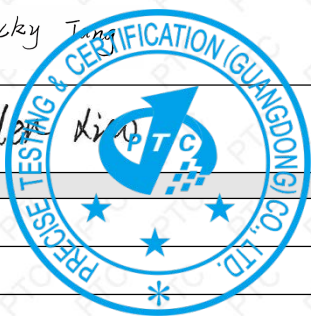




TEST REPORT IEC 62368-1 Audio/video, information and communication technology equipment Part 1: Safety requirements	
Report Number.....:	PTC25080614403S-UL01
Date of issue.....:	2025-11-04
Total number of pages.....:	59
Name of Testing Laboratory preparing the Report.....:	Precise Testing & Certification (Guangdong) Co., Ltd.
Applicant's name.....:	Dongguan Rongjun Electronic Co.,Ltd.
Address.....:	No.8,168 Industrial 5 Lane,DongKeng Town,Dongguan City,Guangdong Prov
Test specification:	
Standard.....:	IEC 62368-1:2018
Test procedure.....:	PTC
Non-standard test method.....:	N/A
TRF template used.....:	IECEE OD-2020-FR1:2021, Ed.1.4
Test Report Form No.....:	IEEC32368_1E
Test Report Form(s) Originator.....:	UL(US)
Master TRF.....:	Dated 2022-04-14
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General disclaimer:	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.	



Test item description..... :	Smart Charger	
Trade Mark(s) :	N/A	
Manufacturer..... :	Same as applicants	
Model/Type reference..... :	RC502, ZC502, ZC502CX, RC502CX, ZC502, ZC502-65W, ZC502-45W, ES-CD60, ES-CD47, PD6123, PD6124	
Ratings..... :	See table A for details on page 7	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
☒ Testing Laboratory:	Precise Testing & Certification (Guangdong) Co., Ltd.	
Testing location/ address..... :	Building 1, No. 6, Tongxin Road, Dongcheng Street, DongGuan, Guangdong, China	
Tested by (name, function, signature)..... :	Vicky Tang Project Engineer	<i>Vicky Tang</i>
Approved by (name, function, signature)... :	Hellen Xiao Reviewer	<i>Hellen Xiao</i>
		
☐ Testing procedure: CTF Stage 1:		
Testing location/ address..... :		
Tested by (name, function, signature)..... :		
Approved by (name, function, signature)... :		
☐ Testing procedure: CTF Stage 2:		
Testing location/ address..... :		
Tested by (name, function, signature)..... :		
Witnessed by (name, function, signature).. :		
Approved by (name, function, signature)... :		
☐ Testing procedure: CTF Stage 3:		
☐ Testing procedure: CTF Stage 4:		
Testing location/ address..... :		
Tested by (name, function, signature)..... :		
Witnessed by (name, function, signature).. :		
Approved by (name, function, signature)... :		
Supervised by (name, function, signature) :		

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

ATTACHMENT 1: National Differences (20 pages).

ATTACHMENT 2: Photo Documentation (8 pages).

Summary of testing:The sample tested complies with the requirements of CSA/UL 62368-1:2019.**Tests performed (name of test and test clause):**

Conduct thorough testing in the harshest of conditions.

Testing location:

Precise Testing & Certification (Guangdong) Co., Ltd.

Building 1, No. 6, Tongxin Road, Dongcheng Street, Dongguan, Guangdong, China.

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

For National Differences see end of this test report.

US, CA

☒ **The product fulfils the requirements of CSA/UL 62368-1:2019.****Use of uncertainty of measurement for decisions on conformity (decision rule):**☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").☐ Other:... (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)**Information on uncertainty of measurement:**

The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.

IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

Copy of marking plate:

The below marking is only for representative.

NAME: Smart Charger INPUT: 100V-240V~ 50/60Hz 1.3A OUTPUT: USB-C1/C2: 5V=3A, 9V=3A, 12V=3A, 15V=3A, 20V=3.25A 65WMAX USB-A: 5V=3A, 9V=2A, 12V=1.5A 18W USB-C1+C2/USB-A: 45W+18W USB-C1+(C2+USB-A): 45W+5V=3A PPS: 5-20V=3A Manufacturer: Dongguan Rongjun Electronics Co., Ltd. Made in China	MODEL: RC-502	NAME: Smart Charger INPUT: 100V-240V~ 50/60Hz 1.3A OUTPUT: USB-C1/C2: 5V=3A, 9V=3A, 12V=3A, 15V=3A, 20V=2.25A 45WMAX USB-A: 5V=3A, 9V=2A, 12V=1.5A 18W USB-C1+C2/USB-A: 27W+18W USB-C1+(C2+USB-A): 27W+5V=3A PPS: 5-11V=3A Manufacturer: Dongguan Rongjun Electronics Co., Ltd. Made in China	MODEL: RC502-45W
     		     	

- As declared by the applicant, the importer (and manufacturer, if it is different)'s name, registered trade name or registered trade mark and the postal address will be marked on the products before being placed on the market. The contact details shall be in a language easily understood by end-users and market surveillance authorities.

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

-The height of "CE" and "WEEE" at least 5mm and 7mm.

- The Markings are attached on external enclosure and visible during normal use.

Test item particulars:

Product group	☒ end product	☐ built-in component
Classification of use by.....	☒ Ordinary person	☒ Children likely present
	☐ Instructed person	
	☐ Skilled person	
Supply connection.....	☒ AC mains	☐ DC mains
	☐ not mains connected:	
	☐ ES1	☐ ES2 ☐ ES3
Supply tolerance	☒ +10%/-10%	
	☐ +20%/-15%	
	☐ + %/ - %	
	☐ None	
Supply connection – type	☒ pluggable equipment type A -	
	☐ non-detachable supply cord	
	☐ appliance coupler	
	☒ direct plug-in	
	☐ pluggable equipment type B -	
	☐ non-detachable supply cord	
	☐ appliance coupler	
	☐ permanent connection	
	☐ mating connector	☐ other:
Considered current rating of protective device.....	☒ 16A Location:	☒ building ☒
	equipment	
	☐ N/A	
Equipment mobility.....	☐ movable	☐ hand-held ☒ transportable
	☒ direct plug-in	☐ stationary ☐ for building-in
	☐ wall/ceiling-mounted	☐ SRME/rack-mounted
	☐ other:	
Overvoltage category (OVC)	☐ OVC I	☒ OVC II ☐ OVC III
	☐ OVC IV	☐ other:
Class of equipment	☐ Class I	☒ Class II ☐ Class III
	☐ Not classified	☐
Special installation location	☒ N/A	☐ restricted access area
	☐ outdoor location	☐
Pollution degree (PD)	☐ PD 1	☒ PD 2 ☐ PD 3
Manufacturer's specified T_{ma}.....	25 °C	☐ Outdoor: minimum °C
IP protection class	☒ IPX0	☐ IP20
Power systems	☒ TN	☐ TT ☐ IT - V _{L-L}
	☐ not AC mains	
Altitude during operation (m)	☒ 2000 m or less	☐ 5000m or less
Altitude of test laboratory (m)	☒ 2000 m or less	☐ 5000m or less
Mass of equipment (kg)	Approx. 0.153kg	

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..... : 2025-08-26

Date (s) of performance of tests..... : 2025-08-26 to 2025-11-04

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.

"(See appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

Manufacturer's Declaration per sub-clause 4.2.5 of IEC60335-1:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided..... :

- ☐ Yes
☒ Not applicable

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

Name and address of factory (ies)..... : Same as applicants

General product information and other remarks:

1. The product is a class II Smart Charger direct plug-in equipment with supply power to Audio/video, information and communication technology equipment.
2. The top enclosure is sealed with bottom enclosure by ultrasonic welding.
3. The manufacturer specified maximum ambient temperature is 25°C.
4. The equipment was evaluated for a maximum operating altitude of 2000m.
5. The final product of this application will be glued.
6. The equipment has two different outer shells. For details, please refer to the photos.
7. Plug portion of the sample has been tested according to J60884-1 (2019). See the test report No. PTC250828-00201-S2 and PTC250828-00201-S3.
8. All models are similar except model designation and output rating.

Model list:

Table A:

Model	Input	Output
RC502, ZC502, ZC502-65W, ES- CD47, PD6123, PD6124	100-240V~, 50/60Hz, 1.3A	USB-C1/C2: 5V $\overline{\text{---}}$ 3A, 9V $\overline{\text{---}}$ 3A, 12V $\overline{\text{---}}$ 3A, 15V $\overline{\text{---}}$ 3A, 20V $\overline{\text{---}}$ 3.25A 65W MAX USB-A: 5V $\overline{\text{---}}$ 3A, 9V $\overline{\text{---}}$ 2A, 12V $\overline{\text{---}}$ 1.5A 18W USB-C1+C2/USB-A: 45W+18W USB-C2+USB-A: 5V $\overline{\text{---}}$ 3A USB-C1+(C2+USB-A): 45W+5V $\overline{\text{---}}$ 3A PPS:5-20V $\overline{\text{---}}$ 3A
RC502-45W, ZC502-45W		USB-C1/C2: 5V $\overline{\text{---}}$ 3A, 9V $\overline{\text{---}}$ 3A, 12V $\overline{\text{---}}$ 3A, 15V $\overline{\text{---}}$ 3A, 20V $\overline{\text{---}}$ 2.25A 45W MAX USB-A: 5V $\overline{\text{---}}$ 3A, 9V $\overline{\text{---}}$ 2A, 12V $\overline{\text{---}}$ 1.5A 18W USB-C1+C2/USB-A: 27W+18W USB-C2+USB-A: 5V $\overline{\text{---}}$ 3A USB-C1+(C2+USB-A): 27W+5V $\overline{\text{---}}$ 3A PPS:5-11V $\overline{\text{---}}$ 3A

OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS				
Clause	Possible Hazard			
5	Electrically-caused injury			
Class and Energy Source (e.g. ES3: Primary circuit)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
ES3: Primary circuits supplied by a.c. mains supply	Ordinary person	N/A	N/A	See 5.4.2, 5.4.3, 5.4.4 5.5.2, 5.5.3 and 5.5.4.
ES3: Capacitor connected between L and N	Ordinary	N/A	N/A	See 5.5.2.2
ES1: Secondary output connector	Ordinary person	N/A	N/A	N/A
6	Electrically-caused fire			
Class and Energy Source (e.g. PS2: 100 Watt circuit)	Material part (e.g. Printed board)	Safeguards		
		B	1 st S	2 nd S
PS3: All primary circuits and secondary circuits inside the equipment enclosure	All combustible materials within equipment fire enclosure	See 6.3	Rated V-0 or better plastic enclosure used.	N/A
PS3: Internal circuit except output circuit	Input wire	See 6.3	See 6.5	N/A
PS2: Equipment output connector	Connections of secondary equipment, Output wire	See 6.3	Rated V-0 or better plastic enclosure used.	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, Children	N/A	N/A	N/A
MS1: Edges and corners	Ordinary, Children	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: All external accessible enclosures/parts	Ordinary, Children	N/A	N/A	N/A
10	Radiation			
Class and Energy Source (e.g. RS1: PMP sound output)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R

N/A	N/A	N/A	N/A	N/A
Supplementary Information: "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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS		P
4.1.1	Acceptance of materials, components and subassemblies	See appended table 4.1.2	P
4.1.2	Use of components	Components which are certified to IEC/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	No such component and construction.	N/A
4.1.8	Liquids and liquid filled components (LFC)	No such components used	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.3, T.4, T.5)	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	No such glass used.	N/A
4.4.3.7	Glass fixation tests		N/A
	Glass impact test (1J)		N/A
	Push/pull test (10 N)		N/A
4.4.3.8	Thermoplastic material tests	(See Annex T.8)	P
4.4.3.9	Air comprising a safeguard	(See Annex T)	P
4.4.3.10	Accessibility, glass, safeguard effectiveness	After tests of 4.4.3.2, 4.4.3.3, 4.4.3.4, 4.4.3.8, no safeguard damaged.	P
4.4.4	Displacement of a safeguard by an insulating liquid	No such components used	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.4.5	Safety interlocks	No such components used	N/A
4.5	Explosion		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
4.6	Fixing of conductors	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
4.7	Equipment for direct insertion into mains socket-outlets		P
4.7.2	Mains plug part complies with relevant standard... :	See plug test report	P
4.7.3	Torque (Nm)..... :	Max. 0.084Nm	P
4.8	Equipment containing coin/button cell batteries		N/A
4.8.1	General	No coin/button cell batteries used.	N/A
4.8.2	Instructional safeguard..... :		N/A
4.8.3	Battery compartment door/cover construction		N/A
	Open torque test		N/A
4.8.4.2	Stress relief test		N/A
4.8.4.3	Battery replacement test		N/A
4.8.4.4	Drop test		N/A
4.8.4.5	Impact test		N/A
4.8.4.6	Crush test		N/A
4.8.5	Compliance		N/A
	30N force test with test probe		N/A
	20N force test with test hook		N/A
4.9	Likelihood of fire or shock due to entry of conductive object		P
4.10	Component requirements		P
4.10.1	Disconnect Device	(See Annex L)	P
4.10.2	Switches and relays	(See Annex G)	N/A
5	ELECTRICALLY-CAUSED INJURY		P
5.2	Classification and limits of electrical energy sources		P
5.2.2	ES1, ES2 and ES3 limits		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.2.2.2	Steady-state voltage and current limits..... :	(See appended table 5.2)	P
5.2.2.3	Capacitance limits..... :	(See appended table 5.2)	P
5.2.2.4	Single pulse limits..... :	No such single pulses generated in the EUT or applied to it.	N/A
5.2.2.5	Limits for repetitive pulses..... :	No such repetitive pulses within the EUT	N/A
5.2.2.6	Ringing signals	No such ringing signals within the EUT	N/A
5.2.2.7	Audio signals	No such audio signals	N/A
5.3	Protection against electrical energy sources		P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	See only 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
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		P
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material	The choice and application have taken into account as specified in this Clause 5 and Annex T and natural rubber, hygroscopic materials or asbestos are not used as insulation.	P
5.4.1.3	Material is non-hygroscopic	No hygroscopic material used.	N/A
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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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	No such transformer within the EUT	N/A
5.4.1.7	Insulation in circuits generating starting pulses	No such starting pulses within the EUT	N/A
5.4.1.8	Determination of working voltage..... :	(See appended table 5.4.1.8)	P
5.4.1.9	Insulating surfaces		P
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		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
5.4.2	Clearances	The highest value of 5.4.3.3 and 5.4.2.3 be 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		—
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..... :	Option was not used.	—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test	Using procedure 2 to determine the clearance according to 5.4.2.3.	N/A
5.4.2.5	Multiplication factors for clearances and test voltages	1.0	P
5.4.2.6	Clearance measurement..... :	(See appended table 5.4.2, 5.4.3)	P
5.4.3	Creepage distances	(See appended table 5.4.2, 5.4.3)	P
5.4.3.1	General		P
5.4.3.3	Material group..... :	IIIa & IIIb	—
5.4.3.4	Creepage distances measurement..... :	(See appended table 5.4.2, 5.4.3)	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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		P
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	No such sheet material used	N/A
5.4.4.6.1	General requirements		N/A
5.4.4.6.2	Separable thin sheet material		N/A
	Number of layers (pcs) :		N/A
5.4.4.6.3	Non-separable thin sheet material	No such thin sheet material within the EUT	N/A
	Number of layers (pcs) :		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material..... :	(See appended table 5.4.9)	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, EP, KR, d, VPW (V)..... :	(See appended table 5.4.4.9)	P
	Alternative by electric strength test, tested voltage (V), KR..... :	(See appended tables 5.4.4.9 and 5.4.9)	P
5.4.5	Antenna terminal insulation		P
5.4.5.1	General	The power supply will provide non-mains supply voltages to other equipment having antenna terminals.	P
5.4.5.2	Voltage surge test	Surge test with 50 discharges at a maximum rate of 12/min from a 1nF capacitor charged to 10 kV performed.	P
5.4.5.3	Insulation resistance (MΩ)..... :	Measured 500MΩ between mains supply to output terminals.	P
	Electric strength test..... :	(See appended table 5.4.9)	P
5.4.6	Insulation of internal wire as part of supplementary safeguard		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning	All source of insulation sheet, plastic material for enclosure and insulation tape listed in	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
		table 4.1.2. were considered	
	Relative humidity (%), temperature (°C), duration (h)..... :	93%, 30°C, 48h	—
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..... :	Compliance was checked immediately following temperature test in 5.4.1.4 on the complete unit and on a sample of the transformer raised to the relevant temperature as measured during that test. (See appended table 5.4.9)	P
5.4.9.2	Test procedure for routine test	No routine tests considered. To be considered during the relevant national approval.	N/A
5.4.10	Safeguards against transient voltages from external circuits	No such external circuits	N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test..... :		N/A
5.4.10.2.3	Steady-state test..... :		N/A
5.4.10.3	Verification for insulation breakdown for impulse test..... :		N/A
5.4.11	Separation between external circuits and earth		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 ΔU_{sp} :		—
	Max increase due to ageing ΔU_{sa} :		—
5.4.11.3	Test method and compliance..... :		N/A
5.4.12	Insulating liquid	No such parts	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
5.5	Components as safeguards		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.5.1	General	See the following details.	P
5.5.2	Capacitors and RC units	Approved X,Y capacitor provided. (See appended table 4.1.2)	P
5.5.2.1	General requirement		P
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector.....:	(See appended table 5.5.2.2)	P
5.5.3	Transformers	(See Clause G.5.3)	P
5.5.4	Optocouplers	(See Clause G.12)	P
5.5.5	Relays	No such relay used	N/A
5.5.6	Resistors		P
5.5.7	SPDs	(See Clause G.8)	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	Indoor used	N/A
	RCD rated residual operating current (mA).....:		—
5.6	Protective conductor	Class II equipment.	N/A
5.6.2	Requirement for protective conductors		N/A
5.6.2.1	General requirements		N/A
	Requirements for CLASS 0I EUT		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Requirements for CLASS 0I EUT		N/A
	Protective earthing conductor size (mm ²)		—
	Protective earthing conductor serving as a reinforced safeguard		N/A
	Protective earthing conductor serving as a double safeguard		N/A
5.6.4	Requirements for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm ²).....:		—
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.....:	(See appended table 5.6.6)	N/A
5.6.6.3	Resistance (Ω) or voltage drop.....:	(See appended table 5.6.6)	N/A
5.6.7	Reliable connection of a protective earthing conductor		N/A
5.6.8	Functional earthing		N/A
	Conductor size (mm ²).....:		N/A
	Class II with functional earthing marking		N/A
	Appliance inlet cl & cr (mm).....:		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		P
5.7.2	Measuring devices and networks		P
5.7.2.1	Measurement of touch current	Figure 4 of IEC 60990:2016 was used in determining of the limit of ES1. (See appended table 5.2)	P
5.7.2.2	Measurement of voltage	(See appended table 5.2)	P
5.7.3	Equipment set-up, supply connections and earth connections	Clause 4, 5.3 and 5.4 of IEC 60990:2016 applied.	P
	Requirements for CLASS 0I EUT		N/A
5.7.4	Unearthed accessible parts.....:	(See appended table 5.7.4)	P
5.7.5	Earthed accessible conductive parts.....:	(See appended table 5.7.5)	N/A
	Requirements for CLASS 0I EUT		N/A
5.7.6	Requirements when touch current exceeds ES2 limits	Touch current not exceeds ES2 limits.	N/A
	Protective conductor current (mA).....:		N/A
	Instructional Safeguard.....:		N/A
5.7.7	Prospective touch voltage and touch current associated with external circuits	No such external circuits	N/A
5.7.7.1	Touch current from coaxial cables		N/A
5.7.7.2	Prospective touch voltage and touch current associated with paired conductor cables		N/A
5.7.8	Summation of touch currents from external circuits	No such external circuits	N/A
	a) Equipment connected to earthed external circuits, current (mA).....:		N/A
	b) Equipment connected to unearthed external circuits, current (mA).....:		N/A
5.8	Backfeed safeguard in battery backed up supplies		N/A
	Mains terminal ES.....:	(See appended table 5.8)	N/A
	Air gap (mm).....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

6	Electrically- caused fire		P
6.2	Classification of PS and PIS		P
6.2.2	Power source circuit classifications.....:	(See appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS	(See appended table 6.2.3.1)	P
6.2.3.2	Resistive PIS	(See appended table 6.2.3.2)	P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials.....:	(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
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard method	Method by control of fire spread applied, V-0 fire enclosure provided.	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	Supplementary safeguards		N/A
6.4.3.2	Single Fault Conditions.....:	(See appended table B.3, B.4)	N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		N/A
6.4.5	Control of fire spread in PS2 circuits	Compliance detailed as follows: – <u>Printed board</u>: rated min. V-1 or better – <u>All other components</u>: at least V-2 except for mounted on min. V-1 material or small parts of combustible material. – <u>Isolating transformer</u>: complying with G.5.3.	P
6.4.5.2	Supplementary safeguards	See above	P
6.4.6	Control of fire spread in PS3 circuits	Compliance detailed as follows: – Parts as in 6.4.5 above – Fire enclosure: rated V-0 used.	P

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Clause	Requirement + Test	Result - Remark	Verdict
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	N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top openings and properties	No top openings	N/A
	Openings dimensions (mm)..... :		N/A
6.4.8.3.4	Bottom openings and properties	No bottom openings	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
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
6.5	Internal and external wiring		P
6.5.1	General requirements	Internal wire complies with UL 758, which has the equivalent requirement with IEC/TS 60695-11-21.	P
6.5.2	Requirements for interconnection to building wiring..... :		N/A
6.5.3	Internal wiring size (mm ²) for socket-outlets..... :		N/A
6.6	Safeguards against fire due to the connection to additional equipment		P
7	INJURY CAUSED BY HAZARDOUS SUBSTANCES		N/A
7.2	Reduction of exposure to hazardous substances		N/A
7.3	Ozone exposure		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
7.4	Use of personal safeguards or personal protective equipment (PPE)		N/A
	Personal safeguards and instructions..... :		—
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010)..... :		—
7.6	Batteries and their protection circuits		N/A
8	MECHANICALLY-CAUSED INJURY		P
8.2	Mechanical energy source classifications		P
8.3	Safeguards against mechanical energy sources		P
8.4	Safeguards against parts with sharp edges and corners		P
8.4.1	Safeguards	MS1: Edges and corners of enclosure.	P
	Instructional Safeguard..... :		N/A
8.4.2	Sharp edges or corners	MS1: Edges and corners of enclosure.	P
8.5	Safeguards against moving parts		N/A
8.5.1	Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts	No moving 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

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Clause	Requirement + Test	Result - Remark	Verdict
	- Cable assembly :		N/A
8.5.4.3	Equipment having electromechanical device for destruction of media		N/A
8.5.4.3.1	Equipment safeguards		N/A
8.5.4.3.2	Instructional safeguards against moving parts..... :		N/A
8.5.4.3.3	Disconnection from the supply		N/A
8.5.4.3.4	Cut type and test force (N)..... :		N/A
8.5.4.3.5	Compliance		N/A
8.5.5	High pressure lamps		N/A
	Explosion test..... :		N/A
8.5.5.3	Glass particles dimensions (mm)..... :		N/A
8.6	Stability of equipment		N/A
8.6.1	General		N/A
	Instructional safeguard..... :		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
8.7	Equipment mounted to wall, ceiling or other structure		N/A
8.7.1	Mount means type..... :		N/A
8.7.2	Test methods		N/A
	Test 1, additional downwards force (N)..... :		N/A
	Test 2, number of attachment points and test force (N)..... :		N/A
	Test 3 Nominal diameter (mm) and applied torque (Nm)..... :		N/A
8.8	Handles strength		N/A
8.8.1	General		N/A
8.8.2	Handle strength test		N/A
	Number of handles..... :		—
	Force applied (N)..... :		N/A
8.9	Wheels or casters attachment requirements		N/A
8.9.2	Pull test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.10	Carts, stands and similar carriers		N/A
8.10.1	General		N/A
8.10.2	Marking and instructions.....:		N/A
8.10.3	Cart, stand or carrier loading test		N/A
	Loading force applied (N).....:		N/A
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Force applied (N).....:		N/A
8.10.6	Thermoplastic temperature stability		N/A
8.11	Mounting means for slide-rail mounted equipment (SRME)		N/A
8.11.1	General		N/A
8.11.2	Requirements for slide rails		N/A
	Instructional Safeguard.....:		N/A
8.11.3	Mechanical strength test		N/A
8.11.3.1	Downward force test, force (N) applied.....:		N/A
8.11.3.2	Lateral push force test		N/A
8.11.3.3	Integrity of slide rail end stops		N/A
8.11.4	Compliance		N/A
8.12	Telescoping or rod antennas		N/A
	Button/ball diameter (mm).....:		—

9	THERMAL BURN INJURY		P
9.2	Thermal energy source classifications		P
9.3	Touch temperature limits		P
9.3.1	Touch temperatures of accessible parts.....:	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	P
9.3.2	Test method and compliance		P
9.4	Safeguards against thermal energy sources		N/A
9.5	Requirements for safeguards		P
9.5.1	Equipment safeguard	TS1	P
9.5.2	Instructional safeguard.....:		P
9.6	Requirements for wireless power transmitters		N/A
9.6.1	General		N/A
9.6.2	Specification of the foreign objects		N/A
9.6.3	Test method and compliance.....:	(See appended table 9.6)	N/A

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

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Clause	Requirement + Test	Result - Remark	Verdict
	Warning for MEL ≥ 100 dB(A)..... :		N/A
10.6.4	Measurement methods		N/A
10.6.5	Protection of persons		N/A
	Instructional safeguards..... :		N/A
10.6.6	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.6.1	Corded listening devices with analogue input		N/A
	Listening device input voltage (mV)..... :		N/A
10.6.6.2	Corded listening devices with digital input		N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A)..... :		N/A
10.6.6.3	Cordless listening devices		N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A)..... :		N/A

B	NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS		P
B.1	General		P
B.1.5	Temperature measurement conditions	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	P
B.2	Normal operating conditions		P
B.2.1	General requirements..... :	(See test item particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers..... :	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.3	Simulated abnormal operating conditions		P
B.3.1	General	(See appended table B.3, B.4)	P
B.3.2	Covering of ventilation openings	No 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	No battery used.	N/A
B.3.7	Audio amplifier abnormal operating conditions	Not such equipment.	N/A
B.3.8	Safeguards functional during and after abnormal operating conditions..... :	All safeguards remained effective	P
B.4	Simulated single fault conditions		P
B.4.1	General		P

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Clause	Requirement + Test	Result - Remark	Verdict
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
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	No battery involved in the EUT	N/A
C	UV RADIATION		N/A
C.1	Protection of materials in equipment from UV radiation		N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus..... :		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure test		N/A
C.2.4	Xenon-arc light-exposure test		N/A
D	TEST GENERATORS		P
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		P
D.3	Electronic pulse generator		N/A
E	TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS		N/A
E.1	Electrical energy source classification for audio signals		N/A
	Maximum non-clipped output power (W)..... :		—
	Rated load impedance (Ω)		—
	Open-circuit output voltage (V)..... :		—
	Instructional safeguard..... :		—

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Clause	Requirement + Test		Verdict
E.2	Audio amplifier normal operating conditions		N/A
	Audio signal source type..... :		—
	Audio output power (W)..... :		—
	Audio output voltage (V)..... :		—
	Rated load impedance (Ω) :		—
	Requirements for temperature measurement		N/A
E.3	Audio amplifier abnormal operating conditions		N/A
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General		P
	Language :	English version checked, other language shall be evaluated during national approval.	—
F.2	Letter symbols and graphical symbols		P
F.2.1	Letter symbols according to IEC60027-1	Letter symbols for quantities and units are complied with IEC 60027-1.	P
F.2.2	Graphic symbols according to IEC, ISO or manufacturer specific	Graphical symbols are complied with IEC 60417, ISO 3864-2, ISO 7000 or ISO 7010.	P
F.3	Equipment markings		P
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 copy of marking plate	P
F.3.3	Equipment rating markings	See copy of marking plate	P
F.3.3.1	Equipment with direct connection to mains	The equipment is connected to AC mains supply.	P
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of the supply voltage..... :	See copy of marking plate	P
F.3.3.4	Rated voltage..... :	See copy of marking plate	P
F.3.3.5	Rated frequency..... :	See copy of marking plate	P
F.3.3.6	Rated current or rated power..... :	See copy of marking plate	P
F.3.3.7	Equipment with multiple supply connections	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

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.5.1	Mains appliance outlet and socket-outlet markings.....:	No such devices on the equipment.	N/A
F.3.5.2	Switch position identification marking.....:	No such switch on the equipment.	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. marking provided on PCB:F1 T3.15A/250V	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		N/A
F.3.6	Equipment markings related to equipment classification		P
F.3.6.1	Class I equipment	Class II equipment.	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.3.6.1A	Class 0I Equipment		N/A
F.3.6.2	Equipment class marking.....:	Class II equipment without functional earth. Symbol  used.	P
F.3.6.3	Functional earthing terminal marking.....:		N/A
F.3.7	Equipment IP rating marking.....:	IPX0	N/A
F.3.8	External power supply output marking.....:	See copy of marking plate.	P
F.3.8A	Attention marking due to aging deterioration of CRT television		N/A
F.3.9	Durability, legibility and permanence of marking	The marking 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
F.4	Instructions		P

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Clause	Requirement + Test	Result - Remark	Verdict
	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) Class 0I equipment provided with independent main protective earthing terminal		N/A
	m) Equipment containing insulating liquid		N/A
	n) Installation instructions for outdoor equipment		N/A
F.5	Instructional safeguards		P
G	COMPONENTS		P
G.1	Switches		N/A
G.1.1	General	No switch used.	N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.1.3	Test method and compliance		N/A
G.2	Relays		N/A
G.2.1	Requirements	No relay used.	N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supplying power to other equipment		N/A
G.2.4	Test method and compliance		N/A
G.3	Protective devices		P
G.3.1	Thermal cut-offs	No thermal cut-off provided within the equipment.	N/A
	Thermal cut-outs separately approved according to JIS C 9730 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

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Clause	Requirement + Test	Result - Remark	Verdict
G.3.2	Thermal links		N/A
G.3.2.1	a) Thermal links tested separately according to JIS C 6691 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 PTC thermistor provided within the equipment.	N/A
G.3.4	Overcurrent protection devices		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.4)	N/A
G.4	Connectors		P
G.4.1	Spacings		P
G.4.2	Mains connector configuration..... :	Direct plug-in	P
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		P
G.5	Wound components		P
G.5.1	Wire insulation in wound components	Primary windings and secondary windings are separated by PCB insulation.	P
G.5.1.2	Protection against mechanical stress	Physical separation provided by PCB.	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

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.3.2	Insulation	Primary windings and secondary windings are separated by reinforced insulation. (The core is considered as secondary part as it is not isolated from secondary).	P
	Protection from displacement of windings..... :	Primary windings and secondary windings are separated by PCB insulation.	—
G.5.3.3	Transformer overload tests	(See appended table B.3, B.4)	P
G.5.3.3.1	Test conditions	Tested in the complete equipment as an SMPS.	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		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

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage		—
G.6	Wire Insulation		N/A
G.6.1	General		N/A
G.6.2	Enamelled winding wire insulation	Insulation does not rely on solvent-based enamel.	N/A
G.7	Mains supply cords		N/A
G.7.1	General requirements	No such cord provided	N/A
	Type.....		—
G.7.2	Cross sectional area (mm ² or AWG).....		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N).....		N/A
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm).....		N/A
G.7.3.2.4	Strain relief and cord anchorage material		N/A
G.7.4	Cord Entry		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Test method and compliance		N/A
	Overall diameter or minor overall dimension, <i>D</i> (mm).....		—
	Radius of curvature after test (mm).....		—
G.7.6	Supply wiring space		N/A
G.7.6.1	General requirements		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Requirements		N/A
G.7.6.2.2	Test with 8 mm strand		N/A
G.8	Varistors		N/A
G.8.1	General requirements		N/A
G.8.2	Safeguards against fire		N/A
G.8.2.1	General		N/A
G.8.2.2	Varistor overload test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.8.2.3	Temporary overvoltage test		N/A
G.9	Integrated circuit (IC) current limiters		N/A
G.9.1	Requirements		N/A
	IC limiter output current (max. 5A)..... :		—
	Manufacturers' defined drift :		—
G.9.2	Test Program		N/A
G.9.3	Compliance		N/A
G.10	Resistors		P
G.10.1	General		P
G.10.2	Conditioning		N/A
G.10.3	Resistor test		N/A
G.10.4	Voltage surge test		N/A
G.10.5	Impulse test		N/A
G.10.6	Overload test		N/A
G.11	Capacitors and RC units		P
G.11.1	General requirements	The X,Y-Capacitor are used as safeguard and complied with IEC/EN 60384-14:2013. (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
G.12	Optocouplers		P
	Optocouplers comply with IEC 60747-5-5 with specifics	The optocouplers used in the equipment are complied with IEC 60747-5-5. (See appended table 4.1.2)	P
	Type test voltage $V_{ini,a}$:	See above.	—
	Routine test voltage, $V_{ini,b}$:	See above.	—
G.13	Printed boards		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

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Clause	Requirement + Test	Result - Remark	Verdict
G.13.4	Insulation between conductors on the same inner surface		N/A
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation.....:		N/A
	Number of insulation layers (pcs) :		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2	Test method and compliance		N/A
G.14	Coating on components terminals		N/A
G.14.1	Requirements:	(See Clause G.13)	N/A
G.15	Pressurized liquid filled components		N/A
G.15.1	Requirements		N/A
G.15.2	Test methods and compliance		N/A
G.15.2.1	Hydrostatic pressure test		N/A
G.15.2.2	Creep resistance test		N/A
G.15.2.3	Tubing and fittings compatibility test		N/A
G.15.2.4	Vibration test		N/A
G.15.2.5	Thermal cycling test		N/A
G.15.2.6	Force test		N/A
G.15.3	Compliance		N/A
G.16	IC including capacitor discharge function (ICX)		P
G.16.1	Condition for fault tested is not required	(See appended table 4.1.2)	P
	ICX with associated circuitry tested in equipment		N/A
	ICX tested separately		N/A
G.16.2	Tests		N/A
	Smallest capacitance and smallest resistance specified by ICX manufacturer for impulse test.....:		—
	Mains voltage that impulses to be superimposed on:		—
	Largest capacitance and smallest resistance for ICX tested by itself for 10000 cycles test.....:		—
G.16.3	Capacitor discharge test.....:		N/A
H	CRITERIA FOR TELEPHONE RINGING SIGNALS		N/A
H.1	General		N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringling signal		N/A
H.3.1.1	Frequency (Hz):		—

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Clause	Requirement + Test	Result - Remark	Verdict
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
J	INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION		N/A
J.1	General		N/A
	Winding wire insulation.....		—
	Solid round winding wire, diameter (mm).....		N/A
	Solid square and rectangular (flatwise bending) winding wire, cross-sectional area (mm ²).....		N/A
J.2/J.3	Tests and Manufacturing		N/A
K	SAFETY INTERLOCKS		N/A
K.1	General requirements		N/A
	Instructional safeguard.....	No safety interlock provided within the equipment.	N/A
K.2	Components of safety interlock safeguard mechanism		N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
K.5.1	Under single fault condition		N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Test method and compliance.....		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements		N/A
	In circuit connected to mains, separation distance for contact gaps (mm).....		N/A
	In circuit isolated from mains, separation distance for contact gaps (mm).....		N/A
	Electric strength test before and after the test of K.7.2.....		N/A
K.7.2	Overload test, Current (A).....		N/A
K.7.3	Endurance test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
K.7.4	Electric strength test		N/A
L	DISCONNECT DEVICES		P
L.1	General requirements	Plug portion used as disconnect device	P
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single-phase equipment	The mains plug disconnects both poles simultaneously.	P
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A
L.8	Multiple power sources	Only one a.c. mains connection.	N/A
	Instructional safeguard..... :		N/A
M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		N/A
M.1	General requirements		N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Batteries and their cells comply with relevant IEC or JIS standards..... :	No battery used	N/A
M.3	Protection circuits for batteries provided within the equipment		N/A
M.3.1	Requirements		N/A
M.3.2	Test method		N/A
	Overcharging of a rechargeable battery		N/A
	Excessive discharging		N/A
	Unintentional charging of a non-rechargeable battery		N/A
	Reverse charging of a rechargeable battery		N/A
M.3.3	Compliance	(See appended table M.3)	N/A
M.4	Additional safeguards for equipment containing a portable secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Requirements		N/A
M.4.2.2	Compliance..... :	(See appended table M.4.2)	N/A
M.4.3	Fire enclosure..... :		N/A
M.4.4	Drop test of equipment containing a secondary lithium battery		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
M.4.4.2	Preparation and procedure for the drop test		N/A
M.4.4.3	Drop, Voltage on reference and dropped batteries (V); voltage difference during 24 h period (%): :		N/A
M.4.4.4	Check of the charge/discharge function		N/A
M.4.4.5	Charge / discharge cycle test		N/A
M.4.4.6	Compliance		N/A
M.5	Risk of burn due to short-circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Test method and compliance		N/A
M.6	Safeguards against short-circuits		N/A
M.6.1	External and internal faults		N/A
M.6.2	Compliance		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
	Calculated hydrogen generation rate..... :		N/A
M.7.2	Test method and compliance		N/A
	Minimum air flow rate, Q (m ³ /h)..... :		N/A
M.7.3	Ventilation tests		N/A
M.7.3.1	General		N/A
M.7.3.2	Ventilation test – alternative 1		N/A
	Hydrogen gas concentration (%)..... :		N/A
M.7.3.3	Ventilation test – alternative 2		N/A
	Obtained hydrogen generation rate..... :		N/A
M.7.3.4	Ventilation test – alternative 3		N/A
	Hydrogen gas concentration (%)..... :		N/A
M.7.4	Marking..... :		N/A
M.8	Protection against internal ignition from external spark sources of batteries with aqueous electrolyte		N/A
M.8.1	General		N/A
M.8.2	Test method		N/A
M.8.2.1	General		N/A
M.8.2.2	Estimation of hypothetical volume V _z (m ³ /s)..... :		—
M.8.2.3	Correction factors..... :		—
M.8.2.4	Calculation of distance d (mm) :		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse		N/A
	Instructional safeguard..... :		N/A
N	ELECTROCHEMICAL POTENTIALS		N/A
	Material(s) used..... :	Class II	—
O	MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		P
	Value of X (mm)..... :	Considered	—
P	SAFEGUARDS AGAINST CONDUCTIVE OBJECTS		P
P.1	General	No openings of enclosure	P
P.2	Safeguards against entry or consequences of entry of a foreign object		P
P.2.1	General		P
P.2.2	Safeguards against entry of a foreign object	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
	Transportable equipment with metalized plastic parts..... :		N/A
P.2.3.2	Consequence of entry test..... :		N/A
P.3	Safeguards against spillage of internal liquids		N/A
P.3.1	General		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Compliance		N/A
P.4	Metallized coatings and adhesives securing parts		N/A
P.4.1	General		N/A
P.4.2	Tests		N/A
	Conditioning, T _c (°C)..... :		—
	Duration (weeks)..... :		—
Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		P
Q.1	Limited power sources	See appended table Q.1	P
Q.1.1	Requirements		P
	a) Inherently limited output		N/A

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

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Clause	Requirement + Test	Result - Remark	Verdict
S.3.1	Mounting of samples		N/A
S.3.2	Test method and compliance		N/A
	Mounting of samples		—
	Wall thickness (mm).....		—
S.4	Flammability classification of materials		N/A
S.5	Flammability test for fire enclosure materials of equipment with a steady state power exceeding 4 000 W		N/A
	Samples, material.....		—
	Wall thickness (mm).....		—
	Conditioning (°C).....		—
T	MECHANICAL STRENGTH TESTS		P
T.1	General		P
T.2	Steady force test, 10 N	(See appended table T.2, T.3, T.4, T.5)	P
T.3	Steady force test, 30 N		N/A
T.4	Steady force test, 100 N	(See appended table T.2, T.3, T.4, T.5)	P
T.5	Steady force test, 250 N		N/A
T.6	Enclosure impact test		N/A
	Fall test		N/A
	Swing test		N/A
T.7	Drop test	(See appended table T.7)	P
T.8	Stress relief test.....	(See appended table T.8)	P
T.9	Glass Impact Test.....	No such glass is provided within the equipment.	N/A
T.10	Glass fragmentation test		N/A
	Number of particles counted.....		N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm)		N/A
U	MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N/A
U.1	General		N/A
	Instructional safeguard :		N/A
U.2	Test method and compliance for non-intrinsically protected CRTs		N/A
U.3	Protective screen		N/A
V	DETERMINATION OF ACCESSIBLE PARTS		P
V.1	Accessible parts of equipment		P

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Clause	Requirement + Test	Result - Remark	Verdict
V.1.1	General		P
V.1.2	Surfaces and openings tested with jointed test probes		P
V.1.3	Openings tested with straight unjointed test probes	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
V.2	Accessible part criterion		N/A
X	ALTERNATIVE METHOD FOR DETERMINING CLEARANCES FOR INSULATION IN CIRCUITS CONNECTED TO AN AC MAINS NOT EXCEEDING 420 V PEAK (300 V RMS)		N/A
	Clearance..... :	(See appended table X)	N/A
Y	CONSTRUCTION REQUIREMENTS FOR OUTDOOR ENCLOSURES		N/A
Y.1	General		N/A
Y.2	Resistance to UV radiation		N/A
Y.3	Resistance to corrosion		N/A
Y.3.1	Metallic parts of outdoor enclosures are resistant to effects of water-borne contaminants by..... :		N/A
Y.3.2	Test apparatus		N/A
Y.3.3	Water – saturated sulphur dioxide atmosphere		N/A
Y.3.4	Test procedure..... :		N/A
Y.3.5	Compliance		N/A
Y.4	Gaskets		N/A
Y.4.1	General		N/A
Y.4.2	Gasket tests		N/A
Y.4.3	Tensile strength and elongation tests		N/A
	Alternative test methods..... :		N/A
Y.4.4	Compression test		N/A
Y.4.5	Oil resistance		N/A
Y.4.6	Securing means	(See Annex P.4)	N/A
Y.5	Protection of equipment within an outdoor enclosure		N/A
Y.5.1	General		N/A
Y.5.2	Protection from moisture		N/A
	Relevant tests of JIS C 0920 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

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Clause	Requirement + Test	Result - Remark	Verdict
Y.5.5.1	General		N/A
Y.5.5.2	IP5X equipment		N/A
Y.5.5.3	IP6X equipment		N/A
Y.6	Mechanical strength of enclosures		N/A
Y.6.1	General		N/A
Y.6.2	Impact test..... :	(See Table T.6)	N/A

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Clause	Requirement + Test			Result - Remark			Verdict
5.2	TABLE: Classification of electrical energy sources						P
Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
			U (V)	I (mA)	Type ¹⁾	Additional Info ²⁾	
264Va.c. 60Hz	Primary circuits supplied by a.c. mains supply	Normal:	264Vrms	--	SS	60	ES3
		Abnormal: --	--	--	--	--	
		Single fault: --	--	--	--	--	
264Va.c, 60Hz	USB-C1 Output "+" to "-" (20Vdc)	Normal:	20.05Vdc	--	SS	DC	ES1
		Abnormal (Output overload)	20.05Vdc	--	SS	DC	ES1
		Abnormal (Transformer overload)	0Vdc	--	SS	DC	ES1
		Single fault: SC/OC (Refer to fault condition on table B.3, B.4, output shutdown)	0Vdc	--	SS	DC	ES1
		Single fault: SC/OC (Refer to fault condition on table B.3, B.4, fuse open)	0Vdc	--	SS	DC	ES1
264Va.c, 60Hz	USB-A Output "+" to "-" (12Vdc)	Normal:	12.03Vdc	--	SS	DC	ES1
		Abnormal (Output overload)	12.03Vdc	--	SS	DC	ES1
		Abnormal (Transformer overload)	0Vdc	--	SS	DC	ES1
		Single fault: SC/OC (Refer to fault condition on table B.3, B.4, output shutdown)	0Vdc	--	SS	DC	ES1
		Single fault: SC/OC (Refer to fault condition on table B.3, B.4, fuse open)	0Vdc	--	SS	DC	ES1
264Vac, 60Hz	AC inlet L&N pin	Normal	374Vpeak	--	CP	0.1µF±10%	ES3
Supplementary information:							

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Clause	Requirement + Test	Result - Remark	Verdict
1) Type: Steady state (SS), Capacitance (CP), Single pulse (SP), Repetitive pulses (RP), etc. 2) Additional Info: Frequency, Pulse duration, Pulse off time, Capacitance value, etc. 3) SC = Short-circuited, OC = Open-circuited 4) Overall capacity: CX2=0.1 μ F $\pm$ 10%			

5.4.1.8	TABLE: Working voltage measurement				P
Location	RMS voltage (V)	Peak voltage (V)	Frequency (Hz)	Comments	
USB-C1 Output:20Vdc 3.25A					
T1 Pin 1 to A	224	428	72.6k	--	
T1 Pin 2 to A	222	360		--	
T1 Pin 3 to A	257	508		--	
T1 Pin 5 to A	207	332		--	
T1 Pin 1 to B	232	488		--	
T1 Pin 2 to B	225	420		--	
T1 Pin 3 to B	276	520		The max Working voltage voltage	
T1 Pin 5 to B	209	352		--	
T1 Pin 1 to 7	224	428		--	
T1 Pin 2 to 7	212	422		--	
T1 Pin 3 to 7	254	506		--	
T1 Pin 5 to 7	212	344		--	
CY1(primary) to (secondary)	207	352	60	--	
U4 Pin 1 to 3	220	368	60	--	
U4 Pin 1 to 4	218	368	60	--	
U4 Pin 2 to 3	217	372	60	--	
U4 Pin 2 to 4	216	368	60	--	
Supplementary information:					
Test voltage: 240Vac, 60Hz					

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:				

IEC 62368-1				
Clause	Requirement + Test		Result - Remark	Verdict
5.4.1.10.3	TABLE: Ball pressure test of thermoplastics			P
Allowed impression diameter (mm)..... :			≤ 2 mm	—
Object/Part No./Material	Manufacturer/trademark	Thickness (mm)	Test temperature (°C)	Impression diameter (mm)
Plug holder/Internal plastic parts	SABIC JAPAN LLC/945(GG)	>2.5	125	0.82
Plug holder/Internal plastic parts	SABIC JAPAN LLC/945CB	>2.5	125	0.77
Plug holder/Internal plastic parts	SABIC JAPAN LLC/945RW	>2.5	125	0.89
Plug holder/Internal plastic parts	SABIC JAPAN LLC/945CR	>2.5	125	0.75
Supplementary information:				

5.4.2, 5.4.3	TABLE: Minimum Clearances/Creepage distance							P
Clearance (cl) and creepage distance (cr) at/of/between:	U _p (V)	U _{rms} (V)	Freq ¹⁾ (Hz)	Required cl (mm)	cl (mm)	E.S. ²⁾ (V)	Required cr (mm)	cr (mm)
L-N before fuse F1 (B)*	420	250	60	1.5	5.5	--	2.5	5.5
Different polarity of fuse F1 (B)*	420	250	60	1.5	3.0	--	2.5	3.0
L trace to Primary trace(B)*	420	250	60	1.5	3.5	--	2.5	3.5
Primary trace to accessible enclosure (R)*	420	250	60	3.0	5.5	--	5.0	5.5
Primary to secondary traces under CY1 (R)*	420	250	60	3.0	5.4	--	5.0	5.4
Primary to secondary traces under U4 (R)*	420	250	60	3.0	5.4	--	5.0	5.4
CY1 primary trace to secondary trace(R)*	420	250	60	3.0	5.1	--	5.0	5.1
T1 core to primary trace C4(R)*	520	276	72.6K	3.0	5.1	--	5.0	5.1
T1 core to primary trace (R)*	520	276	72.6K	3.0	6.1	--	5.0	6.1
Supplementary information:								

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Clause	Requirement + Test	Result - Remark	Verdict
*B=Basic insulation, S= Reinforced insulation, R=Reinforced insulation. Note 1: Only for frequency above 30 kHz Note 2: See table 5.4.2.4 if this is based on electric strength test Note 3: Provide Material Group 1) Transformer (T1): The core is considered as secondary part. 2) Unless otherwise specified, the worst conditions of Cl. & Cr. in above mentioned locations have been considered and listed.			

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	520	Reinforced insulation	0.4	1)	
Insulation sheet	520	Reinforced 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)	
Insulation Tape (Used on insulation sheet)	--	72.6	0.34	2 layers	Reinforced Insulation	520	
Supplementary information:							
Electric strength test voltage of clause 5.4.9 were more than requirement of clause 5.4.4.9.							
All electric strength requirement covered by table 5.4.9 test, details see table 5.4.9.							

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 and N (with fuse disconnect)	DC	2500	No	
Primary circuit and output terminal	DC	4000	No	
Primary circuit and plastic enclosure with copper foil	DC	4000	No	
T1 primary trace to secondary trace	DC	4000	No	
T1 core to primary trace	DC	4000	No	
Insulation Tape (Used on insulation sheet)(single layer)	DC	4000	No	
Insulation sheet	DC	4000	No	
Supplementary information:				

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Clause	Requirement + Test	Result - Remark	Verdict

1. Core of transformer T1 was considered as secondary part
2. Test after humidity treatment, heating test, and for unit primary to secondary, Tests were performed on product with each source listed in table 4.1.2.

5.5.2.2	TABLE: Stored discharge on capacitors					P
Location	Supply voltage (V)	Operating and fault condition ¹⁾	Switch position	Measured voltage (Vpk)	ES Class	
Phase to Neutral	264Vac, 60Hz	N	--	8V	ES1	
Phase to Neutral	264Vac, 60Hz	S (RD6 OC)	--	12V	ES1	
Supplementary information:						
X-capacitors installed for testing: See appended table 4.1.2						
[x] bleeding resistor rating: See appended table 4.1.2						
[x] ICX: See appended table 4.1.2						
1) Normal operating condition (e.g., normal operation, or open fuse), SC= short circuit, OC= open circuit)						

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

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)	
L/N to output port	Normal operation	264Vac 60Hz	--	0.472mA peak	60	ES1
	Abnormal (Output overload)	264Vac 60Hz	--	0.472mA peak	60	ES1
	Abnormal (Transformer overload)	264Vac 60Hz	--	0.472mA peak	60	ES1
	Single fault: SC/OC (Refer to fault condition on table B.3, B.4, Unit shutdown)	264Vac 60Hz	--	0.472mA peak	60	ES1
	Single fault: SC/OC (Refer to fault condition on table B.3, B.4, fuse open)	264Vac 60Hz	--	0.486mA peak	60	ES1

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Clause	Requirement + Test			Result - Remark		Verdict
L/N to plastic enclosure	Normal operation	264Vac 60Hz	--	0.006mA peak	60	ES1
	Abnormal (Output overload)	264Vac 60Hz	--	0.006mA peak	60	ES1
	Abnormal (Transformer overload)	264Vac 60Hz	--	0.006mA peak	60	ES1
	Single fault: SC/OC (Refer to fault condition on table B.3, B.4, Unit shutdown)	264Vac 60Hz	--	0.006mA peak	60	ES1
	Single fault: SC/OC (Refer to fault condition on table B.3, B.4, fuse open)	264Vac 60Hz	--	0.006mA peak	60	ES1
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 ¹⁾ (W)	Time (S)	PS class
Primary circuits	Normal operation	--	--	--	--	PS3(decla

IEC 62368-1						
Clause	Requirement + Test	Result - Remark				Verdict
supplied by a.c. mains supply	Single fault:	--	--	--	--	red)
USB-C1 Output:20Vdc 3.25A	Normal operation	19.44	3.65	70.93	5	PS2
	Single fault: U4 pin 1-2 SC	0	0	0	3	PS1
	Single fault: U4 pin 3-4 SC	0	0	0	3	PS1
	Single fault: U4 pin 1 OC	0	0	0	3	PS1
	Single fault: U4 pin 4 OC	0	0	0	3	PS1
	Single fault: RS4 SC	0	0	0	3	PS1
USB-A Output:12Vdc 1.5A	Normal operation	11.30	1.8	20.34	5	PS2
	Single fault: U4 pin 1-2 SC	0	0	0	3	PS1
	Single fault: U4 pin 3-4 SC	0	0	0	3	PS1
	Single fault: U4 pin 1 OC	0	0	0	3	PS1
	Single fault: U4 pin 4 OC	0	0	0	3	PS1
	Single fault: RS4 SC	0	0	0	3	PS1
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.						
2) Note: The worst case is considered at the power measurement for worst-case fault.						

6.2.3.1	TABLE: Determination of Arcing PIS				P
Location		Open circuit voltage after 3 s (Vpk)	Measured r.m.s current (A)	Calculated value	Arcing PIS? Yes / No
All primary circuits/components		--	--	--	Yes
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	--	--	Yes	

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Clause	Requirement + Test	Result - Remark	Verdict
circuits/components			(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).....:									—
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).....:		90Vac, 50Hz	264Vac, 50Hz	—
Ambient temperature during test T_{amb} (°C).....:		See below		—
Maximum measured temperature T of part/at:		T (°C)		Allowed T_{max} (°C)
USB-C1 Output rated load:20Vdc, 3.25A				

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Clause	Requirement + Test	Result - Remark	Verdict
Plug holder	47.5	49.0	120
Input wire	69.3	72.6	80
PCB near BD1	112.7	113.9	130
Line choke LF1 winding	99.4	95.0	130
X-capacitor CX2	93.2	92.4	110
E-capacitor EC3	96.5	97.9	105
Line filter L1 winding	111.8	107.5	130
E-capacitor EC2	102.7	97.6	105
Y-capacitor CY1	94.0	97.2	125
Optocoupler U4	97.9	90.3	110
Transformer T1 core	108.9	106.3	130
PCB near T1	117.4	126.7	130
E-capacitor EC7	99.0	98.2	105
Line filter L5 winding	112.2	116.6	130
E-capacitor EC6	102.9	100.9	105
Output wire	35.4	34.4	80
Plastic enclosure inside near T1	106.5	112.7	120
Plastic enclosure outside near T1	69.3	71.4	77*
Ambient	25.0	25.0	--
USB-C1+C2/USB-AOutput rated load :45W+18W			

IEC 62368-1								
Clause		Requirement + Test				Result - Remark		Verdict
Plug holder		47.3				45.6		120
Input wire		69.3				71.1		80
PCB near BD1		106.1				109.8		130
Line choke LF1 winding		93.7				90.8		130
X-capacitor CX2		87.5				88.0		110
E-capacitor EC3		90.1				92.9		105
Line filter L1 winding		104.1				103.4		130
E-capacitor EC2		99.0				100.7		105
Y-capacitor CY1		87.1				92.2		125
Optocoupler U4		95.9				98.8		110
Transformer T1 core		102.3				105.4		130
PCB near T1		110.4				122.1		130
E-capacitor EC7		99.7				98.2		105
Line filter L5 winding		115.4				113.0		130
E-capacitor EC6		100.6				99.2		105
Output wire		34.3				30.4		80
Plastic enclosure inside near T1		101.5				110.0		120
Plastic enclosure outside near T1		62.8				66.4		77*
Ambient		25.0				25.0		--
Temperature T of winding:		t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
--		--	--	--	--	--	--	--
Supplementary information:								
Note 1: The temperatures were measured under the worse case normal mode defined in table B.2.5.								
Note 2: The apparatus was submitted and evaluated for maximum manufacturer's recommended ambient (T _{ma}) of 25.0°C								
Note 3: Except thermal burn, all temperatures above for T(°C) have been retrieved by measurement and have been calculated/adjusted to T _{ma} 25.0°C as follows: T + (T _{ma} – T _{amb}), where T is the maximum temperature measured during test, T _{amb} is the ambient temperature during test and T _{ma} is the maximum ambient temperature by the manufacturer's specification. Winding components: - T1 of class F→ T _{max} = 140°C-10°C (thermocouple)= 130°C								
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.								

B.2.5		TABLE: Input test						P
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
90	50	1.415	--	73.2	--	F1	1.415	USB-C1 Output

IEC 62368-1								
Clause		Requirement + Test				Result - Remark		Verdict
90	60	1.410	--	73.0	--	F1	1.410	load : 20Vdc, 3.25A
100	50	1.231	1.3	72.8	--	F1	1.231	
100	60	1.230	1.3	72.5	--	F1	1.230	
240	50	0.680	1.3	72.7	--	F1	0.680	
240	60	0.678	1.3	72.4	--	F1	0.678	
264	50	0.611	--	73.1	--	F1	0.611	
264	60	0.610	--	72.7	--	F1	0.610	USB-C1+C2/USB-A Output load : 45W+18W
90	50	1.203	--	63.9	--	F1	1.203	
90	60	1.201	--	63.7	--	F1	1.201	
100	50	1.067	1.3	63.6	--	F1	1.067	
100	60	1.062	1.3	63.6	--	F1	1.062	
240	50	0.606	1.3	63.5	--	F1	0.606	
240	60	0.602	1.3	63.5	--	F1	0.602	
264	50	0.544	--	63.9	--	F1	0.544	
264	60	0.542	--	63.9	--	F1	0.542	
Supplementary information:								
The maximum measured current under rated voltage did not exceed 110% of the rated current.								

B.3, B.4		TABLE: Abnormal operating and fault condition tests					P
Ambient temperature T_{amb} (°C).....		See below					—
Power source for EUT: Manufacturer, model/type, output rating....		See below					—
Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation	
USB-C1 20Vdc output	OL	90Vac	5h00min	F1	1.415 → 1.513 → 0.003	Output overload to 3.45A and unit shutdown at 3.46A, Recoverable when fault removed and no hazards observed, all safeguards remained effective during and after abnormal condition. Transformer T1 core: 116.3°C Plastic enclosure outside near T1: 73.4°C Ambient: 25.0°C	
BD1	SC	264Vac	1s	F1	0	Fuse F1 opened immediately, no hazard.	
EC1	SC	264Vac	1s	F1	0	Fuse F1 opened immediately, no hazard.	
M1 pin G-D	SC	264Vac	1s	F1	0	Fuse F1 opened	

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Clause	Requirement + Test			Result - Remark		Verdict
						immediately, no hazard.
M1 pin D-S	SC	264Vac	1s	F1	0	Fuse F1 opened immediately, no hazard.
M1 pin G-S	SC	264Vac	10min	F1	0.011	Unit shut down immediately, no damage, no hazards.
U1 pin 8-3	SC	264Vac	1s	F1	0	Fuse F1 opened immediately. and U1 damaged, no hazard exist.
U1 pin 8-6	SC	264Vac	1s	F1	0	Fuse F1 opened immediately. and U1 damaged, no hazard exist.
RS4	SC	264Vac	10min	F1	0.011	Unit shut down immediately, no damage, no hazards.
U4 pin 1-2	SC	264Vac	10min	F1	0.011	Unit shut down immediately, no damage, no hazards.
U4 pin 3-4	SC	264Vac	10min	F1	0.011	Unit shut down immediately, no damage, no hazards.
U4 pin 1	OC	264Vac	10min	F1	0.011	Unit shut down immediately, no damage, no hazards.
U4 pin 3	OC	264Vac	10min	F1	0.011	Unit shut down immediately, no damage, no hazards.
T1 Pin 3-5	SC	264Vac	10min	F1	0.011	Unit shut down immediately, no damage, no hazards.
T1 Pin 2-1	SC	264Vac	10min	F1	0.011	Unit shut down immediately, no damage, no hazards.
T1 Pin A-B	SC	264Vac	10min	F1	0.011	Unit shut down immediately, no damage, no hazards.
M5	SC	264Vac	10min	F1	0.011	Unit shut down immediately, no damage, no hazards.
EC6	SC	264Vac	10min	F1	0.011	Unit shut down immediately, no damage, no hazards.
Output	SC	264Vac	10min	F1	0.011	Unit shut down immediately, no damage, no hazards.
Supplementary information:						
Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column "Abnormal/Fault." Specify if test condition by indicating "Abnormal" then the condition for a Clause B.3 test or "Single Fault" then the condition for Clause B.4. 1) OL: Overloaded, SC: Short-circuited; OC: Open-circuited. 2) The test result shown all safeguards remained effective and didn't lead to a single fault condition during abnormal operating condition; besides, all safeguards complied with applicable requirements in this standard after restoration of normal operating conditions. 3) The overloaded condition is according to annex G.5.3.3. 4) Maximum permitted temperature are as follows: - Winding wires (providing safety isolation):						

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Clause	Requirement + Test	Result - Remark	Verdict
▪ T1 of Class F, Tmax= 200°C-10=190°C 5) *) Thermal burn, all temperatures above for T(°C) have been retrieved by measurement in accordance with sub-clause 9.2.5. Maximum permitted temperature are under abnormal operating conditions or single fault conditions as follows: - Outside enclosure is TS2 for 87°C *The test had been repeated with all source of fuse as listed in table 4.1.2 and same result obtained.			

M.3	TABLE: Protection circuits for batteries provided within the equipment						N/A
Is it possible to install the battery in a reverse polarity position?.....:						—	
Equipment Specification		Charging					
		Voltage (V)			Current (A)		
		--			--		
Manufacturer/type		Battery specification					
		Non-rechargeable batteries		Rechargeable batteries			
		Discharging current (A)	Unintentional charging current (A)	Charging		Discharging current (A)	Reverse charging current (A)
				Voltage (V)	Current (A)		
--		--	--	--	--	--	--
Note: The tests of M.3.2 are applicable only when above appropriate data is not available.							
Specified battery temperature (°C).....:							
Component No.	Fault condition	Charge/ discharge mode	Test time	Temp. (°C)	Current (A)	Voltage (V)	Observation
--	--	--	--	--	--	--	--
Supplementary information:							
Abbreviation: SC= short circuit; OC= open circuit NL= no chemical leakage; NS= no spillage of liquid; NE= no explosion; NF= no emission of flame or expulsion of molten metal.							

M.4.2	TABLE: Charging safeguards for equipment containing a secondary lithium battery					N/A
Maximum specified charging voltage (V).....					--	—
Maximum specified charging current (A)					--	—
Highest specified charging temperature (°C)					--	--
Lowest specified charging temperature (°C)					--	--
Battery manufacturer/type	Operating and fault condition	Measurement			Observation	
		Charging voltage (V)	Charging current (A)	Temp. (°C)		
--	--	--	--	--	--	
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit; MSCV= maximum specified charging voltage; MSCC= maximum specified charging current; HSCT= highest specified charging temperature; LSCT= lowest						

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Clause	Requirement + Test	Result - Remark	Verdict
specified charging temperature			

Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)						P
Output Circuit	Condition	U _{oc} (V)	Time (s)	I _{sc} (A)		S (VA)	
				Meas.	Limit	Meas.	Limit
USB-C1 Output: 20V dc 3.25A	Normal operation	20.05	5	3.65	8	70.93	100
	Single fault: U4 pin 1-2 SC	0	5	0	8	0	100
	Single fault: U4 pin 3-4 SC	0	5	0	8	0	100
	Single fault: U4 pin 1 OC	0	5	0	8	0	100
	Single fault: U4 pin 4 OC	0	5	0	8	0	100
	Single fault: RS4 SC	0	5	0	8	0	100
USB-A Output: 12V dc 1.5A	Normal operation	12.03	5	1.80	8	20.34	100
	Single fault: U4 pin 1-2 SC	0	5	0	8	0	100
	Single fault: U4 pin 3-4 SC	0	5	0	8	0	100
	Single fault: U4 pin 1 OC	0	5	0	8	0	100
	Single fault: U4 pin 4 OC	0	5	0	8	0	100
	Single fault: RS4 SC	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	
Enclosure top closed to transformer (T.4)	Plastics*	1)	--	100	5	Enclosure remained intact, no crack/opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	

IEC 62368-1						
Clause	Requirement + Test			Result - Remark		Verdict
Enclosure side closed to transformer (T.4)	Plastics*	1)	--	100	5	Enclosure remained intact, no crack/opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.
Enclosure bottom closed to transformer (T.4)	Plastics*	1)	--	100	5	Enclosure remained intact, no crack/opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.
Internal components (T.2)	--	--	--	10	5	No insulation breakdown. No reduction the clearances and creepage distances
Supplementary information:						
*Tests were performed on product with each source listed in table 4.1.2.						
1). See appended 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
Location/Part	Material	Thickness (mm)	Height (mm)	Observation	
Enclosure top	Plastics*	1)	1000	Enclosure remained intact, no crack/opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	
Enclosure side	Plastics*	1)	1000	Enclosure remained intact, no crack/opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	
Enclosure bottom	Plastics*	1)	1000	Enclosure remained intact, no crack/opening developed.	

IEC 62368-1				
Clause	Requirement + Test		Result - Remark	Verdict
				Internal ES3, TS3 were not accessible after test. No insulation breakdown.
Supplementary information:				
*Tests were performed on product with each source listed in table 4.1.2.				
1). See appended table 4.1.2.				

T.8	TABLE: Stress relief test					P
Location/Part	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
Enclosure	Plastics*	1)	123	7	Enclosure remained intact, no crack/opening developed. Internal ES3, TS3 were not accessible after test. No insulation breakdown.	
Supplementary information:						
*Tests were performed on product with each source listed in table 4.1.2.						
1). See appended 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:					
--					

4.1.2	TABLE: List of critical components					P
Object/part No.	ManuFacterer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity1)	
Enclosure/ Plug holder	SABIC JAPAN LLC	945(GG), 945CB, 945RW,945CR	Polycarbonate (PC), V-0, min. 120°C, min. 1.5mm thickness	UL 94, UL 746C	UL E207780 Tested with appliance	
Internal plastic parts	SABIC JAPAN LLC	945(GG), 945CB, 945RW,945CR	Polycarbonate (PC), V-0, min. 120°C, min. 1.5mm thickness	UL 94, UL 746C	UL E207780 Tested with appliance	
Input lead wire	DONGGUAN CITY SHUNCHANG WIRE CO LTD	3239	Min. 300V, min. 80°C, min. 24AWG	UL 758	UL E357814	
(Alternative)	Interchangeable	Interchangeable	Min. 300V, min. 80°C, min. 24AWG	UL 758	UL	
Output wire	Interchangeable	Interchangeable	Min. 300V, min. 80°C, min. 22AWG	UL 758	UL	
Glue	Interchangeable	Interchangeable	Min. V-2	UL 94, UL 746C	UL	
Insulation sheet	CHENGDUKAN GLONGXIN PLASTICS CO LTD	KLX FRPC.1880B-KS	V-0, 125°C, Min 0.4mm thickness	UL 94, UL746	UL E315185	
Insulation Tape (Used on insulation sheet)	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	CT*(b)(g)	130°C	UL 510A	UL E165111	
PCB	WEI KEN ELECTRICAL AND CIRCUIT LTD	7MG	V-0, 130°C, Cemented joint tested per UL 62368-1: Reinforced, DTI ≥0.40mm	UL 94, UL 796	UL E99873	
Fuse (F1)	Shenzhen Lanson Electronics Co. Ltd.	24E	T3.15AL, 250VAC	IEC/EN 60127-1, IEC/EN 60127-7 UL 248-1 UL 248-14	VDE 40053476 UL E221465	
(Alternative)	Dongguan Chevron Electronic Technology Co.,Ltd	SBT(W)	T3.15AL, 250VAC	IEC/EN 60127-1, IEC/EN 60127-7 UL 248-1 UL 248-14	VDE 40049351 UL E358589	

4.1.2	TABLE: List of critical components					P
Object/part No.	ManuFacterer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity1)	
Bridge rectifiers (BD1)	Interchangeable	Interchangeable	Min. 3A, min. 600V	IEC/EN/UL 62368-1	Tested with appliance	
Transistors (M1)	Interchangeable	Interchangeable	Min. 15A, min. 650V	IEC/EN/UL 62368-1	Tested with appliance	
Discharge IC (U1)	Southchip Semiconductor Technology(Sha nghai) Co., LTD	SC3022xxxxx	100-240Vac, 47- 63Hz	IEC/EN 62368-1	CB report No: S20220704598 301	
Electrolyte capacitors (EC1,EC2, EC3)	Interchangeable	Interchangeable	Max 47µF, min. 400V, min. 105°C	IEC/EN/UL 62368-1	Tested with appliance	
Y Capacitor (CY1)	South China Electronic Co.,Ltd.	CY	Max. 1500pF, min. 250V, 125°C, Y1 type	IEC/EN/UL 60384-14	UL E492769 VDE 40053818	
(Alternative)	SUCCESS ELECTRONICS (HUIZHOU) CO LTD	SCS	Max. 1500pF, min. 250V, 125°C, Y1 type	IEC/EN/UL 60384-14	UL E530176 ENEC-04257	
(Alternative)	JYH HSU (JEC) ELECTRONICS LTD	JD	Max. 1500pF, min. 250V, 125°C, Y1 type	IEC/EN/UL 60384-14	UL E356696 VDE 40038642	
(Alternative)	Huizhou Jingqin Electronic Components Co Ltd	SMD(UL), SMD series(ENEC)	Max. 1500pF, min. 250V, 125°C, Y1 type	IEC/EN/UL 60384-14	UL E529031 ENEC-04145- M1	
(Alternative)	JYH HSU (JEC) ELECTRONICS LTD	JS Series(ENEC); JS B, JS E, JS F(UL)	Max. 1500pF, min. 250V, 125°C, Y1 type	IEC/EN/UL 60384-14	ENEC-05030 UL E356696	
X-Capacitor (CX2)	GUANGDONG SURONG CAPACITORS CO LTD	MPX/MKP	Max.0.1µF±20%, Min.250VAC, 110°C, X2 type	IEC/EN/UL 60384-14	VDE 40008924 UL E314875	
(Alternative)	HONGZHI ENTERPRISES LTD	MPX	Max.0.1µF±20%, Min.250VAC, 110°C, X2 type	IEC/EN/UL 60384-14	VDE 40023936 UL E192572	
(Alternative)	TENTA ELECTRIC INDUSTRIAL CO LTD	MEX	Max.0.1µF±20%, Min.250VAC, 110°C, X2 type	IEC/EN/UL 60384-14	VDE 119119 UL E222911	
(Alternative)	HSUAN TAI ELECTRONICS CO LTD	MCY Series(UL) MCY(VDE)	Max.0.1µF±20%, Min.250VAC, 110°C, X2 type	IEC/EN/UL 60384-14	VDE 125205 UL E199069	
(Alternative)	LIOW GU ELECTRONICS INDUSTRY CO	GS-L	Max.0.1µF±20%, Min.250VAC,	IEC/EN/UL 60384-14	VDE 40023391 UL E186321	

4.1.2	TABLE: List of critical components					P
Object/part No.	ManuFacterer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity1)	
	LTD		110°C, X2 type			
(Alternative)	ACEWIN ELECTRIC INDUSTRIAL CO LTD	MEX	Max.0.1μF±20%, Min.250VAC, 110°C, X2 type	IEC/EN/UL 60384-14	VDE 40008614 UL E309172	
(Alternative)	Dongguan QinHong (QNR) Electronic Technology Co LTD	MPX	Max.0.1μF±20%, Min.250VAC, 110°C, X2 type	IEC/EN/UL 60384-14	UL E488626 VDE 40047280	
(Alternative)	Shantou Xinyin Electronics Technology Co Ltd	MPX	Max.0.1μF±20%, Min.250VAC, 110°C, X2 type	IEC/EN/UL 60384-14	UL E470852 VDE 40040448	
(Alternative)	Dongguan Chengxi Electronics Co Ltd	MPX	Max.0.1μF±20%, Min.250VAC, 110°C, X2 type	IEC/EN/UL 60384-14	UL E499953 VDE 40048056	
Bleeder resistor (RD7, RD6)	Interchangeable	Interchangeable	Each Max. 2M ohm, min. 1/2W.	IEC/EN/UL 62368-1	Test with appliance	
Resistor (RS5, RS4, RS6)	Interchangeable	Interchangeable	0.7ohm, 1/4W	IEC/EN/UL 62368-1	Test with appliance	
Optical isolator (U4)	BRIGHT LED ELECTRONICS CORP	BPC10xx(VDE), BPC-10XX#(UL)	Reinforce insulation Cr.&Cl.=min. 8.0mm, Dti.=min. 0.4mm Min. 110 °C	IEC/EN 60747- 5-5, UL1557	VDE 40007240 UL E236324	
(Alternative)	COSMO ELECTRONICS CORP	K1010	Reinforce insulation Cr.&Cl.=min. 8.0mm, Dti.=min. 0.4mm Min. 110 °C	IEC/EN 60747- 5-5, UL1557	VDE 101347 UL E169586	
(Alternative)	SHENZHEN ORIENT COMPONENTS CO LTD	ORPC817x for UL ORPC817 x for VDE	Reinforce insulation Cr.&Cl.=min. 8.0mm, Dti.=min. 0.4mm Min. 110 °C	IEC/EN 60747- 5-5, UL1557	VDE 40029733 UL E323844	
(Alternative)	EVERLIGHT ELECTRONICS CO LTD	EL10XX for UL EL101(0;1;2;3;4; 5; 6;7;8;9)V for VDE	Reinforce insulation Cr.&Cl.=min. 8.0mm, Dti.=min. 0.4mm Min. 110 °C	IEC/EN 60747- 5-5, UL1557	VDE 40028391 UL E214129	
(Alternative)	Miracle Technology Co.,	MPC1110(UL) MPC111(0-9)(Z)-	Reinforce insulation	IEC/EN 60747- 5-5,	VDE 40050452 UL E508917	

4.1.2	TABLE: List of critical components					P
Object/part No.	ManuFacterer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity1)	
	Ltd.	GV(B)(VDE)	Cr.&Cl.=min. 8.0mm, Dti.=min. 0.4mm Min. 110 °C	UL1557		
Line choke (LF1)	Qidong Xian Kai Si ELECTRONIC TECHNOLOGY CO.,LTD	T6*3*3-300uH	130°C	IEC/EN/UL 62368-1	Test with appliance	
- Magnet wire	WUZHOU TOREAL COPPER CO LTD	xUEW/155, QA-x/155	155°C	UL 1446	UL E348247	
-(Alternative)	Interchangeable	Interchangeable	Min. 130°C	UL 1446	UL	
- Triple insulated wire	SHENZHEN DARUN SCIENCE AND TECHNOLOGY CO LTD	DRTIW-B130	Class B, reinforce insulation	IEC/EN 62368-1 UL 2353	UL E518779	
Line filter (L1)	Qidong Xian Kai Si ELECTRONIC TECHNOLOGY CO.,LTD	33uH	33μH±15%, min. 130°C	IEC/EN/UL 62368-1	Tested with appliance	
- Magnet wire of L1	DONG GUAN YIDA INDUSTRIAL CO LTD	xUEW/155, QA- x/155	155°C	UL 1446	UL E344055	
-(Alternative)	Interchangeable	Interchangeable	Min. 130°C	UL 1446	UL	
Transformer (T1)	Dongguan Rongjun Innovation Technology Co., LTD	ZRYCC	Class F	IEC/EN/UL 62368-1	Test with appliance	
-Glue (Epoxy)	DONG GUAN SHI PAI HUA CHUANG MATERIAL FTY	H907-HF-Z	V-0, 130°C	UL 94, UL 746B	UL E304477	

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IEC62368_1E ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT IEC 62368-1 U.S.A. AND CANADA NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment – Part 1: Safety requirements)			
Differences according to: CSA/UL 62368-1:2019			
TRF template used: IECEE OD-2020-F3, Ed. 1.1			
Attachment Form No: US_CA_ND_IEC62368_1E			
Attachment Originator: UL(US)			
Master Attachment: Dated 2022-03-04			
Copyright © 2022 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.			
IEC 62368-1 - US and Canadian National Differences Special National Conditions based on Regulations and Other National Differences			
1 (1DV.1) (1.3)	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part 1, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, for such equipment marked or otherwise identified, installation is allowed per the Standard for the Protection of Information Technology Equipment, ANSI/NFPA 75.	In accordance with the National Electrical Code (NEC) and the Canadian Electrical Code (CEC) part 1 CAN/CSA C22.1, ANSI/NFPA 70, and unless marked or otherwise identified, the Standard for Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.	P
1 (1DV.2.1)	This standard includes additional requirements for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities. See Annex DVB.		N/A
1 (1DV.2.2)	This standard includes additional requirements for equipment intended for mounting under cabinets. See Annex DVC.		N/A
1 (1DV.2.3)	IEC 62368-3 clause 5 for DC power transfer at ES1 or ES2 voltage levels is considered informative. IEC 62368-3 clause 6 for remote power feeding telecommunication (RFT) circuits is considered normative (see ITU K.50). Alternatively, equipment with RFT circuits are given in either UL 2391 or CSA/UL 60950-21. RFT-C circuits are not permitted unless the RFT-C circuit complies with RFT-V limits ($\leq 200V$ per conductor to earth).		N/A

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IEC62368_1E ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
1 (1DV.3)	For protection against direct lightning strikes, reference is made to NFPA 780 and CAN/CSA-B72 for additional requirements.		N/A
1 (DV.5)	Additional requirements apply to some forms of power distribution equipment, including sub-assemblies.		N/A
4.1 (4.1.17)	For lengths exceeding 3.05 m, external interconnecting cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the NEC.		N/A
	For lengths 3.05 m or less, external interconnecting cable assemblies that are not types specified in the NEC generally are required to have special construction features and identification markings.		N/A
4.6 (4.6.2)	Wire-wrap terminals have special construction and performance requirements.		N/A
4.8 (4.8.3, 4.8.4.5, 4.8.5)	Coin / button cell batteries have modified special construction and performance requirements.		N/A
5.4.2.3.2 (5.4.2.3.2.1)	Surge Arrestors and Transient Voltage Surge Suppressors installed external to the equipment are required to comply with the appropriate NEC and CEC requirements.		N/A
5.5.9	Receptacles, rated 125-V, single phase, 15- or 20-A accessible to either ordinary, instructed, or skilled persons are required to be provided with GFCI Protection for Personnel if the equipment containing the receptacles is installed outdoors. The protection devices are required to comply with UL 943, and CAN/CSA C22.2 No.144.		N/A
5.6.3	Protective earthing conductors comply with the minimum conductor sizes in Table G.7, except as required by Table G.7ADV.1 for cord connected equipment, or Annex DVH for permanently connected equipment.		N/A
5.7.8 (5.7.8.1)	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.		N/A
6.5.1	PS3 wiring outside a fire enclosure is required to comply with single fault testing in B.4, or be current limited per one of the permitted methods.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Annex F (F.3.3.9)	Output terminals provided for supply of other equipment, except mains supply, are required to be marked with a maximum rating or reference to equipment permitted to be connected.		N/A
Annex F (F.3.7)	Outdoor Enclosures are required to be classified and marked in accordance with UL 50 or 50E, or CAN/CSA C22.2 No. 94.1 or 94.2.		N/A
Annex G (G.7)	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.		N/A
	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.		N/A
	Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.		N/A
	Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Power supply cords are required to be no longer than 4.5 m in length if used in ITE Rooms.		N/A
	Power supply cords for outdoor equipment are required to be suitable outdoor use type as required by Section 400.4 of the NEC and Rule 4-012 of the CEC, i.e., marked "W."		N/A
Annex H.2	Continuous ringing signals under normal operating conditions up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.		N/A
Annex H.4	For circuits with other than ringing signals and with voltages exceeding 42.4 V _{peak} or 60 V _{d.c.} , the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.		N/A
Annex Q (Q.3)	Equipment with paired conductor and/or coax communications cables/wiring connected to building wiring are required to have special voltage, current, power and marking requirements.		N/A

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IEC62368_1E ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (1)	Equipment that is designed such that it may be powered from a separate electrical service, is required to meet applicable requirements for service equipment for control and protection of services and their installation and complies with Article 230 of the National Electrical Code (NEC), NFPA 70 and Section 6 of the Canadian Electrical Code, Part I, CSA C22.1.		N/A
	Equipment intended for use in spaces used for environmental air (plenums) are subjected to special flammability requirements for heat and visible smoke release.		N/A
	For ITE room applications, automated information storage systems with combustible media greater than 0.76 m ³ (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N/A
	Consumer products designed or intended primarily for children 12 years of age or younger are subject to additional requirements in accordance with U.S. and Canadian Regulations.		N/A
	Baby monitors are required to additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.		N/A
	Storage batteries and battery management equipment, other than associated with lead-acid batteries, and including battery backup systems that are not an integral part of stationary AV and ICT equipment, such as provided in separate cabinets, are required to be certified (listed) to the appropriate standard(s) for such storage batteries and equipment.		N/A
Annex DVA (5.6)	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.		N/A
Annex DVA (6.3)	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (6.4.8)	For ITE room applications, enclosures with combustible material measuring greater than 0.9 m ² (10 sq ft) or a single dimension greater than 1.8 m (6 ft) are required to have a flame spread rating of 50 or less. For equipment with the same dimensions for other applications, an external surface that is not a fire enclosure requires a minimum flammability classification of V-1.		N/A
Annex DVA (10.3)	Equipment with lasers is required to meet the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
Annex DVA (10.5)	Equipment that produces ionizing radiation is required to comply with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
Annex DVA (F.3.3.4)	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. Additional considerations apply for voltage ratings that exceed the attachment cap rating or that are lower than the "Normal Operating Condition" in Table 2 of CAN/CSA C22.2 No. 235."		N/A
Annex DVA (F.3.3.6)	Equipment identified for ITE (computer) room installation is required to be marked with the rated current.		N/A
Annex DVA (G.1)	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position, where mounted in an enclosure, vertically mounted disconnect switches and circuit breakers with vertical operating means extending outside the enclosure are required to indicate in a location visible when accessing the external operating means whether the switch or circuit breaker is in the open (off) or closed (on) position.		N/A
Annex DVA (G.3.4)	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable.		N/A
	Where a fuse is used to provide Class 2 or Class 3 current limiting, it is not operator-accessible unless it is non- interchangeable.		N/A

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IEC62368_1E ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVA (G.4.2)	Equipment with isolated ground (earthing) receptacles is required to comply with NEC 250.146(D) and CEC 10-400 and 10-612.		N/A
Annex DVA (G.4.3)	Interconnection of units by conductors supplied by a limited power source, or a Class 2 circuit defined in the NEC/CEC may have field wiring connections other than specified in DVH.3, such as wire-wrap and crimp-on types, if the limited power source and Class 2 circuits are separated from all other circuits by barriers, routing or fixing.		N/A
Annex DVA (G.5.3)	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.		N/A
Annex DVA (G.5.4)	Motor control devices are required for cord-connected equipment with a mains-connected motor if the equipment is rated more than 12 A, or if the equipment has a nominal voltage rating greater than 120 V, or if the motor is rated more than 1/3 hp (locked rotor current over 43 A).		N/A
Annex DVA (G.7)	Flexible cords used outdoors are required to have the suffix "W" marked on the flexible cord.		N/A
Annex DVA (M)	For ITE room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the ITE room remote power-off circuit.		N/A
Annex DVA (Q)	If applicable per NEC 725.121(C), some limited power sources supplied from AV/ICT equipment are required to have a label indicating the maximum voltage and rated current output for per conductor for each connection point. Where multiple connection points have the same rating, a single label is permitted to be used.		N/A
	Wiring terminals intended to supply Class 2 outputs in accordance with the NEC or CEC Part 1 are required to be marked with the voltage rating and "Class 2" or equivalent. The marking is located adjacent to the terminals and visible during wiring.		N/A
	Applicable parts of Chapter 8 of the NEC, and Rules 54 and 60 of the CEC, may be applicable to ITE installed outdoors with connections to communication systems.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Annex DVB (1)	Additional requirements apply for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities.		N/A
Annex DVC (1)	Additional requirements apply for equipment intended for mounting under kitchen cabinets.		N/A
Annex DVE (4.1.1)	Some equipment, components, sub-assemblies and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. These equipment and components include: appliance couplers, attachment plugs, battery backup systems, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultracapacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), ground-fault current interrupters, interconnecting cables, modular data centres, power supply cords, some power distribution equipment, printed wiring, protectors for communications circuits, receptacles, surge protective devices, vehicle battery adapters, wire connectors, and wire and cables.		P
Annex DVH	Equipment for permanent connection to the mains supply is subjected to additional requirements.		N/A
Annex DVH (DVH.1)	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains are required to be in accordance with the NEC/CEC.		N/A
Annex DVH (DVH.2.1)	For safe and reliable connection to a mains, permanently connected equipment is to be provided.		N/A
Annex DVH (DVH.2.2)	Additional considerations for D.C. mains.		N/A
Annex DVH (DVH.3.2.1)	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified.		N/A
Annex DVH (DVH.3.2.3)	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm ²).		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
Annex DVH (DVH.3.2.4)	All associated mains supply terminals are located in proximity to each other and to the main protective earthing terminal, if any.		N/A
Annex DVH (DVH.3.2.5)	Terminals are located, guarded or insulated so that, should a strand of a conductor escape when the conductor is fitted, there is no likelihood of accidental contact between such a strand and accessible conductive parts or unearthed conductive parts separated from accessible conductive parts by supplementary insulation only.		N/A
Annex DVH (DVH.3.3)	When field connection to an external circuit is via wires (example, free conductors), the wires are not smaller than 18 AWG (0.82 mm ²) and the free length of the wire inside an outlet box or wiring compartment is 150 mm or more.		N/A
Annex DVH (DVH.3.4)	Size of protective earthing conductors and terminals	(See sub-clause 5.6.5)	N/A
Annex DVH (DVH.4)	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.		N/A
Annex DVH (DVH.4.1)	Wire bending space		N/A
Annex DVH (DVH.4.2)	Volume of wiring compartment		N/A
Annex DVH (DVH.4.3)	Separation of circuits		N/A
Annex DVH (DVH.5)	Equipment markings and instructional safeguards		N/A
Annex DVH (DVH.5.1)	Identification of protective earthing terminal		N/A
Annex DVH (DVH.5.2)	Identification of terminal for earthed conductor (neutral)		N/A
Annex DVH (DVH.5.3)	Identification of terminals for aluminium conductors		N/A
Annex DVH (DVH.5.4)	Wire temperature ratings		N/A
Annex DVH (DVH.5.5)	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation instruction requirements.		N/A
Annex DVI (6.7)	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses.		N/A

ATTACHMENT 1

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IEC62368_1E ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
Annex DVJ (10.6.1)	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.		N/A

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Product: Smart Charger

Type Designation: RC502, ZC502, ZC502CX, RC502CX, ZC502, ZC502-65W, ZC502-45W, ES-CD60, ES-CD47, PD6123, PD6124



Photo 1



Photo 2

Report No.:PTC25080614403S-UL01

Product: Smart Charger

Type Designation: RC502, ZC502, ZC502CX, RC502CX, ZC502, ZC502-65W, ZC502-45W, ES-CD60, ES-CD47, PD6123, PD6124



Photo 3



Photo 4

Product: Smart Charger

Type Designation: RC502, ZC502, ZC502CX, RC502CX, ZC502, ZC502-65W, ZC502-45W, ES-CD60, ES-CD47, PD6123, PD6124



Photo 5

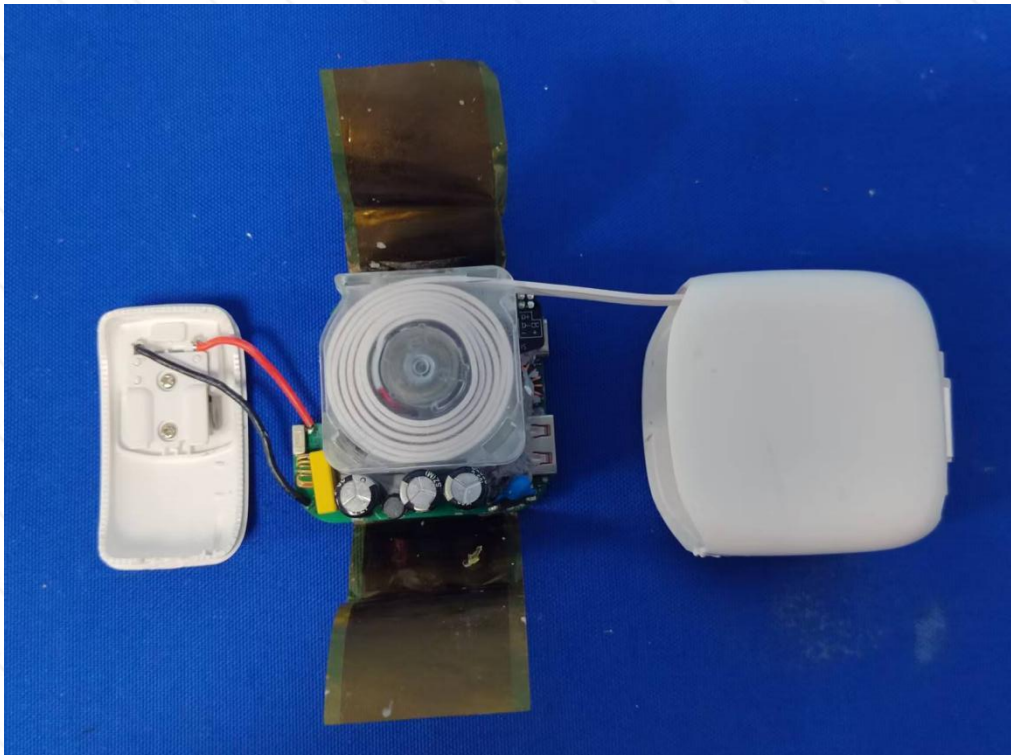


Photo 6

Report No.:PTC25080614403S-UL01

Product: Smart Charger

Type Designation: RC502, ZC502, ZC502CX, RC502CX, ZC502, ZC502-65W, ZC502-45W, ES-CD60, ES-CD47, PD6123, PD6124

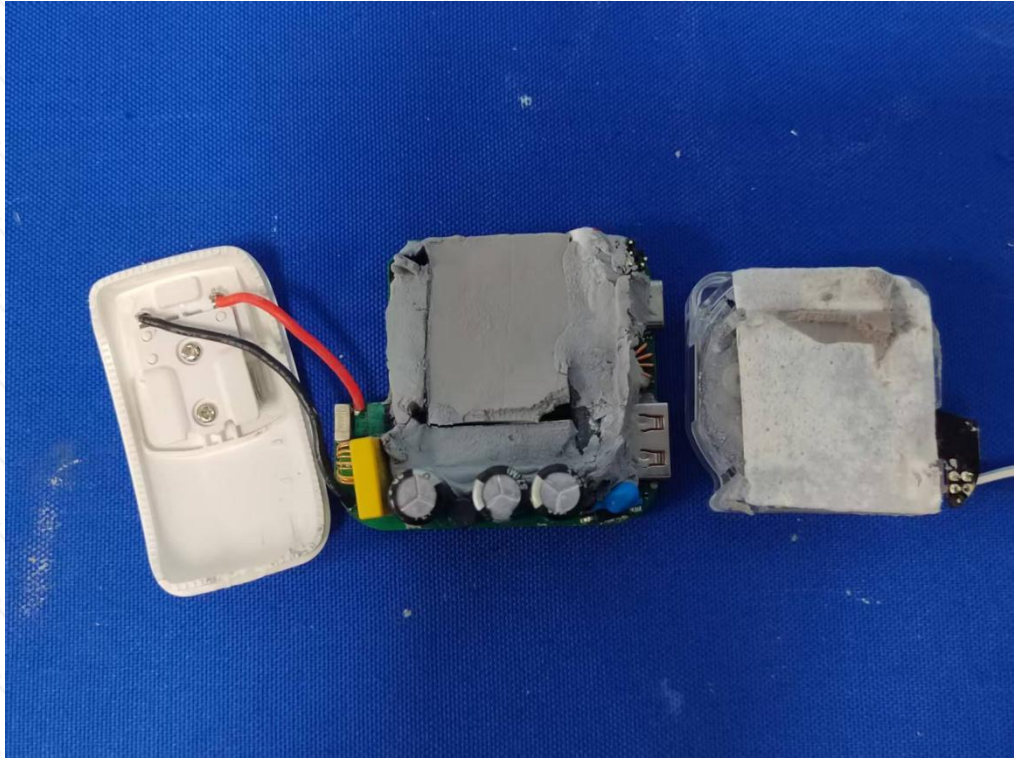


Photo 7



Photo 8

Product: Smart Charger

Type Designation: RC502, ZC502, ZC502CX, RC502CX, ZC502, ZC502-65W, ZC502-45W, ES-CD60, ES-CD47, PD6123, PD6124

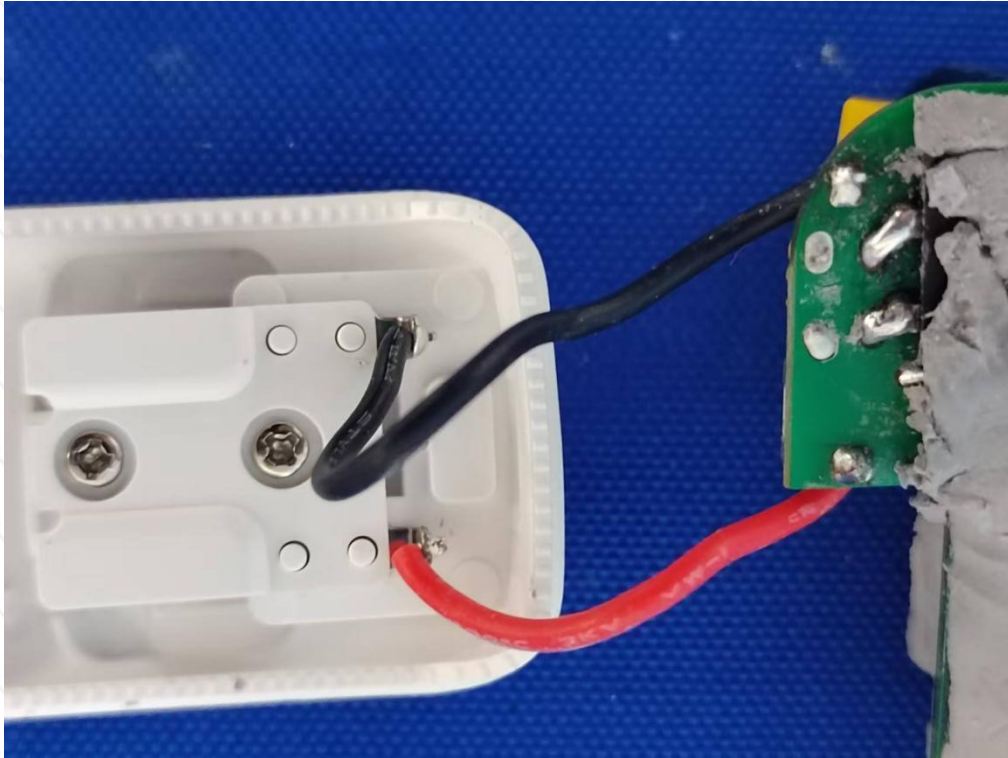


Photo 9

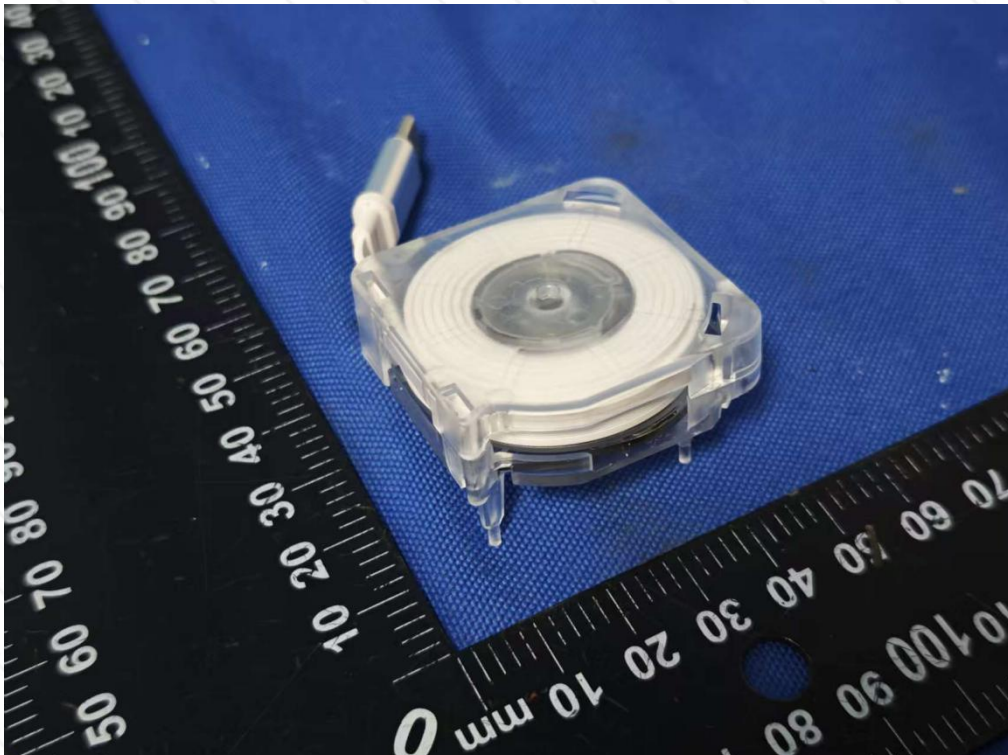


Photo 10

Report No.:PTC25080614403S-UL01

Product: Smart Charger

Type Designation: RC502, ZC502, ZC502CX, RC502CX, ZC502, ZC502-65W, ZC502-45W, ES-CD60, ES-CD47, PD6123, PD6124

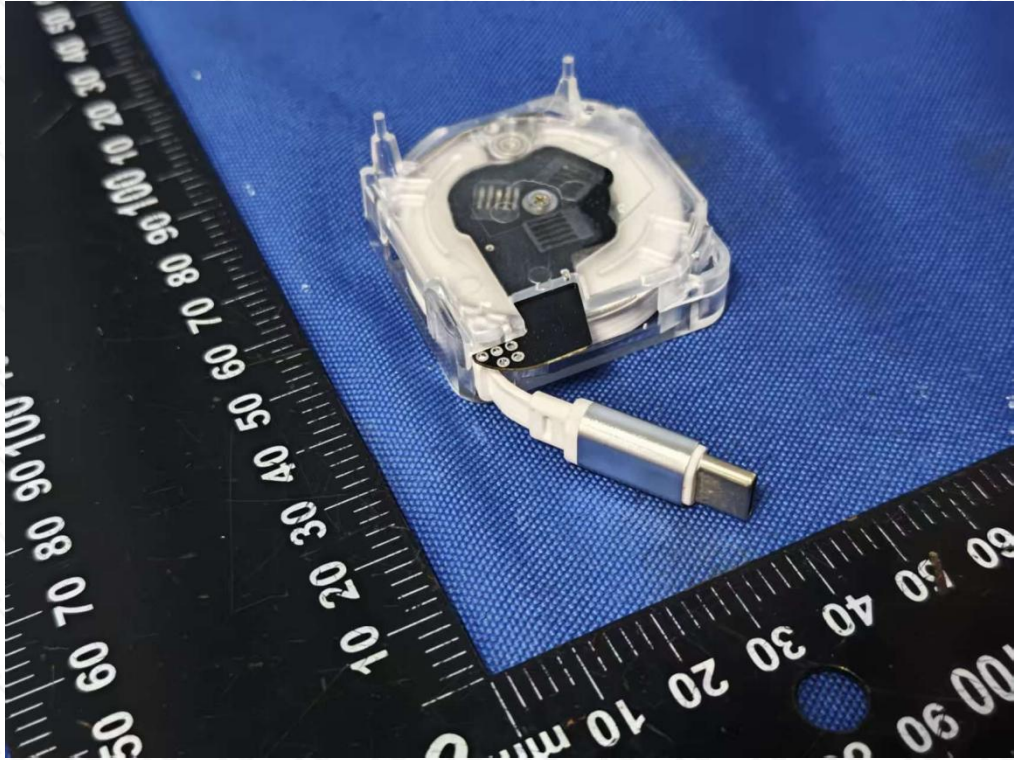


Photo 11

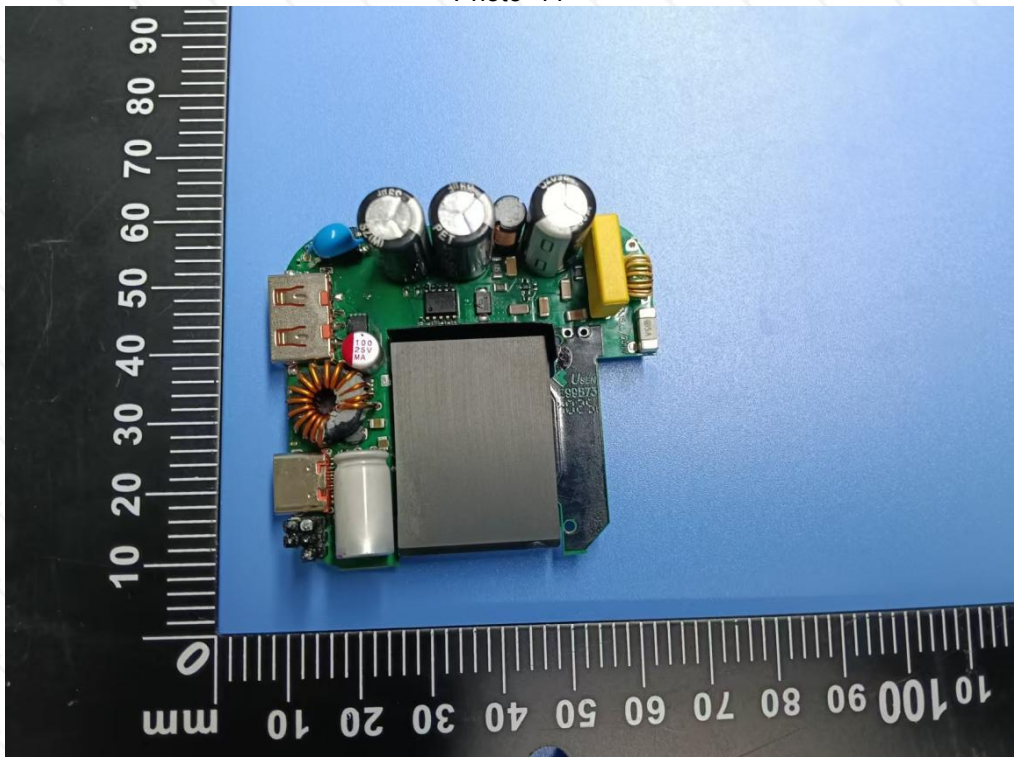


Photo 12

Report No.:PTC25080614403S-UL01

Product: Smart Charger

Type Designation: RC502, ZC502, ZC502CX, RC502CX, ZC502, ZC502-65W, ZC502-45W, ES-CD60, ES-CD47, PD6123, PD6124

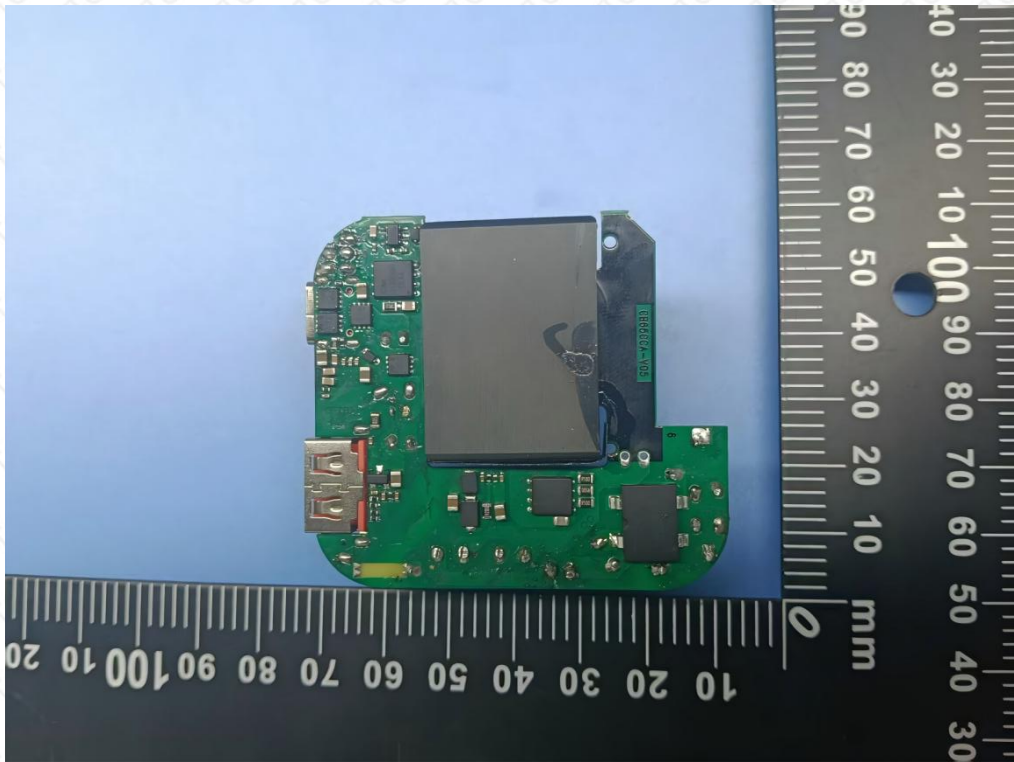


Photo 13

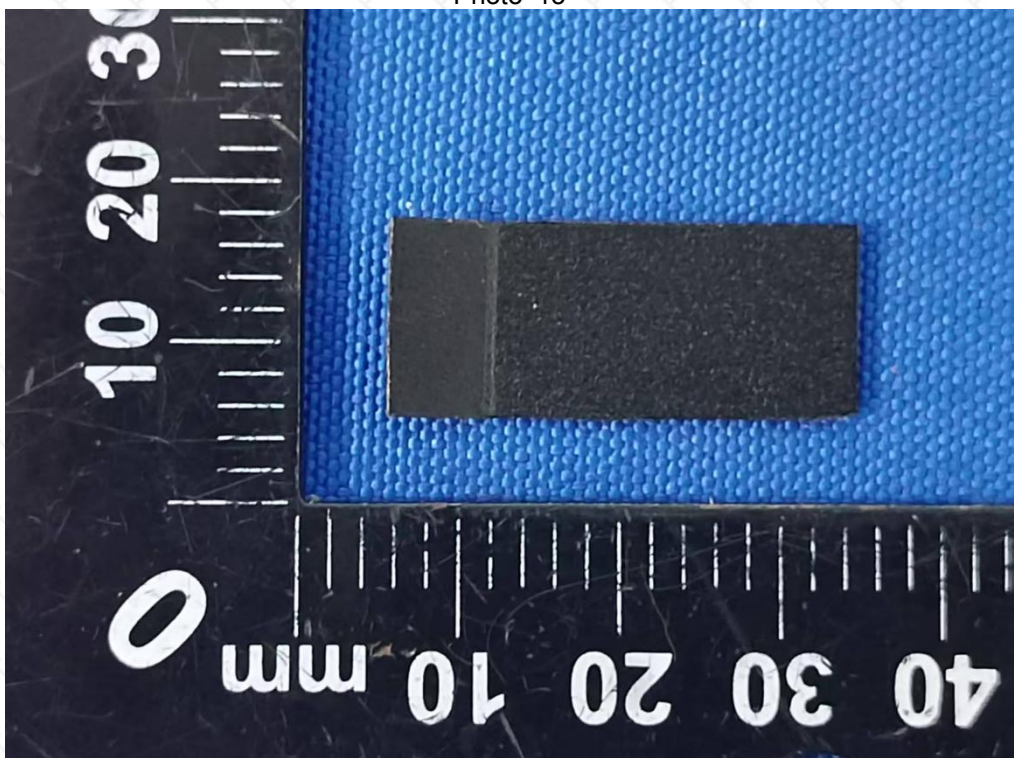


Photo 14

Report No.:PTC25080614403S-UL01

Product: Smart Charger

Type Designation: RC502, ZC502, ZC502CX, RC502CX, ZC502, ZC502-65W, ZC502-45W, ES-CD60, ES-CD47, PD6123, PD6124

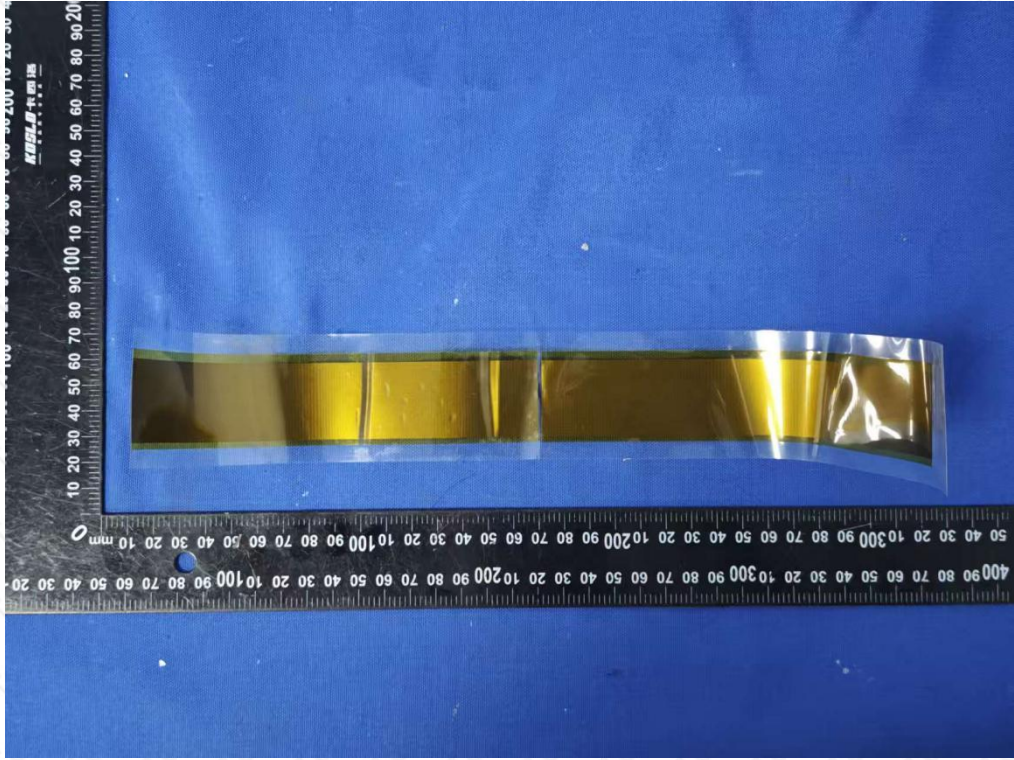


Photo 15