	50	0.298	--	38.70	--	F1	0.298	
264	60	0.295	--	38.60	--	F1	0.295	
90	50	0.711	--	39.90	--	F1	0.711	Output load with 15.0V/2.33A
90	60	0.712	--	39.80	--	F1	0.712	
100	50	0.640	1.0	39.40	--	F1	0.640	
100	60	0.646	1.0	39.30	--	F1	0.646	
240	50	0.320	1.0	38.40	--	F1	0.320	

IEC 62368-1								
Clause		Requirement + Test				Result - Remark		Verdict
240	60	0.317	1.0	38.50	--	F1	0.317	Output load with 20.0V/1.75A
264	50	0.297	--	38.50	--	F1	0.297	
264	60	0.295	--	38.50	--	F1	0.295	
90	50	0.711	--	39.70	--	F1	0.711	
90	60	0.711	--	39.60	--	F1	0.711	
100	50	0.640	1.0	39.30	--	F1	0.640	
100	60	0.647	1.0	39.30	--	F1	0.647	
240	50	0.320	1.0	38.50	--	F1	0.320	
240	60	0.317	1.0	38.50	--	F1	0.317	
264	50	0.298	--	38.50	--	F1	0.298	
264	60	0.295	--	38.30	--	F1	0.295	
90	50	0.348	--	17.40	--	F1	0.348	PPS output load with 5.0V/3.0A
90	60	0.355	--	17.20	--	F1	0.355	
100	50	0.331	1.0	16.60	--	F1	0.331	
100	60	0.326	1.0	16.40	--	F1	0.326	
240	50	0.158	1.0	16.90	--	F1	0.158	
240	60	0.155	1.0	17.00	--	F1	0.155	
264	50	0.147	--	16.90	--	F1	0.147	
264	60	0.145	--	16.90	--	F1	0.145	
90	50	0.682	--	37.20	--	F1	0.682	PPS output load with 11.0V/3.0A
90	60	0.685	--	37.10	--	F1	0.685	
100	50	0.617	1.0	37.10	--	F1	0.617	
100	60	0.621	1.0	36.80	--	F1	0.621	
240	50	0.308	1.0	36.20	--	F1	0.308	
240	60	0.301	1.0	36.0	--	F1	0.301	
264	50	0.282	--	35.90	--	F1	0.282	
264	60	0.279	--	35.80	--	F1	0.279	
Supplementary information:								
The maximum measured current under rated voltage did not exceed 110% of the rated current.								

IEC 62368-1						
Clause	Requirement + Test				Result - Remark	Verdict
<b>B.3, B.4</b>	<b>TABLE: Abnormal operating and fault condition tests</b>					P
Ambient temperature $T_{amb}$ (°C)..... :					25°C, if no specified	—
Power source for EUT: Manufacturer, model/type, outputrating .. :					See below	—
Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation
Output (9.0V/3.0A)	O-L	90Vac	7.5hrs	F1	0.566 to 0.594 to 0.613 to 0.03	Unit output overload to 3.2A and run stably, and then overload to 3.3A, unit shut down immediately, immediately, no damaged, no hazards. 01. Plug holder:35.1°C 02. T1 coil:86.6°C 03. T1 core:83.7°C 04. PWB near U3:95.7°C 05. PWB near U1:94.1°C 06. Outside plastic enclosure near T1:66.0°C 07. Ambient:22.5°C Output “+” to “-”: 9.008Vdc Output “+” to “earth”: 0.168mApk Output “-” to “earth”: 0.170mApk
Output (12.0V/2.91A)	O-L	90Vac	7.0hrs	F1	0.714 to 0.766 to 0.784 to 0.807 to 0.03	Unit output overload to 3.3A and run stably, and then overload to 3.4A, unit shut down immediately, immediately, no damaged, no hazards. 01. Plug holder:36.2°C 02. T1 coil:97.9°C 03. T1 core:94.7°C 04. PWB near U3:110.2°C 05. PWB near U1:112.2°C 06. Outside plastic enclosure near T1:78.1°C 07. Ambient:23.9°C Output “+” to “-”: 12.017Vdc

IEC 62368-1						
Clause	Requirement + Test				Result - Remark	Verdict
						Output "+" to "earth": 0.168mApk Output "-" to "earth": 0.170mApk
Output (20.0V/1.75A)	O-L	90Vac	7.5hrs	F1	0.711 to 0.756 to 0.779 to 0.802 to 0.03	Unit output overload to 3.3A and run stably, and then overload to 3.4A, unit shut down immediately, immediately, no damaged, no hazards. 01. Plug holder:36.7°C 02. T1 coil:96.2°C 03. T1 core:94.1°C 04. PWB near U3:107.6°C 05. PWB near U1:109.7°C 06. Outside plastic enclosure near T1:72.6°C 07. Ambient:24.1°C Output "+" to "-": 20.019Vdc Output "+" to "earth": 0.168mApk Output "-" to "earth": 0.170mApk
Output (11.0V/3.0A)	O-L	90Vac	5.5hrs	F1	0.685 to 0.687 to 0.698 to 0.03	Unit output overload to 3.3A and run stably, and then overload to 3.4A, unit shut down immediately, immediately, no damaged, no hazards. 01. Plug holder:34.2°C 02. T1 coil:85.9°C 03. T1 core:84.2°C 04. PWB near U3:94.9°C 05. PWB near U1:97.6°C 06. Outside plastic enclosure near T1:64.9°C 07. Ambient:22.6°C Output "+" to "-": 11.02Vdc Output "+" to "earth": 0.168mApk Output "-" to "earth":

IEC 62368-1						
Clause	Requirement + Test				Result - Remark	Verdict
						0.170mApk
T1 pin A to pin B (After U3) (12.0V/2.91A)	O-L	90Vac	6.0hrs	F1	0.714 to 0.784 to 0.843 to 0.03	Unit T1 pin A to pin B (After U3) overload to 0.4A and run stably, and then overload to 0.5A, unit shut down immediately, immediately, no damaged, no hazards. 01. PPlug holder:37.3°C 02. T1 coil:99.3°C 03. T1 core:96.4°C 04. PWB near U3:111.6°C 05. PWB near U1:114.0°C 06. Outside plastic enclosure near T1:77.5°C 07. Ambient:22.1°C Output "+" to "-": 12.017Vdc Output "+" to "earth": 0.168mApk Output "-" to "earth": 0.170mApk
Output "+" to "-"	S-C	264Vac	10min	F1	0.03	Unit shutdown immediately, no hazards, no damaged. Prospective touch voltage: Output "+" to "-": 0Vdc Output "+" to "earth": 0.176mApk Output "-" to "earth": 0.184mApk
BD1	S-C	264Vac	1s	F1	0	F1 open immediately, no hazards. Prospective touch voltage: Output "+" to "-": 0Vdc Output "+" to "earth": 0.178mApk Output "-" to "earth": 0.184mApk
EC1	S-C	264Vac	1s	F1	0	F1 open immediately, no hazards. Prospective touch voltage: Output "+" to "-": 0Vdc Output "+" to "earth":

IEC 62368-1						
Clause	Requirement + Test				Result - Remark	Verdict
						0.178mApk Output “-” to “earth”: 0.184mApk
RS3	S-C	264Vac	10min	F1	0.711	Unit operated normally, no hazards, no damaged. Prospective touch voltage: Output “+” to “-”: 20.019Vdc Output “+” to “earth”: 0.165mApk Output “-” to “earth”: 0.169mApk
U1 Pin 1 to Pin 2	S-C	264Vac	1s	F1	0	F1 open immediately, no hazards. Prospective touch voltage: Output “+” to “-”: 0Vdc Output “+” to “earth”: 0.178mApk Output “-” to “earth”: 0.184mApk
U1 Pin 1 to Pin 4	S-C	264Vac	1s	F1	0	F1 open immediately, no hazards. Prospective touch voltage: Output “+” to “-”: 0Vdc Output “+” to “earth”: 0.178mApk Output “-” to “earth”: 0.184mApk
T1 pin A to pin B	S-C	264Vac	10min	F1	0.03	Unit shutdown immediately, no hazards, no damaged. Prospective touch voltage: Output “+” to “-”: 0Vdc Output “+” to “earth”: 0.176mApk Output “-” to “earth”: 0.184mApk
T1 pin 6 to pin 7	S-C	264Vac	10min	F1	0.03	Unit shutdown immediately, no hazards, no damaged. Prospective touch voltage: Output “+” to “-”: 0Vdc Output “+” to “earth”: 0.176mApk Output “-” to “earth”:

IEC 62368-1						
Clause	Requirement + Test				Result - Remark	Verdict
						0.184mApk
T1 pin 3 to pin 4	S-C	264Vac	10min	F1	0.03	Unit shutdown immediately, no hazards, no damaged. Prospective touch voltage: Output "+" to "-": 0Vdc Output "+" to "earth": 0.176mApk Output "-" to "earth": 0.184mApk
C7	S-C	264Vac	10min	F1	0.711	Unit operated normally, no hazards, no damaged. Prospective touch voltage: Output "+" to "-": 20.019Vdc Output "+" to "earth": 0.165mApk Output "-" to "earth": 0.169mApk
R14	S-C	264Vac	10min	F1	0.711	Unit operated normally, no hazards, no damaged. Prospective touch voltage: Output "+" to "-": 20.019Vdc Output "+" to "earth": 0.165mApk Output "-" to "earth": 0.169mApk
U2 pin 1 to pin 2	S-C	264Vac	10min	F1	0.03	Unit shutdown immediately, no hazards, no damaged. Prospective touch voltage: Output "+" to "-": 0Vdc Output "+" to "earth": 0.176mApk Output "-" to "earth": 0.184mApk
U2 pin 3 to pin 4	S-C	264Vac	10min	F1	0.03	Unit shutdown immediately, no hazards, no damaged. Prospective touch voltage: Output "+" to "-": 0Vdc Output "+" to "earth": 0.176mApk Output "-" to "earth": 0.184mApk

IEC 62368-1							
Clause	Requirement + Test				Result - Remark	Verdict	
U2 pin 1	O-C	264Vac	10min	F1	0.03	Unit shutdown immediately, no hazards, no damaged. Prospective touch voltage: Output "+" to "-": 0Vdc Output "+" to "earth": 0.176mApk Output "-" to "earth": 0.184mApk	
U2 pin 3	O-C	264Vac	10min	F1	0.03	Unit shutdown immediately, no hazards, no damaged. Prospective touch voltage: Output "+" to "-": 0Vdc Output "+" to "earth": 0.176mApk Output "-" to "earth": 0.184mApk	
U3 pin 7 to pin 8	S-C	264Vac	10min	F1	0.711	Unit operated normally, no hazards, no damaged. Prospective touch voltage: Output "+" to "-": 20.019Vdc Output "+" to "earth": 0.165mApk Output "-" to "earth": 0.169mApk	
U3 pin 4 to pin 8	S-C	264Vac	10min	F1	0.711	Unit operated normally, no hazards, no damaged. Prospective touch voltage: Output "+" to "-": 20.019Vdc Output "+" to "earth": 0.165mApk Output "-" to "earth": 0.169mApk	
U4 Pin 2 to Pin 11,12,13,14,15, 20	S-C	264Vac	10min	F1	0.03	Unit shutdown immediately, no hazards, no damaged. Prospective touch voltage: Output "+" to "-": 0Vdc Output "+" to "earth": 0.176mApk Output "-" to "earth": 0.184mApk	
Supplementary information:							

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Clause	Requirement + Test	Result - Remark	Verdict

Test table is provided to record fault conditions for all applicable energy sources including Thermal burn injury.

- 1) S-C: Short-circuited; O-C: Open-circuited; O-L: Overload.
- 2) The test result shown all safeguards remained effective, all safeguards complied with applicable requirements in this standard after restoration of normal operating conditions.
- 3) The test result shown no Class 1 or 2 energy source become Class 3 level during and after single fault condition.
- 4) For fuse opened condition, carried out for all sources of fuse.
- 5) For component damaged without fuse opened condition have been repeated twice (three tests total) with same result.

<b>M.3</b>	<b>TABLE: Protection circuits for batteries provided within the equipment</b>						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)			
	--	--	--	--	--	--	
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.							

<b>M.4.2</b>	<b>TABLE: Charging safeguards for equipment containing a secondary lithium battery</b>					N/A
Maximum specified charging voltage (V) .....					--	—
Maximum specified charging current (A) .....					--	—

IEC 62368-1					
Clause	Requirement + Test	Result - Remark			Verdict
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)						P
Output Circuit	Condition	U <sub>oc</sub> (V)	Time (s)	I <sub>sc</sub> (A)		S (VA)	
				Meas.	Limit	Meas.	Limit
Output:5V dc, 3A	Normal	5.004	5	3.5	8	15.21	100
Output:5V dc, 3A	Single fault –RS3 SC	5.004	5	3.6	8	16.32	100
Output:5V dc, 3A	Single fault –U1 Pin 1 to Pin 4 SC	0	5	0	8	0	100
Output:5V dc, 3A	Single fault –U1 Pin 1 to Pin 2 SC	0	5	0	8	0	100
Output:5V dc, 3A	Single fault –U2 Pin 1 to Pin 2 SC	0	5	0	8	0	100
Output:5V dc, 3A	Single fault –U2 Pin 3 to Pin 4 SC	0	5	0	8	0	100
Output:5V dc, 3A	Single fault –U2 pin 1 OC	0	5	0	8	0	100
Output:5V dc, 3A	Single fault –U2 pin 3 OC	0	5	0	8	0	100
Output:9V dc, 3A	Normal	9.008	5	3.5	8	28.54	100
Output:9V dc, 3A	Single fault –RS3 SC	9.008	5	3.6	8	29.12	100

IEC 62368-1							
Clause	Requirement + Test	Result - Remark					Verdict
Output:9V dc, 3A	Single fault –U1 Pin 1 to Pin 4 SC	0	5	0	8	0	100
Output:9V dc, 3A	Single fault –U1 Pin 1 to Pin 2 SC	0	5	0	8	0	100
Output:9V dc, 3A	Single fault –U2 Pin 1 to Pin 2 SC	0	5	0	8	0	100
Output:9V dc, 3A	Single fault –U2 Pin 3 to Pin 4 SC	0	5	0	8	0	100
Output:9V dc, 3A	Single fault –U2 pin 1 OC	0	5	0	8	0	100
Output:9V dc, 3A	Single fault –U2 pin 3 OC	0	5	0	8	0	100
Output:12 Vdc, 2.91A	Normal	12.017	5	3.4	8	38.06	100
Output:12 Vdc, 2.91A	Single fault –RS3 SC	12.017	5	3.52	8	39.03	100
Output:12 Vdc, 2.91A	Single fault –U1 Pin 1 to Pin 4 SC	0	5	0	8	0	100
Output:12 Vdc, 2.91A	Single fault –U1 Pin 1 to Pin 2 SC	0	5	0	8	0	100
Output:12 Vdc, 2.91A	Single fault –U2 Pin 1 to Pin 2 SC	0	5	0	8	0	100
Output:12 Vdc, 2.91A	Single fault –U2 Pin 3 to Pin 4 SC	0	5	0	8	0	100
Output:12 Vdc, 2.91A	Single fault –U2 pin 1 OC	0	5	0	8	0	100
Output:12 Vdc, 2.91A	Single fault –U2 pin 3 OC	0	5	0	8	0	100
Output:15 Vdc, 2.33A	Normal	15.031	5	2.7	8	38.84	100
Output:15 Vdc, 2.33A	Single fault –RS3 SC	15.031	5	2.84	8	39.91	100
Output:15 Vdc, 2.33A	Single fault –U1 Pin 1 to Pin 4 SC	0	5	0	8	0	100
Output:15 Vdc, 2.33A	Single fault –U1 Pin 1 to Pin 2 SC	0	5	0	8	0	100

IEC 62368-1							
Clause	Requirement + Test	Result - Remark					Verdict
Output:15 Vdc, 2.33A	Single fault –U2 Pin 1 to Pin 2 SC	0	5	0	8	0	100
Output:15 Vdc, 2.33A	Single fault –U2 Pin 3 to Pin 4 SC	0	5	0	8	0	100
Output:15 Vdc, 2.33A	Single fault –U2 pin 1 OC	0	5	0	8	0	100
Output:15 Vdc, 2.33A	Single fault –U2 pin 3 OC	0	5	0	8	0	100
Output:20 Vdc, 1.75A	Normal	20.019	5	2	8	39.08	100
Output:20 Vdc, 1.75A	Single fault –RS3 SC	20.019	5	2.06	8	39.83	100
Output:20 Vdc, 1.75A	Single fault –U1 Pin 1 to Pin 4 SC	0	5	0	8	0	100
Output:20 Vdc, 1.75A	Single fault –U1 Pin 1 to Pin 2 SC	0	5	0	8	0	100
Output:20 Vdc, 1.75A	Single fault –U2 Pin 1 to Pin 2 SC	0	5	0	8	0	100
Output:20 Vdc, 1.75A	Single fault –U2 Pin 3 to Pin 4 SC	0	5	0	8	0	100
Output:20 Vdc, 1.75A	Single fault –U2 pin 1 OC	0	5	0	8	0	100
Output:20 Vdc, 1.75A	Single fault –U2 pin 3 OC	0	5	0	8	0	100
Output:5V dc (PPS), 3A	Normal	5.048	5	3.17	8	12.22	100
Output:5V dc (PPS), 3A	Single fault –RS3 SC	5.048	5	3.31	8	12.54	100
Output:5V dc (PPS), 3A	Single fault –U1 Pin 1 to Pin 4 SC	0	5	0	8	0	100
Output:5V dc (PPS), 3A	Single fault –U1 Pin 1 to Pin 2 SC	0	5	0	8	0	100

IEC 62368-1							
Clause	Requirement + Test	Result - Remark					Verdict
Output:5V dc (PPS), 3A	Single fault –U2 Pin 1 to Pin 2 SC	0	5	0	8	0	100
Output:5V dc (PPS), 3A	Single fault –U2 Pin 3 to Pin 4 SC	0	5	0	8	0	100
Output:5V dc (PPS), 3A	Single fault –U2 pin 1 OC	0	5	0	8	0	100
Output:5V dc (PPS), 3A	Single fault –U2 pin 3 OC	0	5	0	8	0	100
Output:11 Vdc (PPS), 1.75A	Normal	11.02	5	3.17	8	30.85	100
Output:20 Vdc, 1.75A	Single fault –RS3 SC	11.02	5	3.31	8	31.80	100
Output:20 Vdc, 1.75A	Single fault –U1 Pin 1 to Pin 4 SC	0	5	0	8	0	100
Output:20 Vdc, 1.75A	Single fault –U1 Pin 1 to Pin 2 SC	0	5	0	8	0	100
Output:20 Vdc, 1.75A	Single fault –U2 Pin 1 to Pin 2 SC	0	5	0	8	0	100
Output:20 Vdc, 1.75A	Single fault –U2 Pin 3 to Pin 4 SC	0	5	0	8	0	100
Output:20 Vdc, 1.75A	Single fault –U2 pin 1 OC	0	5	0	8	0	100
Output:20 Vdc, 1.75A	Single fault –U2 pin 3 OC	0	5	0	8	0	100
Supplementary Information:							
SC=Short circuit, OC=Open circuit							

T.2, T.3, T.4, T.5	TABLE: Steady force test						P
Location/Part	Material	Thickness (mm)	Probe	Force (N)	Test Duration (s)	Observation	

IEC 62368-1							
Clause	Requirement + Test				Result - Remark		Verdict
Enclosure top, closed to transformer (T.4)	Plastics*	See table 4.1.2	--	100	5	Enclosure remained intact, no crack/opening developed. No insulation breakdown. The ES3, TS3 can't be accessible after test.	
Enclosure side (T.4)	Plastics*	See table 4.1.2	--	100	5	Enclosure remained intact, no crack/opening developed. No insulation breakdown. The ES3, TS3 can't be accessible after test.	
Enclosure bottom, closed to transformer (T.4)	Plastics*	See table 4.1.2	--	100	5	Enclosure remained intact, no crack/opening developed. No insulation breakdown. The ES3, TS3 can't be accessible after test.	
Internal components (T.2)	--	--	--	10	5	No reduction the clearances and creepage distances	
Supplementary information:							
*Tests were performed on product with each source listed in table 4.1.2.							

T.6, T.9	TABLE: Impact test					N/A
Location/Part	Material	Thickness (mm)	Height (mm)	Observation		
---	-	--	--	--		
Supplementary information:						
--						

T.7	TABLE: Drop test	P
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IEC 62368-1				
Clause	Requirement + Test		Result - Remark	Verdict
Location/Part	Material	Thickness (mm)	Height (mm)	Observation
Enclosure Top	Plastics*	See table 4.1.2	1000	Enclosure remained intact, no crack/opening developed. No insulation breakdown. The ES3, TS3 can't be accessible after test.
Enclosure Side	Plastics*	See table 4.1.2	1000	Enclosure remained intact, no crack/opening developed. No insulation breakdown. The ES3, TS3 can't be accessible after test.
Enclosure Bottom	Plastics*	See table 4.1.2	1000	Enclosure remained intact, no crack/opening developed. No insulation breakdown. The ES3, TS3 can't be accessible after test.
Supplementary information:				
*Tests were performed on product with each source listed in table 4.1.2.				

T.8	TABLE: Stress relief test				P
Location/Part	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation
Enclosure (T.8)	Plastics*	See table 4.1.2	106	7	Enclosure remained intact, no crack/opening developed. No insulation breakdown. The ES3, TS3 can't be accessible after test.
Supplementary information:					
*Tests were performed on product with each source listed in table 4.1.2.					

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:				



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

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

G.5.3	TABLE: transformers							P
Loc.	Tested insulation	Working voltage peak / V (5.4.1.8)	Working voltage rms / V (5.4.1.8)	Required electric strength (5.4.9)	Required clearance / mm (5.4.2)*	Required creepage distance / mm (5.4.3)	Required distance thr. insul. (5.4.4)	
Primary winding to secondary winding	RI	664	263	4000 VDC	3.0	5.4	0.4mm/ TIW	
Core to secondary winding	RI	664	263	4000 VDC	3.0	5.4	0.4mm/ TIW	
Core to Primary	Core considered as Primary parts	--	--	--	--	--	--	
Loc.	Tested insulation			Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers	
Primary winding to secondary winding	RI			4000 VDC	7.9	7.9	TIW used.	
Core to secondary winding	RI			4000 VDC	7.9	7.9	TIW used.	
Core to Primary	Core considered as Primary parts			--	--	--	--	
supplementary information:								
Transformer description: Concentric windings on Phenolic bobbin, Outer winding is primary winding, Triple insulated wires used as secondary winding. Insulating tube used to separate primary windings and secondary triple insulated wires where crossing, core considered as primary part. For more details see photo document.								

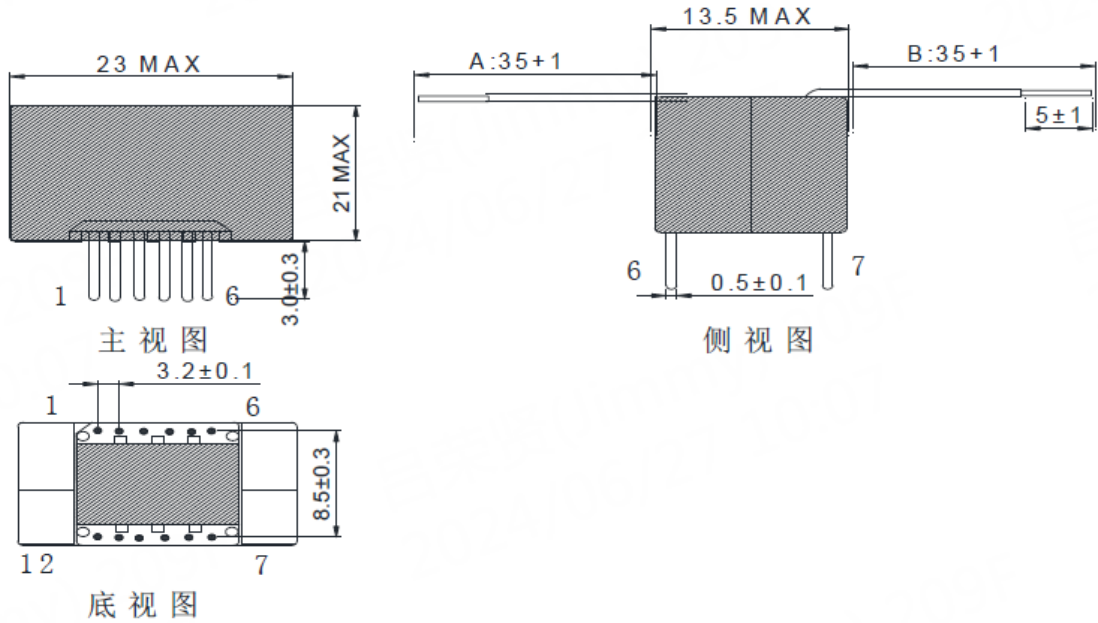
G.5.3	TABLE: Transformers	P
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Clause	Requirement + Test	Result - Remark	Verdict
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Transformer

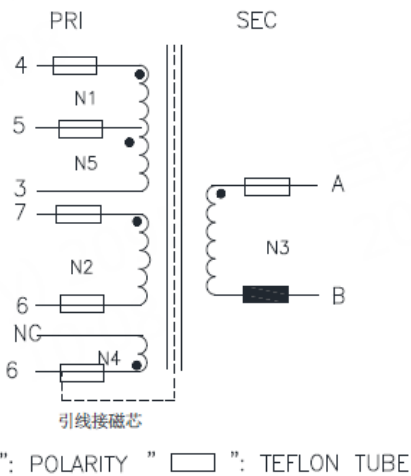
1. Outlook drawing

1. 外观尺寸图：(单位：mm)/DIMENSION

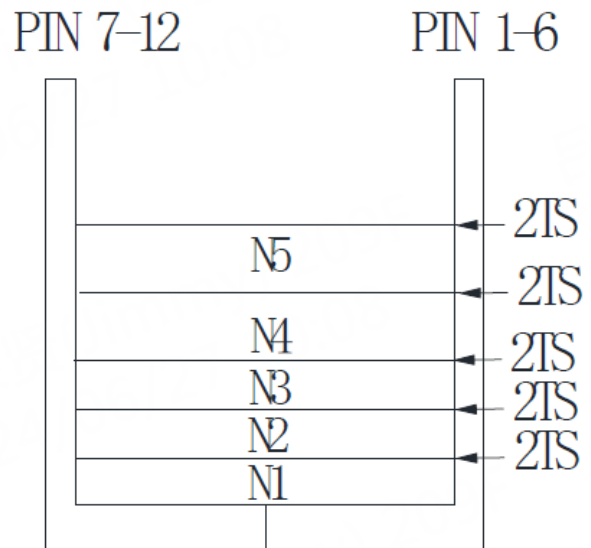


2. Schematic and section drawing

2、电原理图/CIRCUIT DIACRA



3、结构图/CONSTRUCTIONDIAGRAM



3. Winding specification:

Clause	Requirement + Test	Result - Remark	Verdict
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**4. 绕制图/WINDING**

绕组	开始-结束	线径*股数	圈数	胶带层次	挡墙胶带		绕线方式	套管	
					TOP	PIN		开始	结束
N1	4--5	2UEW $\phi$ 0.25mm*1P	16TS	2TS*5.5mm	/	/	密绕	28L*7mm	28L*7mm
N2	7--6	2UEW $\phi$ 0.15mm*2P	15TS	2TS*5.5mm	/	/	密绕	26L*7mm	26L*7mm
N3	A--B	TIW-B $\phi$ 0.65mm*1P	5TS	2TS*5.5mm	/	/	密绕	20L*37mm	20L*37mm (黑色)
N4	6--NC	2UEW $\phi$ 0.15mm*2P	21TS	2TS*5.5mm	/	/	密绕	28L*7mm	/
N5	5--3	2UEW $\phi$ 0.25mm*1P	16TS	2TS*5.5mm	/	/	密绕	28L*7mm	/

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Clause	Requirement + Test	Result - Remark	Verdict

4.1.2	TABLE: Critical components information					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard <sup>2)</sup>	Mark(s) of conformity <sup>1)</sup>	
Plastic enclosure & Plug holder	LG CHEM LTD	LUPOY EF1006F(m)(f1)	PC, V-0, 120°C, min thickness 2.0mm	UL 94, UL 746C IEC/EN IEC 62368-1	UL E67171 Tested with appliance	
PCB	SHENZHEN RUIBOXINYUAN ELECTRONICS CO LTD	RBXY-2, RBXY-3	V-0, 130°C	UL 94, UL 796 IEC/EN IEC 62368-1	UL E339633 Tested with appliance	
(Alternative)	Interchangeable	Interchangeable	V-0, 130°C	UL 94, UL 796	UL	
Input lead wire	DONGGUAN YIAO ELECTRONICS CO LTD	3239	24AWG, 300V, 125°C, VW-1	UL 758 IEC/EN IEC 62368-1	UL E348933 Tested with appliance	
(Alternative)	Interchangeable	Interchangeable	24AWG, 300V, 125°C, VW-1	UL 758 IEC/EN IEC 62368-1	UL Tested with appliance	
Current fuse (F1)	Dongguan Reomax Electronics Technology Co., Ltd.	SET	T3.15AL, 250VAC	UL 248-1, UL 248-14, IEC/EN 60127-1, IEC/EN 60127-3	UL E340427, VDE 40050560	
(Alternative)	Dongguan Anlu Electronics Technology Co. Ltd.	2410T	T3.15AL, 250VAC	UL 248-1, UL 248-14, IEC/EN 60127-1, IEC/EN 60127-3	UL E365174, CB CN58081	
Opto-coupler (U2)	Shenzhen Orient Components Co., Ltd.	OR1008	Reinforced insulation, Ext. cr/cl ≥ 8.0mm, DTI ≥ 0.4mm, 125°C	UL 1577, IEC/EN 60747-5-5	UL E323844 VDE 40029733	
Y-capacitor (CY1)	Sichuan Teruixiang Technology International Co Ltd	TRX	Max.1000pF, min. 400Vac, 125°C, Y1 type	IEC/EN/UL 60384-14	UL E315719, ENEC 020184	
Bridge Diode (BD1)	Interchangeable	Interchangeable	Min. 1000V, Min. 3A	IEC/EN IEC 62368-1	Tested with appliance	

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Clause	Requirement + Test			Result - Remark	Verdict
Electrolytic capacitor (EC2)	Interchangeable	Interchangeable	Max. 15uF, Min. 400V, Min. 105°C	IEC/EN IEC 62368-1	Tested with appliance
Electrolytic capacitor (EC1)	Interchangeable	Interchangeable	Max. 33uF, Min. 400V, Min. 105°C	IEC/EN IEC 62368-1	Tested with appliance
IC (U1)	Interchangeable	Interchangeable	Max. 700V, 600mΩ	IEC/EN IEC 62368-1	Tested with appliance
Mylar sheet (Between the transformer and the Plug)	SICHUAN DONGFANG INSULATING MATERIAL CO LTD	DFR3738A(d)	V-0, 110°C, Min. 0.4mm thickness	UL 94, UL 746 IEC/EN IEC 62368-1	UL E199019 Tested with appliance
(Alternative)	SABIC INNOVATIVE PLASTICS B V	FR700(GG1)	V-0, 125°C, Min. 0.4mm thickness	UL 94, UL 746 IEC/EN IEC 62368-1	UL E45329 Tested with appliance
Mylar sheet (Between the transformer and the Output board)	SICHUAN DONGFANG INSULATING MATERIAL CO LTD	DFR3738A(d)	V-0, 110°C, Min. 0.4mm thickness	UL 94, UL 746 IEC/EN IEC 62368-1	UL E199019 Tested with appliance
(Alternative)	SABIC INNOVATIVE PLASTICS B V	FR700(GG1)	V-0, 125°C, Min. 0.4mm thickness	UL 94, UL 746 IEC/EN IEC 62368-1	UL E45329 Tested with appliance
Choke (L1)	SHENZHEN BAIWEI ELECTRONICS CO., LTD	DR5*11-70uH	130°C	IEC/EN IEC 62368-1	Tested with appliance
- Magnet wire	TONGLING NONFERROUS COPPER CROWN ELECTRICAL CO LTD	PEW	300V, 155°C	UL 1446	UL E217937
(Alternative)	Interchangeable	Interchangeable	Min. 130°C	UL 1446	UL
- Tube	DONGGUAN SALIPT CO LTD	SALIPT S-901- 600	600V, 125°C	UL 224	UL E209436
(Alternative)	Interchangeable	Interchangeable	Min. 300V, 125°C	UL 224	UL
Choke (LF1)	SHENZHEN BAIWEI ELECTRONICS CO., LTD	6*3*2-200uH	130°C	IEC/EN IEC 62368-1	Tested with appliance

IEC 62368-1					
Clause	Requirement + Test			Result - Remark	Verdict
- Magnet wire	TONGLING NONFERROUS COPPER CROWN ELECTRICAL CO LTD	PEW	300V, 155°C	UL 1446	UL E217937
(Alternative)	Interchangeable	Interchangeable	Min. 130°C	UL 1446	UL
- Tube	DONGGUAN LING FREE HARDWARE PLASTICS PRODUCT CO LTD	LING FREE PTFE TUBE	300V, 200°C, VW-1	UL 224	UL E352366
(Alternative)	Interchangeable	Interchangeable	Min. 300V, 200°C	UL 224	UL
- Triple insulation wire used in secondary	SHENZHEN KAIZHONG HEDONG NEW MATERIALS CO LTD	TIW-B	130°C	UL 2353, IEC/EN 62368-1	UL E357240 VDE 40038861
(Alternative)	Interchangeable	Interchangeable	Min. 130°C	UL 2353, IEC/EN 62368-1	UL VDE
Transformer (T1)	SHENZHEN BAIWEI ELECTRONICS CO., LTD	P1135B-ATQ21	Class B	IEC/EN IEC 62368-1	Tested with appliance
- Bobbin	CHANG CHUN PLASTICS CO LTD	T375J(G5)(G6)	PMC, V-0, 150°C, min. 0.71mm thick	UL 94	UL E59481
- Magnet wire	WUHU COPPER CROWN ELECTRICIAN LTD	UEW/N	155°C	UL 1446	UL E326270
(Alternative)	Interchangeable	Interchangeable	Min. 130°C	UL 1446	UL
-Triple insulation wire used in secondary	SHENZHEN KAIZHONG HEDONG NEW MATERIALS CO LTD	TIW-B	130°C	UL 2353, IEC/EN IEC 62368-1	UL E357240, VDE 40038861

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Clause	Requirement + Test			Result - Remark	Verdict
- Tube	DONGGUAN LING FREE HARDWARE PLASTICS PRODUCT CO LTD	LING FREE PTFE TUBE	600V, 200°C, VW- 1	UL 224	UL E352366
- Insulation tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	CT*(b)(g)	130°C	UL 510A	UL E165111
- Varnish	ZHUHAI CHANGXIAN NEW MATERIALS TECHNOLOGY CO LTD	E962	130°C	UL1446	UL E335405
Supplementary information:					
1) Provided evidence ensures the agreed level of compliance. See OD-CB2039. 2) License available upon request.					

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Clause	Requirement + Test	Result - Remark	Verdict

<b>ATTACHMENT TO TEST REPORT</b> <b>IEC 62368-1</b> <b>EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</b> (Audio/video, information and communication technology equipment - Part 1: Safety requirements)		
<b>Differences according to</b> ..... : BS EN IEC 62368-1:2020+A11:2020		
<b>Attachment Form No.</b> .... : EU_GD_IEC62368_1E		
<b>Attachment Originator</b> ..... : --		
<b>Master Attachment</b> ..... : --		
<b>Copyright © 2021 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.</b>		
	<b>CENELEC COMMON MODIFICATIONS (EN)</b>	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
<b>1</b>	<b>Modification to Clause 3 .</b>	N/A
<b>3.3.19</b>	<b>Sound exposure</b> <i>Replace 3.3.19 of IEC 62368-1 with the following definitions:</i>	N/A

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

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Clause	Requirement + Test	Result - Remark	Verdict
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	<p>intended for use by an <b>ordinary person</b>, that:</p> <ul style="list-style-type: none"> <li>– is designed to allow the user to listen to audio or audiovisual content / material; and</li> <li>– uses a listening device, such as headphones or earphones that can be worn in or on or around the ears; and</li> <li>– 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.).</li> </ul> <p>EXAMPLES Portable CD players, MP3 audio players, mobile phones with MP3 type features, PDAs or similar equipment.</p> <p>Personal music players shall comply with the requirements of either 10.6.2 or 10.6.3.</p> <p>NOTE 1 Protection against acoustic energy sources from telecom applications is referenced to ITU-T P.360.</p> <p>NOTE 2 It is the intention of the Committee to allow the alternative methods for now, but to only use the dose measurement method as given in 10.6.5 in future. Therefore, manufacturers are encouraged to implement 10.6.5 as soon as possible.</p> <p>Listening devices sold separately shall comply with the requirements of 10.6.6. These requirements are valid for music or video mode only. The requirements do not apply to:</p> <ul style="list-style-type: none"> <li>– professional equipment;</li> </ul> <p>NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment.</p> <ul style="list-style-type: none"> <li>– hearing aid equipment and other devices for assistive listening;</li> <li>– the following type of analogue personal music players: <ul style="list-style-type: none"> <li>• long distance radio receiver (for example, a multiband radio receiver or world band radio receiver, an AM radio receiver), and</li> <li>• cassette player/recorder;</li> </ul> </li> </ul> <p>NOTE 4 This exemption has been allowed</p>		
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	<p>because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies.</p> <p>– a player while connected to an external amplifier that does not allow the user to walk around while in use.</p> <p>For equipment that is clearly designed or intended primarily for use by children, the limits of the relevant toy standards may apply.</p> <p>The relevant requirements are given in EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.</p>		
10.6.1.2	<p><b>Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz</b></p> <p>The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz). For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body mounted devices, attention is drawn to EN 50360 and EN 50566.</p>		N/A
10.6.2	<p><b>Classification of devices without the capacity to estimate sound dose</b></p>		N/A
10.6.2.1	<p><b>General</b></p> <p>This standard is transitioning from short-term based (30 s) requirements to long-term based (40 hour) requirements. These clauses remain in effect only for devices that do not comply with sound dose estimation as stipulated in EN 50332-3.</p> <p>For classifying the acoustic output <math>L_{Aeq,T}</math>, measurements are based on the A-weighted equivalent sound pressure level over a 30 s period.</p> <p>For music where the average sound pressure (long term <math>L_{Aeq,T}</math>) 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, <math>T</math> becomes the duration of the song.</p> <p>NOTE Classical music, acoustic music and broadcast typically has an average sound pressure</p>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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	<p>(long term <math>LA_{eq,T}</math>) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the content and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song does not exceed the required limit.</p> <p>For example, if the player is set with the programme simulation noise to 85 dB, but the average music level of the song is only 65 dB, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dB.</p>		
<p><b>10.6.2.2</b></p>	<p><b>RS1 limits (to be superseded, see 10.6.3.2)</b></p> <p>RS1 is a class 1 acoustic energy source that does not exceed the following:</p> <ul style="list-style-type: none"> <li>– 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 <math>LA_{eq,T}</math> acoustic output shall be <math>\leq 85</math> dB when playing the fixed “programme simulation noise” described in EN 50332-1.</li> <li>– 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 <math>\leq 27</math> mV (analogue interface) or -25 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1.</li> <li>– The RS1 limits will be updated for all devices as per 10.6.3.2.</li> </ul>		<p>N/A</p>
<p><b>10.6.2.3</b></p>	<p><b>RS2 limits (to be superseded, see 10.6.3.3)</b></p> <p>RS2 is a class 2 acoustic energy source that does not exceed the following:</p> <ul style="list-style-type: none"> <li>– 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 <math>LA_{eq,T}</math> acoustic output shall be <math>\leq 100</math> dB(A) when playing the fixed “programme simulation noise” as described in EN 50332-1.</li> <li>– 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</li> </ul>		<p>N/A</p>

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Clause	Requirement + Test	Result - Remark	Verdict
	<p>≤ 150 mV (analogue interface) or -10 dBFS (digital interface) when playing the fixed “programme simulation noise” as described in EN 50332-1.</p>		
<p><b>10.6.2.4</b></p>	<p><b>RS3 limits</b></p> <p>RS3 is a class 3 acoustic energy source that exceeds RS2 limits.</p>		<p>N/A</p>
<p><b>10.6.3</b></p>	<p><b>Classification of devices (new)</b></p>		<p>N/A</p>
<p><b>10.6.3.1</b></p>	<p><b>General</b></p> <p>Previous limits (10.6.2) created abundant false negative and false positive PMP sound level warnings. New limits, compliant with The Commission Decision of 23 June 2009, are given below.</p>		<p>N/A</p>
<p><b>10.6.3.2</b></p>	<p><b>RS1 limits (new)</b></p> <p>RS1 is a class 1 acoustic energy source that does not exceed the following:</p> <ul style="list-style-type: none"> <li>– 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 <math>L_{Aeq,T}</math> acoustic output shall be ≤ 80 dB when playing the fixed “programme simulation noise” described in EN 50332-1.</li> <li>– 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.</li> </ul>		<p>N/A</p>
<p><b>10.6.3.3</b></p>	<p><b>RS2 limits (new)</b></p> <p>RS2 is a class 2 acoustic energy source that does not exceed the following:</p> <ul style="list-style-type: none"> <li>– 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.</li> <li>– 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</li> </ul>		<p>N/A</p>

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	<p>be ≤ 15 mV (analogue interface) or -30 dBFS (digital interface) when playing the fixed “programme simulation noise” described in EN 50332-1.</p>		
<p><b>10.6.4</b></p>	<p><b>Requirements for maximum sound exposure</b></p>		<p>N/A</p>
<p><b>10.6.4.1</b></p>	<p><b>Measurement methods</b></p> <p>All volume controls shall be turned to maximum during tests.</p> <p>Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable.</p>		<p>N/A</p>
<p><b>10.6.4.2</b></p>	<p><b>Protection of persons</b></p> <p>Except as given below, protection requirements for parts <b>accessible to ordinary persons, instructed persons and skilled persons</b> are given in 4.3.</p> <p>NOTE 1 Volume control is not considered a <b>safeguard</b>.</p> <p>Between RS2 and an <b>ordinary person</b>, the <b>basic safeguard</b> may be replaced by an <b>instructional safeguard</b> in accordance with Clause F.5, except that the <b>instructional safeguard</b> shall be placed on the equipment, or on the packaging, or in the instruction manual.</p> <p>Alternatively, the <b>instructional safeguard</b> may be given through the equipment display during use.</p> <p>The elements of the <b>instructional safeguard</b> shall be as follows:</p> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> <li>– element 1a: the symbol , IEC 60417-6044 (2011-01)</li> <li>– element 2: “High sound pressure” or equivalent wording</li> <li>– element 3: “Hearing damage risk” or equivalent wording</li> <li>– element 4: “Do not listen at high volume levels for long periods.” or equivalent wording</li> </ul> <p>An <b>equipment safeguard</b> shall prevent exposure of an <b>ordinary person</b> to an RS2 source without intentional physical action from the <b>ordinary person</b> and shall automatically return to an output level not exceeding what is specified for an RS1 source when the power is switched off.</p> <p>The equipment shall provide a means to actively inform the user of the increased sound level when the equipment is operated with an output exceeding RS1. Any means used shall be</p>		<p>N/A</p>

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Clause	Requirement + Test	Result - Remark	Verdict
	<p>acknowledged by the user before activating a mode of operation which allows for an output exceeding RS1. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time.</p> <p>NOTE 2 Examples of means include visual or audible signals. Action from the user is always needed.</p> <p>NOTE 3 The 20 h listening time is the accumulative listening time, independent of how often and how long the personal music player has been switched off.</p> <p>A <b>skilled person</b> shall not be unintentionally exposed to RS3.</p>		
<b>10.6.5</b>	<b>Requirements for dose-based systems</b>		N/A
<b>10.6.5.1</b>	<p><b>General requirements</b></p> <p>Personal music players shall give the warnings as provided below when tested according to EN 50332-3, using the limits from this clause.</p> <p>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.</p> <p>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.</p>		N/A
<b>10.6.5.2</b>	<p><b>Dose-based warning and requirements</b></p> <p>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.</p>		N/A

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	<p>The warning shall at least clearly indicate that listening above 100 % CSD leads to the risk of hearing damage or loss.</p>		
<p><b>10.6.5.3</b></p>	<p><b>Exposure-based requirements</b></p> <p>With only dose-based requirements, cause and effect could be far separated in time, defying the purpose of educating users about safe listening practice. In addition to dose-based requirements, a PMP shall therefore also put a limit to the short-term sound level a user can listen at.</p> <p>The exposure-based limiter (EL) shall automatically reduce the sound level not to exceed 100 dB(A) or 150 mV integrated over the past 180 s, based on methodology defined in EN 50332-3.</p> <p>The EL settling time (time from starting level reduction to reaching target output) shall be 10 s or faster.</p> <p>Test of EL functionality is conducted according to EN 50332-3, using the limits from this clause. For equipment provided as a package (player with its listening device), the level integrated over 180 s shall be 100 dB or lower. For equipment provided with a standardized connector, the unweighted level integrated over 180 s shall be no more than 150 mV for an analogue interface and no more than -10 dBFS for a digital interface.</p> <p>NOTE In case the source is known not to be music (or test signal), the EL may be disabled.</p>		<p>N/A</p>

<p><b>10.6.6</b></p>	<p><b>Requirements for listening devices (headphones, earphones, etc.)</b></p>	<p>N/A</p>
<p><b>10.6.6.1</b></p>	<p><b>Corded listening devices with analogue input</b></p> <p>With 94 dB LAeq acoustic pressure output of the listening device, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the input voltage of the listening device when playing the fixed “programme simulation noise” as described in EN 50332-1 shall be ≥ 75 mV.</p> <p>NOTE The values of 94 dB and 75 mV correspond with 85 dB and 27 mV or 100 dB and 150 mV.</p>	<p>N/A</p>
<p><b>10.6.6.2</b></p>	<p><b>Corded listening devices with digital input</b></p>	<p>N/A</p>

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	<p>With any playing device playing the fixed “programme simulation noise” described in EN 50332-1, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the <math>L_{Aeq,T}</math> acoustic output of the listening device shall be <math>\leq 100</math> dB with an input signal of -10 dBFS.</p>		
<p><b>10.6.6.3</b></p>	<p><b>Cordless listening devices</b></p> <p>In cordless mode,</p> <ul style="list-style-type: none"> <li>– with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and</li> <li>– respecting the cordless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and</li> <li>– 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 <math>L_{Aeq,T}</math> acoustic output of the listening device shall be <math>\leq 100</math> dB with an input signal of -10 dBFS.</li> </ul>		<p>N/A</p>
<p><b>10.6.6.4</b></p>	<p><b>Measurement method</b></p> <p><i>Measurements shall be made in accordance with EN 50332-2 as applicable.</i></p>		<p>N/A</p>
<p><b>3</b></p>	<p><b>Modification to the whole document</b></p>		<p>N/A</p>

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	<p><b>Delete</b> all the “country” notes in the reference document according to the following list:</p> <table border="1"> <tbody> <tr> <td>0.2.1</td> <td>Note 1 and 2</td> <td>1</td> <td>Note 4 and 5</td> <td>3.3.8.1</td> <td>Note 2</td> </tr> <tr> <td>3.3.8.3</td> <td>Note 1</td> <td>4.1.15</td> <td>Note</td> <td>4.7.3</td> <td>Note 1 and 2</td> </tr> <tr> <td>5.2.2.2</td> <td>Note</td> <td>5.4.2.3.2.2 Table 12</td> <td>Note c</td> <td>5.4.2.3.2.4</td> <td>Note 1 and 3</td> </tr> <tr> <td>5.4.2.3.2.4 Table 13</td> <td>Note 2</td> <td>5.4.2.5</td> <td>Note 2</td> <td>5.4.5.1</td> <td>Note</td> </tr> <tr> <td>5.4.10.2.1</td> <td>Note</td> <td>5.4.10.2.2</td> <td>Note</td> <td>5.4.10.2.3</td> <td>Note</td> </tr> <tr> <td>5.5.2.1</td> <td>Note</td> <td>5.5.6</td> <td>Note</td> <td>5.6.4.2.1</td> <td>Note 2 and 3 and 4</td> </tr> <tr> <td>5.6.8</td> <td>Note 2</td> <td>5.7.6</td> <td>Note</td> <td>5.7.7.1</td> <td>Note 1 and Note 2</td> </tr> <tr> <td>8.5.4.2.3</td> <td>Note</td> <td>10.2.1 Table 39</td> <td>Note 3 and 4 and 5</td> <td>10.5.3</td> <td>Note 2</td> </tr> <tr> <td>10.6.1</td> <td>Note 3</td> <td>F.3.3.6</td> <td>Note 3</td> <td>Y.4.1</td> <td>Note</td> </tr> <tr> <td>Y.4.5</td> <td>Note</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					0.2.1	Note 1 and 2	1	Note 4 and 5	3.3.8.1	Note 2	3.3.8.3	Note 1	4.1.15	Note	4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 12	Note c	5.4.2.3.2.4	Note 1 and 3	5.4.2.3.2.4 Table 13	Note 2	5.4.2.5	Note 2	5.4.5.1	Note	5.4.10.2.1	Note	5.4.10.2.2	Note	5.4.10.2.3	Note	5.5.2.1	Note	5.5.6	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
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<b>4</b>	<b>Modification to Clause 1</b>					<b>P</b>																																																												
<b>1</b>	<p><b>Add the following note:</b></p> <p><i>NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.</i></p>					<b>P</b>																																																												
<b>5</b>	<b>Modification to 4.Z1</b>					<b>N/A</b>																																																												

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

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Clause	Requirement + Test	Result - Remark	Verdict
<p><b>10.5.1</b></p>	<p><b>Add the following after the first paragraph:</b></p> <p>For RS 1 compliance is checked by measurement under the following conditions:</p> <p>In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or pre-sets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.</p> <p>NOTE Z1 Soldered joints and paint lockings are examples of adequate locking.</p> <p>The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm<sup>2</sup>, at any point 10 cm from the outer surface of the apparatus.</p> <p>Moreover, the measurement shall be made under fault conditions causing an increase of the high voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.</p> <p>For RS1, the dose-rate shall not exceed 1 μSv/h taking account of the background level.</p> <p>NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.</p>		<p>N/A</p>
<p><b>9</b></p>	<p><b>Modification to G.7.1</b></p>		<p>N/A</p>
<p><b>G.7.1</b></p>	<p><b>Add the following note:</b></p> <p>NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.</p>		<p>N/A</p>
<p><b>10</b></p>	<p><b>Modification to Bibliography</b></p>		<p>N/A</p>

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

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Clause	Requirement + Test	Result - Remark	Verdict
4.7.3	<p><b>United Kingdom</b></p> <p>To the end of the subclause the following is added:</p> <p>The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex</p>		N/A
5.2.2.2	<p><b>Denmark</b></p> <p>After the 2nd paragraph add the following:</p> <p>A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.</p>		N/A
5.4.11.1 and Annex G	<p><b>Finland and Sweden</b></p> <p>To the end of the subclause the following is added:</p> <p>For separation of the telecommunication network from earth the following is applicable:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> <li>• two layers of thin sheet material, each of which shall pass the electric strength test below, or</li> <li>• one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.</li> </ul> <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> <li>• 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),</li> </ul> <p>and</p> <ul style="list-style-type: none"> <li>• is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5 kV.</li> </ul> <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005,</p>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	<p>subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> <li>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;</li> <li>the additional testing shall be performed on all the test specimens as described in EN 60384-14;</li> </ul> <p>the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.</p>		
5.5.2.1	<p><b>Norway</b></p> <p>After the 3rd paragraph the following is added:</p> <p>Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).</p>		N/A
5.5.6	<p><b>Finland, Norway and Sweden</b></p> <p>To the end of the subclause the following is added:</p> <p>Resistors used as <b>basic safeguard</b> or bridging <b>basic insulation</b> in <b>class I pluggable equipment type A</b> shall comply with G.10.1 and the test of G.10.2.</p>		N/A
5.6.1	<p><b>Denmark</b></p> <p><b>Add</b> to the end of the subclause</p> <p>Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment.</p> <p><i>Justification:</i></p> <p>In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.</p>		N/A
5.6.4.2.1	<p><b>Ireland and United Kingdom</b></p> <p>After the indent for <b>pluggable equipment type A</b>, the following is added:</p> <ul style="list-style-type: none"> <li>the <b>protective current rating</b> is taken to be 13 A, this being the largest rating of fuse used in the <b>mains</b> plug.</li> </ul>		N/A

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

5.7.6.2	<p><b>Denmark</b></p> <p>To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .</p>		N/A
5.7.7.1	<p><b>Norway and Sweden</b></p> <p>To the end of the subclause the following is added: The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system.</p> <p>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example.</p> <p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what</p>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	<p>country the equipment is intended to be used in:</p> <p>“Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)”</p> <p>NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>“Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet 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.”</p> <p>Translation to Swedish:            ”Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”</p>		
8.5.4.2.3	<p><b>United Kingdom</b></p> <p>Add the following after the 2<sup>nd</sup> dash bullet in 3<sup>rd</sup> paragraph:</p> <p>An emergency stop system complying with the requirements of IEC 60204-1 and ISO 13850 is required where there is a risk of personal injury.</p>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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<p><b>B.3.1 and B.4</b></p>	<p><b>Ireland and United Kingdom</b></p> <p>The following is applicable:</p> <p>To protect against excessive currents and short-circuits in the primary circuit of <b>direct plug-in equipment</b>, 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 <b>direct plug-in equipment</b>, until the requirements of Annexes B.3.1 and B.4 are met</p>		<p>N/A</p>
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<p><b>G.4.2</b></p>	<p><b>Denmark</b></p> <p>To the end of the subclause the following is added:</p> <p>Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a polyphase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.</p> <p>Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a.</p> <p>Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.</p> <p>Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a</p> <p><i>Justification:</i></p>		<p>N/A</p>
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Clause	Requirement + Test	Result - Remark	Verdict
	Heavy Current Regulations, Section 6c		
<b>G.4.2</b>	<p><b>United Kingdom</b></p> <p>To the end of the subclause the following is added:</p> <p>The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.</p>		N/A
<b>G.7.1</b>	<p><b>United Kingdom</b></p> <p>To the first paragraph the following is added:</p> <p>Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc. (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations.</p> <p>NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>		N/A
<b>G.7.1</b>	<p><b>Ireland</b></p> <p>To the first paragraph the following is added:</p> <p>Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard</p>		N/A
<b>G.7.2</b>	<p><b>Ireland and United Kingdom</b></p> <p>To the first paragraph the following is added:</p> <p>A power supply cord with a conductor of 1,25 mm<sup>2</sup> is allowed for equipment which is rated over 10 A and up to and including 13 A.</p>		N/A
<b>ZC</b>	<b>ANNEX ZC, NATIONAL DEVIATIONS (EN)</b>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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<p><b>10.5.2</b></p>	<p><b>Germany</b></p> <p>The following requirement applies:</p> <p>For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking.</p> <p><i>Justification:</i> German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM.</p> <p><b>NOTE</b> Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int+49-531-592-6320, Internet: <a href="http://www.ptb.de">http://www.ptb.de</a></p>		<p>N/A</p>
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<p><b>ZD</b></p>	<p><b>IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS (EN)</b></p>	<p>N/A</p>
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IEC 62368-1 - ATTACHMENT

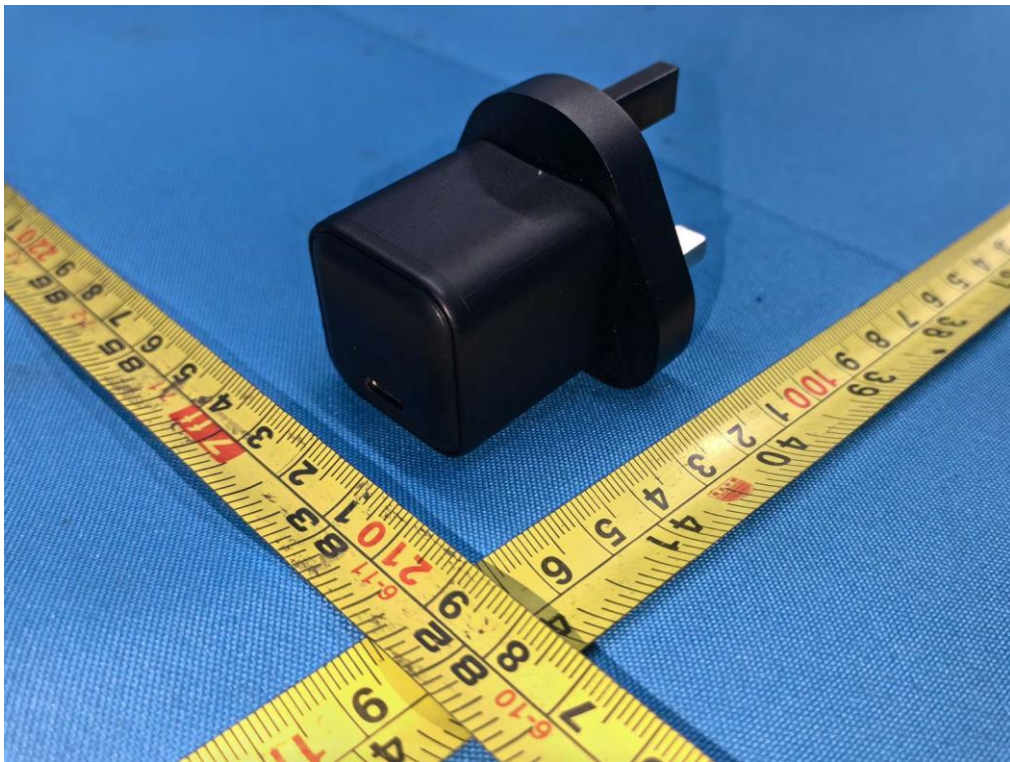
Clause	Requirement + Test	Result - Remark	Verdict
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Type of flexible cord	Code designations		N/A
	IEC	CENELEC	
<b>PVC insulated cords</b>			
Flat twin tinsel cord	60227 IEC 41	H03VH-Y	
Light polyvinyl chloride sheathed flexible cord	60227 IEC 52	H03VV-F H03VVH2-F	
Ordinary polyvinyl chloride sheathed flexible cord	60227 IEC 53	H05VV-F H05VVH2-F	
<b>Rubber insulated cords</b>			
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 86	H07RN-F	
<b>Cords having high flexibility</b>			
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	
<b>Cords insulated and sheathed with halogen-free thermoplastic compounds</b>			
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	

PHOTOS

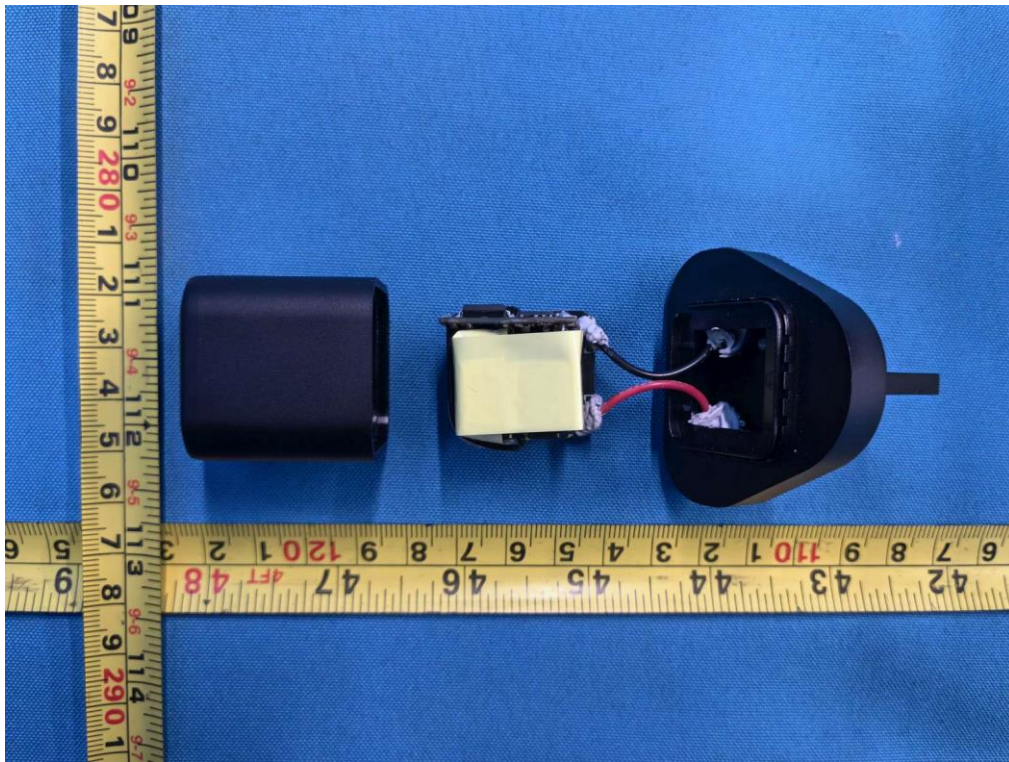


External view -1 (British plug)



External view -2 (British plug)

## PHOTOS

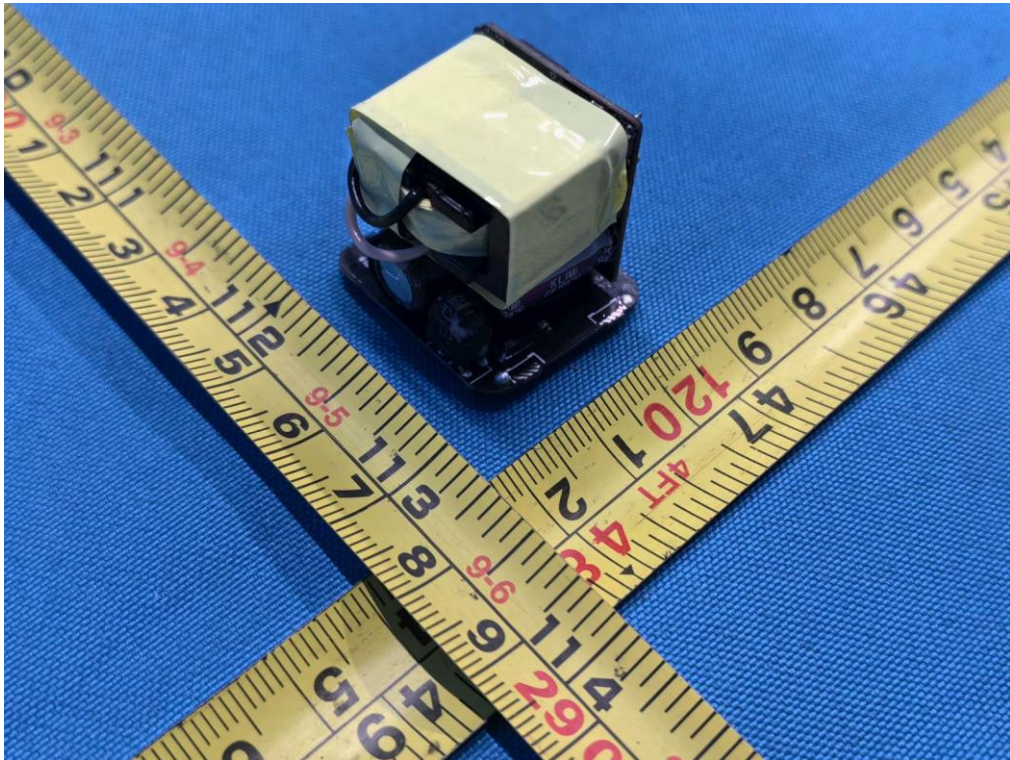


Internal view (British plug)

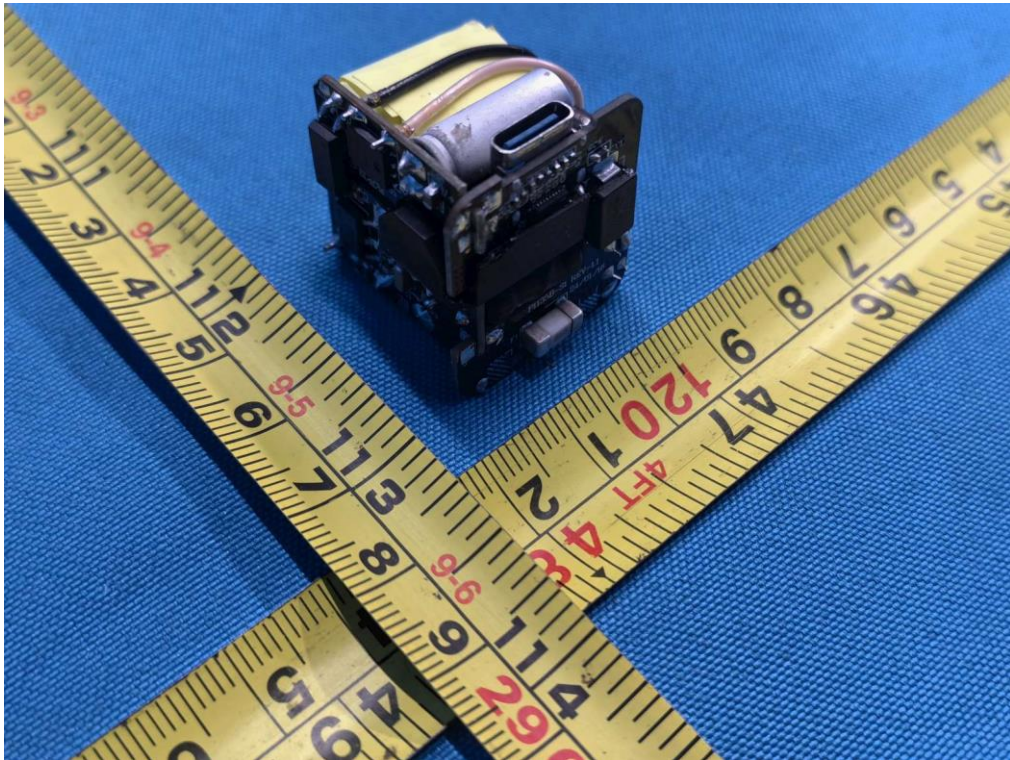


Connector view(with LED light)

PHOTOS

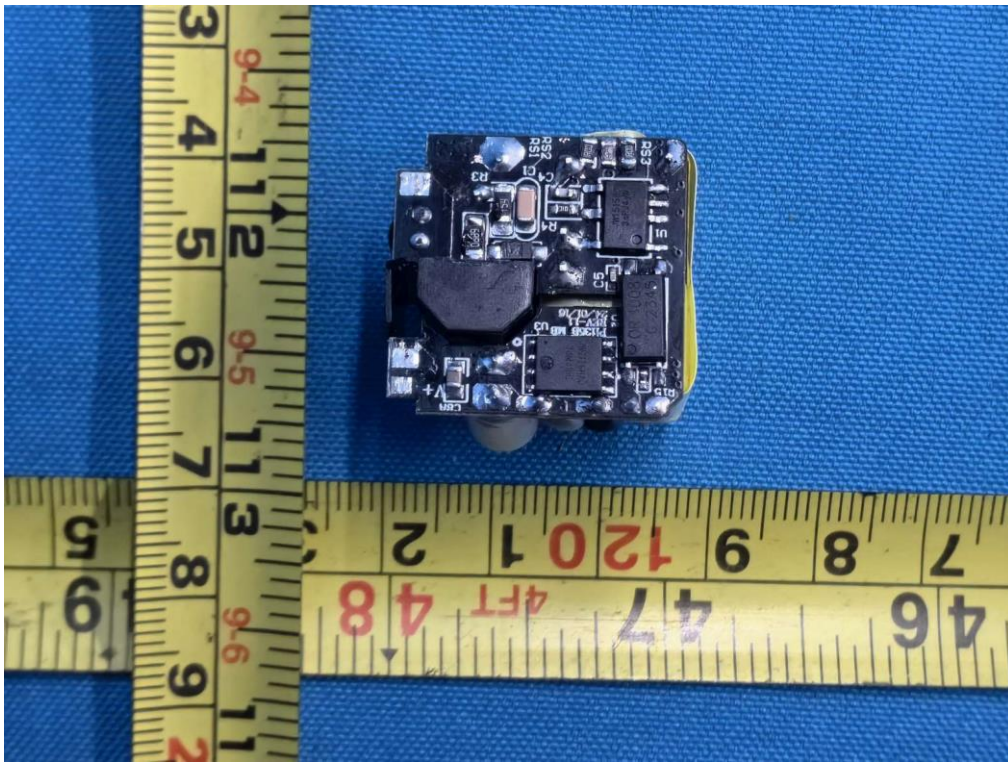


Internal view



Internal view

PHOTOS

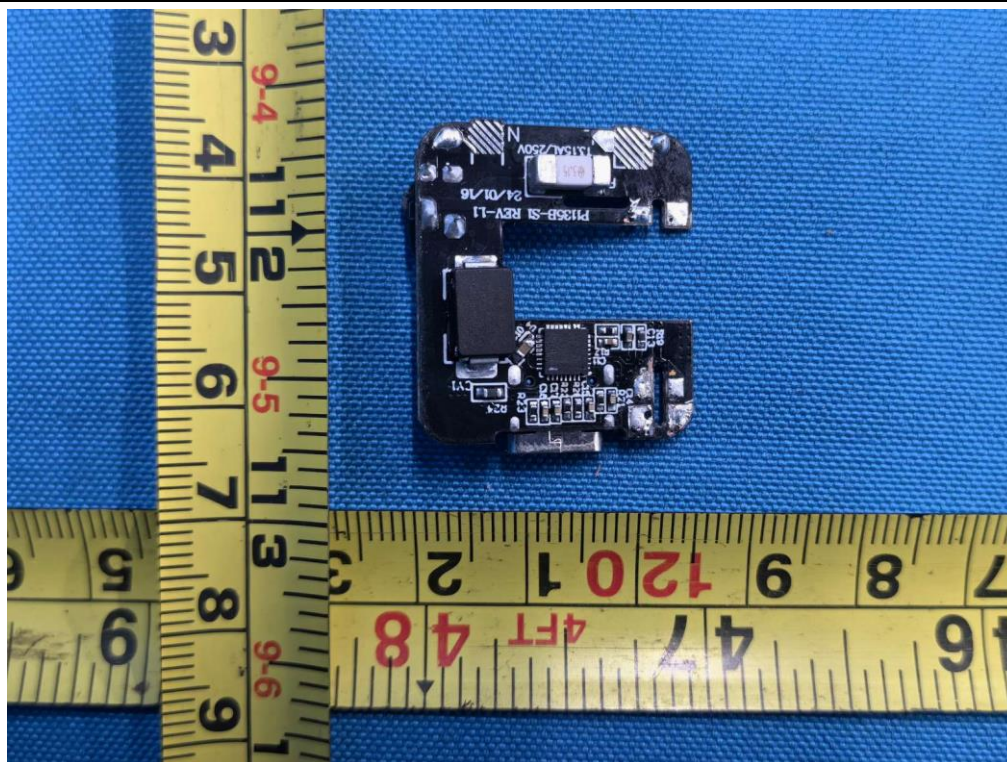


Internal view

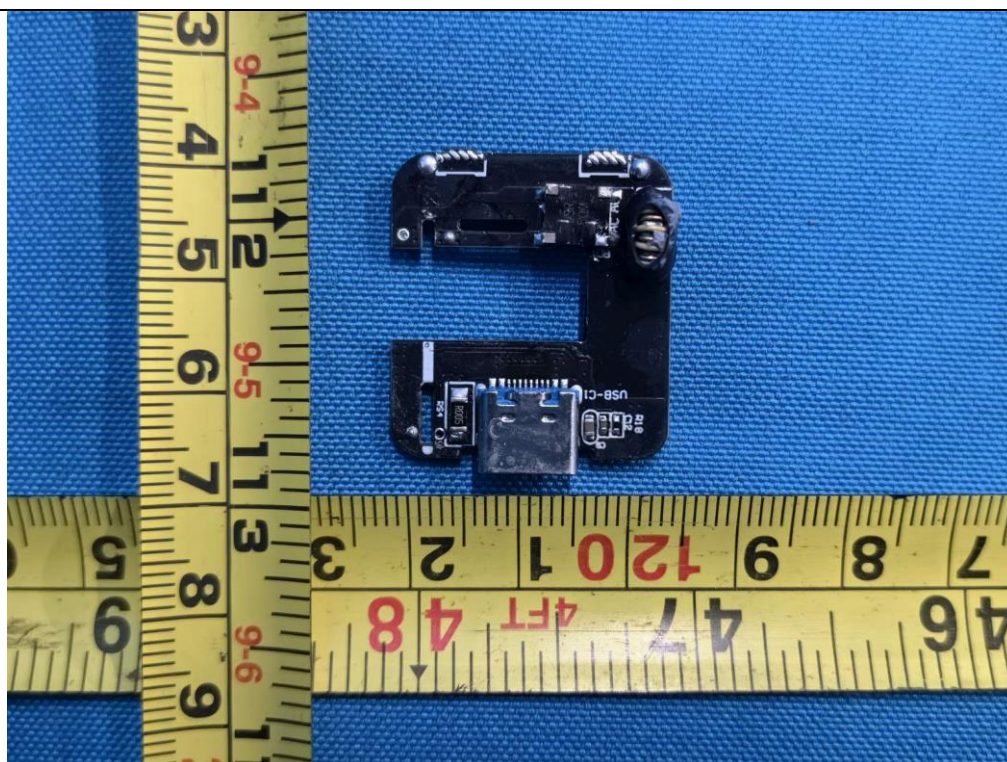


Internal view

PHOTOS



Internal view



Internal view

-End of Test Report-