

SAFETY TEST REPORT

For

Shenzhen Anthy Electronics Co., Ltd.

**401, Building E, Longtianli Industrial Park, No.11 Zhangyi Road,
Zhang Ge Community, Fucheng subdistrict, Longhua District,
518110, Shenzhen, PEOPLE'S REPUBLIC OF CHINA**

This Report Concerns: <input checked="" type="checkbox"/> Original Report	
Product Type:	Power adapter
Model No.:	See below "General product information" on page 4 to 5
Test Standard:	IEC 62368-1:2018
Report Number:	ATJC24032080003400S
Test Date:	Mar. 20 – Mar. 26, 2024
Issue Date:	April 23, 2024
Test category:	Consignment test
Prepared By:	Shenzhen An-Teng Testing Service Co., Ltd. Floor 5, No. 11, Hebei Industrial Zone, Hualian Community, Longhua Street, Longhua District, Shenzhen, China.

Note:

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TEST REPORT IEC 62368-1 Audio/video, information and communication technology equipment — Part 1: Safety requirements	
Report reference No.....	: ATJC24032080003400S
Date of issue.....	: April 23, 2024
Testing laboratory	
Name.....	: Shenzhen An-Teng Testing Service Co., Ltd.
Address.....	: Floor 5, No. 11, Hebei Industrial Zone, Hualian Community, Longhua Street, Longhua District, Shenzhen, China
Test location	: (Same as above)
Applicant	
Name.....	: Shenzhen Anthy Electronics Co., Ltd.
Address.....	: 401, Building E, Longtianli Industrial Park, No.11 Zhangyi Road, Zhang Ge Community, Fucheng subdistrict, Longhua District, 518110, Shenzhen, PEOPLE'S REPUBLIC OF CHINA
Test specification	
Standard.....	: IEC 62368-1:2018
Test procedure.....	: Safety report
Procedure deviation.....	: N/A.
Non-standard test method..	: N/A.
Test Report Form No..... : IEC62368_1B	
TRF originator	: UL(US)
Master TRF	: 2014-03
Test item	
Description	: Power adapter
Model No.	: See below "General product information" on page 4 to 5
Brand name	: N/A
Manufacturer.....	: Sichuan Anthy Electronics Co., Ltd.
Address.....	: 4/F, Building 3, Intellective Manufacturing Garden (First-stage), South of Qihe Road, Economic Development Area, 635000 Dazhou, Sichuan, PEOPLE'S REPUBLIC OF CHINA
Rating(s).....	: Input: 200-240V~, 50/60Hz, 2A Max, Class II For output details See below "General product information"

Test item particulars

Classification of use by	<input checked="" type="checkbox"/> Ordinary person <input type="checkbox"/> Instructed person <input type="checkbox"/> Skilled person <input type="checkbox"/> Children likely to be present
Supply Connection.....	<input checked="" type="checkbox"/> AC Mains <input type="checkbox"/> DC Mains <input type="checkbox"/> External Circuit - not Mains connected - <input type="checkbox"/> ES1 <input type="checkbox"/> ES2 <input type="checkbox"/> ES3
Supply % Tolerance	<input checked="" type="checkbox"/> +10%/-10% <input type="checkbox"/> +20%/-15% <input type="checkbox"/> +____%/ -____% <input type="checkbox"/> None
Supply Connection – Type	<input checked="" type="checkbox"/> pluggable equipment type A - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input checked="" type="checkbox"/> direct plug-in <input type="checkbox"/> mating connector <input type="checkbox"/> pluggable equipment type B - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> permanent connection <input type="checkbox"/> mating connector <input type="checkbox"/> other:_____
Considered current rating of protective device as part of building or equipment installation	_10_ A; Installation location: <input checked="" type="checkbox"/> building; <input type="checkbox"/> equipment <input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable
Equipment mobility.....	<input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input checked="" type="checkbox"/> direct plug-in <input type="checkbox"/> rack-mounting <input type="checkbox"/> wall-mounted
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other: _____
Class of equipment	<input type="checkbox"/> Class I <input checked="" type="checkbox"/> Class II <input type="checkbox"/> Class III
Access location	<input type="checkbox"/> restricted access location <input checked="" type="checkbox"/> N/A
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
Manufacturer's specified maxium operating ambient .:	<u>25</u> °C
IP protection class	<input checked="" type="checkbox"/> IPX0 <input type="checkbox"/> IP ____
Power Systems	<input checked="" type="checkbox"/> TN <input type="checkbox"/> TT <input type="checkbox"/> IT - ____ V L-L
Altitude during operation (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> ____ m
Altitude of test laboratory (m)	<input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> ____ m
Mass of equipment (kg)	<input checked="" type="checkbox"/> <u>0.15</u> kg

Possible test case verdicts:

- test case does not apply to the test object.....: N/A (Not applicable)
- test object does meet the requirement: Pass (P)
- test object does not meet the requirement: Fail (F)

Testing:

Date of receipt of test items.....: Mar. 20, 2023

Date(s) of performance of tests.....: Mar. 20 - Mar. 26, 2024

Laboratory sample number.....: 20240320-1#

Sample appearance and function are in normal condition, yes or no.....: Yes

Ambient temperature.....: 24.5-26.0°C

Ambient humidity.....: 60-65%

General remarks:

The test results presented in this report relate only to the object tested.

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Laboratory An-Teng. The authenticity of this Test Report and its contents can be verified by contacting An-Teng, responsible for this Test Report.

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

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

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

General product information:

- The equipment is "Power adapter" powered by AC source and for indoor used only.
- Instructions and equipment marking related to safety is applied in the language that is acceptable in the country in which the equipment is to be sold.
- The product was submitted and tested for use at the ambient temperature (Tma) of 25 °C.
- Same series models have the same circuit diagram, layout, transformer and construction, except the specification of secondary components are different.
- Each models has two different color of enclosure: white and black, two types of plug: EU plug and BS plug.
- The socket-outlet shall be installed near the equipment and shall be easily accessible.
- The product must be followed by a product with a fire enclosure conforming to EN/IEC 62368-1.

Model list:

Model name	Input voltage	Output voltage	Output current	Output power
RXMCT-85W	200-240V~, 50/60Hz, 2A Max	20V	4.25A	85W
RXMCL-85W		18.5V	4.6A	85W
AF185460		18.5V	4.6A	85W
AF200425		20V	4.25A	85W
AFUA09		15V-20V	MAX 5A	90W
AE85		20V	4.25A	85W
AE85-B		18.5V	4.6A	85W
AE67-B		20V	3.35A	67W
AE65-B		20V	3.25A	65W
AE61-B		20V	3.05A	61W
AE60		16.5V	3.65A	60W
AE45-B		14.85V	3.05A	45W
AE45-B1		14.5V	3.1A	45W
A85-B		18.5V	4.6A	85W
A85		20V	4.25A	85W
A67		20V	3.35A	67W
A65		20V	3.25A	65W
A61		20V	3.05A	61W
A60		16.5V	3.65A	60W
A45		14.85V	3.05A	45W
A45-B		14.5V	3.1A	45W
AE100-B		5V-20V	MAX 5A	100W
AE96-B		5V-20V	MAX 4.8A	96W
AE90-B		5V-20V	MAX 4.5A	90W
AE87-B		5V-20V	MAX 4.35A	87W
AE67-B		5V-20V	MAX 3.35A	67W

Shenzhen An-Teng Testing Service Co., Ltd.

Floor 5, No. 11, Hebei Industrial Zone, Hualian Community, Longhua Street, Longhua District, Shenzhen, China
Tel: 86-755-27724522 Fax: 86-755-27724533 Web: www.antenglabs.com

AE65-B		5V-20V	MAX 3.25A	65W
AE61-B		5V-20V	MAX 3.05A	61W
AE45-B		5V-20V	2.25A	45W
AF100-B		5V-20V	MAX 5A	100W
AF96-B		5V-20V	MAX 4.8A	96W
AF90-B		5V-20V	MAX 4.5A	90W
AF87-B		5V-20V	MAX 4.35A	87W
AF67-B		5V-20V	MAX 3.35A	67W
AF65-B		5V-20V	MAX 3.25A	65W
AF61-B		5V-20V	MAX 3.05A	61W
AF45-B		5V-20V	2.25A	45W
AFxxxxyy		5V-20V	0.00A-5.00A	100W Max
AFxxxxyy: "xxx" represent output voltage, can be 500 to 200, 500 means 5.00V, etc.; "yyy" represent output current, can be 001 to 500, 0.01 means 0.01A, etc.				

Copy of marking plate:

RIXUS®

AC Adapter

MODEL: RXMCL-85W

MADE IN CHINA

INPUT: 200-240V~ 50/60Hz 2A

OUTPUT: 18.5V= 4.6A

POWER:85W

DC: L PIN

Manufactured by: Shenzhen Anthy Electronics Co., Ltd.
401, Building E, Longtianli Industrial Park, No.11 Zhangyi Road, Zhang Ge
Community, Fucheng subdistrict, Longhua District, 518110, Shenzhen,
PEOPLE'S REPUBLIC OF CHINA.



RIXUS®

AC Adapter

MODEL: RXMCT-85W

MADE IN CHINA

INPUT: 200-240V~ 50/60Hz 2A

OUTPUT: 20V= 4.25A

POWER:85W

DC: T PIN

Manufactured by: Shenzhen Anthy Electronics Co., Ltd.
401, Building E, Longtianli Industrial Park, No.11 Zhangyi Road, Zhang Ge
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AC ADAPTER / 交換式電源供應器

MODEL (型號): AE100-B

INPUT (輸入): 200-240V ~ 50-60Hz 2A

OUTPUT (輸出): 5.0V=3.0A 15.0W or 9.0V=3.0A 27.0W or 12.0V=3.0A 36.0W
or 15.0V=3.0A 45.0W or 20.0V=5.0A 100.0W

Manufactured by: Shenzhen Anthy Electronics Co., Ltd.
401, Building E, Longtianli Industrial Park, No.11 Zhangyi Road, Zhang Ge
Community, Fucheng subdistrict, Longhua District, 518110, Shenzhen,
PEOPLE'S REPUBLIC OF CHINA.

製造地: 中国 MADE IN CHINA



REPLACEMENT AC ADAPTER/ 交換式電源供應器
MODEL (型號): A85
INPUT (輸入): 200-240V ~ 50-60Hz 2A
OUTPUT (輸出): 20V $\overline{\text{m}}$ 4.25A 85W



Manufactured by: Shenzhen Anthy Electronics Co., Ltd.
401, Building E, Longtianli Industrial Park, No.11 Zhangyi Road, Zhang Ge Community, Fucheng subdistrict, Longhua District, 518110, Shenzhen, PEOPLE'S REPUBLIC OF CHINA.
製造地: 中国 MADE IN CHINA



Note:

- These labels are representative only, within the identical series, the labels are similar, except model name and rating correspondingly
- The artwork above may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

Summary of testing:

Complied with IEC 62368-1:2018 Audio/video, information and communication technology equipment - Part 1: Safety requirements.

Testing procedure and testing location

Laboratory name : Shenzhen An-Teng Testing Service Co., Ltd.

Testing location/address : Floor 5, No. 11, Hebei Industrial Zone, Hualian Community, Longhua Street, Longhua District, Shenzhen, China.

Testing procedure : TL ☒ RMT ☐ SMT ☐ WMT ☐ TMP ☐

Tested By (Test Engineer) : Cris Song

Reviewed By (Supervisor) : Nico Liang

Approved By (Manager) : Henry Tian

Cris Song

Nico Liang



ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.)	
Electrically-caused injury (Clause 5): (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +5 V dc input	
ES1	
Source of electrical energy	Corresponding classification (ES)
All circuits except for the output port	ES3
DC output port	ES1
Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 20 watts):	
PS2	
Source of power or PIS	Corresponding classification (PS)
All circuit	PS3
DC output port	PS3
Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.) Example: Liquid in filled component	
Glycol	
Source of hazardous substances	Corresponding chemical
N/A (None)	N/A
Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit	
MS2	
Source of kinetic/mechanical energy	Corresponding classification (MS)
Edges and corners of enclosure	MS1
Mass of the unit	MS1
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure	
TS1	
Source of thermal energy	Corresponding classification (TS)
External surface (plastic)	TS1
Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product	
RS1	

Type of radiation	Corresponding classification (RS)
N/A (None)	N/A

ENERGY SOURCE DIAGRAM
Indicate which energy sources are included in the energy source diagram. Insert diagram below
<p align="center">ES3 (Primary circuit)</p> <p align="center">/</p>

<p align="center">ES1 (secondary circuit after diode U2)</p> <p align="center">/</p> <p align="center"> <input checked="" type="checkbox"/> ES <input type="checkbox"/> PS <input type="checkbox"/> MS <input type="checkbox"/> TS <input type="checkbox"/> RS </p>
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OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	Possible Hazard			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary	ES3: All circuits except for the output port	N/A	N/A	Plastic enclosure See 5.4.2, 5.4.3, 5.4.4, 5.5.3 and 5.5.4
Ordinary	ES1: Output port	N/A	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source	Safeguards		
		Basic	Supplementary	Reinforced
Enclosure	PS3: All circuit	See 6.3	V-0 or better	N/A
PCB	PS3: All circuit	See 6.3	V-1 or better	N/A
Output connector	PS3: Output port	See 6.3	See 6.4.6	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
N/A (no such sources)	N/A	N/A	N/A	N/A
8.1	Mechanically-caused injury			
Body Part	Energy Source	Safeguards		



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(e.g. Ordinary)	(MS3:High Pressure Lamp)	Basic	Supplementary	Reinforced (Enclosure)
Ordinary	MS1: Edges and corners	N/A	N/A	N/A
Ordinary	MS1: Mass of the unit	N/A	N/A	N/A
9.1	Thermal Burn –			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS1: Accessible part	N/A	N/A	N/A
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
Supplementary information:				
(1) See attached energy source diagram for additional details.				
(2) “N” – Normal Condition; “A” – Abnormal Condition; “S” –Single Fault.				

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 and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment. See also Annex G	P
4.1.3	Equipment design and construction	Evaluation of safeguards regarding access to ES3 and to limiting the outputs to fulfill ES1, and protection in regard to risk of spread of fire, mechanical-caused injury and thermal burn considered.	P
4.1.15	Markings and instructions.....:	(See Annex F)	P
4.4.4	Safeguard robustness	See below.	P
4.4.4.2	Steady force tests.....:	(See Annex T.2 and T.5)	P
4.4.4.3	Drop tests	(See Annex T.7)	P
4.4.4.4	Impact tests	(See Annex T.6)	P
4.4.4.5	Internal accessible safeguard enclosure and barrier tests.....:		N/A
4.4.4.6	Glass Impact tests	No such glass used.	N/A
4.4.4.7	Thermoplastic material tests	(See Annex T.8)	P
4.4.4.8	Air comprising a safeguard.....:	(See Annex T)	P
4.4.4.9	Accessibility and safeguard effectiveness	After tests of 4.4.4.2, 4.4.4.3, 4.4.4.4, 4.4.4.7, no safeguard damaged.	P
4.5	Explosion	No explosion occurs during normal/abnormal operation and single fault conditions	P
4.6	Fixing of conductors		P
4.6.1	Fix conductors not to defeat a safeguard		P
4.6.2	10 N force test applied to	See appended table 5.4.2.2, 5.4.2.4 and 5.4.3	P
4.7	Equipment for direct insertion into mains socket – outlets	The prevention of imposing to undue strain on the socket-outlet was done by construction of the plug of adaptor.	P

4.7.2	Mains plug part complies with the relevant standard..... :	The EU/BS plug was	P
4.7.3	Torque (Nm) :	Max. 0.060Nm; Limit: 0.25Nm	P
4.8	Products containing coin/button cell batteries		N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery..... :		N/A
4.8.4	Battery Compartment Mechanical Tests :		N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object..... :		N/A

5	ELECTRICALLY-CAUSED INJURY		P
5.2.1	Electrical energy source classifications..... :	(See appended table 5.2)	P
5.2.2	ES1, ES2 and ES3 limits		P
5.2.2.2	Steady-state voltage and current..... :	(See appended table 5.2)	P
5.2.2.3	Capacitance limits :	(See sub-clause 5.5.2.2)	N/A
5.2.2.4	Single pulse limits :	No such single pulses generated in the EUT or applied to it.	N/A
5.2.2.5	Limits for repetitive pulses :	No such repetitive pulses within the EUT	N/A
5.2.2.6	Ringling 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	See only 4.3 and 5.3 to 5.6 which applies to protection between the accessible parts and hazardous parts of other circuits.	P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	See above.	P
5.3.2.1	Accessibility to electrical energy sources and safeguards	Only ES1 circuit can be accessed for this product.	P
5.3.2.2	Contact requirements		P
	a) Test with test probe from Annex V :	No opening on enclosure	P
	b) Electric strength test potential (V) :		N/A
	c) Air gap (mm) :		N/A
5.3.2.4	Terminals for connecting stripped wire		P
5.4	Insulation materials and requirements		P

5.4.1.2	Properties of insulating material	The choice and application have been taken into account as specified in this Clause 5 and Annex T. Natural rubber, hygroscopic materials or asbestos are not used as insulation.	P
5.4.1.3	Humidity conditioning	No hygroscopic material used.	N/A
5.4.1.4	Maximum operating temperature for insulating materials	(See appended table 5.4.1.4)	P
5.4.1.5	Pollution degree	2	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound	Pollution degree 2 is applied. No insulating compound applied for except as in 5.4.1.4	N/A
5.4.1.5.3	Thermal cycling	See above	N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses	No such 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	Considered for accessible surface of enclosure.	P
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	See only 5.4.10.3 below.	N/A
5.4.1.10.2	Vicat softening temperature.....	See below	N/A
5.4.1.10.3	Ball pressure		P
5.4.2	Clearances		P
5.4.2.2	Determining clearance using peak working voltage	(See only appended table as below)	P
5.4.2.3	Determining clearance using required withstand voltage	(See appended table 5.4.2.2, 5.4.2.4 and 5.4.3)	P
	a) a.c. mains transient voltage		P
	b) d.c. mains transient voltage	No such transient	—
	c) external circuit transient voltage	No such transient	—
	d) transient voltage determined by measurement :		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test		N/A
5.4.2.5	Multiplication factors for clearances and test voltages	1.48 for clearances with altitude up to 5000m above sea level	P
5.4.3	Creepage distances	(See appended table 5.4.2.2, 5.4.2.4 and 5.4.3)	P
5.4.3.1	General		P
5.4.3.3	Material Group	IIIa&IIIb	—

5.4.4	Solid insulation	See below	P
5.4.4.2	Minimum distance through insulation	(See appended table 5.4.4.2)	P
5.4.4.3	Insulation compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices	(See appended table 5.4.4.2)	P
5.4.4.5	Cemented joints	No such construction within the EUT	N/A
5.4.4.6	Thin sheet material	See below	P
5.4.4.6.1	General requirements		P
5.4.4.6.2	Separable thin sheet material	Min. 2 layers of insulation tape used around outer of transformer T1.	P
	Number of layers (pcs)	See above	--
5.4.4.6.3	Non-separable thin sheet material	No such thin sheet material within the EUT	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		P
5.4.4.7	Solid insulation in wound components		N/A
5.4.4.9	Solid insulation at frequencies >30 kHz		N/A
5.4.5	Antenna terminal insulation	No such antenna terminal used.	N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
	Insulation resistance (MΩ).....		N/A
5.4.6	Insulation of internal wire as part of supplementary safeguard		P
5.4.7	Tests for semiconductor components and for cemented joints	No tests necessary –see only 5.4.4.4.	N/A
5.4.8	Humidity conditioning	Humidity treatment performed for 120hrs for equipment with every transformer and insulation tape source, after humidity test, Hi-pot test has been performed.	P
	Relative humidity (%).....	95%	—
	Temperature (°C)	25°C	—
	Duration (h)	48h	—
5.4.9	Electric strength test	(See appended table 5.4.9)	P

5.4.9.1	Test procedure for a solid insulation type test	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 tests	No routine tests considered. To be considered during the relevant national approval.	N/A
5.4.10	Protection against transient voltages between external circuit		N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test		N/A
5.4.10.2.3	Steady-state test.....		N/A
5.4.11	Insulation between external circuits and earthed circuitry		P
5.4.11.1	Exceptions to separation between external circuits and earth	No such connections to external circuit as above.	N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage U_{op} (V)		—
	Nominal voltage U_{peak} (V)		—
	Max increase due to variation U_{sp}		—
	Max increase due to ageing ΔU_{sa}		—
	$U_{op} = U_{peak} + \Delta U_{sp} + \Delta U_{sa}$		—
5.5	Components as safeguards		
5.5.1	General	See the following details.	P
5.5.2	Capacitors and RC units		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 Annex G.5.3)	P
5.5.4	Optocouplers	(See Annex G.12)	P
5.5.5	Relays	No such component provided	N/A
5.5.6	Resistors	(See Annex G.10)	N/A
5.5.7	SPD's	No such components used.	N/A
5.5.7.1	Use of an SPD connected to reliable earthing	No such construction.	N/A

5.5.7.2	Use of an SPD between mains and protective earth		N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable.....:	No such external circuits.	N/A
5.6	Protective conductor		N/A
5.6.2	Requirement for protective conductors		N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm ²)		—
5.6.4	Requirement for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm ²).		—
	Protective current rating (A)		—
5.6.4.3	Current limiting and overcurrent protective devices		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Requirement		N/A
	Conductor size (mm ²), nominal thread diameter (mm)		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective system		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method Resistance (Ω).....:		N/A
5.6.7	Reliable earthing		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		P
5.7.2	Measuring devices and networks	Figure 4 of IEC 60990 was used in determining of the limit of ES1.	P
5.7.2.1	Measurement of touch current	(See appended table 5.2)	P
5.7.2.2	Measurement of prospective touch voltage		P
5.7.3	Equipment set-up, supply connections and earth connections	Clause 4, 5.3 and 5.4 of IEC 60990:1999 applied.	P
	System of interconnected equipment (separate connections/single connection)	Single equipment.	—
	Multiple connections to mains (one connection at a time/simultaneous connections)	Single connection.	—
5.7.4	Unearthed accessible parts		N/A
5.7.5	Earthed accessible conductive parts	(See appended table 5.7.5)	N/A
	Supply Voltage (V).....:	264V~	—

	Measured current (mA).....:		—
	Instructional Safeguard.....:	Not exceeding ES1 limit.	N/A
5.7.6	Requirements when touch current exceeds ES2 limits		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		N/A
5.8	Backfeed safeguard in battery backed up supplies		N/A
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA)		N/A

6	ELECTRICALLY- CAUSED FIRE		P
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		P
6.2.2	Power source circuit classifications	PS (power source) classification determined by measuring the maximum power in Figures 34 and 35 for load and power source circuits.	P
6.2.2.1	General	See the following details.	P
6.2.2.2	Power measurement for worst-case load fault ... :	(See appended table 6.2.2)	P
6.2.2.3	Power measurement for worst-case power source fault	(See appended table 6.2.2)	P
6.2.2.4	PS1		N/A
6.2.2.5	PS2		N/A
6.2.2.6	PS3	All circuits (See appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS	All parts in circuits inside enclosure is considered as Arcing PIS (See appended table 6.2.3.1)	P
6.2.3.2	Resistive PIS	All parts in circuits and components inside enclosure considered as 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 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials	No ignition and no such temperature attained within the equipment. (See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6)	P
6.3.1 (b)	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. 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	See above.	N/A
6.4.3.1	General		N/A
6.4.3.2	Supplementary Safeguards		N/A
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions		N/A
	Special conditions for temperature limited by fuse	No such consideration.	N/A
6.4.4	Control of fire spread in PS1 circuits		N/A
6.4.5	Control of fire spread in PS2 circuits		N/A
6.4.5.2	Supplementary safeguards		N/A
6.4.6	Control of fire spread in PS3 circuit	Fire enclosure rated V-0 used. - Printed board: rated min. V-1; - Transformer complies with G.5.3; - All other components: at least V-2 except for parts mounted on min. V-1 material or small parts of combustible material (with mass less than 4g) or components complying with relevant IEC standard. (See appended table 4.1.2 and Annex G) Fire enclosure shall be provided in end product	P
6.4.7	Separation of combustible materials from a PIS	Fire enclosure provided for all internal parts.	N/A
6.4.7.1	General		N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier	No specific barrier provided.	N/A
6.4.8	Fire enclosures and fire barriers	See below.	P
6.4.8.1	Fire enclosure and fire barrier material properties	The V-1 or better fire enclosure is used for the whole enclosure.	P

6.4.8.2.1	Requirements for a fire barrier	No fire barrier used.	N/A
6.4.8.2.2	Requirements for a fire enclosure	For available power <4000W, the V-1 or better fire enclosure is used for the overall enclosure as above.	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		P
6.4.8.3.1	Fire enclosure and fire barrier openings	No openings in fire enclosure.	N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm)	No openings	N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm)	No openings	N/A
	Flammability tests for the bottom of a fire enclosure		N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c)		N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating	V-0	P
6.5	Internal and external wiring		P
6.5.1	Requirements	(See appended tables 4.1.2)	P
6.5.2	Requirements for interconnection to building wiring		N/A
6.5.3	Internal wire size (mm ²) for socket-outlets		N/A
6.6	Safeguards against fire due to connection to additional equipment		N/A
	External port limited to PS2 or complies with Clause Q.1		N/A

7	INJURY CAUSED BY HAZARDOUS SUBSTANCES		N/A
7.2	Reduction of exposure to hazardous substances	No hazardous chemicals within the equipment.	N/A
7.3	Ozone exposure		N/A
7.4	Use of personal safeguards (PPE)		N/A
	Personal safeguards and instructions		—
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010)		—
7.6	Batteries		N/A

8	MECHANICALLY-CAUSED INJURY		P
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8.1	General	No moving parts in the equipment; see below regarding edges and corners.	P
8.2	Mechanical energy source classifications	MS1 applied for mass of equipment and edges and corners.	P
8.3	Safeguards against mechanical energy sources		N/A
8.4	Safeguards against parts with sharp edges and corners	Edges and corners of the enclosure are rounded.	P
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts	No moving parts.	N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard		—
8.5.4	Special categories of equipment comprising moving parts		N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks		N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N)		N/A
8.5.5	High Pressure Lamps		N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test		N/A
8.6	Stability		N/A
8.6.1	Product classification		N/A
	Instructional Safeguard		—
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A
	Unit configuration during 10° tilt		—
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force)		N/A
	Position of feet or movable parts		—

8.7	Equipment mounted to wall or ceiling	No such mounting applied for.	N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface)		N/A
8.7.2	Direction and applied force		N/A
8.8	Handles strength		N/A
8.8.1	Classification		N/A
8.8.2	Applied Force		N/A
8.9	Wheels or casters attachment requirements		N/A
8.9.1	Classification		N/A
8.9.2	Applied force		—
8.10	Carts, stands and similar carriers		N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		P
	Instructional Safeguard		—
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force		—
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N)		—
8.10.6	Thermoplastic temperature stability (°C).....		N/A
8.11	Mounting means for rack mounted equipment		N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable <i>N</i>		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas	No such parts.	N/A
	Button/Ball diameter (mm)		—

9	THERMAL BURN INJURY		P
9.2	Thermal energy source classifications	Plastic enclosure considered to be accessible part. The equipment evaluated by temperature test. (see table 5.4.1.4).	P
9.3	Safeguard against thermal energy sources		P
9.4	Requirements for safeguards		P

9.4.1	Equipment safeguard	Enclosure provided to limit the transfer of thermal energy of internal parts under normal operating conditions and abnormal operating conditions.	P
9.4.2	Instructional safeguard		N/A

10	RADIATION		N/A
10.2	Radiation energy source classification		N/A
10.2.1	General classification	See above	N/A
10.3	Protection against laser radiation	No laser.	N/A
	Laser radiation that exists equipment:		—
	Normal, abnormal, single-fault..... :		
	Instructional safeguard		—
	Tool..... :		—
10.4	Protection against visible, infrared, and UV radiation	No other such source.	N/A
10.4.1	General		N/A
10.4.1.a)	RS3 for Ordinary and instructed persons		N/A
10.4.1.b)	RS3 accessible to a skilled person..... :		N/A
	Personal safeguard (PPE) instructional safeguard		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1:		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions		N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque..... :		N/A
10.4.1.f)	UV attenuation..... :		N/A
10.4.1.g)	Materials resistant to degradation UV		N/A
10.4.1.h)	Enclosure containment of optical radiation..... :		N/A
10.4.1.i)	Exempt Group under normal operating conditions:		N/A
10.4.2	Instructional safeguard		N/A
10.5	Protection against x-radiation	No such x-radiation generated from the equipment	N/A
10.5.1	X- radiation energy source that exists equipment:		N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards..... :		N/A
	Instructional safeguard for skilled person..... :		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation		—

	Abnormal and single-fault condition		N/A
	Maximum radiation (pA/kg).....		N/A
10.6	Protection against acoustic energy sources	Not such equipment.	N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A)		N/A
	Output voltage, unweighted r.m.s.....		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards		N/A
	Equipment safeguard prevent ordinary person to RS2.....		—
	Means to actively inform user of increase sound pressure.....		—
	Equipment safeguard prevent ordinary person to RS2.....		—
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) L_{Aeq} acoustic pressure output.....		—
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum dB(A)		—
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A)		—

B	NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS		P
B.2	Normal Operating Conditions	See the following details.	P
B.2.1	General requirements..... :	(See summary of testing and appended table)	P
	Audio Amplifiers and equipment with audio amplifiers :	Not such equipment.	N/A
B.2.3	Supply voltage and tolerances	Rated voltage tolerance $\pm 10\%$ applied.	P
B.2.5	Input test..... :	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General requirements..... :	(See appended table B.3 & B.4)	P
B.3.2	Covering of ventilation openings		N/A
B.3.3	D.C. 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 used within the EUT	N/A
B.3.5	Maximum load at output terminals :	(See appended tables B.3, B.4)	P
B.3.6	Reverse battery polarity	No battery within the EUT	N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.	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.4.2	Temperature controlling device open or short-circuited :	No such device used.	N/A
B.4.3	Motor tests	No motors used.	N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature :		N/A
B.4.4	Short circuit of functional insulation	See the following details.	N/A
B.4.4.1	Short circuit of clearances for functional insulation	(See appended tables B.3, B.4)	N/A
B.4.4.2	Short circuit of creepage distances for functional insulation	(See appended tables B.3, B.4)	N/A
B.4.4.3	Short circuit of functional insulation on coated printed boards	No coated printed boards within the EUT	N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors	(See appended tables B.3, B.4 for faults on electronic components)	P
B.4.6	Short circuit or disconnect of passive components	(See appended tables 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	P
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions	No change to circuits classified in 5.3.	P
B.4.9	Battery charging 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	No such UV generated from the equipment.	N/A
C.1.2	Requirements	See above.	N/A
C.1.3	Test method	See above.	N/A
C.2	UV light conditioning test	See above.	N/A
C.2.1	Test apparatus	See above.	N/A
C.2.2	Mounting of test samples	See above.	N/A
C.2.3	Carbon-arc light-exposure apparatus	See above.	N/A
C.2.4	Xenon-arc light exposure apparatus	See above.	N/A

D	TEST GENERATORS		N/A
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A

E	TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS		N/A
E.1	Audio amplifier normal operating conditions	Not such equipment.	N/A
	Audio signal voltage (V) :	See above.	—
	Rated load impedance (Ω) :	See above.	—
E.2	Audio amplifier abnormal operating conditions	See above.	N/A

F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General requirements	See the following details.	P
	Instructions – Language :	English version provided. (Version in other language will be provided when submitted for national approval)	—
F.2	Letter symbols and graphical symbols	See the following details.	P
F.2.1	Letter symbols according to IEC60027-1	Letter symbols for quantities and units are complied with IEC 60027-1.	N/A

F.2.2	Graphic symbols 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	Equipment marking is located on the enclosure surface and is easily visible.	P
F.3.2	Equipment identification markings	See the following details.	P
F.3.2.1	Manufacturer identification	See copy of marking plate	—
F.3.2.2	Model identification	See table A on page 8 for details	—
F.3.3	Equipment rating markings	See the following details.	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	See above.	N/A
F.3.3.3	Nature of supply voltage.....	~	—
F.3.3.4	Rated voltage	See copy of marking plate.	—
F.3.3.4	Rated frequency	See copy of marking plate.	—
F.3.3.6	Rated current or rated power	See copy of marking plate.	—
F.3.3.7	Equipment with multiple supply connections	Only one supply connection.	N/A
F.3.4	Voltage setting device	Auto range and no voltage selector provide within the equipment.	N/A
F.3.5	Terminals and operating devices	See below.	N/A
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		N/A
F.3.5.4	Replacement battery identification marking		N/A
F.3.5.5	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification	See below.	P
F.3.6.1	Class I Equipment	Class II	N/A
F.3.6.1.1	Protective earthing conductor terminal		N/A
F.3.6.1.2	Neutral conductor terminal		N/A
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment (IEC60417-5172)		P
F.3.6.2.1	Class II equipment with or without functional earth		P
F.3.6.2.2	Class II equipment with functional earth terminal marking	See above	N/A

F.3.7	Equipment IP rating marking	IPX0.	—
F.3.8	External power supply output marking	See copy of marking plate.	P
F.3.9	Durability, legibility and permanence of marking	Marking is considered to be legible and easily discernible. See also the following details.	P
F.3.10	Test for permanence of markings	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 sec. And then again for 15 sec. With the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade. There was no curling and lifting of the label edge. After each test, the marking remained legible.	P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present - marking		N/A
	b) Instructions given for installation or initial use	The equipment is intended to be used for information technology equipment	P
	c) Equipment intended to be fastened in place		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1	No such terminals provided.	N/A
	f) Protective earthing employed as safeguard	Protective earthing used as a safeguard.	N/A
	g) Protective earthing conductor current exceeding ES2 limits		N/A
	h) Symbols used on equipment		N/A
	i) Permanently connected equipment not provided with all-pole mains switch	Not permanently connected equipment.	N/A
	j) Replaceable components or modules providing safeguard function	No such markings.	P
F.5	Instructional safeguards		N/A
	Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction		N/A

G	COMPONENTS		P
G.1	Switches		N/A
G.1.1	General requirements		N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	Relays		N/A
G.2.1	General requirements	No such relay provided within the equipment.	N/A
G.2.2	Overload test	See above.	N/A
G.2.3	Relay controlling connectors supply power	See above.	N/A
G.2.4	Mains relay, modified as stated in G.2	See above.	N/A
G.3	Protection Devices		P
G.3.1	Thermal cut-offs	No thermal cut-off provided within the equipment.	N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)	See above.	N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)	See above.	N/A
G.3.1.2	Thermal cut-off connections maintained and secure	See above.	N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691	No thermal link provided within the equipment.	N/A
G.3.2.1b)	Thermal links tested as part of the equipment	See above.	N/A
	Aging hours (H)	See above.	—
	Single Fault Condition	See above.	—
	Test Voltage (V) and Insulation Resistance (Ω) ..	See above.	—
G.3.3	PTC Thermistors	No PTC thermistor provided within the equipment.	N/A
G.3.4	Overcurrent protection devices		N/A
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions.....		N/A
G.4	Connectors		N/A
G.4.1	Spacings		N/A
G.4.2	Mains connector configuration		N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N/A
G.5	Wound Components		N/A

G.5.1	Wire insulation in wound components.....		N/A
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		N/A
G.5.1.2 b)	Construction subject to routine testing	See 5.4.9.2.	N/A
G.5.2	Endurance test on wound components	Not applied for	N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Time (s)		—
	Temperature (°C)		—
G.5.2.3	Wound Components supplied by mains	See above.	N/A
G.5.3	Transformers		P
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1).....	The transformers meet the requirements given in G.5.3.2 and G.5.3.3.	P
	Position	T1	—
	Method of protection	See G.5.3.3.	—
G.5.3.2	Insulation		P
	Protection from displacement of windings.....	The end-turn of each winding is fixed by insulation tape	—
G.5.3.3	Overload test	(See appended tables 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 testing in the unit	(See appended tables B.3, B.4)	P
G.5.3.3.3	Winding Temperatures - Alternative test method	Alternative test method was not considered.	P
G.5.4	Motors		N/A
G.5.4.1	General requirements	No motors used.	N/A
	Position		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days)		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V)		—
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h)		N/A
	Electric strength test (V)		—

G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature		N/A
	Electric strength test (V)		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h)		N/A
	Electric strength test (V)		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage		—
G.6	Wire Insulation		N/A
G.6.1	General		N/A
G.6.2	Solvent-based enamel wiring insulation	Insulation does not rely on solvent-based enamel.	N/A
G.7	Mains supply cords		N/A
G.7.1	General requirements		N/A
	Type.....		—
	Rated current (A)		—
	Cross-sectional area (mm ²), (AWG).....		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N)		—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm)		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g)		—
	Diameter (m)		—
	Temperature (°C)		—
G.7.6	Supply wiring space		N/A

G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
G.8	Varistors		N/A
G.8.1	General requirements		N/A
G.8.2	Safeguard against shock		N/A
G.8.3	Safeguard against fire		N/A
G.8.3.2	Varistor overload test	The method of control fire spread used, fire enclosure provided	N/A
G.8.3.3	Temporary overvoltage	The method of control fire spread used, fire enclosure provided	N/A
G.9	Integrated Circuit (IC) Current Limiters		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.	No IC current limiter provided within the equipment.	N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA		—
G.9.1 d)	IC limiter output current (max. 5A)		—
G.9.1 e)	Manufacturers' defined drift		—
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	Resistors		N/A
G.10.1	General requirements	See below	N/A
G.10.2	Resistor test		N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
G.11	Capacitor and RC units		P
G.11.1	General requirements	Approved X capacitor and Y capacitor used (See appended table 4.1.2)	P
G.11.2	Conditioning of capacitors and RC units		P
G.11.3	Rules for selecting capacitors		P
G.12	Optocouplers		P
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results)	(See appended table 4.1.2)	P

	Type test voltage Vini, a		—
	Routine test voltage, Vini,b		—
G.13	Printed boards		P
G.13.1	General requirements	See the following details.	P
G.13.2	Uncoated printed boards	The insulation between conductors on the outer surfaces of an uncoated printed board or over the outer surface of coated printed boards complied with the minimum clearance and creepage requirements of 5.4.2 and 5.4.3.	P
G.13.3	Coated printed boards	No coated printed board or multilayer board applied for within the equipment.	N/A
G.13.4	Insulation between conductors on the same inner surface	See above.	N/A
	Compliance with cemented joint requirements (Specify construction)		—
G.13.5	Insulation between conductors on different surfaces	See above.	N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs)		—
G.13.6	Tests on coated printed boards	See above.	N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A
G.14	Coating on components terminals		N/A
G.14.1	Requirements	No coating on component terminals considered to affect creepage or clearances.	N/A
G.15	Liquid filled components		N/A
G.15.1	General requirements	No such device provided within the equipment.	N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A

G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
G.16	IC including capacitor discharge function (ICX)		N/A
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours	No such discharge IC used.	N/A
b)	Impulse test using circuit 2 with U_c = to transient voltage	As above	N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes	As above.	N/A
C2)	Test voltage	As above.	—
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer	As above.	N/A
D2)	Capacitance	see above	—
D3)	Resistance	see above	—

H	CRITERIA FOR TELEPHONE RINGING SIGNALS		N/A
H.1	General	No telephone ringing signal generated within the equipment.	N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringing signal		N/A
H.3.1.1	Frequency (Hz)		—
H.3.1.2	Voltage (V)		—
H.3.1.3	Cadence; time (s) and voltage (V)		—
H.3.1.4	Single fault current (mA):.....		—
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V)		—

J	INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION		N/A
	General requirements		N/A

K	SAFETY INTERLOCKS		N/A
K.1	General requirements	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
	Compliance		N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location)		N/A
K.7.2	Overload test, Current (A)		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A

L	DISCONNECT DEVICES		N/A
L.1	General requirements		N/A
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		N/A
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices	See above.	N/A
L.8	Multiple power sources	Only one a.c. mains connection.	N/A

M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		N/A
M.1	General requirements	No battery used.	N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method) .. :		N/A
M.3	Protection circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Tests		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A

M.3.3	Compliance		N/A
M.4	Additional safeguards for equipment containing secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature		—
M.4.2.2 b)	Single faults in charging circuitry		—
M.4.3	Fire Enclosure		N/A
M.4.4	Endurance of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation		N/A
M.4.4.3	Drop and charge/discharge function tests		N/A
	Drop		N/A
	Charge		N/A
	Discharge		N/A
M.4.4.4	Charge-discharge cycle test		N/A
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current		N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method)		N/A
M.6.2	Leakage current (mA)		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A

M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume V_z (m ³ /s)..... :		—
M.8.2.3	Correction factors..... :		—
M.8.2.4	Calculation of distance d (mm) :		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing) :		N/A

N	ELECTROCHEMICAL POTENTIALS		N/A
	Metal(s) used :		—

O	MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		P
	Figures O.1 to O.20 of this Annex applied :	Considered.	—

P	SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS		N/A
P.1	General requirements		N/A
P.2.2	Safeguards against entry of foreign object		N/A
	Location and Dimensions (mm) :		—
P.2.3	Safeguard against the consequences of entry of foreign object	See above.	N/A
P.2.3.1	Safeguards against the entry of a foreign object	See above.	N/A
	Openings in transportable equipment		N/A
	Transportable equipment with metalized plastic parts :		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard) :		N/A
P.3	Safeguards against spillage of internal liquids	No such liquids.	N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts	No such construction.	N/A
P.4.2 a)	Conditioning testing		N/A
	T _c (°C)..... :		—

	Tr (°C)		—
	Ta (°C).....		—
P.4.2 b)	Abrasion testing		N/A
P.4.2 c)	Mechanical strength testing		N/A

Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING		N/A
Q.1	Limited power sources	See appended table Annex Q.1	N/A
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		N/A
	- Regulating network limited output under normal operating and simulated single fault condition		N/A
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method	See appended table Annex Q.1	N/A
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A)		—
	Current limiting method.....		—

R	LIMITED SHORT CIRCUIT TEST		N/A
R.1	General requirements	No such consideration.	N/A
R.2	Determination of the overcurrent protective device and circuit	See above.	N/A
R.3	Test method Supply voltage (V) and short-circuit current (A)).	See above.	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	Approved fire enclosure with V-0 or better material used.	N/A
	Samples, material.....		—
	Wall thickness (mm)		—
	Conditioning (°C)		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A

	Samples, material.....:		—
	Wall thickness (mm)		—
	Conditioning (°C)		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material.....:		—
	Wall thickness (mm)		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials	See Table 4.1.2 only.	N/A
S.5	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material.....:		—
	Wall thickness (mm)		—
	Conditioning (test condition), (°C)		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A

T	MECHANICAL STRENGTH TESTS		P
T.1	General requirements		P
T.2	Steady force test, 10 N	(See appended table T.2)	P
T.3	Steady force test, 30 N		N/A
T.4	Steady force test, 100 N	(See appended table T.4)	N/A
T.5	Steady force test, 250 N	(See appended table T.5)	N/A
T.6	Enclosure impact test		P
	Fall test	Not direct plug in equipment.	P
	Swing test	See above.	P
T.7	Drop test	(See appended table T.7)	P
T.8	Stress relief test	(See appended table T.8)	P
T.9	Impact Test (glass)		N/A
T.9.1	General requirements		N/A

T.9.2	Impact test and compliance		N/A
	Impact energy (J)		—
	Height (m)		—
T.10	Glass fragmentation test		N/A
T.11	Test for telescoping or rod antennas	No such antennas provided within the equipment.	N/A
	Torque value (Nm)	See above.	—

U	MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N/A
U.1	General requirements	No CRT provided within the equipment.	N/A
U.2	Compliance and test method for non-intrinsically protected CRTs	See above.	N/A
U.3	Protective Screen.....	See above.	N/A

V	DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)		P
V.1	Accessible parts of equipment	No access with test probes to any hazardous parts	P
V.2	Accessible part criterion	See above.	P

4.1.2		TABLE: List of critical components			
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity ¹⁾
Plastic enclosure	SABIC INNOVATIVE PLASTICS US L L C	945(GG)	V-0, Min.120°C, min. 1.5 mm thickness	UL 94 UL 746C IEC/EN 62368-1	UL and tested with appliance
Input wire	Dongguan Yong Sheng Electronic Technology Co., Ltd	3239 3122 3135	Min 24AWG, min 200°C, min 300V	UL 758	UL E526321
(Alternative)	SHENZHEN JIAHUIDA ELECTRONICS CO LTD	3239 3122 3135	Min 24AWG, min 200°C, min 300V	UL 758	UL E361915
(Alternative)	DONGGUAN DANYANG ELECTRONIC WIRE CO LTD	3239 3122 3135	Min 24AWG, min 200°C, min 300V	UL 758	UL E332522
(Alternative)	SHENZHEN SHUNJIA ELECTRICAL TECHNOLOGY CO LTD	3239 3122 3135	Min 24AWG, min 200°C, min 300V	UL 758	UL E490463
PCB	Dong Guan Ling Nian Electronics co Ltd	LN-1, LN-2	V-0, Min.130°C	UL 796 UL 94	UL E501876
(Alternative)	SICHUAN SHENGDA XINXING ELECTRONIC CO LTD	Various	V-0, Min.130°C	UL 796 UL 94	UL E501618
Fuse (F1)	Dongguan LUOYI Electronics Technology Co., Ltd.	SAT	T3.15A, 250VAC	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	VDE 40050512 UL E505058
(Alternative)	DONGGUAN ANLU ELECTRONICS TECHNOLOGY CO LTD	AMT	T3.15A, 250VAC	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	VDE 40047322 UL E365174
(Alternative)	DONGGUAN CHEVRON ELECTRONIC TECHNOLOGY CO LTD	SET	T3.15A, 250VAC	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	VDE 40038565 UL E358589

NTC (NTC NTC1, NTC2)	Hongzhi Enterprises Ltd.		2.5D-11	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	UL E319959
(Alternative)	GUANGDONG XINCHENG SCIENCE AND TECHNOLOGY INDUSTRIAL CO., LTD.		2.5D-11	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	UL E469681
(Alternative)	NANJING SHIHENG ELECTRONICS CO LTD		2.5D-11	IEC/EN 60127-1 IEC/EN 60127-3 UL 248-1 UL 248-14	UL E241319
X-Capacitor (CX1, CX2)	Shantou Xin Hua Xiong Electronics Industry Co., Ltd.	MKP	0.22uF(±10%), Min. 275V, Min.100°C, X2 type	IEC/EN/UL 60384-14	VDE 40044146 UL E484909
(Alternative)	SHANTOU BONDED AREA SONGTIAN ELECTRONIC TECHNOLOGY CO., LTD	MPX	0.22uF(±10%), Min. 275V, Min.100°C, X2 type	IEC/EN/UL 60384-14	VDE 40034679 UL E208107
(Alternative)	Shenzhen Tenta Electrical Appliance Ltd.	MEX	0.22uF(±10%), Min. 275V, Min.100°C, X2 type	IEC/EN/UL 60384-14	VDE 119119 UL E222911
(Alternative)	Shantou Xinyin Electronics Technology Co. Ltd.	MKP MPX	0.22uF(±10%), Min. 275V, Min.100°C, X2 type	IEC/EN/UL 60384-14	VDE 40040448 UL E470852
Y-Capacitor (CY1,CY2)	Huizhou Jinggin Electronic Components Co Ltd	SMD	Max. 1000pF, min. 250VAC, min. 105°C, Y1 type	IEC/EN/UL 60384-14	UL E529031
(Alternative)	Sichuan Teruixiang Technology International Co Ltd	TRX	Max. 1000pF, min. 250VAC, min. 105°C, Y1 type	IEC/EN/UL 60384-14	UL E315719
(Alternative)	Shenzhen Weidy Industrial Development Co, Ltd.	MKP65	Max. 1000pF, min. 250VAC, min. 105°C, Y1 type	IEC/EN/UL 60384-14	VDE 40052395 UL E334332
LF1 inductance	Jiangxi weizhongcheng electronic technology co., ltd	T9*5*3	L≥486UH	IEC/EN 62368-1	Tested with appliance
(Alternative)	Shenzhen Anthy Electronics Co., Ltd.	T9*5*3	L≥486UH	IEC/EN 62368-1	Tested with appliance

Shenzhen An-Teng Testing Service Co., Ltd.

Floor 5, No. 11, Hebei Industrial Zone, Hualian Community, Longhua Street, Longhua District, Shenzhen, China
Tel: 86-755-27724522 Fax: 86-755-27724533 Web: www.antenglab.com

--Winding	DONG GUAN YIDA INDUSTRIAL CO LTD	xUEW/155 QA-X/155	Min.Ø 0.45	ANSI/UL 1446	UL E344055
(Alternative)	HUIZHOU HUAYING ELECTRONIC TECHNOLOGY CO LTD	MIW-B	Min.Ø 0.45	ANSI/UL 1446	UL E470559
L1 inductance	Jiangxi weizhongcheng electronic technology co., ltd	T10*4*4	L≥100UH	IEC/EN 62368-1	Tested with appliance
(Alternative)	Shenzhen Anthy Electronics Co., Ltd.	T10*4*4	L≥100UH	IEC/EN 62368-1	Tested with appliance
--Winding	DONG GUAN YIDA INDUSTRIAL CO LTD	xUEW/155 QA-X/155	Min.Ø 0.45	ANSI/UL 1446	UL E344055
(Alternative)	HUIZHOU HUAYING ELECTRONIC TECHNOLOGY CO LTD	MIW-B	Min.Ø 0.45	ANSI/UL 1446	UL E470559
LF2 inductance	Jiangxi weizhongcheng electronic technology co., ltd	TD1212-28mH	L≥28mH	IEC/EN 62368-1	Tested with appliance
(Alternative)	Shenzhen Anthy Electronics Co., Ltd.	TD1212-28mH	L≥28mH	IEC/EN 62368-1	Tested with appliance
--Winding	GUANGDONG LIZIWIRE ELECTRIC TECHNOLOGY CO LTD	@*UEW155	Min.0.13*1.0mm, Class 155	ANSI/UL 1446	UL E504985
(Alternative)	SHANGHAI YOUTUO MAGNET WIRE CO LTD	UEW/155@-x	Min.0.13*1.0mm, Class 155	ANSI/UL 1446	UL E338133
--Bobbin	CHANG CHUN PLASTICS CO LTD	T375HF	Min.150°C, V-0	UL 94 UL 746C	UL E59481
Optocouple (U2)	Shenzhen Orient Components Co. Ltd.	OR1008	Reinforced insulation, Dti≥0.4mm, Ext. Cr≥8.0mm, Ext. Cl≥8.0mm, Min.110°C	IEC/EN/UL 60747-5-5	VDE 40029733 UL E323844

(Alternative)	EVERLIGHT ELECTRONICS CO LTD	EL1018	Reinforced insulation, Dti≥0.4mm, Ext. Cr≥8.0mm, Ext. Cl≥8.0mm, Min.110°C	IEC/EN/UL 60747-5-5	UL E214129 VDE 40028391
(Alternative)	Bright Led electronics corp.,	BPC1009	Reinforced insulation, Dti≥0.4mm, Ext. Cr≥8.0mm, Ext. Cl≥8.0mm, Min.110°C	IEC/EN/UL 60747-5-5	UL E236324 VDE 40007240
Transformer (T1)	SHENZHENSHI XINDAHUI ELECTRONICS CO LTD	BYPQ321819	Class B	IEC/EN 62368-1	Tested with appliance
--Insulation system of T1	SHENZHENSHI XINDAHUI ELECTRONICS CO LTD	CCP-130-1	Class B	UL1446	UL
--Bobbin	SUMITOMO BAKELITE CO LTD	PM-8375	Phenolic, V-0, Min.150°C, min. 0.71mm thickness	UL 94 UL 746C	UL
(Alternative)	SUMITOMO BAKELITE CO LTD	PM-9825	Min.150°C, V-0, Min.0.4mm thickness	UL 94 UL 746C	UL
--Magnet wire	DONG GUAN YIDA INDUSTRIAL CO LTD	xUEW/130 QA-x/130	Min.130°C	UL1446	UL
(Alternative)	Various	MW28, MW75	Min. 130°C	UL1446	UL
--Triple insulation wire	Furukawa Electric Co., Ltd.	TEX-E	Min.130°C	IEC/EN 62368-1 UL 2353	VDE UL
--Insulation tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	PZ* (b)	Min. 130°C	UL 510A	UL
--Tubing	GREAT HOLDING INDUSTRIAL CO LTD	TFT TFS	Min.200°C, VW-1, min. 300VAC	UL 224	UL
--Varnish	John C Dolph Co	BB-348	Min. 130°C	UL 1446	UL
Bleeder resistor (R1, R2, R3, R4)	Various	Various	2M ohm, 1/4W	IEC/EN 62368-1	Tested with appliance
Bridge Diode (BD1)	Various	Various	Min. 4 A, min. 650V	IEC/EN 62368-1	Tested with appliance
MOSFET (U1)	Various	Various	Min. 600V, min. 4A	IEC/EN 62368-1	Tested with appliance

Bleeder Resistor (R6)	Various	Various	Max. 0.43Ω, Min. 1/4W	IEC/EN 62368-1	Tested with appliance
Bleeder Resistor (R7, R8, R9)	Various	Various	Max. 0.39Ω, Min. 1/4W	IEC/EN 62368-1	Tested with appliance
E-Capacitor (C1, C2, C3, C4)	Various	Various	Min. 400V, max. 33uF, 105°C	IEC/EN 62368-1	Tested with appliance
E-Capacitor (C5)	Various	Various	Min. 100V, max. 10uF, 105°C	IEC/EN 62368-1	Tested with appliance
Output wire	SHENZHEN TLSUN TECHNOLOGY CO LTD	2468 2464 1185	Min. 80°C, Min. 300V, Min. 24AWG, VW-1	UL 758	UL E477411
(Alternative)	Dongguan Danyang Electronic Wire Co Ltd	2468 2464 1185	Min. 80°C, Min. 300V, Min. 24AWG, VW-1	UL 758	UL E332522
(Alternative)	DONGGUAN TRIUMPHCABLE CO LTD	2468 2464 1185	Min. 80°C, Min. 300V, Min. 24AWG, VW-1	UL 758	UL 249743
(Alternative)	Various	2468 2464 1185	Min. 80°C, Min. 300V, Min. 24AWG, VW-1	UL 758	UL
Plastic of output terminal	SABIC INNOVATIVE PLASTICS US L L C	945(GG)	V-0, Min.120°C	UL 94	UL
(Alternative)	Various	Various	Min. V-0 or better material	UL 94	UL

Supplementary information:

¹⁾ Provided evidence ensures the agreed level of compliance. See OD-CB2039.

4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests			N/A
(The following mechanical tests are conducted in the sequence noted.)				
4.8.4.2	TABLE: Stress Relief test			—
Part		Material	Oven Temperature (°C)	Comments
--		--	--	--
4.8.4.3	TABLE: Battery replacement test			—
Battery part No.:				—
Battery Installation/withdrawal			Battery Installation/Removal Cycle	Comments
--			1	--
			2	--
			3	--

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			4	--
			5	--
			6	--
			8	--
			9	--
			10	--
4.8.4.4	Table: Drop test			—
Impact Area		Drop Distance	Drop No.	Observations
--		--	--	--
4.8.4.5	TABLE: Impact			—
Impacts per surface		Surface tested	Impact energy (Nm)	Comments
--		--	--	--
4.8.4.6	TABLE: Crush test			—
Test position		Surface tested	Crushing Force (N)	Duration force applied (s)
--		--	--	--
Supplementary information:				

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

5.2		Table: Classification of electrical energy sources					P
5.2.2.2 – Steady State Voltage and Current conditions							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions ¹⁾	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
1	264V~	All internal circuits except for output circuits	Normal	--	--	--	ES3 (Declared)
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	
2	264V~	Output + to -	Normal: Rated Load	20Vdc	--	--	ES1
			Single fault: BD1	0Vdc	--	--	
			Single fault: C2	0Vdc	--	--	
			Single fault: T1 1-2	0Vdc	--	--	
			Single fault: T1 3-4	0Vdc	--	--	

			Single fault: T1 A-B	0.44Vdc	--	--	
			Single fault: Q4	normal operation	--	--	
			Single fault: CE2	0.76Vdc	--	--	

5.2.2.3 - Capacitance Limits

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class
				Capacitance, nF	Upk (V)	
--	--	--	Normal	--	--	--
			Abnormal	--	--	--
			Single fault – SC/OC	--	--	--

5.2.2.4 - Single Pulses

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

5.2.2.5 - Repetitive Pulses

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Off time (ms)	Upk (V)	l _{pk} (mA)	
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	

Test Conditions:

Normal – Full load and no load

Abnormal – Overload output

Supplementary information: SC=Short Circuit, OC=Open Circuit

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements				P
	Supply voltage (V) :	Test A: Input: 180V,60Hz; Output: 20Vdc, 5A Test B: Input: 264V,50Hz; Output: 20Vdc, 5A Test C: Input: 180V,60Hz; OL Output: 20Vdc, 5A) Test D: Input: 264V,50Hz; OL Output: 20Vdc, 5A)			—
	Ambient T _{min} (°C) :	--	--	--	—
	Ambient T _{max} (°C) :	--	--	--	—

	Tma (°C) :	25.0		25.0		—		
Maximum measured temperature T of part/at:		T (°C)				Allowed T _{max} (°C)		
						Nor. load	Over load	
Test condition		Test A	Test B	Test C	Test D	--	--	
Plug pin		40.1	39.4	42.6	41.0	77	77	
Internal wire		35.4	34.2	36.9	35.2	200	--	
NTC1		54.1	52.3	57.6	56.1	85	--	
NTC2		53.2	53.8	56.7	55.5	85	--	
CX1		67.1	66.2	70.7	69.8	110	--	
LF1		79.9	77.0	84.3	82.7	120	175	
CX2		67.8	66.6	71.7	70.0	110	--	
LF2		77.1	75.2	81.8	81.0	120	175	
C5		65.4	63.7	68.2	67.7	105	--	
C1		66.6	65.8	69.3	68.8	105	--	
L1		72.3	71.0	79.2	79.4	120	175	
C2		66.6	65.2	69.9	70.0	105	--	
C3		65.4	63.3	67.8	66.0	105	--	
C4		63.2	62.4	66.7	65.5	105	--	
U1		75.3	77.1	77.7	78.9	Ref.	--	
T1 Bobbin		85.3	84.4	93.6	92.7	Ref.	--	
T1 Winding		88.9	87.1	95.4	93.3	110	175	
CY1		73.3	72.5	78.9	78.0	125	--	
CY2		76.5	75.2	79.8	78.6	125	--	
U2		74.5	73.7	81.7	79.9	125	--	
PCB		75.2	73.0	77.0	77.1	130	--	
Output wire		25.7	25.6	27.9	27.8	80	--	
Tc point enclosure inside on the top of T1		53.7	55.0	62.3	63.0	Ref.	--	
Tc point enclosure outside on the top of T1		51.4	52.3	59.4	60.6	77	87	
Ambient		25.0	25.0	25.0	25.0	--	--	
Supplementary information: # Considering uncertainty of measurement. *Temperature limit for TS1 of accessible enclosure outside according to Table 38. (External surfaces of enclosure will be touched occasionally for very short periods (>1 s and <10 s), so temperature limit 77°C considered.								
Temperature T of winding:		t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class

--	--	--	--	--	--	--	--
----	----	----	----	----	----	----	----

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

5.4.1.10.3	TABLE: Ball pressure test of thermoplastics			P
Allowed impression diameter (mm)		≤ 2 mm		—
Object/Part No./Material	Manufacturer/trademark	Test temperature (°C)	Impression diameter (mm)	
Plastic enclosure	See 4.1.2	125	1.17	
Bobbin	See 4.1.2	125	0.99	
Supplementary information: The bobbin materials of transformer T1 is phenolic. No other parts need to be tested.				

5.4.2.2, 5.4.2.4 and 5.4.3	TABLE: Minimum Clearances/Creepage distance						P	
Clearance (cl) and creepage distance (cr) at/of/between:		Up (V)	U r.m.s. (V)	Frequency (kHz)	Required cl (mm)*	cl (mm)	Required cr (mm)	cr (mm)
L-N		<420	250	<30	1.5	4.0	2.5	4.0
Different poles of fuse		<420	250	<30	1.5	3.2	2.5	3.2
CY1 pri. to sec.		<420	277	<30	3.0	>8.0	5.0	>8.0
CY2 pri. to sec.		<420	252	<30	3.0	>8.0	5.0	>8.0
U2 pri. to sec.		<420	245	<30	3.0	>8.0	5.0	>8.0
Input circuits and output circuits		<420	284	<30	3.0	6.8	5.0	6.8
Supplementary information: Max. operation altitude ≤2000meter								

5.4.2.3	TABLE: Minimum Clearances distances using required withstand voltage				N/A
	Overvoltage Category (OV):				II
	Pollution Degree:				2
Clearance distanced between:		Required withstand voltage	Required cl (mm)	Measured cl (mm)	
--		--	--	--	
--		--	--	--	
Supplementary information: Limits according to 5.4.2.3 applied for the referred table above.					

5.4.2.4	TABLE: Clearances based on electric strength test			P
Test voltage applied between:		Required cl (mm)	Test voltage (kV) peak/ r.m.s. / d.c.	Breakdown Yes / No
Insulation TAPE		≥ 2 tier	4000Vdc	No
Supplementary information: Using procedure 2 to determine the clearance.				

5.4.4.2, 5.4.4.5 c) 5.4.4.9	TABLE: Distance through insulation measurements					N/A
Distance through insulation di at/of:	Peak voltage (V)	Frequency (Hz)	Material	Required DTI (mm)	DTI (mm)	
Mains transformer bobbin (RI)	392	<100kHz	Plastic	0.4	0.8	
Insulating tapes in transformer mains transformer (RI)	392	<100kHz	Plastic	≥ 2 tier	0.025	
Supplementary information: See also sub-clause 5.4.4.9. 1). See appended table 4.1.2.						

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (Vpeak)	Breakdown Yes / No
Basic/supplementary:				
L to N (after fuse open)	DC	2500	No	
L/N to output	DC	4000	No	
Transformer pri. Winding to sec. winding	DC	4000	No	
Supplementary information: * Tested according to clause 5.4.4.6.4 & 5.4.4.6.5 1) By applying a d.c. voltage in one polarity and then repeat it in reverse polarity. 2) All source of transformer T1 and insulation tape (see appended table 4.1.2) were tested separately.				

5.5.2.2	TABLE: Stored discharge on capacitors					N/A
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification	
--	L/N	--	on	--	--	
--	L/N	--	off	--	--	
Supplementary information: The end system will be pluggable equipment type A. Limit of ES1 applied for mains terminal as accessible part for ordinary persons. X-capacitors installed for testing are: <input type="checkbox"/> bleeding resistor rating:						

☐ ICX: see table 4.1.2

Notes:

A. Test Location:

Phase to Neutral; Phase to Earth; and/or Neutral to Earth

B. Operating condition abbreviations:

N – Normal operating condition (e.g., normal operation, or open fuse); S –Single fault condition

5.6.6.2	TABLE: Resistance of protective conductors and terminations				N/A
Accessible part	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)	
--	--	--	--	--	
--	--	--	--	--	
Supplementary information: See clause 5.6.6.2.					

5.7.5	TABLE: Earthed accessible conductive part		N/A
Supply voltage	264V~	—	
Location	Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7	Touch current (mA)	
--	1 (e open, normal and reverse polarity p)	--	
--	2* (netural open (switch n), earth intact and normal polarity, again in reverse polarity (switch p)	--	
--	3 (for IT system, each phase conductor faulted to earth, one at a time (switch g)	--	
--	4 (for three-phase, each phase conductor open, one at a time switches l)	--	
--	5 (IT power system or three phase delta system)	--	
--	6 (three-phase for use on centre-earthed dalta supply system)	--	
--	8 (incidental electrically connected to other parts)	--	

Notes:

- [1] Supply voltage is the anticipated maximum Touch Voltage
[2] Earthed neutral conductor [Voltage differences less than 1% or more]
[3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3
[4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.
[5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.
a) Not considered IT power system.
b) Not three phase equipment.
c) Not IT power system or three phase delta system.
d) Not three-phase for use on centre-earthed delta supply system.
e) Not such parts.

6.2.2		Table: Electrical power sources (PS) measurements for classification			P
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s ^{*)}	PS Classification
A	All internal circuits except for output circuits	Power (W) :	--	--	PS3 (Declared)
		V _A (V) :	--	--	
		I _A (A) :	--	--	
B	Normal Output	Power (W) :	92.65	92.65	PS2
		V _A (V) :	18.53	18.53	
		I _A (A) :	5	5	
C	Overload Output	Power (W) :	102.53	102.53	PS3
		V _A (V) :	18.34	18.34	
		I _A (A) :	5.6	5.6	
D	C5-SC	Power (W) :	1.05	1.05	PS1
		V _A (V) :	0.21	0.21	
		I _A (A) :	5	5	
E	Q4-SC	Power (W) :	92.65	92.65	PS2
		V _A (V) :	18.53	18.53	
		I _A (A) :	5	5	
F	CE2-SC	Power (W) :	2.05	2.05	PS1
		V _A (V) :	0.41	0.41	
		I _A (A) :	5	5	

Supplementary information:

All above test data are measured from the output connector of the switching power supply. See also Table B.4 for fault condition results description.

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)	P
---------	---	---

Location	Open circuit voltage After 3 s (V _p)	Measured r.m.s current (I _{rms})	Calculated value (V _p x I _{rms})	Arcing PIS? Yes / No
All internal circuits/components	--	--	--	Yes
Supplementary information:				

6.2.3.2	Table: Determination of Potential Ignition Sources (Resistive PIS)					P
Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No	
All internal circuits/components	--	--	--	--	Yes	
--	--	--	--	--	--	

Supplementary information:

All power dissipating components in primary and secondary circuit are considered as resistive PIS due to the available power as declared by manufacturer.

A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter.

If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification.

A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, or (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault.

8.5.5	TABLE: High Pressure Lamp		N/A
Description	Values	Energy Source Classification	
Lamp type..... :		—	
Manufacturer :		—	
Cat no. :		—	
Pressure (cold) (MPa) :		MS_	
Pressure (operating) (MPa) :		MS_	
Operating time (minutes) :		—	
Explosion method..... :		—	
Max particle length escaping enclosure (mm) :		MS_	
Max particle length beyond 1 m (mm) :		MS_	
Overall result :			
Supplementary information:			

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B.2.5	TABLE: Input test						P
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No.	I fuse (A)	Condition/status
Load condition A:							
200	1.09	2	111.6	--	--	--	Output: 20V5A
240	0.90	2	110.8	--	--	--	
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 (°C)						25°C		—
Power source for EUT: Manufacturer, model/type, output rating ...:						--		—
Component No.	Abnormal Condition	Supply voltage (V)	Test time (ms)	Fuse No.	Fuse current (A)	T-couple	Temp. (°C)	Observation
C5	S-C	264	10min	F1	--	--	--	Shut down immediately, fuse open immediately, no danger
C2	S-C	264	10min	F1	--	--	--	Shut down immediately, fuse open immediately, no danger
L1	S-C	264	10min	F1	--	--	--	Shut down immediately, fuse open immediately, no danger
T1 (pri. 1-2)	S-C	264	10min	F1	--	--	--	Shut down immediately, fuse open immediately, no danger
T1 (pri. 3-4)	S-C	264	10min	F1	--	--	--	Shut down immediately, fuse open immediately, no danger
T1 (sec. A-B)	S-C	264	10min	F1	--	--	--	Shut down immediately, Protection Recoverable, no danger
CE2	S-C	264	10min	F1	--	--	--	Shut down immediately, no danger
Output	Over load	264	2 hrs	F1	--	--	--	Temperature rise, no damage, no danger
Supplementary information:								

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Annex M	TABLE: Batteries								N/A	
The tests of Annex M are applicable only when appropriate battery data is not available									--	
Is it possible to install the battery in a reverse polarity position? :									--	
	Non-rechargeable batteries			Rechargeable batteries						
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging		
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	
Max. current during normal condition	--	--	--	--	--	--	--	--	--	
Max. current during fault condition	--	--	--	--	--	--	--	--	--	
Test results:							--		Verdict	
- Chemical leaks							--		--	
- Explosion of the battery							--		--	
- Emission of flame or expulsion of molten metal							--		--	
- Electric strength tests of equipment after completion of tests							--		--	
Supplementary information:										

Annex M.4	Table: Additional safeguards for equipment containing secondary lithium batteries					N/A
Battery/Cell No.	Test conditions	Measurements			Observation	
		U	I (A)	Temp. (°C)		
--	Normal	--	--	--	--	
--	Abnormal	--	--	--	--	
--	Single fault –SC/OC	--	--	--	--	
--	Normal	--	--	--	--	
--	Abnormal	--	--	--	--	
--	Single fault – SC/OC	--	--	--	--	
Supplementary information:						
Battery identification	Charging at T _{lowest} (°C)	Observation	Charging at T _{highest} (°C)	Observation		
--	--	--	--	--		
Supplementary information:						

Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)				P
Note: Measured UOC (V) with all load circuits disconnected:					
Output Circuit	Components	U _{oc} (V)	I _{sc} (A)	S (VA)	
			Meas.	Meas.	
Output	--	20.17	5.6	112.95	
BD1-SC	--	0	0	0	
C2-SC	--	0	0	0	
C3-SC	--	0	0	0	
Q4-SC	--	20.17	5.6	112.95	
Supplementary information: * indicates unit shut down. # indicates F1opened.					
SC: Short-circuited; OC: Open-circuited					

T.2, T.3, T.4, T.5	TABLE: Steady force test					P
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation	
External enclosure	Plastic	--	100	5	No damage, no danger	
--	--	--	--	--	--	
Supplementary information: Tested enclosure Material: See table 4.1.2.						

T.6, T.9	TABLE: Impact tests				P
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
External enclosure	Plastic/metal	1.6	1300	No damage, no danger	
--	--	--	--	--	
Supplementary information: Tested enclosure Material: See table 4.1.2.					

T.7	TABLE: Drop tests				P
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation	
External enclosure	Plastic	1.6	1000	No damage, no danger	
--	--	--	--	--	
Supplementary information: Tested enclosure Material: See table 4.1.2.					

T.8		TABLE: Stress relief test				P
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
Plastic material	Plastic	1.6	78.9	7	No damage, no danger	
--	--	--	--	--	--	
Supplementary information:						
Tested enclosure Material: See table 4.1.2.						

Supplementary test results for subclause 5.4.1.8:

5.4.1.8	Table: Working voltage measurement				P
Location		Peak voltage (V)	RMS voltage (V)	Frequency(Hz)	Comments
T1 Pin 1 to Pin A		298	262	15.2	--
T1 Pin 2 to Pin A		288	251		--
T1 Pin 3 to Pin A		291	265		--
T1 Pin 4 to Pin A		274	232		--
T1 Pin 1 to Pin B		321	258		--
T1 Pin 2 to Pin B		319	249		--
T1 Pin 3 to Pin B		330	284		--
T1 Pin 4 to Pin B		307	245		--
CY1		370	277		--
CY2		363	252		
U2		352	245		
Supplementary information:					
Test voltage: 264V, 60Hz					

Supplementary test results for subclause G.5.3:

G.5.3		TABLE: Transformers						N/A
Loc.	Tested insulation	Working voltage peak / V	Working voltage rms / V	Required electric strength	Required clearance / mm	Required creepage distance / mm	Required distance thr. insul.	
		(5.4.1.8)	(5.4.1.8)	(5.4.9)	(5.4.2.2)	(5.4.3)	(5.4.4.6)	



Report No.: ATJC24032080003400S

Loc.	Tested insulation	Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers
Supplementary information:					
Construction: /					

ATTACHMENT TO TEST REPORT IEC 62368-1 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment Part 1: Safety requirements)	
Differences according to :	EN IEC 62368-1:2020
Attachment Form No. :	EU_GD_IEC62368_1B_II
Attachment Originator..... :	Nemko AS
Master Attachment :	Date 2017-09-22
Copyright © 2017 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.	

	CENELEC COMMON MODIFICATIONS (EN)					P																																				
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2018 are prefixed “Z”.					P																																				
CONTENTS	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords					P																																				
	Delete all the “country” notes in the reference document (IEC 62368-1:2018) according to the following list: <table><tr><td>0.2.1</td><td>Note</td><td>1</td><td>Note 3</td><td>4.1.15</td><td>Note</td></tr><tr><td>4.7.3</td><td>Note 1 and 2</td><td>5.2.2.2</td><td>Note</td><td>5.4.2.3.2.2 Table 13</td><td>Note c</td></tr><tr><td>5.4.2.3.2.4</td><td>Note 1 and 3</td><td>5.4.2.5</td><td>Note 2</td><td>5.4.5.1</td><td>Note</td></tr><tr><td>5.5.2.1</td><td>Note</td><td>5.5.6</td><td>Note</td><td>5.6.4.2.1</td><td>Note 2 and 3</td></tr><tr><td>5.7.5</td><td>Note</td><td>5.7.6.1</td><td>Note 1 and 2</td><td>10.2.1 Table 39</td><td>Note 2, 3 and 4</td></tr><tr><td>10.5.3</td><td>Note 2</td><td>10.6.2.1</td><td>Note 3</td><td>F.3.3.6</td><td>Note 3</td></tr></table>					0.2.1	Note	1	Note 3	4.1.15	Note	4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c	5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note	5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3	5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4	10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3	P
0.2.1	Note	1	Note 3	4.1.15	Note																																					
4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c																																					
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5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3																																					
5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4																																					
10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3																																					
	For special national conditions, see Annex ZB.					P																																				
1	Add the following note: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.					P																																				
4.Z1	Add the following new subclause after 4.9: To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c.			See below.		P																																				

	<p>mains, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for pluggable equipment type B or permanently connected equipment, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for pluggable equipment type A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>		
5.4.2.3.2.4	<p>Add the following to the end of this subclause: The requirement for interconnection with external circuit is in addition given in EN 50491-3:2009.</p>	No external circuits.	N/A
10.2.1	<p>Add the following to ^{c)} and ^{d)} in table 39: For additional requirements, see 10.5.1.</p>	No such radiation from the equipment.	N/A
10.5.1	<p>Add the following after the first paragraph: <i>For RS 1 compliance is checked by measurement under the following conditions:</i> <i>In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or presets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.</i> NOTE Z1 Soldered joints and paint lockings are examples of adequate locking. <i>The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus.</i> <i>Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.</i> <i>For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.</i></p>		N/A

	NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.		
10.6.1	Add the following paragraph to the end of the subclause: EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.	No such x-radiation generated from the equipment.	N/A
10.Z1	Add the following new subclause after 10.6.5. 10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz). For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body-mounted devices, attention is drawn to EN 50360 and EN 50566	No such consideration for the purpose of personal music players.	N/A
G.7.1	Add the following note: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.		P
Bibliography	Add the following standards: Add the following notes for the standards indicated: IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4. IEC 60664-5 NOTE Harmonized as EN 60664-5. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1 NOTE Harmonized as EN 61508-1. IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6. IEC 61643-1 NOTE Harmonized as EN 61643-1. IEC 61643-21 NOTE Harmonized as EN 61643-21. IEC 61643-311 NOTE Harmonized as EN 61643-311. IEC 61643-321 NOTE Harmonized as EN 61643-321. IEC 61643-331 NOTE Harmonized as EN 61643-331.		P
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		P
4.1.15	Denmark, Finland, Norway and Sweden To the end of the subclause the following is added:	The equipment is for building-in into a Class I equipment. The marking text must be provided	N/A

	<p>Class I pluggable equipment type A intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment shall be connected to an earthed mains socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In Denmark: "Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord."</p> <p>In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordnet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p>	when marketed in applicable countries.	
4.7.3	<p>United Kingdom</p> <p>To the end of the subclause the following is added:</p> <p>The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex</p>		P
5.2.2.2	<p>Denmark</p> <p>After the 2nd paragraph add the following:</p> <p>A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.</p>		P
5.4.11.1 and Annex G	<p>Finland and Sweden</p> <p>To the end of the subclause the following is added:</p> <p>For separation of the telecommunication network from earth the following is applicable:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"> • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the</p>	No TNV circuits.	N/A

	<p>component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"> • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5kV. <p>It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"> • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11; • the additional testing shall be performed on all the test specimens as described in EN 60384-14; <p>the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.</p>		
5.5.2.1	<p>Norway</p> <p>After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).</p>	Considered.	P
5.5.6	<p>Finland, Norway and Sweden</p> <p>To the end of the subclause the following is added: Resistors used as basic safeguard or bridging basic insulation in class I pluggable equipment type A shall comply with G.10.1 and the test of G.10.2.</p>	No such resistors.	N/A
5.6.1	<p>Denmark</p> <p>Add to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. <i>Justification:</i> In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.</p>	Considered.	P
5.6.4.2.1	<p>Ireland and United Kingdom</p>	Considered.	P

	<p>After the indent for pluggable equipment type A, the following is added:</p> <p>– the protective current rating is taken to be 13 A, this being the largest rating of fuse used in the mains plug.</p>		
5.6.5.1	<p>To the second paragraph the following is added:</p> <p>The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is:</p> <p>1,25 mm² to 1,5 mm² in cross-sectional area.</p>	See above.	N/A
5.7.5	<p>Denmark</p> <p>To the end of the subclause the following is added:</p> <p>The installation instruction shall be affixed to the equipment if the protective conductor current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.</p>	No high protective conductor current.	N/A
5.7.6.1	<p>Norway and Sweden</p> <p>To the end of the subclause the following is added:</p> <p>The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system.</p> <p>It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example.</p> <p>The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in:</p> <p>“Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)”</p> <p>NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric</p>	Not such system.	N/A

	<p>strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min.</p> <p>Translation to Norwegian (the Swedish text will also be accepted in Norway):</p> <p>“Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.”</p> <p>Translation to Swedish:</p> <p>”Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”.</p>		
5.7.6.2	<p>Denmark</p> <p>To the end of the subclause the following is added:</p> <p>The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .</p>	No external circuits.	N/A
B.3.1 and B.4	<p>Ireland and United Kingdom</p> <p>The following is applicable:</p> <p>To protect against excessive currents and short-circuits in the primary circuit of direct plug-in equipment, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the direct plug-in equipment, until the requirements of Annexes B.3.1 and B.4 are met</p>		P
G.4.2	<p>Denmark</p> <p>To the end of the subclause the following is added:</p> <p>Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in</p>		N/A

	<p>accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2.</p> <p>Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a.</p> <p>Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c.</p> <p>Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a</p> <p><i>Justification:</i></p> <p>Heavy Current Regulations, Section 6c</p>		
G.4.2	<p>United Kingdom</p> <p>To the end of the subclause the following is added:</p> <p>The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.</p>		P
G.7.1	<p>United Kingdom</p> <p>To the first paragraph the following is added:</p> <p>Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations.</p> <p>NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>		N/A
G.7.1	<p>Ireland</p> <p>To the first paragraph the following is added:</p> <p>Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs</p>		N/A

	and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard		
G.7.2	Ireland and United Kingdom To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm ² is allowed for equipment which is rated over 10 A and up to and including 13 A.	The power supply cord has not been checked, see GENERAL PRODUCT INFORMATION.	N/A
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		
10.5.2	Germany The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking. <i>Justification:</i> German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. NOTE Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int +49-531-592-6320, Internet: http://www.ptb.de	No CRT within the equipment.	N/A

Appendix

Photo documentation

Photo 1

AE100-B

☒ front

☐ rear

☐ right side

☐ left side

☐ top

☐ bottom

☐ internal

Photo 2

AE100-B

☒ front

☐ rear

☐ right side

☐ left side

☐ top

☐ bottom

☐ internal

Photo 3

AE100-B

☐ front

☒ rear

☐ right side

☐ left side

☐ top

☐ bottom

☐ internal

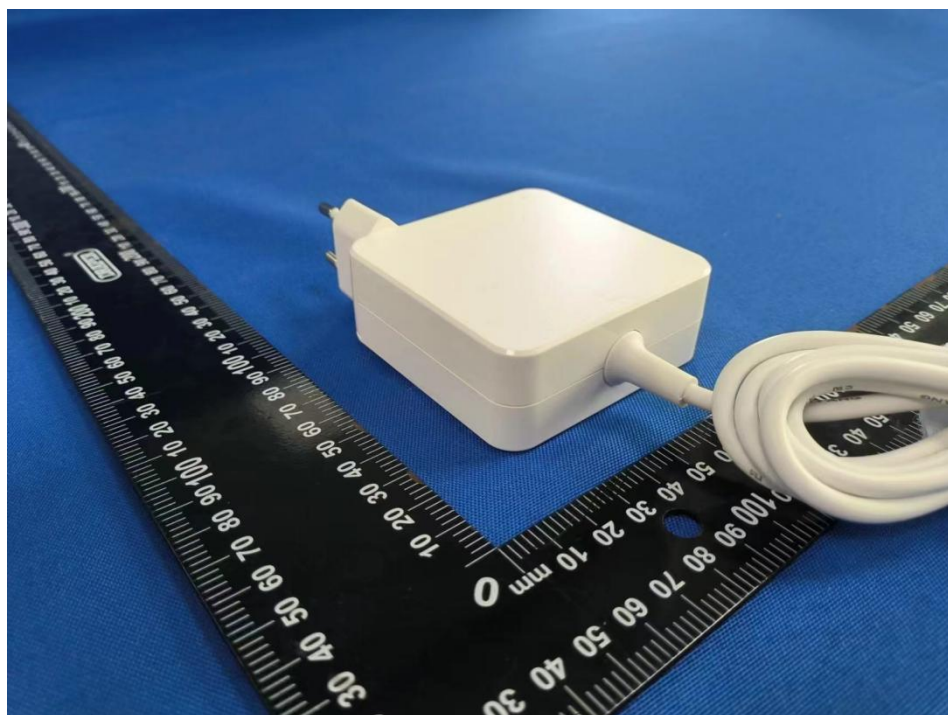


Photo 4

AE100-B

☐ front

☐ rear

☐ right side

☐ left side

☐ top

☐ bottom

☒ internal

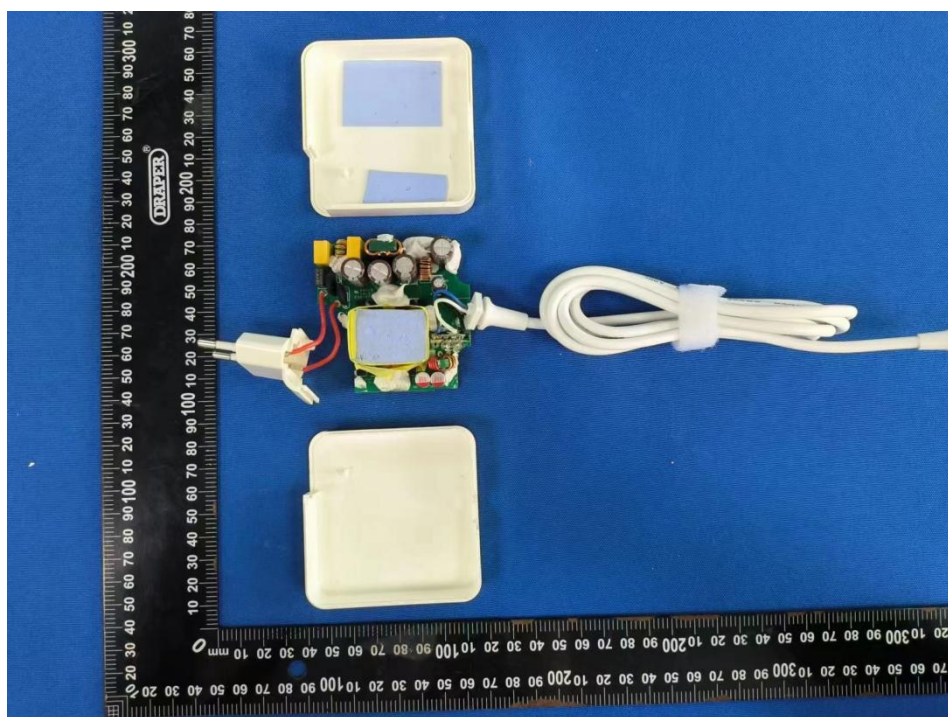


Photo 5

AE100-B

- ☐ front
- ☐ rear
- ☐ right side
- ☐ left side
- ☐ top
- ☐ bottom
- ☒ internal

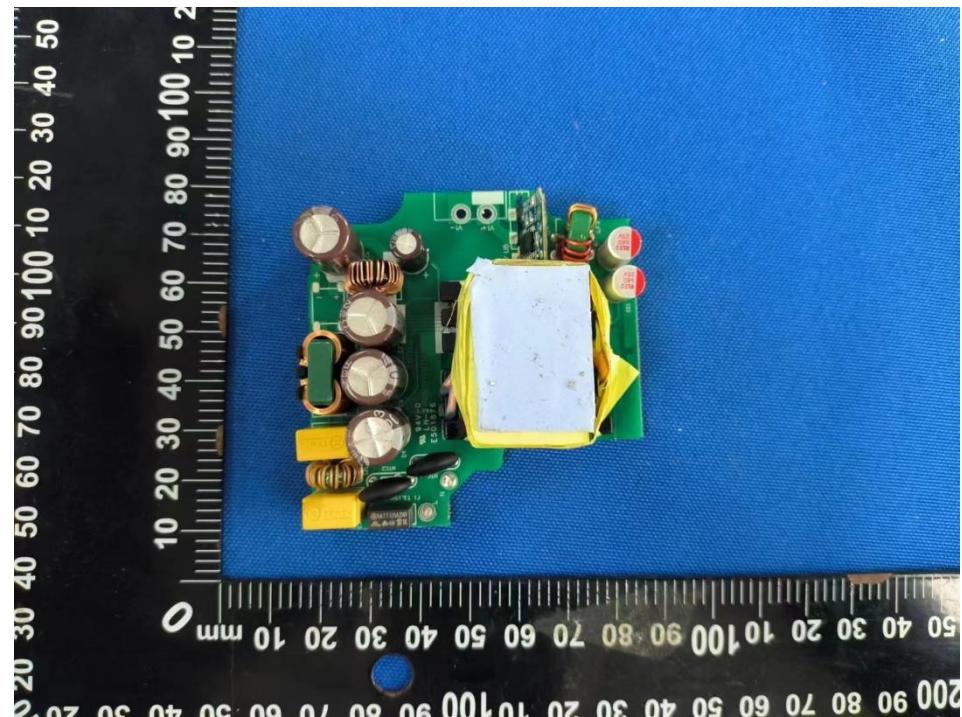


Photo 6

AE100-B

- ☐ front
- ☐ rear
- ☐ right side
- ☐ left side
- ☐ top
- ☐ bottom
- ☒ internal

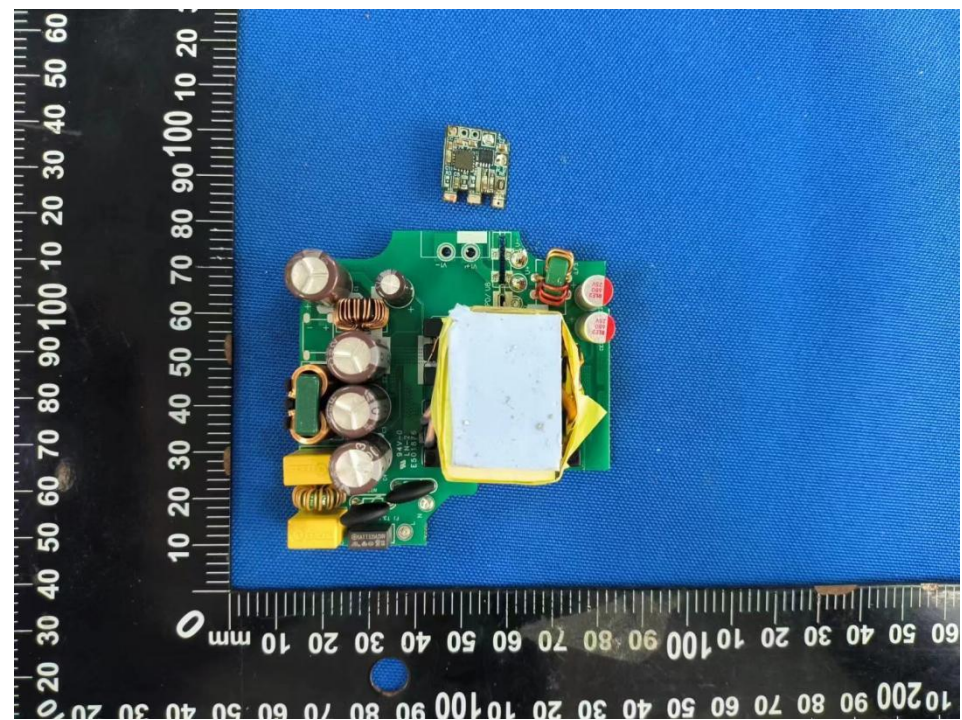


Photo 7

AE100-B

- ☐ front
☐ rear
☐ right side
☐ left side
☐ top
☐ bottom
☒ internal

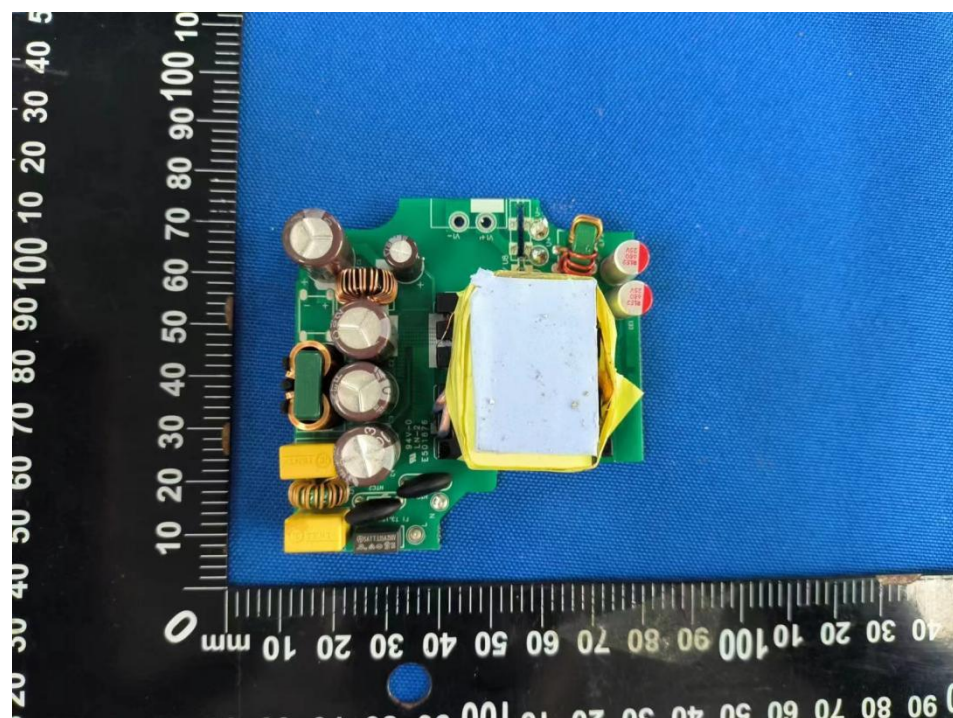


Photo 8

AE100-B

- ☐ front
☐ rear
☐ right side
☐ left side
☐ top
☐ bottom
☒ internal

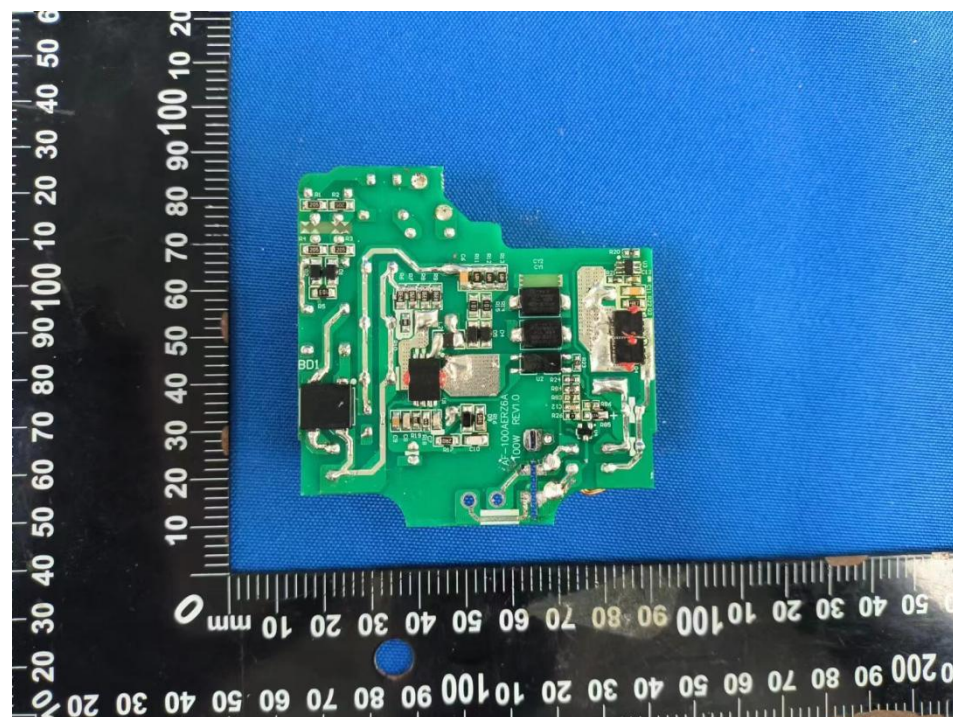


Photo 9

AE100-B

☐ front

☐ rear

☐ right side

☐ left side

☐ top

☐ bottom

☒ internal

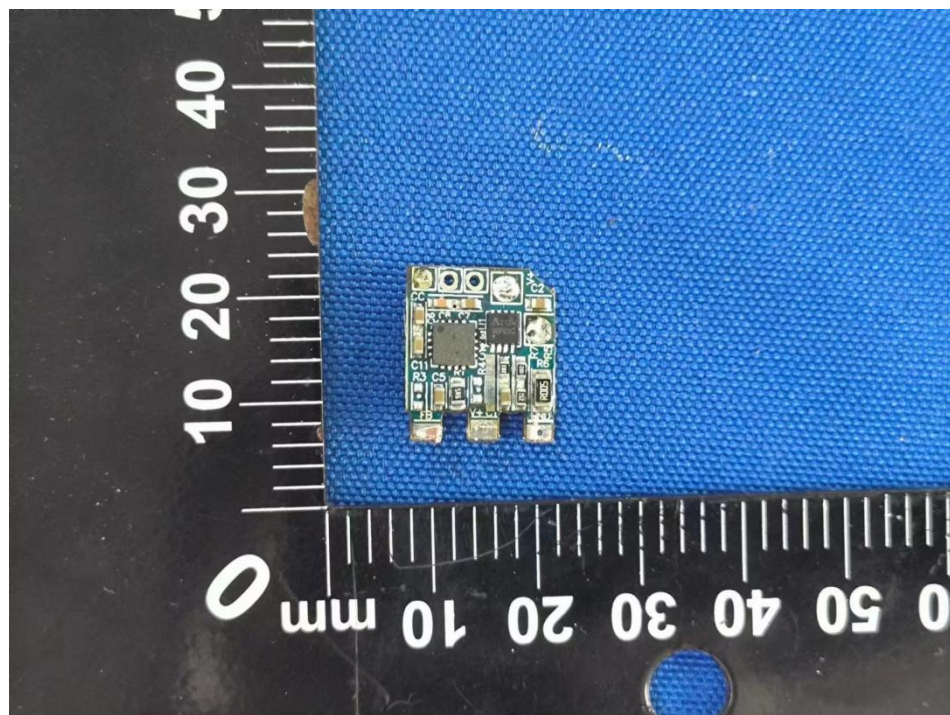


Photo 10

AE100-B

☐ front

☐ rear

☐ right side

☐ left side

☐ top

☐ bottom

☒ internal

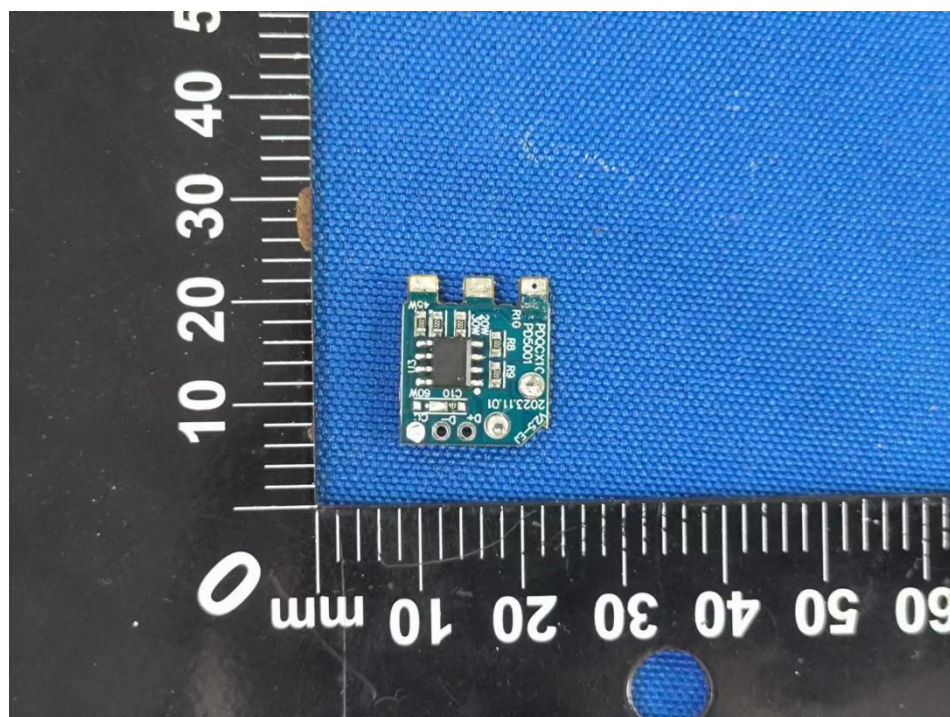


Photo 11

AE100-B (BS
plug)

☒ front

☐ rear

☐ right side

☐ left side

☐ top

☐ bottom

☐ internal



Photo 12

AE100-B (BS
plug)

☒ front

☐ rear

☐ right side

☐ left side

☐ top

☐ bottom

☐ internal



Photo 13

AE85 (BS plug)

☒ front

☐ rear

☐ right side

☐ left side

☐ top

☐ bottom

☐ internal

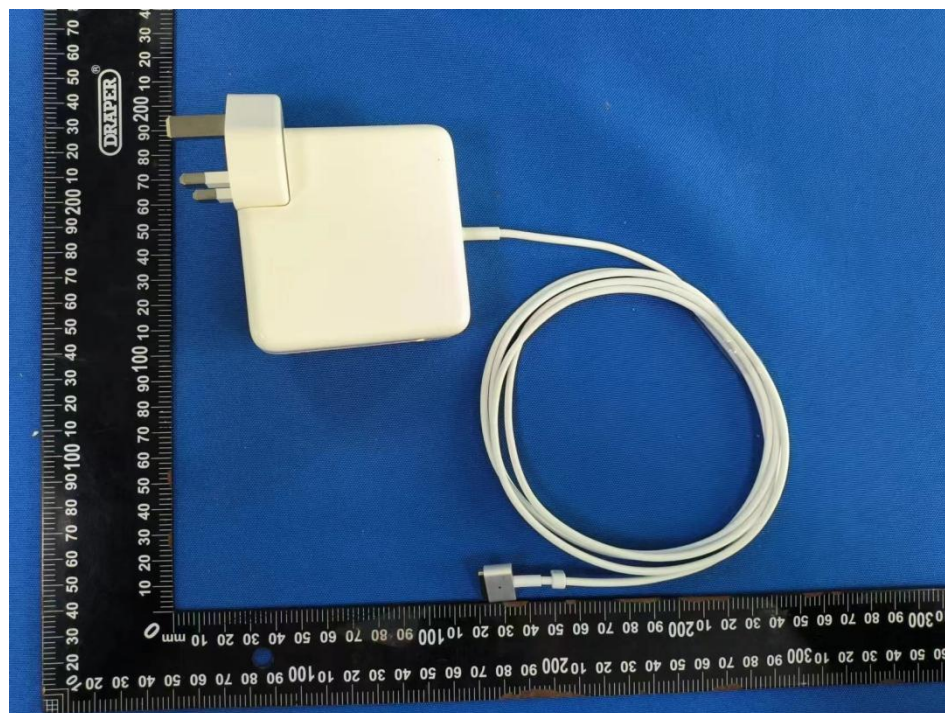


Photo 14

AE85

☒ front

☐ rear

☐ right side

☐ left side

☐ top

☐ bottom

☐ internal



Photo 15

AE85

☒ front

☐ rear

☐ right side

☐ left side

☐ top

☐ bottom

☐ internal

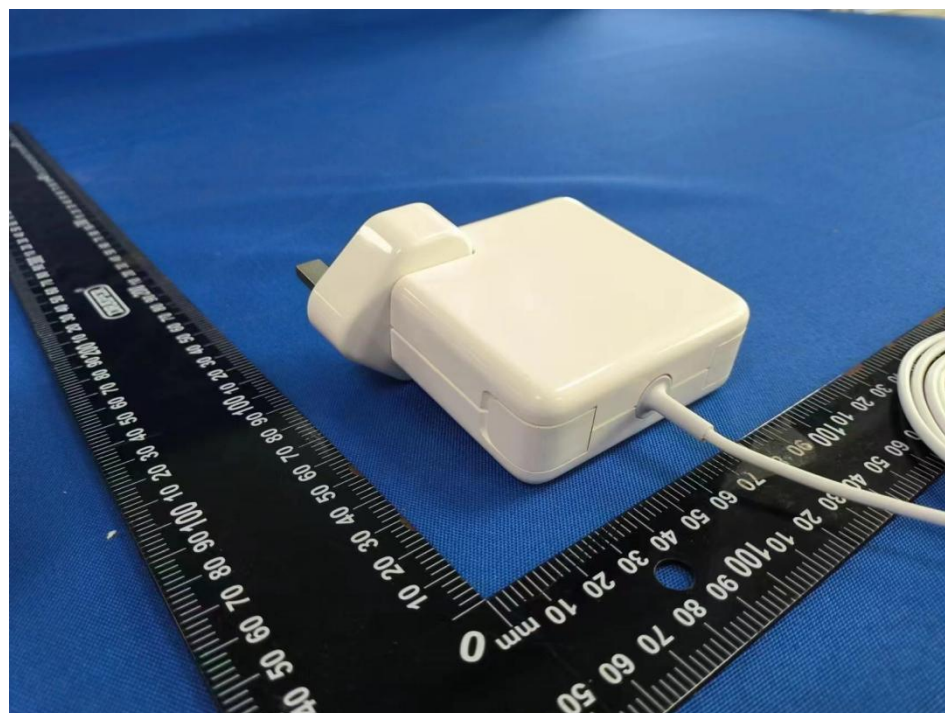


Photo 16

AE85

☒ front

☐ rear

☐ right side

☐ left side

☐ top

☐ bottom

☐ internal

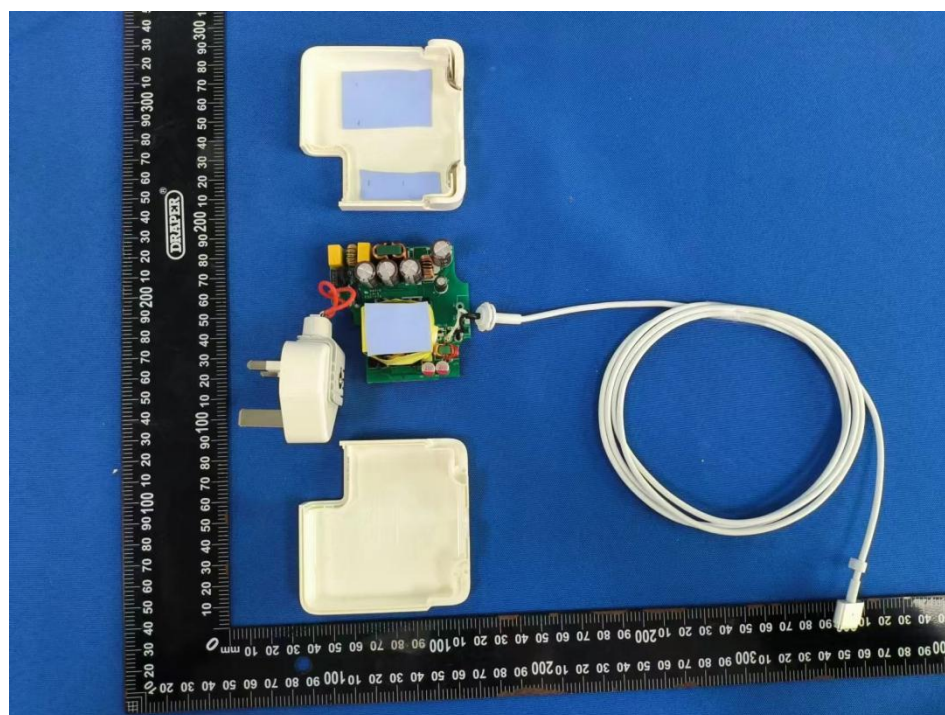


Photo 17

AE85

- ☐ front
☒ rear
☐ right side
☐ left side
☐ top
☐ bottom
☐ internal

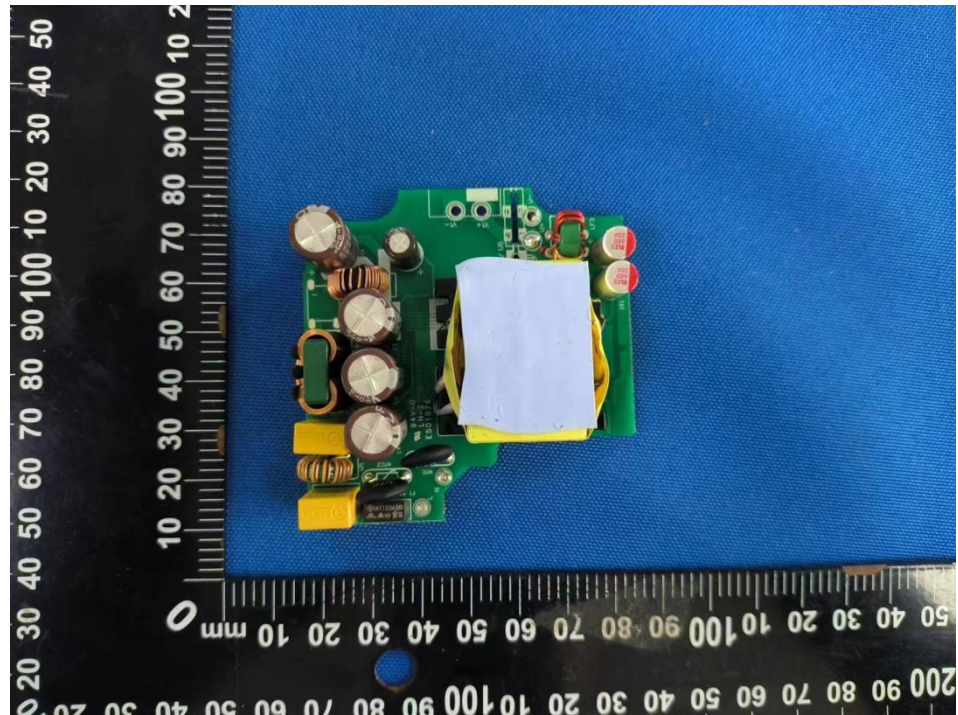


Photo 18

AE85

- ☐ front
☐ rear
☐ right side
☐ left side
☐ top
☐ bottom
☒ internal

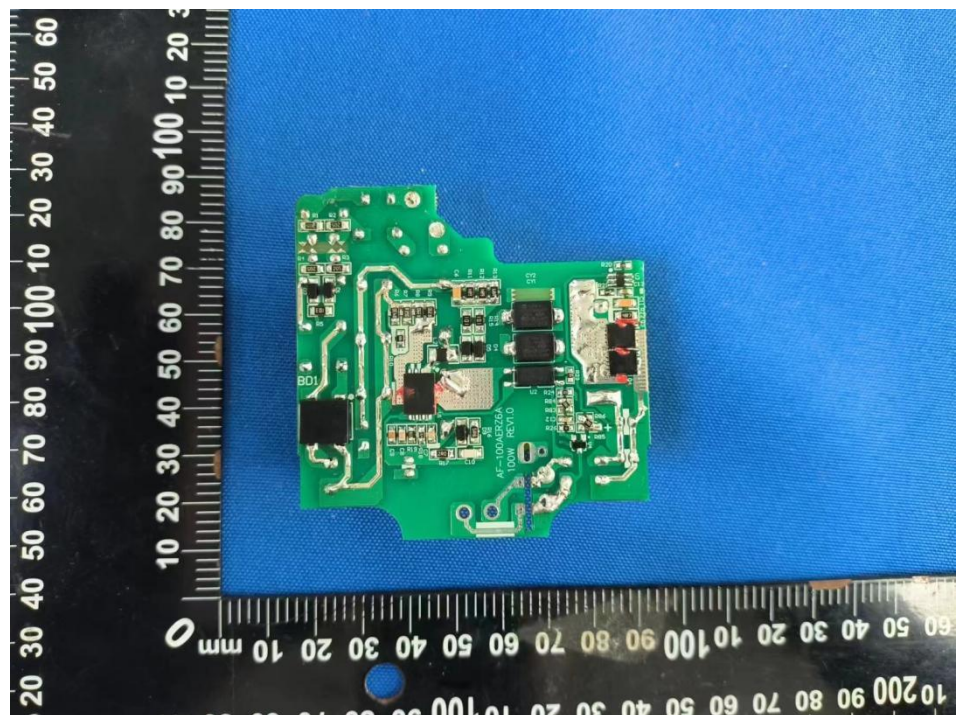


Photo 19

AE85 (EU plug)

- ☐ front
☐ rear
☐ right side
☐ left side
☐ top
☐ bottom
☒ internal

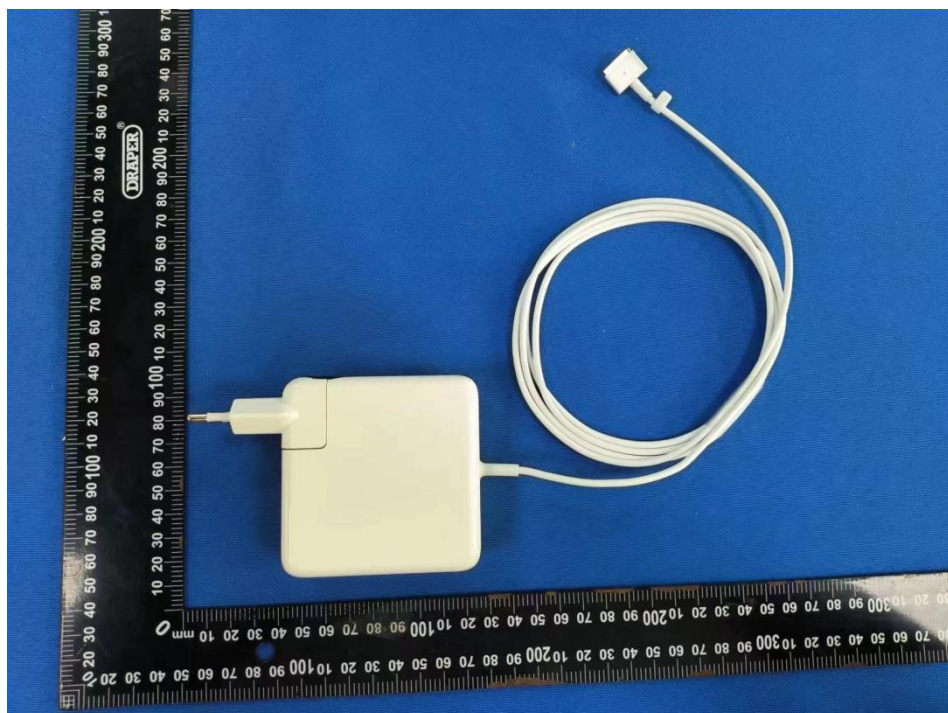


Photo 20

AF200425
(Alternative
output wire port)

- ☐ front
☐ rear
☐ right side
☐ left side
☐ top
☐ bottom
☒ internal



----- End of Report -----