



Test Report issued under the responsibility of:



TEST REPORT

IEC 62368-1

Audio/video, information and communication technology equipment

Part 1: Safety requirements

Report Number: 201106010SZN-002

Date of issue: Dec. 24, 2020

Total number of pages: See page 4 for details

Applicant's name

Address

Test specification:

Standard: IEC 62368-1:2014 (Second Edition)

Test procedure: CB scheme

Non-standard test method: N/A

Test Report Form No.: IEC62368_1B

Test Report Form(s) Originator: UL(US)

Master TRF: 2014-03

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Test Item description	Fast Charger
Trade Mark	
Manufacturer	Same as applicant
Model/Type reference	
Ratings	Input: 100-240V~, 50/60Hz, 0.5A Max Output (USB-A): QC 5.0V=== 3.0A (15.0W) or 9.0V=== 2.0A (18.0W) or 12.0V=== 1.5A (18.0W) Output (USB-C): PD 5.0V=== 3.0A (15.0W) or 9.0V=== 2.22A (20.0W) or 12.0V=== 1.67A (20.0W) Output PD+QC: 5.0V=== 3.0A (15.0W) Class II Equipment.

Testing procedure and testing location:		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	Intertek Testing Services Shenzhen Ltd. Longhua Branch
Testing location/ address		101, 201, Building B, No. 308 Wuhe Avenue, Zhangkengjing Community, GuanHu Subdistrict, LongHua District, ShenZhen, P.R. China
<input type="checkbox"/>	Associated CB Testing Laboratory:	
Testing location/ address		
Tested by (name + signature)..... :		Mark Liang/ Assistant Engineer
Approved by (name + signature)		Lynn Sun/ Engineer
<div style="text-align: right; margin-right: 50px;"><i>Mark Liang</i></div> <div style="text-align: right; margin-right: 50px;"><i>Lynn Sun.</i></div>		
<input type="checkbox"/>	Testing procedure: TMP/CTF Stage 1	
Testing location/ address		
Tested by (name + signature)..... :		
Approved by (name + signature)		
<input type="checkbox"/>	Testing procedure: WMT/CTF Stage 2	
Testing location/ address		
Tested by (name + signature)..... :		
Witnessed by (name + signature)		
Approved by (name + signature)		
<input type="checkbox"/>	Testing procedure: SMT/CTF Stage 3 or 4	
Testing location/ address		
Tested by (name + signature)..... :		
Approved by (name + signature)		
Supervised by (name + signature)..... :		

List of Attachments (including a total number of pages in each attachment): - Pages 1 to 63 for IEC 62368-1 TRF - Appendix 1 (10 pages): European group difference against IEC Standards: IEC 62368-1, 2nd Ed. (2014) - Appendix 2 (3 pages): EU plug test - Appendix 3 (4 pages): Circuit diagram and PCB layout - Appendix 4 (1 page): Specifications of Transformer T1 - Appendix 5 (9 pages): Product photos	
Summary of testing: The sample(s) tested complies with the requirements of IEC 62368-1:2014 & EN 62368-1:2014 + A11:2017.	
Tests performed (name of test and test clause): Refer to appended clause table for details	Testing location: Intertek Testing Services Shenzhen Ltd. Longhua Branch 101, 201, Building B, No. 308 Wuhe Avenue, Zhangkengjing Community, GuanHu Subdistrict, LongHua District, ShenZhen, P.R. China
Summary of compliance with National Differences: The European group difference have been checked according to IEC 62368-1: 2014 (Second Edition). <input checked="" type="checkbox"/> The product fulfils the requirements of IEC 62368-1: 2014 and EN 62368-1: 2014 + A11: 2017.	

Copy of marking plate

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

Fast charger

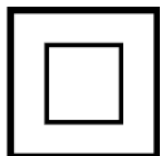
Model: ZX-2U39T Output Power:20W

Input:100-240V~ 50/60Hz 0.5A Max

Output(USB-A): QC 5.0V \Rightarrow 3.0A (15.0W) or 9.0V \Rightarrow 2.0A (18.0W)
or 12.0V \Rightarrow 1.5A (18.0W)

Output(USB-C): PD 5.0V \Rightarrow 3.0A (15.0W) or 9.0V \Rightarrow 2.22A (20.0W)
or 12.0V \Rightarrow 1.67A (20.0W)

Output PD+QC: 5.0V \Rightarrow 3.0A (15.0W)



Made in China

Manufacturer:Shenzhen ZONSAN Innovation Technology CO.,LTD.

Note:

- The above markings are the minimum requirements required by the safety standard. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.
- Size of CE mark must be in correct ratio and $\geq 5\text{mm}$ in height, and size of WEEE mark must be in correct ratio and $\geq 7\text{mm}$ in height.

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	<u>16 A</u> ; Installation location: <input checked="" type="checkbox"/> building; <input type="checkbox"/> equipment; <input type="checkbox"/> N/A
Equipment mobility	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <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:	25 °C
IP protection class	<input checked="" type="checkbox"/> IPX0 <input type="checkbox"/> IP_____
Power Systems	<input checked="" type="checkbox"/> TN <input checked="" type="checkbox"/> TT <input type="checkbox"/> IT - _____ V _{L-L} <input type="checkbox"/> N/A
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"/> Approx. 0.05kg
POSSIBLE TEST CASE VERDICTS:	
- test case does not apply to the test object	N/A
- test object does meet the requirement	P (Pass)
- test object does not meet the requirement	F (Fail)

TESTING:	
Date of receipt of test item	Nov. 06, 2020
Date (s) of performance of tests	Nov. 06, 2020 – Dec. 01, 2020
GENERAL REMARKS:	
<p>The test results presented in this report relate only to the object tested.</p> <p>This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.</p> <p>"(see Enclosure #)" refers to additional information appended to the report.</p> <p>"(see appended table)" refers to a table appended to the report.</p> <p>Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</p> <p>Determination of the test conclusion is based on IEC Guide 115 in consideration of measurement uncertainty.</p> <p>This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program. The test report only allows to be revised only within the report defined retention period unless standard or regulation was withdrawn or invalid.</p> <p>The clause which indicated with * is the subcontract test item. (if there is subcontracting test).</p>	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60060-2:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies).....	Name: Shenzhen ZONSAN Innovation Technology CO., LTD. Address: 2/F WanHeFeng Industrial Building, No. 7-5 Xihuan Road, Buji Street, Longgang District, Shenzhen, Guangdong, China
GENERAL PRODUCT INFORMATION:	
Product Description:	
The apparatus covered in this report is Fast Charger for ITE and indoor use only.	
Model Differences:	
N/A	
Additional application considerations – (Considerations used to test a component or sub-assembly)	
N/A	

ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
<p>(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.)</p> <p>(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.)</p>	
<p>Electrically-caused injury (Clause 5):</p> <p>(Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +5 V dc input ES1</p>	
Source of electrical energy	Corresponding classification (ES)
Circuit supplied by AC mains (primary)	ES3
Secondary of transformer	ES1
All accessible connectors (output port) and parts/enclosure accessible by ordinary person	ES1
<p>Electrically-caused fire (Clause 6):</p> <p>(Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts): PS2</p>	
Source of power or PIS	Corresponding classification (PS)
Circuit supplied by AC mains (primary)	PS3
Secondary circuit isolated from primary	PS2
Output port	PS2
<p>Injury caused by hazardous substances (Clause 7)</p> <p>(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</p>	
Source of hazardous substances	Corresponding chemical
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<p>Mechanically-caused injury (Clause 8)</p> <p>(Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit MS2</p>	
Source of kinetic/mechanical energy	Corresponding classification (MS)
Equipment mass	MS1
Rounded edges and corners	MS1
<p>Thermal burn injury (Clause 9)</p> <p>(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</p>	
Source of thermal energy	Corresponding classification (TS)
Thermoplastic surface of the equipment (contact time >1s and <10s)	TS1
<p>Radiation (Clause 10)</p> <p>(Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product RS1</p>	
Type of radiation	Corresponding classification (RS)
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ENERGY SOURCE DIAGRAM

Indicate which energy sources are included in the energy source diagram. Insert diagram below

☐ ES ☐ PS ☐ MS ☐ TS ☐ RS
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 person	ES3: Primary circuit connect to AC mains	N/A	N/A	1. Plastic enclosure. 2. Isolated transformer 3. Approved Y1-capacitor. 4. Clearances and creepage distances 5. Approved optocoupler
Ordinary person	ES1: Secondary of transformer	N/A	N/A	N/A
Ordinary person	ES1: All accessible connectors (output port) and parts/enclosure accessible by ordinary person	N/A	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
Plastic enclosure and Internal combustible material	PS3: All primary circuit connect to AC mains, PS2: Circuits behind secondary of transformer PS2: output port	No parts exceeding 90% of its spontaneous Ignition temperature	1. Fire enclosure 2. Transformer comply the insulation requirement 3. Approved Fuse used as protective device 4. Internal combustible material comply class V-0 or better. 5. Mounted on PCBs which are complied with class V-0 material	N/A

7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
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8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Ordinary person	MS1: Rounded edges and corners	N/A	N/A	N/A
Ordinary person	MS1: Equipment mass	N/A	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary person	TS1	N/A	N/A	N/A
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
--	--	--	--	--
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 clause 4.1.2	P
4.1.2	Use of components	See appended table 4.1.2	P
4.1.3	Equipment design and construction	Safeguards are provided to reduce the likelihood of injury or, in the case of fire, property damage. No parts of equipment that could cause injury can be accessible.	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.....:	Direct plug-in equipment, See Annex T.4	P
4.4.4.3	Drop tests.....:	Direct plug-in equipment, See Annex T.7	P
4.4.4.4	Impact tests.....:	Direct plug-in equipment	N/A
4.4.4.5	Internal accessible safeguard enclosure and barrier tests.....:	No internal solid safeguard is accessible to an ordinary person. No possible to open an external enclosure.	N/A
4.4.4.6	Glass Impact tests.....:	No such glass within equipment	N/A
4.4.4.7	Thermoplastic material tests.....:	The plastic enclosure of equipment is thermoplastic material as safeguard. No shrinkage or distortion of this thermoplastic material and not defeat its safeguard function after releasing of internal stresses. See Annex T.8	P
4.4.4.8	Air comprising a safeguard.....:	The clearance is a safeguard which is comprised of air. The following parts prevent the displacement of the air by a body part or a conductive part after the mechanical strength test specified in Annex T. 1. The plastic enclosure. 2. The internal barrier (Insulation sheet and tape) which is used for the primary circuit separating from secondary circuit.	P
4.4.4.9	Accessibility and safeguard effectiveness	No class 3 energy sources become accessible to an ordinary person or an instructed person. No glass break or crack. All other safeguards remain effective	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.5	Explosion	No battery used which is needed to comply with Annex M. No explosion occurred under normal and abnormal operating conditions. No explosion caused harm during single fault conditions and the equipment comply with the relevant parts of this standard.	P
4.6	Fixing of conductors	See below	P
4.6.1	Fix conductors not to defeat a safeguard	Soldered after the internal lead wire go through the hole of pad or conductor and then additional glue enhanced fixing as two independent fixings for protection against to become loose or detached at the same time. No safeguard (the clearance or creepage distances) can be defeated if the displacement of internal wires occurred. No safeguard (the clearance or creepage distances) can be defeated if the fixing of the conductors become loose or detached.	P
4.6.2	10 N force test applied to	10N force applied in most unfavourable direction.	P
4.7	Equipment for direct insertion into mains socket - outlets	Direct plug in equipment incorporating integral pins for insertion into mains socket-outlets. No impose undue torque on the socket-outlet.	P
4.7.2	Mains plug part complies with the relevant standard.....	Mains plug part complied with the relevant standard for the mains plug	P
4.7.3	Torque (Nm)	< 0.1 Nm	P
4.8	Products containing coin/button cell batteries	No such battery used	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		—
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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5	ELECTRICALLY-CAUSED INJURY		P
5.2.1	Electrical energy source classifications..... :	See below	P
5.2.2	ES1, ES2 and ES3 limits	Primary circuit by AC mains considered as ES3. Sec of transformer considered as ES1. After secondary of isolated transformer till output port considered as ES1.	P
5.2.2.2	Steady-state voltage and current..... :	See appended table 5.2	P
5.2.2.3	Capacitance limits :		N/A
5.2.2.4	Single pulse limits :	No such single pulse	N/A
5.2.2.5	Limits for repetitive pulses :	No such repetitive pulse	N/A
5.2.2.6	Ringing signals :	No such ringing signal	N/A
5.2.2.7	Audio signals :	No such audio signal	N/A
5.3	Protection against electrical energy sources	See below	P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	Protection requirement to ordinary person.	P
5.3.2.1	Accessibility to electrical energy sources and safeguards	Not be accessible to ordinary person for the following: 1, bare parts at ES2, ES3, and, 2, ES3 basic safeguard.	P
5.3.2.2	Contact requirements	The appropriate test probe from Annex V shall not contact a bare internal conductive part.	P
	a) Test with test probe from Annex V :	Checked by test probe with figure V.1, V.2.	P
	b) Electric strength test potential (V) :	See above	N/A
	c) Air gap (mm) :	See above	N/A
5.3.2.4	Terminals for connecting stripped wire	No such terminals for connecting stripped wire. No such contact with ES2 or ES3 (for audio signal voltage)	N/A
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material	Appropriate choice and application of the insulating material. Insulating material is not be hygroscopic, see clause 5.4.1.3	P
5.4.1.3	Humidity conditioning :	Complied. See humidity treatment clause 5.4.8 and electric strength test clause 5.4.9.1.	P
5.4.1.4	Maximum operating temperature for insulating materials :	See appended table 5.4.1.4	P
5.4.1.5	Pollution degree :	Pollution degree 2	—

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound	No such insulation compound	N/A
5.4.1.5.3	Thermal cycling	See clause 5.4.1.5.2	N/A
5.4.1.6	Insulation in transformers with varying dimensions	Single bobbin used, no such varying dimension for insulation of transformer	N/A
5.4.1.7	Insulation in circuits generating starting pulses	No such starting pulse generating in insulation circuits	N/A
5.4.1.8	Determination of working voltage	Max. 584Vpk, 276Vrms	P
5.4.1.9	Insulating surfaces	The accessible insulating surface is considered to be covered by a thin metallic foil for determining clearances, creepage distances and distance through insulation. See Figure O.13.	P
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	Sufficiently resistant to heat for the thermoplastic parts on which conductive metallic parts are directly mounted.	P
5.4.1.10.2	Vicat softening temperature	See below	N/A
5.4.1.10.3	Ball pressure	See appended table 5.4.1.10.3	P
5.4.2	Clearances		P
5.4.2.2	Determining clearance using peak working voltage	See appended table 5.4.2.2	P
5.4.2.3	Determining clearance using required withstand voltage	See appended table 5.4.2.3	P
	a) a.c. mains transient voltage	2500Vpeak	—
	b) d.c. mains transient voltage		—
	c) external circuit transient voltage		—
	d) transient voltage determined by measurement:		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test	Comply with clause 5.4.2.3. No need to conduct electric strength test	N/A
5.4.2.5	Multiplication factors for clearances and test voltages		P
5.4.3	Creepage distances	See appended table 5.4.3	P
5.4.3.1	General	The frequencies up to 30kHz comply with Table 18. The frequencies greater than 30kHz and up to 400kHz comply with Table 19.	P
5.4.3.3	Material Group	Material Group IIIb	—
5.4.4	Solid insulation		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		N/A
5.4.4.5	Cemented joints		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.6	Thin sheet material		P
5.4.4.6.1	General requirements		P
5.4.4.6.2	Separable thin sheet material	See below	P
	Number of layers (pcs) :	At least two layers used in wrapping transformer as reinforced insulation	P
5.4.4.6.3	Non-separable thin sheet material	No such non-separable thin sheet material	N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material :	See clause 5.4.4.6.3	N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		P
5.4.4.9	Solid insulation at frequencies >30 kHz :	For bobbin of Transformer (Phenolic) EP: 17 kV/mm KR: 0.71 EF = 17 k x 0.71 = 12.07 kV/mm d: 0.80 mm Vw = 12.07 k x 0.80 = 9.66 kV Vw (9.66 kV) > 1.2 x 2 x 600 V	P
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
	Insulation resistance (MΩ)..... :		—
5.4.6	Insulation of internal wire as part of supplementary safeguard :		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning	Complied with clause 5.4.1.3	P
	Relative humidity (%)..... :	93	—
	Temperature (°C) :	25	—
	Duration (h) :	48	—
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	Method 1=Method 3, as Highest	P
5.4.9.2	Test procedure for routine tests	Tested by manufacturer	N/A
5.4.10	Protection against transient voltages between external circuit	No such transient voltage from external circuits	N/A
5.4.10.1	Parts and circuits separated from external circuits	see above	N/A
5.4.10.2	Test methods	See above	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

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.11	Insulation between external circuits and earthed circuitry	No such insulation between external circuits and earthed circuitry	N/A
5.4.11.1	Exceptions to separation between external circuits and earth	See above	N/A
5.4.11.2	Requirements	See above	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		P
5.5.1	General	Components used as safeguard comply with all applicable requirements for that safeguard. Component used within its rating.	P
5.5.2	Capacitors and RC units	See below.	P
5.5.2.1	General requirement	Y-capacitor are IEC 60384-14 approval components and complied with G.11.	P
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector		N/A
5.5.3	Transformers	See Annex G.5.3	P
5.5.4	Optocouplers	Approved optocoupler U3 used	P
5.5.5	Relays	No such Relays.	N/A
5.5.6	Resistors		N/A
5.5.7	SPD's	No such device used	N/A
5.5.7.1	Use of an SPD connected to reliable earthing	See above	N/A
5.5.7.2	Use of an SPD between mains and protective earth	See above	N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable	No such insulation between the mains and the connection to a coaxial cable.	N/A
5.6	Protective conductor		N/A
5.6.2	Requirement for protective conductors	No such protective conductor	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)		—

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Clause	Requirement + Test	Result - Remark	Verdict
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		P
5.7.2.1	Measurement of touch current	See appended table 5.7.4	P
5.7.2.2	Measurement of prospective touch voltage	No such equipment that is intended to be earthed in the intended application.	N/A
5.7.3	Equipment set-up, supply connections and earth connections	Setup accordance with Clause 4, 5.3 and 5.4 of IEC 60990:1999	P
	System of interconnected equipment (separate connections/single connection)	No such system of interconnected equipment	—
	Multiple connections to mains (one connection at a time/simultaneous connections)	No such multiple connections to mains	—
5.7.4	Earthed conductive accessible parts	No such earthed conductive accessible parts	N/A
5.7.5	Protective conductor current	No such protective conductor current	N/A
	Supply Voltage (V).....	See above	—
	Measured current (mA).....	See above	—
	Instructional Safeguard.....	See above	N/A
5.7.6	Prospective touch voltage and touch current due to external circuits	No such prospective touch voltage and touch current from external circuits	N/A
5.7.6.1	Touch current from coaxial cables	See above	N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits	See above	N/A
5.7.7	Summation of touch currents from external circuits	No such touch current from external circuits	N/A
	a) Equipment with earthed external circuits Measured current (mA).....	See above	N/A
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA)	See above	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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		P
6.2.2.1	General		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 :	See appended table 6.2.2	P
6.2.2.5	PS2 :	See appended table 6.2.2	P
6.2.2.6	PS3 :	All component within primary circuit is assumed as PS3	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS :	All soldered terminals in primary circuit are assumed as Arcing PIS. See appended table 6.2.3.2	P
6.2.3.2	Resistive PIS :	All soldered terminals in primary circuit are assumed as Resistive PIS. All circuits behind secondary of transformer. 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 :	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	No such materials	N/A
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method	Control fire spread	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	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		N/A
6.4.4	Control of fire spread in PS1 circuits	PS1 is not considered to contain enough energy to result in materials reaching ignition temperatures.	P
6.4.5	Control of fire spread in PS2 circuits	See below	P

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.5.2	Supplementary safeguards	V-0 PCB used, all components mounted on V-0 PCB, transformer complied with G.5.3	P
6.4.6	Control of fire spread in PS3 circuit	Fire enclosure used	P
6.4.7	Separation of combustible materials from a PIS	See below	P
6.4.7.1	General.....	Fire enclosure used	P
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers	See below	P
6.4.8.1	Fire enclosure and fire barrier material properties	Overall enclosure is considered as fire enclosure	P
6.4.8.2.1	Requirements for a fire barrier	No such fire barrier	N/A
6.4.8.2.2	Requirements for a fire enclosure	1, No circuits where the available power exceeds 4000W. 2, The fire enclosure is made of approved V-0 or better class material.	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier	See below	N/A
6.4.8.3.1	Fire enclosure and fire barrier openings	No opening in fire enclosure	N/A
6.4.8.3.2	Fire barrier dimensions	See clause 6.4.8.3.1	N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm)	See clause 6.4.8.3.1	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)	See clause 6.4.8.3.1	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)	See clause 6.4.8.3.1	N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating.....	Smaller distances are allowed: The fire enclosure is made of V-0 class material.	P
6.5	Internal and external wiring		N/A
6.5.1	Requirements		N/A
6.5.2	Cross-sectional area (mm ²)		—
6.5.3	Requirements for interconnection to building wiring		N/A
6.6	Safeguards against fire due to connection to additional equipment	Comply with clause Q.1	P
	External port limited to PS2 or complies with Clause Q.1		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

7	INJURY CAUSED BY HAZARDOUS SUBSTANCES		P
7.2	Reduction of exposure to hazardous substances		P
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
8.1	General	Enclosure is smooth and no mechanical energy sources	P
8.2	Mechanical energy source classifications	MS1 as category Line 1 in table 35.	P
8.3	Safeguards against mechanical energy sources	No additional safeguards is needed to against mechanical energy sources	N/A
8.4	Safeguards against parts with sharp edges and corners	No sharp edges and corners.	P
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts	See below	N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment	No moving parts	N/A
8.5.2	Instructional Safeguard	See clause 8.5.1	—
8.5.4	Special categories of equipment comprising moving parts	See clause 8.5.1	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	No such 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	See below	N/A
8.6.1	Product classification	Weight: approx. 0.05kg max No stability requirements for MS1	N/A
	Instructional Safeguard		—

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Clause	Requirement + Test	Result - Remark	Verdict
8.6.2	Static stability		N/A
8.6.2.2	Static stability test	No sliding or rolling	N/A
	Applied Force..... :		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test	No need stability to relocate	N/A
	Unit configuration during 10° tilt :		—
8.6.4	Glass slide test	No supporting surface made of glass	N/A
8.6.5	Horizontal force test (Applied Force) :	No need such stability	N/A
	Position of feet or movable parts :		—
8.7	Equipment mounted to wall or ceiling	No mounted to wall or ceiling	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	No such handles	N/A
8.8.1	Classification		N/A
8.8.2	Applied Force :		N/A
8.9	Wheels or casters attachment requirements	No such wheels or casters	N/A
8.9.1	Classification		N/A
8.9.2	Applied force :		—
8.10	Carts, stands and similar carriers	See below	N/A
8.10.1	General	Not such carts, stands or similar carriers	N/A
8.10.2	Marking and instructions	See clause 8.10.2	N/A
	Instructional Safeguard :		—
8.10.3	Cart, stand or carrier loading test and compliance	See clause 8.10.2	N/A
	Applied force :		—
8.10.4	Cart, stand or carrier impact test	See clause 8.10.2	N/A
8.10.5	Mechanical stability	See clause 8.10.2	N/A
	Applied horizontal force (N)..... :		—
8.10.6	Thermoplastic temperature stability (°C) :	See clause 8.10.2	N/A
8.11	Mounting means for rack mounted equipment	See below	N/A
8.11.1	General	No such rack mounted equipment	N/A
8.11.2	Product Classification	See clause 8.11.1	N/A
8.11.3	Mechanical strength test, variable <i>N</i> :	See clause 8.11.1	N/A
8.11.4	Mechanical strength test 250N, including end stops	See clause 8.11.1	N/A
8.12	Telescoping or rod antennas :	No such antennas	N/A
	Button/Ball diameter (mm) :		—

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Clause	Requirement + Test	Result - Remark	Verdict
9	THERMAL BURN INJURY		P
9.2	Thermal energy source classifications	Classified as TS1	P
9.3	Safeguard against thermal energy sources	No safeguard against thermal energy sources	N/A
9.4	Requirements for safeguards		N/A
9.4.1	Equipment safeguard	Not equipment safeguard required due to TS1	N/A
9.4.2	Instructional safeguard		N/A

10	RADIATION		N/A
10.2	Radiation energy source classification		N/A
10.2.1	General classification		N/A
10.3	Protection against laser radiation		N/A
	Laser radiation that exists equipment:		—
	Normal, abnormal, single-fault..... :		N/A
	Instructional safeguard		—
	Tool..... :		—
10.4	Protection against visible, infrared, and UV radiation		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		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

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Clause	Requirement + Test	Result - Remark	Verdict
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		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		P
B.2.1	General requirements.....	See Test Item Particulars and appended test tables	P
	Audio Amplifiers and equipment with audio amplifiers	No such amplifiers and equipment with audio amplifiers	N/A
B.2.3	Supply voltage and tolerances	+10%, -10%	P
B.2.5	Input test.....	See appended table B.2.5	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General requirements.....	See appended table B.3	P
B.3.2	Covering of ventilation openings	No such openings	N/A
B.3.3	D.C. mains polarity test		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
B.3.4	Setting of voltage selector	No such selector	N/A
B.3.5	Maximum load at output terminals	Max. available output load	P
B.3.6	Reverse battery polarity	No such battery	N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.	No such audio amplifier used	N/A
B.3.8	Safeguards functional during and after abnormal operating conditions		P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short-circuited	No such controlling device	N/A
B.4.3	Motor tests	No motor 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	Short circuit	P
B.4.4.1	Short circuit of clearances for functional insulation	Line and Neutral comply with the clearance for functional insulation. The other functional insulation complied with short circuit test	P
B.4.4.2	Short circuit of creepage distances for functional insulation	Line and Neutral comply with the creepage distances for functional insulation. The other functional insulation complied with short circuit test	P
B.4.4.3	Short circuit of functional insulation on coated printed boards	No such coated PCB	N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors	See appended table B.4	P
B.4.6	Short circuit or disconnect of passive components	See appended table B.4	P
B.4.7	Continuous operation of components	No such motor, relay coils or the like, intended for short-time operation or intermittent operation.	N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions	No exceed the relevant energy class. No hazard involved.	P
B.4.9	Battery charging under single fault conditions ...	No such battery	N/A

C	UV RADIATION		N/A
C.1	Protection of materials in equipment from UV radiation	No such UV radiation	N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A


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Clause	Requirement + Test	Result - Remark	Verdict

C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A

D	TEST GENERATORS		N/A
D.1	Impulse test generators	No need impulse test	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	No such equipment containing the audio amplifier	N/A
	Audio signal voltage (V)		—
	Rated load impedance (Ω)		—
E.2	Audio amplifier abnormal operating conditions		N/A

F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General requirements		P
	Instructions – Language	English	—
F.2	Letter symbols and graphical symbols		P
F.2.1	Letter symbols according to IEC60027-1		P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific		P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	On the external enclosure	P
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification	See page 2 & 5	—
F.3.2.2	Model identification	See page 2 & 5	—
F.3.3	Equipment rating markings	See page 2 & 5	P
F.3.3.1	Equipment with direct connection to mains	Direct connection to AC mains	P
F.3.3.2	Equipment without direct connection to mains	See clause F.3.3.1	N/A
F.3.3.3	Nature of supply voltage.....	The symbol \sim , IEC60417-5032 (2002-10), used for a.c.	—
F.3.3.4	Rated voltage	See page 2 & 5	—
F.3.3.4	Rated frequency	See page 2 & 5	—
F.3.3.6	Rated current or rated power	See page 2 & 5	—
F.3.3.7	Equipment with multiple supply connections	No multiple supply connections	N/A
F.3.4	Voltage setting device	No such device	N/A
F.3.5	Terminals and operating devices		P

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.5.1	Mains appliance outlet and socket-outlet markings	No such devices	N/A
F.3.5.2	Switch position identification marking	No such devices	N/A
F.3.5.3	Replacement fuse identification and rating markings	The fuse is not replaceable by an ordinary person or an instructed person. The identification of a suitable replacement fuse marked adjacent to the fuse Fuse F1: T2A, 250V	P
F.3.5.4	Replacement battery identification marking	No such devices	N/A
F.3.5.5	Terminal marking location	No terminal marking placed on screws, removable washers, or other parts that can be removed when conductors are being connected.	N/A
F.3.6	Equipment markings related to equipment classification		P
F.3.6.1	Class I Equipment	See below	N/A
F.3.6.1.1	Protective earthing conductor terminal	Class II apparatus, no such terminal.	N/A
F.3.6.1.2	Neutral conductor terminal	Class II apparatus and not permanently connected equipment. No such the terminal intended exclusively for connection of the mains neutral conductor.	N/A
F.3.6.1.3	Protective bonding conductor terminals	Class II apparatus, no such terminal.	N/A
F.3.6.2	Class II equipment (IEC60417-5172)	See below	P
F.3.6.2.1	Class II equipment with or without functional earth	The symbol  , IEC60417-5172 (2003-02) used.	P
F.3.6.2.2	Class II equipment with functional earth terminal marking	No such functional earth terminal	N/A
F.3.7	Equipment IP rating marking	Only IPX0 equipment	—
F.3.8	External power supply output marking		P
F.3.9	Durability, legibility and permanence of marking	All markings on the equipment are durable and legible, and be easily discernable under normal lighting conditions.	P

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.10	Test for permanence of markings	Conducted by rubbing the marking by hand without appreciable force for 15 s with a piece of cloth soaked with water and at a different place or on a different sample for 15 s with a piece of cloth soaked with the petroleum spirit specified the reagent grade hexane with a minimum of 85 % n-hexane. After each test, the marking remain legible, no curling and not be removable by hand.	P
F.4	Instructions		N/A
	a) Equipment for use in locations where children not likely to be present - marking		N/A
	b) Instructions given for installation or initial use		N/A
	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		N/A
	f) Protective earthing employed as safeguard		N/A
	g) Protective earthing conductor current exceeding ES 2 limits		N/A
	h) Symbols used on equipment		N/A
	i) Permanently connected equipment not provided with all-pole mains switch		N/A
	j) Replaceable components or modules providing safeguard function		N/A
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	No such device	N/A
G.1.2	Ratings, endurance, spacing, maximum load	See clause G.1.2	N/A
G.2	Relays		N/A
G.2.1	General requirements	No such device	N/A
G.2.2	Overload test	See clause G.2.2	N/A
G.2.3	Relay controlling connectors supply power	See clause G.2.2	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.2.4	Mains relay, modified as stated in G.2	See clause G.2.2	N/A
G.3	Protection Devices		P
G.3.1	Thermal cut-offs	No such device	N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)	See clause G.3.1	N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure	See clause G.3.1	N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691	No such device	N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H)		—
	Single Fault Condition		—
	Test Voltage (V) and Insulation Resistance (Ω) :		—
G.3.3	PTC Thermistors	No such device	N/A
G.3.4	Overcurrent protection devices	Approved fuse used	P
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.4		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions.....:		N/A
G.4	Connectors		N/A
G.4.1	Spacings	No such device	N/A
G.4.2	Mains connector configuration	No such mains connector	N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely	No such socket-outlet	N/A
G.5	Wound Components		P
G.5.1	Wire insulation in wound components.....	Approved triple insulated wire used as Sec. winding of transformer T1	P
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°	Protection against mechanical stress by providing physical separation in the form of insulating sleeving and insulation tube.	P
G.5.1.2 b)	Construction subject to routine testing	Conducted by transformer's manufacturer	P
G.5.2	Endurance test on wound components	see below	N/A
G.5.2.1	General test requirements	See clause G.5.1.2	N/A
G.5.2.2	Heat run test	See clause G.5.1.2	N/A
	Time (s)		—
	Temperature (°C)		—
G.5.2.3	Wound Components supplied by mains	See clause G.5.1.2	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.3	Transformers		P
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1)..... :	Comply with G.5.3.2 - G.5.3.3	P
	Position..... :	Part No. T1, separate primary from secondary circuits.	—
	Method of protection	Protection by inherent or external impedance.	—
G.5.3.2	Insulation		P
	Protection from displacement of windings..... :	All windings are mechanically secured and soldered to corresponding pins.	—
G.5.3.3	Overload test	The test load applied to the output terminal	P
G.5.3.3.1	Test conditions		P
G.5.3.3.2	Winding Temperatures testing in the unit	See appended table B.3	P
G.5.3.3.3	Winding Temperatures - Alternative test method		N/A
G.5.4	Motors		N/A
G.5.4.1	General requirements	No such motors	N/A
	Position		—
G.5.4.2	Test conditions	See clause G.5.4.1	N/A
G.5.4.3	Running overload test	See clause G.5.4.1	N/A
G.5.4.4	Locked-rotor overload test	See clause G.5.4.1	N/A
	Test duration (days)		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits	See clause G.5.4.1	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	See clause G.5.4.1	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	See clause G.5.4.1	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.5.4.8	Three-phase motors	See clause G.5.4.1	N/A
G.5.4.9	Series motors	See clause G.5.4.1	N/A
	Operating voltage		—
G.6	Wire Insulation		P
G.6.1	General	ES3 for primary circuit, 1, Triple insulated wire complied with Item b according to Annex J 2, Tape wrapped the transformer with 2 layers.	P
G.6.2	Solvent-based enamel wiring insulation	No such wiring insulation	N/A
G.7	Mains supply cords		N/A
G.7.1	General requirements	No such mains supply cords	N/A
	Type.....		—
	Rated current (A)		—
	Cross-sectional area (mm ²), (AWG).....		—
G.7.2	Compliance and test method	See clause G.7.1	N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords	See clause G.7.1	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	See clause G.7.1	N/A
G.7.5	Non-detachable cord bend protection	See clause G.7.1	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	See clause G.7.1	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	No such Varistors	N/A
G.8.2	Safeguard against shock	See clause G.8.1	N/A
G.8.3	Safeguard against fire	See clause G.8.1	N/A
G.8.3.2	Varistor overload test		N/A
G.8.3.3	Temporary overvoltage		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.9	Integrated Circuit (IC) Current Limiters		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.	No such integrated circuit IC	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	See clause G.9.1	N/A
G.9.3	Test Program 2	See clause G.9.1	N/A
G.9.4	Test Program 3	See clause G.9.1	N/A
G.10	Resistors		N/A
G.10.1	General requirements	No such resistors used	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	The Y-capacitor are complied with IEC 60384-14.	P
G.11.2	Conditioning of capacitors and RC units	See clause.G.11.1	N/A
G.11.3	Rules for selecting capacitors	Selecting capacitor according to the list in table G.8, G.9 and G.12	P
G.12	Optocouplers		P
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results)		P
	Type test voltage Vini		—
	Routine test voltage, Vini,b		—
G.13	Printed boards		P
G.13.1	General requirements		P
G.13.2	Uncoated printed boards		P
G.13.3	Coated printed boards	No such coated printed boards	N/A
G.13.4	Insulation between conductors on the same inner surface	No such insulation	N/A
	Compliance with cemented joint requirements (Specify construction)		—
G.13.5	Insulation between conductors on different surfaces	No such insulation	N/A
	Distance through insulation		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	Number of insulation layers (pcs)		—
G.13.6	Tests on coated printed boards	No such coated printed boards, see clause G.13	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 such coating on components terminal	N/A
G.15	Liquid filled components		N/A
G.15.1	General requirements	No such components used	N/A
G.15.2	Requirements	See clause G.15.1	N/A
G.15.3	Compliance and test methods	See clause G.15.1	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	See clause G.15.1	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 IC including capacitor discharge function	N/A
b)	Impulse test using circuit 2 with $U_c =$ to transient voltage		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage		—
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
D2)	Capacitance		—
D3)	Resistance		—

H	CRITERIA FOR TELEPHONE RINGING SIGNALS		N/A
H.1	General	No such telephone ringing signal	N/A
H.2	Method A	See clause H.1	N/A
H.3	Method B	See clause H.1	N/A
H.3.1	Ringling signal		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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		P
	General requirements	Approved triple insulated wire used as Sec. winding of transformer T1	P

K	SAFETY INTERLOCKS		N/A
K.1	General requirements	No such safety interlocks	N/A
K.2	Components of safety interlock safeguard mechanism	See clause K.1	N/A
K.3	Inadvertent change of operating mode	See clause K.1	N/A
K.4	Interlock safeguard override	See clause K.1	N/A
K.5	Fail-safe	See clause K.1	N/A
	Compliance		N/A
K.6	Mechanically operated safety interlocks	See clause K.1	N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method		N/A
K.7	Interlock circuit isolation	See clause K.1	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		P
L.1	General requirements	Plug as disconnect device	P
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		P
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A

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

L.8	Multiple power sources		N/A
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M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		N/A
M.1	General requirements	No such batteries	N/A
M.2	Safety of batteries and their cells	See clause M.1	N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method) .. :		N/A
M.3	Protection circuits	See clause M.1	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	See clause M.1	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	See clause M.1	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	See clause M.1	N/A
M.6.1	Short circuits		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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	See clause M.1	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	See clause M.1	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	See clause M.1	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)	See clause M.1	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	complied

P	SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS		N/A
P.1	General requirements	No opening, no foreign objects entry	N/A
P.2.2	Safeguards against entry of foreign object	See clause P.1	N/A
	Location and Dimensions (mm) :		—
P.2.3	Safeguard against the consequences of entry of foreign object		N/A
P.2.3.1	Safeguards against the entry of a foreign object		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
	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	See clause P.1	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	See clause P.1	N/A
P.4.2 a)	Conditioning testing		N/A
	T _c (°C)		—
	T _r (°C)		—
	T _a (°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		P
Q.1	Limited power sources	See appended table annex Q1	P
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		P
	- Regulating network limited output under normal operating and simulated single fault condition	Regulating network limited the output	P
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		P
Q.2	Test for external circuits – paired conductor cable	No such circuits	N/A
	Maximum output current (A)		—
	Current limiting method		—

R	LIMITED SHORT CIRCUIT TEST		N/A
R.1	General requirements	No such equipment	N/A
R.2	Determination of the overcurrent protective device and circuit		N/A
R.3	Test method Supply voltage (V) and short-circuit current (A)).		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
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 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	See clause S.1	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	See clause S.1	N/A
	Samples, material		—
	Wall thickness (mm)		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials	See clause S.1	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	See clause S.1	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

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

T	MECHANICAL STRENGTH TESTS		P
T.1	General requirements		P
T.2	Steady force test, 10 N	Complied	P
T.3	Steady force test, 30 N		N/A
T.4	Steady force test, 100 N	Complied	P
T.5	Steady force test, 250 N		N/A
T.6	Enclosure impact test	No such equipment	N/A
	Fall test		N/A
	Swing test		N/A
T.7	Drop test	See appended table T.7	P
T.8	Stress relief test	See appended table T.8	P
T.9	Impact Test (glass)	No such equipment	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	No such equipment	N/A
T.11	Test for telescoping or rod antennas	No such equipment	N/A
	Torque value (Nm)		—

U	MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		N/A
U.1	General requirements		N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen.....		N/A

V	DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)		P
V.1	Accessible parts of equipment	No hazards can be accessible by figure V.1 and V.2	P
V.2	Accessible part criterion		P

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

4.1.2	TABLE: List of critical components					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹	
Plastic material of Enclosure	LG Chem (Guangzhou) Engineering Plastics Co Ltd	LUPOY ER-1006F(#)	PC, V-0, 115°C, Min. thickness 2.0mm	IEC 60695-11-10, UL 94	UL E248280	
-Alternative	SABIC INNOVATIVE PLASTICS US L L C	940(f1)	PC, V-0, 120°C, Min. thickness 2.0mm	IEC 60695-11-10, UL 94	UL E121562	
Plug holder material	LG Chem (Guangzhou) Engineering Plastics Co Ltd	LUPOY ER-1006F(#)	PC, V-0, 115°C	IEC 60695-11-10, UL 94	UL E248280	
-Alternative	SABIC INNOVATIVE PLASTICS US L L C	940(f1)	PC, V-0, 120°C	IEC 60695-11-10, UL 94	UL E121562	
PCB	GOLDENMAX INTERNATIONAL TECHNOLOGY (ZHUHAI) LTD	GDM-R1, ILM-R1	V-0 ,130°C	UL 796, UL 94	UL E330731	
-Alternative	GOLDENMAX INTERNATIONAL TECHNOLOGY (HANGZHOU) LTD	ILM-R1##	V-0 ,130°C	UL 796, UL 94	UL E134893	
-Alternative	SHANGHAI GLOBAL ELECTRONIC MATERIAL LTD	ILM-R1, GEM-R1, GDM-R1##	V-0 ,130°C	UL 796, UL 94	UL E224772	
-Alternative	Interchangeable	Interchangeable	V-0 ,130°C	UL 796, UL 94	UL	
Current fuse (F1)	Dongguan Anlu Electronics Technology Co. Ltd	AMT	T2A, 250Vac	IEC/EN 60127-1, IEC/EN 60127-3	VDE 40047322	
-Alternative	DONGGUAN HONGDA ELECTRONIC TECHNOLOGY CO LTD	2009	T2A, 250Vac	IEC/EN 60127-1 IEC/EN 60127-3	VDE 40028260	
Thermistor (NTC1)	Interchangeable	Interchangeable	Min.10Ω at 25°C, Min. 0.5A	IEC/EN 62368-1	Tested with appliance	
Y Capacitor (CY1)	JYH HSU (JEC) ELECTRONICS LTD	JD	Max. 2200pF, Min. 250V, 125°C, Y1 type	IEC/EN 60384-14	VDE 40038642	
-Alternative	Jyh Chung Electronic Co., Ltd	JD	Max. 2200pF, Min. 250V, 125°C, Y1 type	IEC/EN 60384-14	VDE 137027	

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Optocoupler (U3)	Everlight Electronics Co., Ltd.	EL1018V	Isolating Voltage: 5000V, 110°C, Cr≥ 5.0mm Cl≥ 5.0mm	IEC/EN 60747-5-5	VDE 40028391
-Alternative	Shenzhen Orient Components Co. Ltd.	OR-1018	Isolating Voltage: 5000V, 110°C, Cr≥ 5.0mm Cl≥ 5.0mm	IEC/EN 60747-5-5	VDE 40029733
Inductor (L1)	SHENZHEN LISHENGJIA ELECTRONIC TECHNOLOGY CO LTD	RD6*10-0.33mH	0.3mH min.	IEC/EN 62368-1	Tested with appliance
-Magnet Wire of L1	WUZHOU TOREAL COPPER CO., Ltd	2UEW	130°C	UL 1446	UL E348247
-Alternative	Interchangeable	Interchangeable	130°C	UL 1446	UL
Electrolytic Cap. (C3, C4)	Interchangeable	Interchangeable	Max.15μF, 400 V, 105°C	IEC/EN 62368-1	Tested with appliance
Bridge Diode (BD1)	Interchangeable	Interchangeable	Min. 2.0A, min. 700V	IEC/EN 62368-1	Tested with appliance
Limited current resistor (R16)	Interchangeable	Interchangeable	1/4 W, 4.7Ω	IEC/EN 62368-1	Tested with appliance
Limited current resistor (R15)	Interchangeable	Interchangeable	1/4 W, 1.5Ω	IEC/EN 62368-1	Tested with appliance
Insulation sheet used between Pri. L1 and secondary	CHENGDU KANGLONGXIN PLASTICS CO LTD	KLX PP BK-10	V-0, 110°C, min, thickness 0.4mm	UL 94	UL E315185
Insulation sheet used between Line and C10	CHENGDU KANGLONGXIN PLASTICS CO LTD	KLX PP BK-10	V-0, 110°C, min, thickness 0.4mm	UL 94	UL E315185

IEC 62368-1					
Clause	Requirement + Test		Result - Remark		Verdict
Transformer (T1)	SHENZHEN FENDS ELECTRONICS CO., LTD	ZX-2U29T	Primary winding: N1 (Pin 3-2): Φ0.3mm*1P, 51Ts; N2(Pin 5-NC): copper 0.025mm*8mm, 1.1Ts; N4(Pin 4-5): Φ0.18mm*1P, 20Ts; N5(Pin 2-1): Φ 0.3mm*1P, 25Ts Secondary winding: N3(Pin T+-T): Φ0.70mm*1P, 8Ts	IEC/EN 62368-1	Tested with appliance
-Insulation system	SHENZHEN LISHENGJIA ELECTRONIC TECHNOLOGY CO LTD	LSJ-B	Class B	UL 1446	UL E509456
-Bobbin of T1	Chang Chun Plastics Co., Ltd	T375HF	V-0, 140°C	UL 94	UL E59481
-Magnet Wire of T1	Dongguan YiDa Industrial Co., Ltd	xUEW/130	130°C	UL 1446	UL E344055
-Triple Insulated Wire of T1	Shenzhen Darun Science and Technology Co., Ltd	DRTIW-B	130°C	IEC/EN 60950-1	VDE 40032470
-Insulation Tape of T1	Suzhou Mailaduona Electric Material Co., Ltd.	JY312(#)	130°C	UL 510	UL E188295
-Insulation tube of T1	DONGGUAN LING FREE HARDWARE PLASTICS PRODUCT CO LTD	LING FREE PTFE TUBE	600V, 200°C	UL 224	UL E352366
-Varnish of T1	Zhuhai Changxian New Materials Technology Co., LTD	E962	130°C	UL 1446	E335405
Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039. 2) Description line content is optional. Main line description needs to clearly detail the component used for testing					

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Clause	Requirement + Test		Result - Remark	Verdict
4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests			N/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
--			--	--
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	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
1	264Va.c.	All primary circuit to AC mains	Normal	--	--	--	ES3 (Declare)
			Abnormal	--	--	--	
			Single fault SC/OC	--	--	--	

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Clause	Requirement + Test		Result - Remark				Verdict
2	264Va.c.	Type-C Output connector (12Vd.c.) (+) to (-)	Normal	12.32Vdc	--	DC	ES1
			Abnormal - overload	8.96Vdc	--	DC	
			Single fault – C5 /SC	12.32Vdc	--	DC	
			Single fault – R16 /SC	0	--	DC	
			Single fault – U3 pin3-4 /SC	0	--	DC	
3	264Va.c.	Type-C Output connector (12Vd.c.) (+/-) to Earth	Normal	--	0.425mA _{pk}	60	ES1
			Abnormal - overload	--	0.430mA _{pk}	60	
			Single fault – C5 /SC	--	0.430mA _{pk}	60	
			Single fault – R16 /SC	--	0.429mA _{pk}	60	
			Single fault – U3 pin3-4 /SC	--	0.431mA _{pk}	60	
4	264Va.c.	USB-A Output connector (12Vd.c.) (+) to (-)	Normal	12.32Vdc	--	DC	ES1
			Abnormal - overload	9.52 Vdc	--	DC	
			Single fault – C5 /SC	12.32Vdc	--	DC	
			Single fault – R16 /SC	0	--	DC	
			Single fault – U3 pin3-4 /SC	0	--	DC	
5	264Va.c.	USB-A Output connector (12Vd.c.) (+/-) to Earth	Normal	--	0.425mA _{pk}	60	ES1
			Abnormal - overload	--	0.430mA _{pk}	60	
			Single fault – C5 /SC	--	0.430mA _{pk}	60	
			Single fault – R16 /SC	--	0.429mA _{pk}	60	
			Single fault – U3 pin3-4 /SC	--	0.431mA _{pk}	60	

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Clause	Requirement + Test	Result - Remark	Verdict

6	264Va.c.	T1 pin 8 to pin 7	Normal	44.8Vpk	0.425mA _{pk}	60.46K	ES1
			Abnormal - overload	45.0Vpk	0.430mA _{pk}	60.46K	
			Single fault – C5 /SC	44.8Vpk	0.430mA _{pk}	60.46K	
			Single fault – R16 /SC	0V	--	--	
			Single fault – U3 pin3-4 /SC	0V	--	--	
			Single fault – T1 Sec. pins /SC	0V	--	--	

Supplementary information:

Parameters to be record based on circuit description:

Voltage and steady state limits: Specify Voltage, Current and Frequency of the circuit

Capacitor limits: Specify Voltage and Capacitance

Single pulse limits: Specify Voltage, Current, and pulse duration

Limits for repetitive pulses: Specify Voltage Current, and pulse time off.

Ringing: Default is ES2

Audio: See Annex E

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)	Ip _k (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)	Ip _k (mA)	
--	--	--	Normal	--	--	--	--
			Abnormal	--	--	--	
			Single fault – SC/OC	--	--	--	

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Clause	Requirement + Test	Result - Remark	Verdict

Test Conditions: Normal –
 Abnormal -
 Supplementary information: SC=Short Circuit, OC=Short Circuit

5.4.1.4, 6.3.2, 9.0, B.2.6		TABLE: Temperature measurements				P	
Supply voltage (V)		90 (H) /60Hz	90 (V) /60Hz	264 (H) /60Hz	264 (V) /60Hz	—	
Ambient T _{min} (°C)		25.0	25.0	25.0	25.0	—	
Ambient T _{max} (°C)		25.0	25.0	25.0	25.0	—	
T _{ma} (°C)		25.0	25.0	25.0	25.0	—	
Maximum measured temperature T of part/at:		T (°C)				Allowed T _{max} (°C)	
Internal plug pin holder		41.8	39.3	37.7	37.9	Ref.	
Winding of L1		82.8	80.8	67.7	68.3	120	
C4 body		86.2	84.1	72.1	73.0	105	
C6 body		88.1	88.2	80.9	82.0	105	
C10 body		80.8	77.1	72.3	74.0	105	
CY1 body		83.6	82.4	73.5	74.2	125	
U3 body		69.4	70.4	64.3	62.8	110	
Pri winding of transformer T1		97.6	94.6	86.8	88.8	110	
Sec winding of transformer T1		97.2	94.9	87.4	88.8	110	
PCB near NTC1		84.2	82.1	62.8	62.3	130	
PCB near BD1		86.2	83.8	67.1	67.4	130	
PCB near U2		98.8	96.9	87.8	88.0	130	
PCB near U1		90.3	89.8	82.6	82.7	130	
PCB near IC6		83.3	83.4	76.4	77.2	130	
Internal enclosure surface (top plastic)(near T1)		75.2	71.7	66.9	69.1	Ref.	
Internal enclosure surface (bottom plastic)(near T1)		80.2	77.0	70.5	70.3	Ref.	
External enclosure surface (top plastic)(near T1)		64.8	58.9	56.5	60.0	77	
External enclosure surface (bottom plastic)(near T1)		68.3	66.2	64.9	62.2	77	
External enclosure surface near USB		59.5	62.0	53.9	56.3	77	
Supplementary information: For output 5.0Vd.c., 3.0A							
Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
T1	--	--	--	--	--	--	Class B
Supplementary information: H= Horizontal; V= Vertical							

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements					P	
Supply voltage (V):	90 (H) /60Hz	90 (V) /60Hz	264 (H) /60Hz	264 (V) /60Hz	—		
Ambient T _{min} (°C):	25.0	25.0	25.0	25.0	—		
Ambient T _{max} (°C):	25.0	25.0	25.0	25.0	—		
T _{ma} (°C):	25.0	25.0	25.0	25.0	—		
Maximum measured temperature T of part/at:	T (°C)				Allowed T _{max} (°C)		
Internal plug pin holder	44.1	42.5	39.3	36.6	Ref.		
Winding of L1	96.0	95.1	71.2	71.3	120		
C4 body	98.6	98.0	76.4	76.4	105		
C6 body	91.0	93.3	79.6	82.1	105		
C10 body	89.2	88.2	76.9	75.8	105		
CY1 body	91.5	92.1	73.9	75.9	125		
U3 body	76.7	77.6	63.3	64.6	110		
Pri winding of transformer T1	108.5	108.2	92.0	92.1	110		
Sec winding of transformer T1	107.0	107.6	91.6	92.1	110		
PCB near NTC1	97.5	95.9	68.3	66.0	130		
PCB near BD1	99.9	98.7	72.4	71.0	130		
PCB near U2	104.3	115.5	93.6	93.4	130		
PCB near U1	87.1	98.8	83.3	84.4	130		
PCB near IC6	85.3	86.6	68.7	75.4	130		
Internal enclosure surface (top plastic)(near T1)	83.6	82.5	70.9	70.6	Ref.		
Internal enclosure surface (bottom plastic)(near T1)	91.6	90.7	76.0	73.1	Ref.		
External enclosure surface (top plastic)(near T1)	68.5	69.5	59.9	58.4	77		
External enclosure surface (bottom plastic)(near T1)	70.9	65.8	68.3	63.8	77		
External enclosure surface near USB	59.0	63.2	50.6	57.7	77		
Supplementary information: For output 9.0Vd.c., 2.22A							
Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
T1	--	--	--	--	--	--	Class B
Supplementary information: H= Horizontal; V= Vertical							

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements					P	
Supply voltage (V)	90 (H) /60Hz	90 (V) /60Hz	264 (H) /60Hz	264 (V) /60Hz	—		
Ambient T _{min} (°C)	25.0	25.0	25.0	25.0	—		
Ambient T _{max} (°C)	25.0	25.0	25.0	25.0	—		
T _{ma} (°C)	25.0	25.0	25.0	25.0	—		
Maximum measured temperature T of part/at:	T (°C)				Allowed T _{max} (°C)		
Internal plug pin holder	44.7	42.0	37.4	36.1	Ref.		
Winding of L1	91.7	90.3	67.0	65.6	120		
C4 body	95.0	93.0	72.5	71.2	105		
C6 body	84.4	84.1	73.9	73.4	105		
C10 body	88.4	84.0	74.3	71.2	105		
CY1 body	84.8	84.0	68.7	67.8	125		
U3 body	68.5	70.3	56.0	55.9	110		
Pri winding of transformer T1	105.2	101.7	88.1	85.9	110		
Sec winding of transformer T1	103.1	100.4	86.9	85.2	110		
PCB near NTC1	95.8	93.7	64.4	63.2	130		
PCB near BD1	97.9	95.4	68.8	67.4	130		
PCB near U2	111.0	108.2	87.7	86.8	130		
PCB near U1	91.3	90.4	77.1	76.7	130		
PCB near IC6	71.0	71.9	61.1	60.6	130		
Internal enclosure surface (top plastic)(near T1)	81.5	77.4	68.3	65.9	Ref.		
Internal enclosure surface (bottom plastic)(near T1)	91.1	86.7	71.6	69.8	Ref.		
External enclosure surface (top plastic)(near T1)	55.5	64.2	59.0	54.3	77		
External enclosure surface (bottom plastic)(near T1)	55.9	61.4	61.6	60.6	77		
External enclosure surface near USB	45.2	55.6	48.0	49.2	77		
Supplementary information: For output: 12.0Vd.c., 1.67A							
Temperature T of winding:	t ₁ (°C)	R ₁ (Ω)	t ₂ (°C)	R ₂ (Ω)	T (°C)	Allowed T _{max} (°C)	Insulation class
T1	--	--	--	--	--	--	Class B
Supplementary information: H= Horizontal; V= Vertical							

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Clause	Requirement + Test	Result - Remark	Verdict

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)	
Enclosure & Plug holder/ LUPOY ER-1006F(#)	LG CHEM (GUANGZHOU) ENGINEERING PLASTICS CO LTD	125	1.20	
Enclosure & Plug holder/ 940(f1)	SABIC INNOVATIVE PLASTICS US L L C	125	1.08	
Supplementary information:				

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) ¹	Required cl (mm)	cl (mm) ²	Required ³ cr (mm)	cr (mm)
Basic/supplementary insulation							
Line and Neutral before fuse	420	250	0.06	1.27	5.0	2.5	5.0
Two pins of fuse	420	250	0.06	1.27	3.3	2.5	3.3
Reinforced insulation							
Primary live parts to accessible enclosure surface	420	250	0.06	2.54	5.6	5.0	5.6
Primary R16 to Secondary C14 on PCB	420	250	0.06	2.54	7.7	5.0	7.7
Primary U2 to Secondary U1 on PCB	420	250	0.06	2.54	8.0	5.0	8.0
Primary to Secondary of CY1	420	250	0.06	2.54	8.4	5.0	8.4
Primary to Secondary of Optocoupler U3	420	250	0.06	2.54	7.5	5.0	7.5
Transformer primary winding to secondary winding	584	276	57.9	2.54	8.0	5.6	8.0
Transformer primary pin to secondary pin	584	276	57.9	2.54	8.0	5.6	8.0
Transformer core to secondary winding/pin	584	276	57.9	2.54	8.0	5.6	8.0
Supplementary information:							

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.2.3	TABLE: Minimum Clearances distances using required withstand voltage			P
	Overvoltage Category (OV):			OVC II
	Pollution Degree:			2
Clearance distanced between:		Required withstand voltage	Required cl (mm)	Measured cl (mm)
Basic/supplimentary insulation				
Line and Neutral before fuse		2500	1.5	5.0
Two pins of fuse		2500	1.5	3.3
Reinforced insulation				
Primary to accessible enclosure		2500	3.0	5.6
Primary R16 to Secondary C14 on PCB		2500	3.0	7.7
Primary U2 to Secondary U1 on PCB		2500	3.0	8.0
Primary to Secondary of CY1		2500	3.0	8.4
Primary to Secondary of Optocoupler U3		2500	3.0	7.5
Transformer primary winding to secondary winding		2500	3.0	8.0
Transformer primary pin to secondary pin		2500	3.0	8.0
Transformer core to secondary winding/pin		2500	3.0	8.0
Supplementary information: The equipment was evaluated for a maximum operating altitude of 2000m.				

5.4.2.4	TABLE: Clearances based on electric strength test			N/A
Test voltage applied between:		Required cl (mm)	Test voltage (kV) peak/ r.m.s. / d.c.	Breakdown Yes / No
--		--	--	--
Supplementary information:				

5.4.4.2, 5.4.4.5 c) 5.4.4.9	TABLE: Distance through insulation measurements				P
Distance through insulation di at/of:	Peak voltage (V)	Frequency (kHz)	Material	Required DTI (mm)	DTI (mm)
Plastic enclosure (RI)	420	0.06	Polycarbonate	≥ 0.4	Min. 2.0
Insulation sheet	420	0.06	Polycarbonate	≥ 0.4	Min. 0.4
The sheet material at/of:	U peak (V)	Frequency (kHz)	Material	Required layers	Layers
Insulation tape around the transformer	584	59.52	Polyester film	≥ 2	2
Supplementary information:					
FI: Functional insulation; BI: Basic insulation; SI: Supplementary insulation; RI: reinforced insulation.					

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Clause	Requirement + Test	Result - Remark	Verdict

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
Basic/supplimentary insulation				
Line and Neutral before fuse		DC	2500	No
Reinforced insulation				
Line/neutral and output terminal		DC	4000	No
Line/neutral and accessible enclosure		DC	4000	No
Primary winding/core and secondary winding of transformer		DC	4000	No
Tape of transformer per layer		DC	4000	No
Insulation sheet		DC	4000	No
Supplementary information:				

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	
--	--	--	--	--	--	
Supplementary information: X-capacitors: X-capacitors installed for testing are: <input type="checkbox"/> bleeding resistor rating: <input type="checkbox"/> ICX: Notes: A. Test Location: Phase to Neutral; Phase to Phase; 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:					

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Clause	Requirement + Test	Result - Remark	Verdict

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part		N/A
Supply voltage	—	—	
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)	
--	--	--	
Supplementary Information: [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.			

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
For power circuits	All primary circuit connected to AC mains	Power (W) :	--	--	PS3 (Declared)
		V _A (V) :	--	--	
		I _A (A) :	--	--	
For load source circuits	Type-C Output connector overload (5.0Vd.c.)	Power (W) :	16.54	16.54	PS2
		V _A (V) :	3.93	3.93	
		I _A (A) :	4.21	4.21	
For power circuits	Type-C Output connector C5 /SC (5.0Vd.c.)	Power (W) :	14.22	--	
		V _A (V) :	4.74	--	
		I _A (A) :	3.0	--	
For power circuits	Type-C Output connector IC1 pin2-3 /SC (5.0Vd.c.)	Power (W) :	10.56	--	
		V _A (V) :	3.52	--	
		I _A (A) :	3.0	--	
For load source circuits	Type-C Output connector overload (9.0Vd.c.)	Power (W) :	19.84	19.84	PS2
		V _A (V) :	6.42	6.42	
		I _A (A) :	3.09	3.09	
For power circuits	Type-C Output connector C5 /SC (9.0Vd.c.)	Power (W) :	19.78	19.78	
		V _A (V) :	8.91	8.91	
		I _A (A) :	2.22	2.22	
For power circuits	Type-C Output connector IC1 /SC (9.0Vd.c.)	Power (W) :	0	0	
		V _A (V) :	0	0	
		I _A (A) :	0	0	

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Clause	Requirement + Test			Result - Remark	Verdict
For load source circuits	Type-C Output connector overload (12.0Vd.c.)	Power (W) :	20.43	20.43	PS2
		V _A (V) :	8.96	8.96	
		I _A (A) :	2.28	2.28	
For power circuits	Type-C Output connector C5 /SC (12.0Vd.c.)	Power (W) :	20.21	20.21	
		V _A (V) :	12.10	12.10	
		I _A (A) :	1.67	1.67	
For power circuits	Type-C Output connector R11 /SC (12.0Vd.c.)	Power (W) :	0	0	
		V _A (V) :	0	0	
		I _A (A) :	0	0	
For load source circuits	USB-A Output connector overload (5.0Vd.c.)	Power (W) :	19.25	19.25	PS2
		V _A (V) :	4.73	4.73	
		I _A (A) :	4.07	4.07	
For power circuits	USB-A Output connector C5 /SC (5.0Vd.c.)	Power (W) :	15.03	15.03	
		V _A (V) :	5.01	5.01	
		I _A (A) :	3.0	3.0	
For power circuits	USB-A Output connector IC1 pin2-3 /SC (5.0Vd.c.)	Power (W) :	11.16	--	
		V _A (V) :	3.72	--	
		I _A (A) :	3.0	--	
For load source circuits	USB-A Output connector overload (9.0Vd.c.)	Power (W) :	21.25	21.25	PS2
		V _A (V) :	8.02	8.02	
		I _A (A) :	2.65	2.65	
For power circuits	USB-A Output connector C5 /SC (9.0Vd.c.)	Power (W) :	18.14	18.14	
		V _A (V) :	9.07	9.07	
		I _A (A) :	2.0	2.0	
For power circuits	USB-A Output connector IC1 /SC (9.0Vd.c.)	Power (W) :	0	--	
		V _A (V) :	0	--	
		I _A (A) :	0	--	
For load source circuits	USB-A Output connector overload (12.0Vd.c.)	Power (W) :	21.04	21.04	PS2
		V _A (V) :	9.52	9.52	
		I _A (A) :	2.21	2.21	
For power circuits	USB-A Output connector C5 /SC (12.0Vd.c.)	Power (W) :	18.25	18.25	
		V _A (V) :	12.17	12.17	
		I _A (A) :	1.5	1.5	
For power circuits	USB-A Output connector R11 /SC (12.0Vd.c.)	Power (W) :	0	--	
		V _A (V) :	0	--	
		I _A (A) :	0	--	

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary Information:

(*) Measurement taken only when limits at 3 seconds exceed PS1 limits

All primary connected to AC mains declared as PS3.

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	
Blade of Plug, Pin L to N	340	0.197	66.98	Yes	

Supplementary information:

An Arcing PIS requires a minimum of 50 V (peak) a.c. or d.c. An Arcing PIS is established when the product of the open circuit voltage (V_p) and normal operating condition rms current (I_{rms}) is greater than 15.

6.2.3.2	Table: Determination of 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
Type-C Output connector (5.0Vd.c.)	Overload	14.0	14.0	N/A	No
Type-C Output connector (9.0Vd.c.)	Overload	19.8	19.8	N/A	Yes
Type-C Output connector (12.0Vd.c.)	Overload	20.2	20.2	N/A	Yes
USB-A Output connector (5.0Vd.c.)	Overload	15.03	15.03	N/A	Yes
USB-A Output connector (9.0Vd.c.)	Overload	18.14	18.14	N/A	Yes
USB-A Output connector (12.0Vd.c.)	Overload	18.25	18.25	N/A	Yes

Supplementary Information:

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.

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Clause	Requirement + Test	Result - Remark	Verdict

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:			

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
90V/50Hz	0.357	--	18.9	--	F1	0.357	Output loading: 5.0Vd.c., 3.0A
90V/60Hz	0.351	--	18.9	--	F1	0.351	
100V/50Hz	0.325	0.5	18.7	--	F1	0.325	
100V/60Hz	0.322	0.5	18.6	--	F1	0.322	
240V/50Hz	0.177	0.5	18.6	--	F1	0.177	
240V/60Hz	0.172	0.5	18.6	--	F1	0.172	
264V/50Hz	0.170	--	18.7	--	F1	0.170	
264V/60Hz	0.168	--	18.6	--	F1	0.168	
90V/50Hz	0.453	--	24.5	--	F1	0.453	Output loading: 9.0Vd.c., 2.22A
90V/60Hz	0.450	--	24.4	--	F1	0.450	
100V/50Hz	0.411	0.5	24.2	--	F1	0.411	
100V/60Hz	0.410	0.5	24.1	--	F1	0.410	
240V/50Hz	0.222	0.5	23.9	--	F1	0.222	
240V/60Hz	0.220	0.5	23.8	--	F1	0.220	
264V/50Hz	0.217	--	24.0	--	F1	0.217	
264V/60Hz	0.212	--	24.0	--	F1	0.212	

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Clause	Requirement + Test				Result - Remark		Verdict
90V/50Hz	0.451	--	24.3	--	F1	0.451	Output loading: 12.0Vd.c., 1.67A
90V/60Hz	0.447	--	24.2	--	F1	0.447	
100V/50Hz	0.404	0.5	23.9	--	F1	0.404	
100V/60Hz	0.401	0.5	23.9	--	F1	0.401	
240V/50Hz	0.214	0.5	23.7	--	F1	0.214	
240V/60Hz	0.211	0.5	23.6	--	F1	0.211	
264V/50Hz	0.208	--	23.8	--	F1	0.208	
264V/60Hz	0.205	--	23.7	--	F1	0.205	
Supplementary information:							

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	
90V/50Hz	0.352	--	18.9	--	F1	0.352	Output loading: 5.0Vd.c., 3.0A	
90V/60Hz	0.350	--	18.9	--	F1	0.350		
100V/50Hz	0.313	0.5	18.7	--	F1	0.313		
100V/60Hz	0.311	0.5	18.7	--	F1	0.311		
240V/50Hz	0.169	0.5	18.6	--	F1	0.169		
240V/60Hz	0.168	0.5	18.6	--	F1	0.168		
264V/50Hz	0.165	--	18.7	--	F1	0.165		
264V/60Hz	0.163	--	18.7	--	F1	0.163		
90V/50Hz	0.409	--	22.3	--	F1	0.409	Output loading: 9.0Vd.c., 2.0A	
90V/60Hz	0.406	--	22.3	--	F1	0.406		
100V/50Hz	0.369	0.5	22.1	--	F1	0.369		
100V/60Hz	0.365	0.5	22.0	--	F1	0.365		
240V/50Hz	0.197	0.5	21.9	--	F1	0.197		
240V/60Hz	0.196	0.5	21.8	--	F1	0.196		
264V/50Hz	0.189	--	21.9	--	F1	0.189		
264V/60Hz	0.186	--	21.9	--	F1	0.186		
90V/50Hz	0.398	--	21.5	--	F1	0.398	Output loading: 12.0Vd.c., 1.5A	
90V/60Hz	0.395	--	21.5	--	F1	0.395		
100V/50Hz	0.363	0.5	21.3	--	F1	0.363		
100V/60Hz	0.360	0.5	21.3	--	F1	0.360		
240V/50Hz	0.194	0.5	21.2	--	F1	0.194		
240V/60Hz	0.191	0.5	21.2	--	F1	0.191		
264V/50Hz	0.188	--	21.3	--	F1	0.188		
264V/60Hz	0.183	--	21.3	--	F1	0.183		
Supplementary information:								

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Clause	Requirement + Test	Result - Remark	Verdict

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
90V/50Hz	0.342	--	18.5	--	F1	0.342	USB-A Output loading: 5.0Vd.c., 1.5A USB-C Output loading: 5.0Vd.c., 1.5A
90V/60Hz	0.340	--	18.4	--	F1	0.340	
100V/50Hz	0.310	0.5	18.3	--	F1	0.310	
100V/60Hz	0.306	0.5	18.3	--	F1	0.306	
240V/50Hz	0.168	0.5	18.2	--	F1	0.168	
240V/60Hz	0.162	0.5	18.1	--	F1	0.162	
264V/50Hz	0.161	--	18.3	--	F1	0.161	
264V/60Hz	0.157	--	18.2	--	F1	0.157	
Supplementary information:							

B.3	TABLE: Abnormal operating condition tests							P
Ambient temperature (°C)					25			—
Power source for EUT: Manufacturer, model/type, output rating ..					See page 2			—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
For output USB-C 5.0Vd.c., 3.0A	Overload	264	3hrs 55mins	F1	--	--	PCB near IC6: 122.4°C Winding of transformer T1: 118.0°C Enclosure outside: 76.5.0°C	Output terminal up to max. 3.75A, unit protected immediately and Input power drop to 0W. No hazards
For output USB-C 9.0Vd.c., 2.22A	Overload	264	3hrs 15mins	F1	--	--	PCB near U2: 89.4°C Winding of transformer T1: 102.1°C Enclosure outside: 71.0°C	Output terminal up to max. 2.50A, unit protected immediately and Input power drop to 0W. No hazards
For output USB-C 12.0Vd.c., 1.67A	Overload	264	2hrs 40mins	F1	--	--	PCB near U2: 86.8°C Winding of transformer T1: 99.0°C Enclosure outside: 69.2°C	Output terminal up to max. 1.98A, unit protected immediately and Input power drop to 0W. No hazards

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:

- Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column "Abnormal/Fault." Specify if test condition by indicating "Abnormal" then the condition for a Clause B.3 test or "Single Fault" then the condition for Clause B.4.
- Temperature limit for component: external enclosure: 87°C, PCB: 300°C, winding: 150°C.
- Comply with Hi-pot test including insulation component after the abnormal test.

B.4 TABLE: Fault condition tests								P
Ambient temperature (°C)					25			—
Power source for EUT: Manufacturer, model/type, output rating ..					See page 2			—
Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Output terminal	SC	264	10mins	F1	--	--	--	Protected immediately, can be recoverable when fault removed, no damage, no hazard observed
BD1 pin 1-4	SC	90/264	1s	F1	--	--	--	F1 opened immediately, Output power dropped to 0W. No hazards.
BD1 pin 1-3	SC	90/264	1s	F1	--	--	--	F1 opened immediately, Output power dropped to 0W. No hazards.
C1	SC	264	10mins	F1	--	--	--	Protected immediately, can be recoverable when fault removed, no damage, no hazard observed
C3	SC	90/264	1s	F1	--	--	--	F1 opened immediately, Output power dropped to 0W. No hazards

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Clause	Requirement + Test				Result - Remark			Verdict
D1	SC	264	10mins	F1	--	--	--	Protected immediately, can be recoverable when fault removed, no damage, no hazard observed
D2	SC	264	10mins	F1	--	--	--	Protected immediately, can be recoverable when fault removed, no damage, no hazard observed
U2 pin 2-3	SC	264	10mins	F1	--	--	--	Protected immediately, can be recoverable when fault removed, no damage, no hazard observed
U2 pin 5-3	SC	264	1s	F1	--	--	--	F1 opened immediately, Output power dropped to 0W. No hazards.
R16	SC	264	1s	F1	--	--	--	F1 opened immediately, can not be recoverable when fault removed, U2 damaged, no hazard observed
U3 pin 1	OC	264	10mins	F1	--	--	--	Protected immediately, can be recoverable when fault removed, no damage, no hazard observed
U3 pin 3-4	SC	264	10mins	F1	--	--	--	Protected immediately, can be recoverable when fault removed, no damage, no hazard observed

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Clause	Requirement + Test				Result - Remark			Verdict
U3 pin 1-2	SC	264	10mins	F1	--	--	--	Protected immediately, can be recoverable when fault removed, no damage, no hazard observed
IC1 pin 1-2	SC	264	10mins	F1	--	--	--	Protected immediately, can be recoverable when fault removed, no damage, no hazard observed
IC1 pin 2-3	SC	264	10mins	F1	--	--	--	Protected immediately, can be recoverable when fault removed, no damage, no hazard observed
IC1 pin 5-3	SC	264	10mins	F1	--	--	--	Protected immediately, can be recoverable when fault removed, no damage, no hazard observed
U1 pin 5-3	SC	264	10mins	F1	--	--	--	Protected immediately, can be recoverable when fault removed, no damage, no hazard observed
T1 pin 7-8	SC	264	10mins	F1	--	--	--	Protected immediately, can be recoverable when fault removed, no damage, no hazard observed
T1 pin 4-5	SC	264	10mins	F1	--	--	--	Protected immediately, can be recoverable when fault removed, no damage, no hazard observed

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Clause	Requirement + Test				Result - Remark			Verdict
T1 pin 1-3	SC	264	10mins	F1	--	--	--	Protected immediately, can be recoverable when fault removed, no damage, no hazard observed
C5	SC	264	10mins	F1	--	--	--	The EUT was similar to the normal condition. No temperature rise exceeding its limit occurred. no damage, no hazard observed
C6	SC	264	10mins	F1	--	--	--	Protected immediately, can be recoverable when fault removed, no damage, no hazard observed
Supplementary information: - SC=short circuit; -Temperature limit for component: - Comply with Hi-pot test including insulation component after the abnormal test.								

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							--		--

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Clause	Requirement + Test	Result - Remark	Verdict

- Emission of flame or expulsion of molten metal	--	--
- Electric strength tests of equipment after completion of tests	--	--
Supplementary information: N/A		

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)	
--	--	--	--	--	--
--	--	--	--	--	--
Supplementary Information: N/A					

Battery identification	Charging at T_{lowest} (°C)	Observation	Charging at T_{highest} (°C)	Observation
--	--	--	--	--
Supplementary Information: N/A				

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Clause	Requirement + Test	Result - Remark	Verdict

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.	Limit	Meas.	Limit
For output Type-C 5.0Vd.c., 3.0A:						
Output connector + to –	--	5.14	4.21	8	16.54	100
Output connector + to –	C5 / SC	5.14	4.21	8	16.54	100
Output connector + to –	IC1 pin 2-3 / SC	4.18	3.91	8	12.80	100
Output connector + to –	U3 pin 3-4 / SC	0	0	8	0	100
For output Type-C 9.0Vd.c., 2.22A:						
Output connector + to –	--	9.22	3.09	8	19.84	100
Output connector + to –	C5 / SC	9.22	3.09	8	19.84	100
Output connector + to –	IC1 pin 2-3 / SC	0	0	8	0	100
Output connector + to –	U3 pin 3-4 / SC	0	0	8	0	100
For output Type-C 12.0Vd.c., 1.67A:						
Output connector + to –	--	12.14	2.28	8	20.43	100
Output connector + to –	C5 / SC	12.14	2.28	8	20.43	100
Output connector + to –	IC1 pin 2-3 / SC	0	0	8	0	100
Output connector + to –	U3 pin 3-4 / SC	0	0	8	0	100
For output USB-A 5.0Vd.c., 3.0A:						
Output connector + to –	--	5.18	5.01	8	19.25	100
Output connector + to –	C5 / SC	5.18	5.01	8	19.25	100
Output connector + to –	IC1 pin 2-3 / SC	4.18	5.01	8	14.61	100
Output connector + to –	U3 pin 3-4 / SC	0	0	8	0	100
For output USB-A 9.0Vd.c., 2.0A:						
Output connector + to –	--	9.31	5.09	8	21.25	100
Output connector + to –	C5 / SC	9.31	5.09	8	21.25	100
Output connector + to –	IC1 pin 2-3 / SC	0	0	8	0	100
Output connector + to –	U3 pin 3-4 / SC	0	0	8	0	100
For output USB-A 12.0Vd.c., 1.5A:						
Output connector + to –	--	12.14	5.06	8	21.04	100
Output connector + to –	C5 / SC	12.14	5.06	8	21.04	100
Output connector + to –	IC1 pin 2-3 / SC	0	0	8	0	100
Output connector + to –	U3 pin 3-4 / SC	0	0	8	0	100
Supplementary Information: SC=Short circuit, OC=Open circuit						

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Clause	Requirement + Test	Result - Remark	Verdict

T.2, T.3, T.4, T.5	TABLE: Steady force test				P
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation
Internal components	--	--	10	5	No damage, the cl. And cr. Still complied.
Completed equipment	Plastic	Min. 2.0	100	5	No energy source exceed class 1 can be accessed
Supplementary information:					

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

T.7	TABLE: Drop tests				P
Part/Location	Material	Thickness (mm)	Drop Height (mm)	Observation	
Completed equipment	Plastic	Min. 2.0	1000 mm	No energy source exceeds class 1 can be accessed	
Supplementary information:					

T.8	TABLE: Stress relief test				P
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation
Enclosure	Plastic material	Min. 2.0	101.6	7	No energy source exceeds class 1 can be accessed
Supplementary information:					

National differences			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT																																										
IEC 62368-1																																										
EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES																																										
(Audio/video, information and communication technology equipment - Part 1: Safety requirements)																																										
Differences according to.....: EN 62368-1:2014+A11:2017																																										
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 62368-1:2014 are prefixed “Z”.					P																																				
CONTENT S	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 62368-1:2014) 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																																					
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																																					
	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																																				

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

National differences			
Clause	Requirement + Test	Result - Remark	Verdict
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></p> <p>NOTE Z1 Soldered joints and paint lockings are examples of adequate locking.</p> <p><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></p> <p><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></p> <p><i>For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.</i></p> <p>NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.</p>		N/A
10.6.1	<p>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.</p>		N/A
10.Z1	<p>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</p>		N/A
G.7.1	<p>Add the following note: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.</p>		N/A

National differences			
Clause	Requirement + Test	Result - Remark	Verdict
Bibliography	<p>Add the following standards:</p> <p>Add the following notes for the standards indicated:</p> <p>IEC 60130-9 NOTE Harmonized as EN 60130-9.</p> <p>IEC 60269-2 NOTE Harmonized as HD 60269-2.</p> <p>IEC 60309-1 NOTE Harmonized as EN 60309-1.</p> <p>IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series.</p> <p>IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4.</p> <p>IEC 60664-5 NOTE Harmonized as EN 60664-5.</p> <p>IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified).</p> <p>IEC 61508-1 NOTE Harmonized as EN 61508-1.</p> <p>IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1.</p> <p>IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4.</p> <p>IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6.</p> <p>IEC 61643-1 NOTE Harmonized as EN 61643-1.</p> <p>IEC 61643-21 NOTE Harmonized as EN 61643-21.</p> <p>IEC 61643-311 NOTE Harmonized as EN 61643-311.</p> <p>IEC 61643-321 NOTE Harmonized as EN 61643-321.</p> <p>IEC 61643-331 NOTE Harmonized as EN 61643-331.</p>		N/A
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		N/A
4.1.15	<p>Denmark, Finland, Norway and Sweden</p> <p>To the end of the subclause the following is added:</p> <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 jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p>		N/A
4.7.3	<p>United Kingdom</p> <p>To the end of the subclause the following is added:</p> <p>The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex</p>		N/A

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

National differences			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.2.1	Norway After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A
5.5.6	Finland, Norway and Sweden To the end of the subclause the following is added: Resistors used as basic safeguard or bridging basic insulation in class I pluggable equipment type A shall comply with G.10.1 and the test of G.10.2.		N/A
5.6.1	Denmark Add to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. <i>Justification:</i> In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N/A
5.6.4.2.1	Ireland and United Kingdom After the indent for pluggable equipment type A , the following is added: – the protective current rating is taken to be 13 A, this being the largest rating of fuse used in the mains plug.		N/A
5.6.5.1	To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm ² to 1,5 mm ² in cross-sectional area.		N/A
5.7.5	Denmark To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the protective conductor current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A

National differences			
Clause	Requirement + Test	Result - Remark	Verdict
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 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 jordtilkoplede utstyr – og er tilkoplede 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>		N/A

National differences			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.2	<p>Denmark</p> <p>To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA.</p>		N/A
B.3.1 and B.4	<p>Ireland and United Kingdom</p> <p>The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of direct plug-in equipment, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the direct plug-in equipment, until the requirements of Annexes B.3.1 and B.4 are met</p>		N/A
G.4.2	<p>Denmark</p> <p>To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a 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> Heavy Current Regulations, Section 6c</p>		N/A

National differences			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	<p>United Kingdom</p> <p>To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.</p>		N/A
G.7.1	<p>United Kingdom</p> <p>To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations.</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: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard</p>		N/A
G.7.2	<p>Ireland and United Kingdom</p> <p>To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm² is allowed for equipment which is rated over 10 A and up to and including 13 A.</p>		N/A

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

Equipment's combined with two-pole plug (Class II)

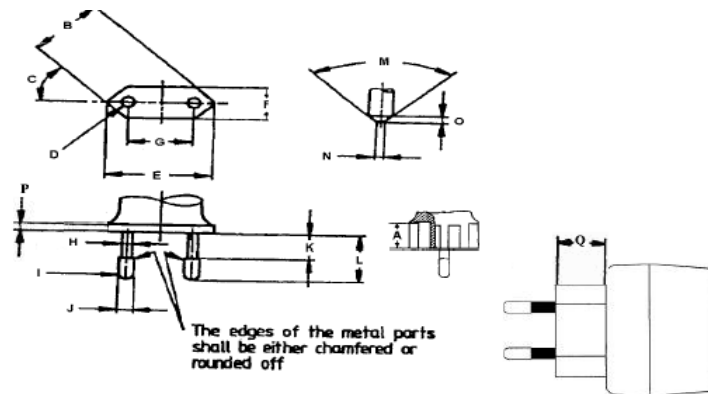
Supplementary tests on plug portion according to EN 50075 or IEC 60884-1

	Requirement - Test	References to clauses in		Result-Remark	Comply
		IEC 60884-1	EN 50 075		
1	Plug portion				P
	CEE 7 Standard Sheet			XVI	P
	EN 50 075				P
2	Dimensions				P
	Checking dimensions by measuring and by gauges according to Standard sheet				P
	The edges of the metal-pins, Chamfered or rounded off?				P
3	Protection against electric shock				P
a	Test finger (75N, 1 min in 35°C) or Applicable appliance standard	10.1	8.1		P
b	Single pole insertion, Checked with gauge: Fig 4 or C19A or C19B (CEE 7)	9.2	8.2		P
c	Compression test 150 N, 5 min,	10.1	13.1		P
d	External parts made of insulating material	10.4	8.3		P
4	Construction				P
a	Test on pins which are not solid				N/A
	Pins of plugs shall be solid and shall have adequate mechanical strength	14.2	9.3		P
b	Pins shall be locked against rotation 0,4 Nm 1 min,	24.2	13.2		P
	Tumbling barrel test 1000 if mass of the plug without the cord does not exceed 100g 500 if mass of the plug without the cord does exceed 100g			Approx. 50g 1000 times	P

	Requirement - Test	References to clauses in		Result-Remark	Comply
		IEC 60884-1	EN 50 075		
c	Pins shall be adequately fixed in the body 1 min, Temperature 70°C 40 N for plugs $\leq 2,5$ A 50 N for plugs $> 2,5$ A	24.10	13.4	40N	P
d	Pins of copper or copper alloy min 58% copper or equivalent	26.5-26.6	15.3	>58%	P
e	Plug shall not impose undue strain on fixed socket-outlets, 0,25 Nm	14.23.2		0.05Nm	P
f	Abrasion test on the insulating sleeves 20 000 movements	24.7	13.3		P
5	Resistance of insulating material to abnormal heat, to fire and to tracking				P
a	Compression test 1 h in 80°C	25.4	14.1.2		N/A
b	Glow-wire test 750°C	28.1.1	17		P
c	Resistance to tracking 175V (other than ordinary)	28.2			N/A

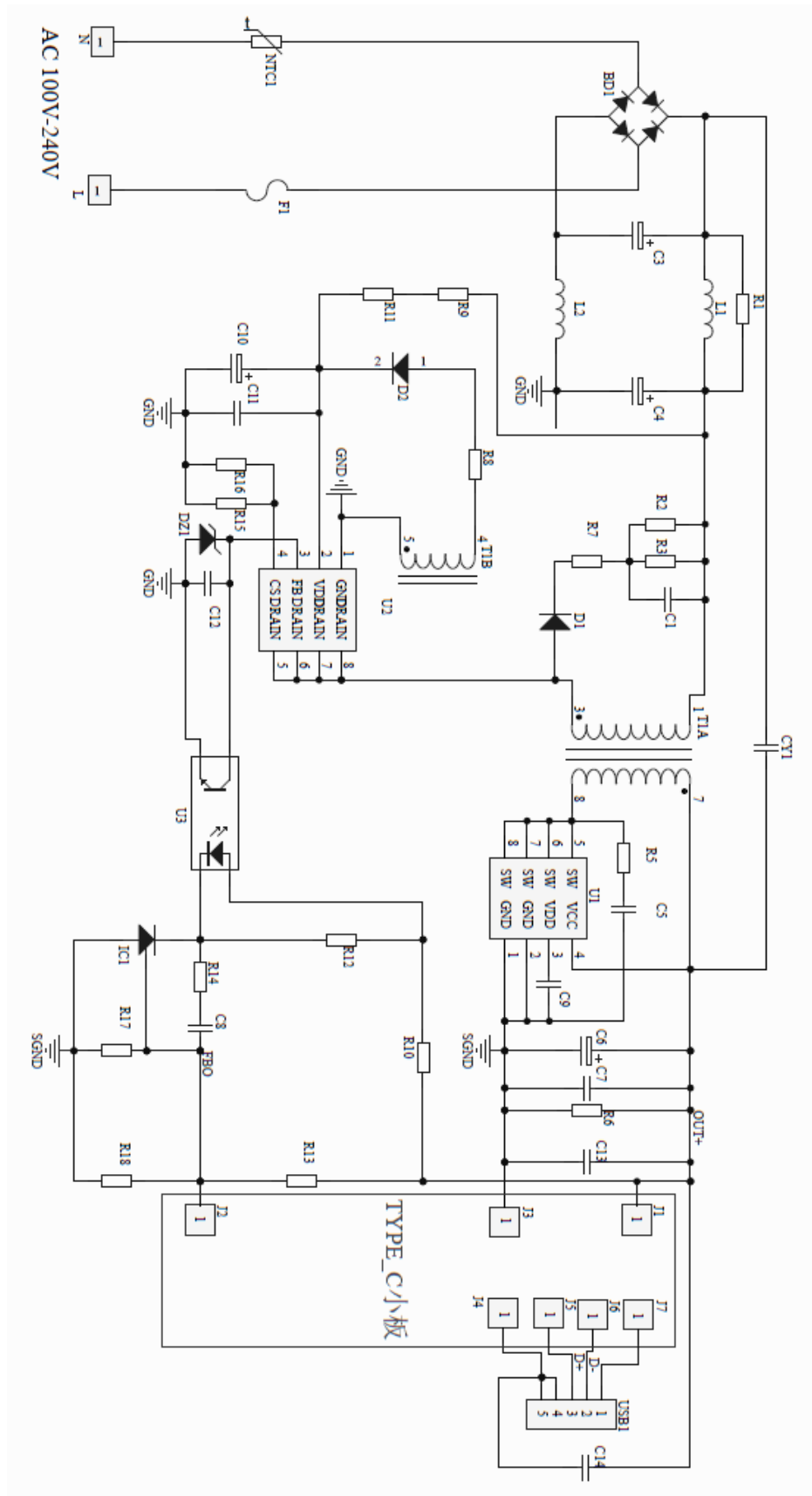
Two-pin plugs for class II appliances (Up to 2,5 A rating)

According to EN50075 - Standard Sheet and IEC60083 - Standard C5

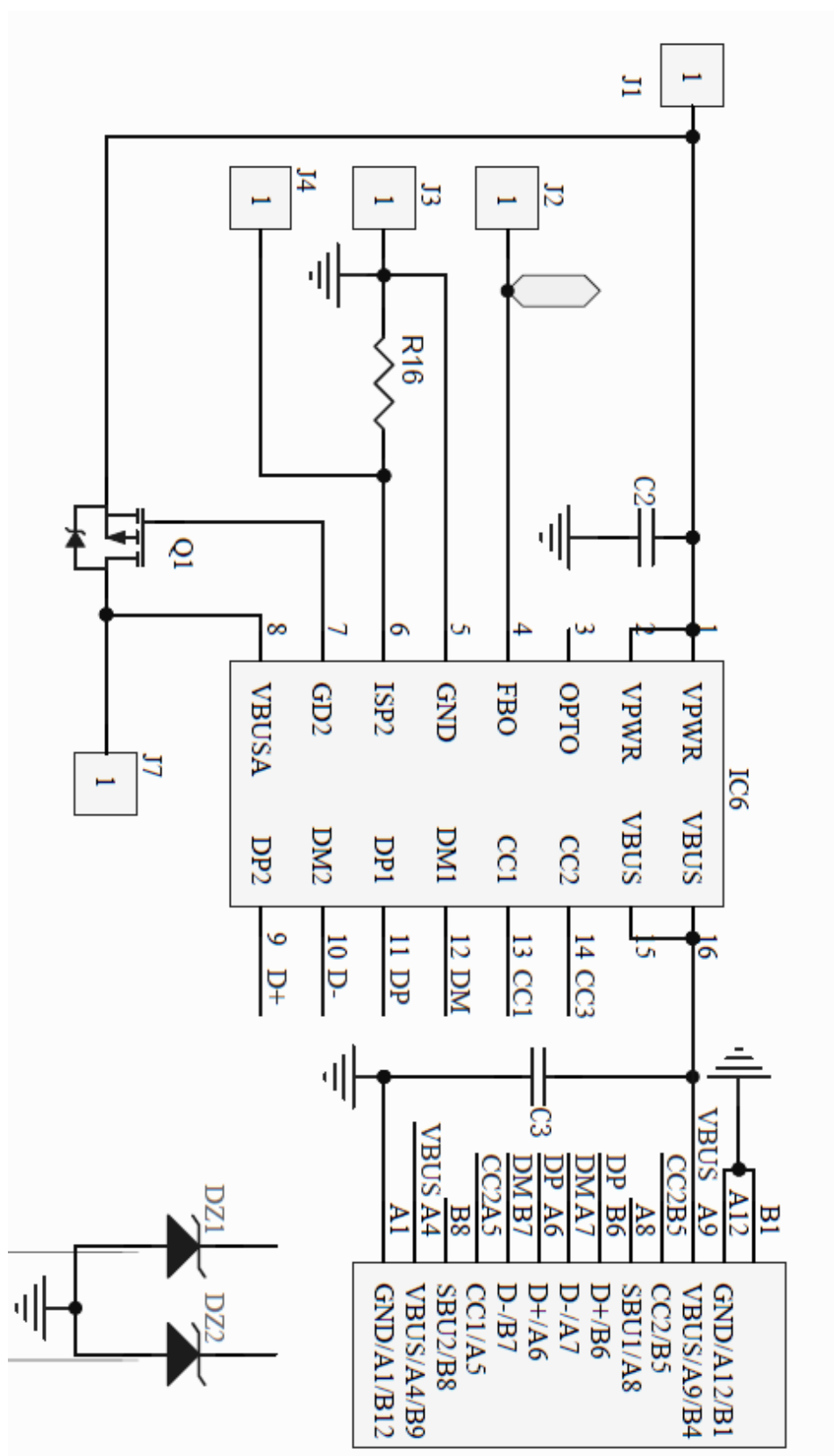


Symbol	Measured (mm)			Requirement (mm)
	Sample 1	Sample 2	Sample 3	
A	--	--	--	≥ 16.5
B	25.84-26.27	25.83-26.25	25.82-26.25	25.6 – 26.6
C	45 °	45 °	45 °	45 °
D	--	--	--	R 5.0 – 6.0
E	34.73-35.24	34.71-35.23	34.72-35.22	34.6 – 36.0
F	13.78–14.20	13.76–14.19	13.78–14.21	13.0 – 14.4
G1	18.51	18.52	18.50	Engagement 18.0 – 19.2
G2	17.42	17.45	17.43	End 17.0 – 18.0
H	3.88	3.87	3.86	Within 4 mm from engagement face $\leq 4.0\text{mm}$
	3.52	3.50	3.50	Above 4 mm from engagement face $\leq 3.8\text{mm}$
I	--	--	--	--
J	3.97	3.98	3.97	3.94 – 4.06
K	10.42	10.43	10.40	10.0 – 11.0
L	18.74	18.76	18.78	18.5 – 19.5
M	--	--	--	$\leq 90^\circ$
N	1.36	1.38	1.40	0.7 – 1.7
O	1.05	1.04	1.03	≤ 2.0
P	--	--	--	≥ 4.0
Q	18.26	18.20	18.21	≥ 18.0

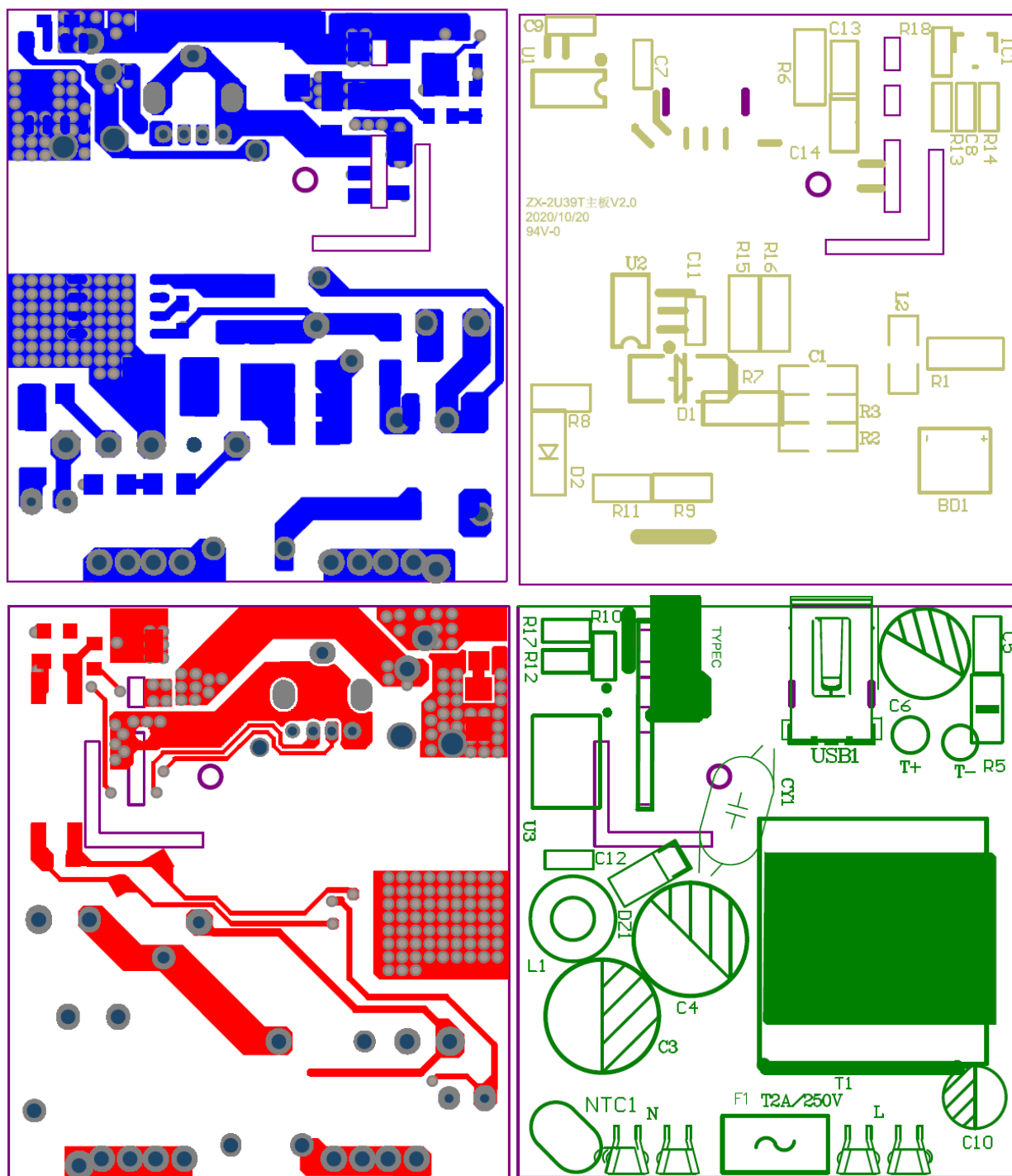
A & P only for plug with supply cord, direct plug-in product is not considered the dimensions.



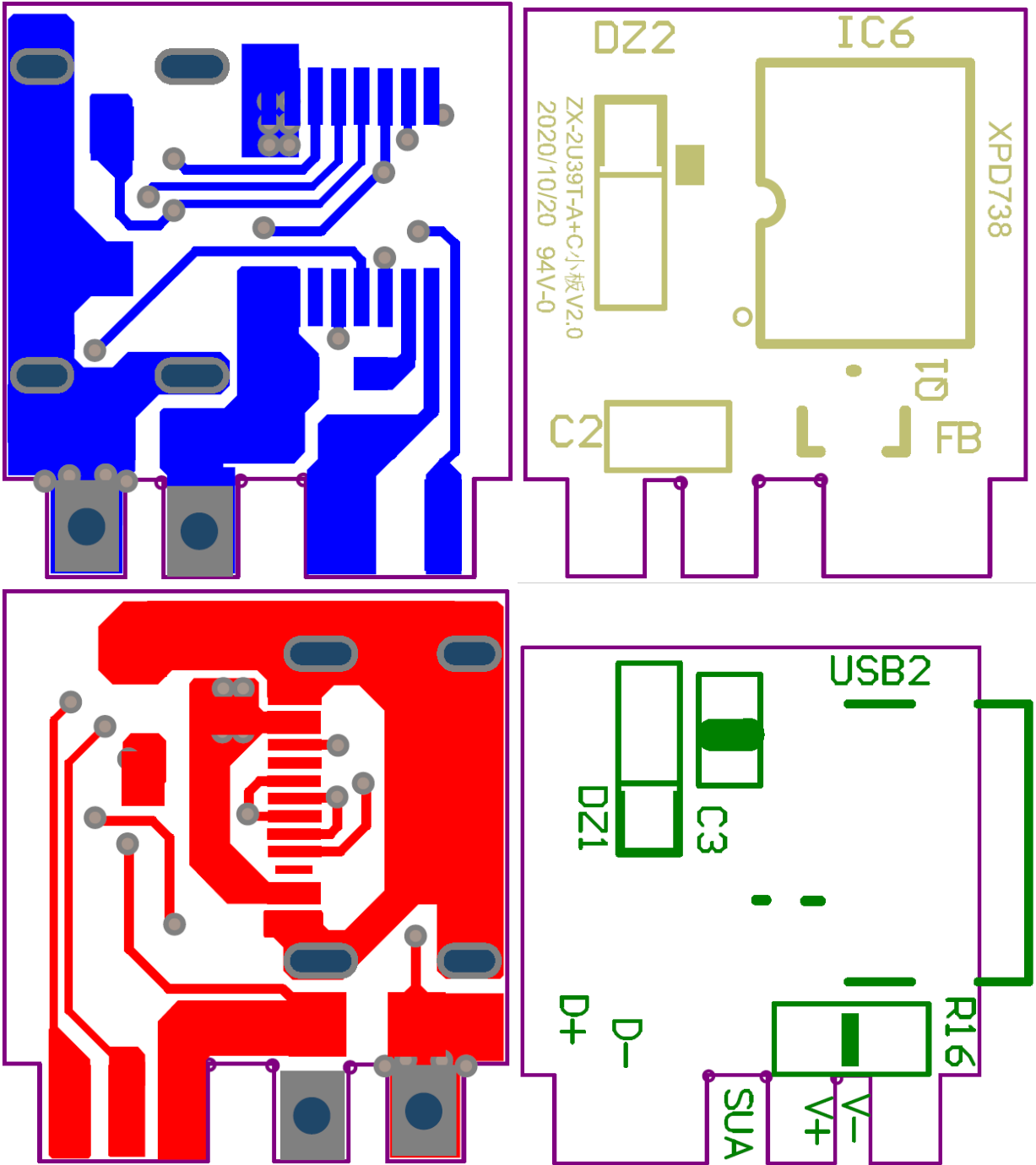
Main power supply circuit



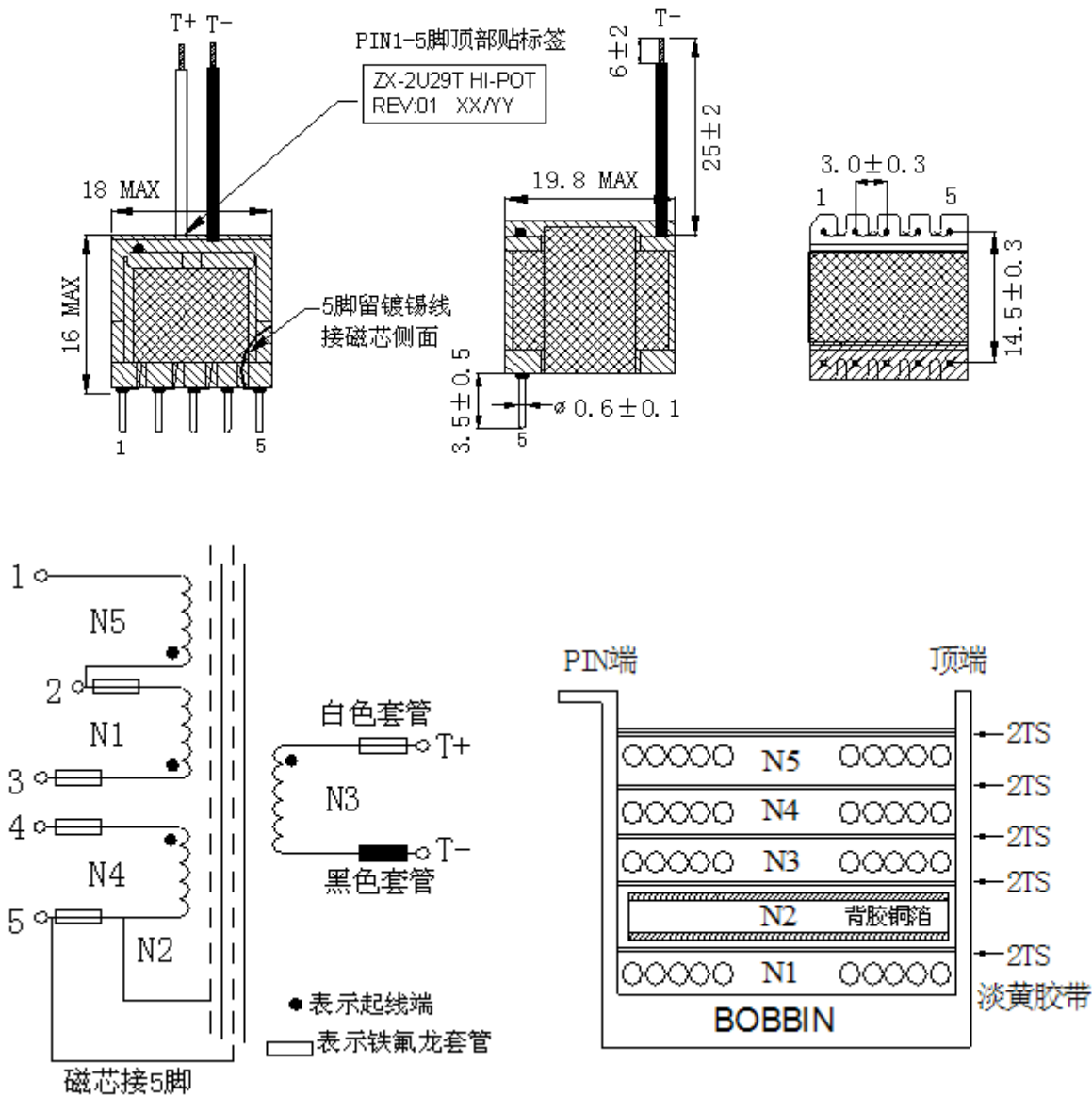
Type C small output circuit



Main power supply PCB layout



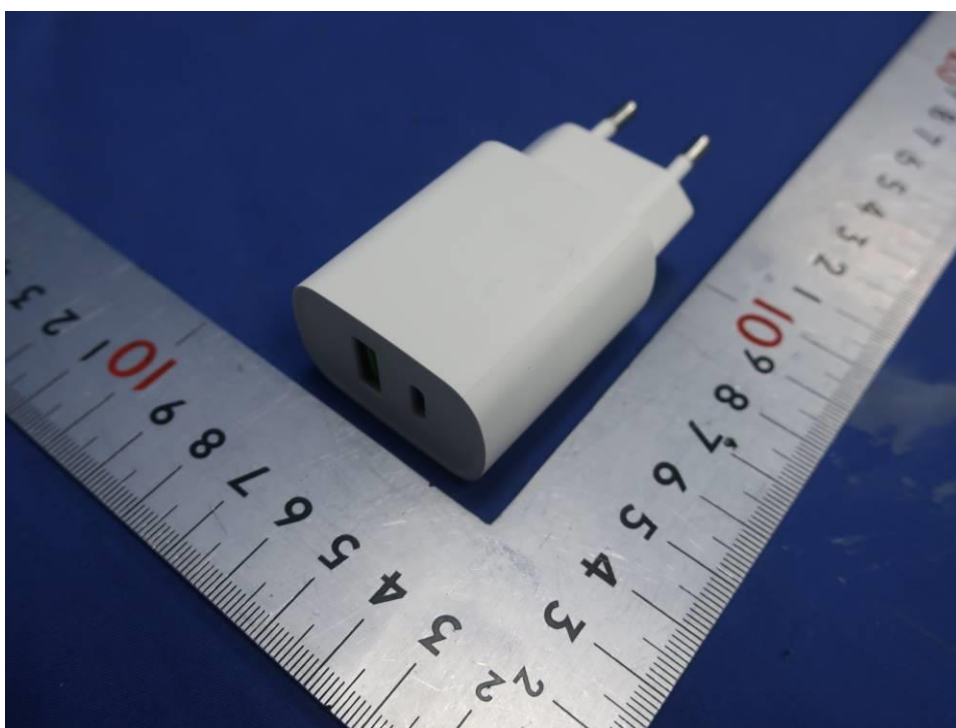
Type C small output PCB layout



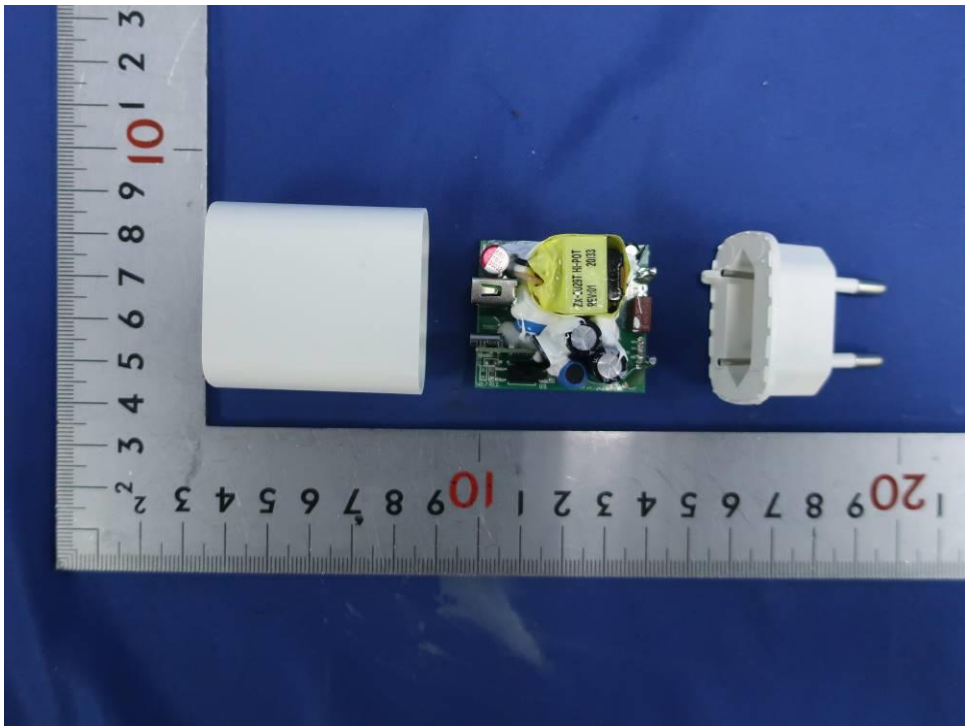
序号 NO.	起头 START	收尾 FINISH	圈数 TURNS	漆包线 WIRE	套管 TUBE		TAPE	绕制方式 WINDING CONDITION
					起头 START	收尾 FINISH		
N1	3	2	51Ts	2UEW Φ0.30*1P	✓	✓	9.0mm*2T	密绕（顺时）
N2	5	NC	1.1TS	0.025*8MM铜箔	✓		9.0mm*2T	密绕（顺时）
N3	T+	T-	8	DRTIW-B Φ0.70*1P	✓	✓	9.0mm*2T	密绕（顺时）反绕
N4	4	5	20Ts	2UEW Φ0.18*1P	✓	✓	9.0mm*2T	密绕（顺时）
N5	2	1	25Ts	2UEW Φ0.30*1P			9.0mm*3T	密绕（顺时）



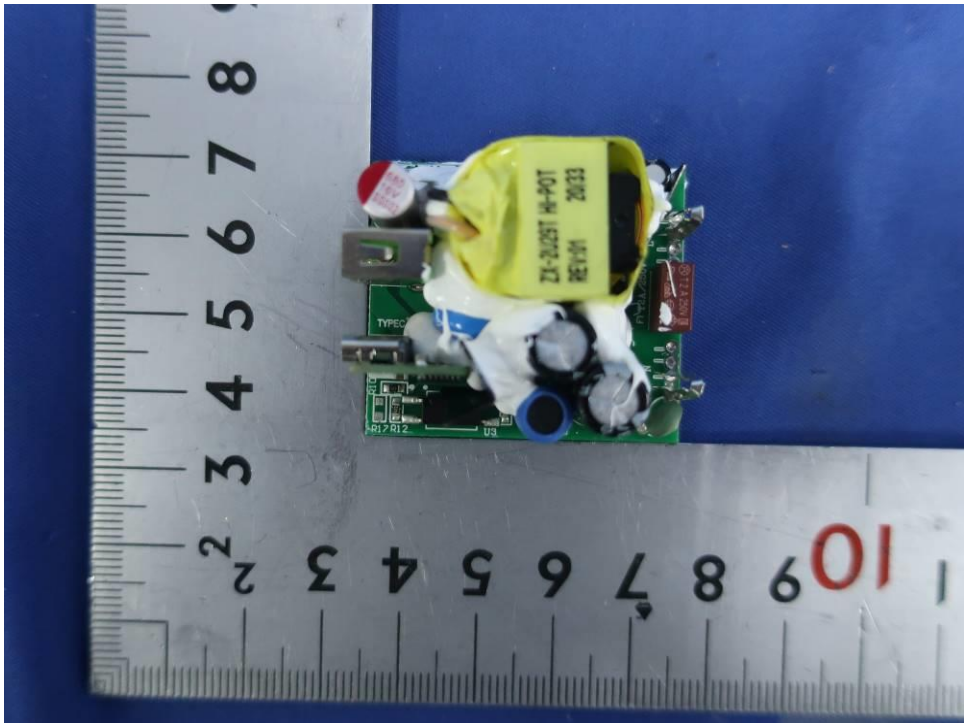
Overview-1 of EUT



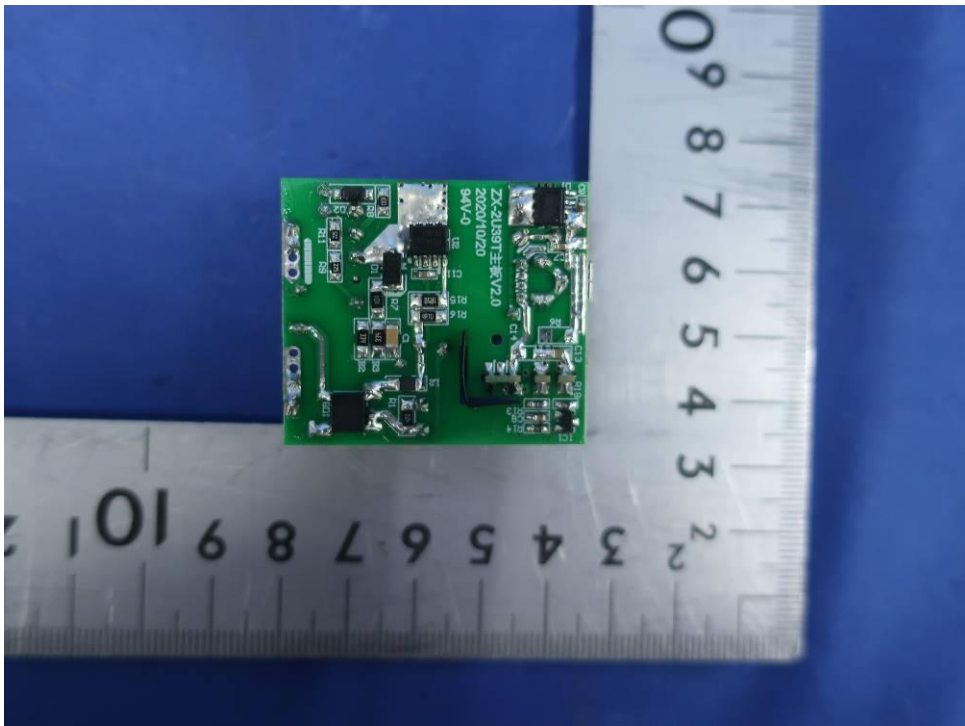
Overview-2 of EUT



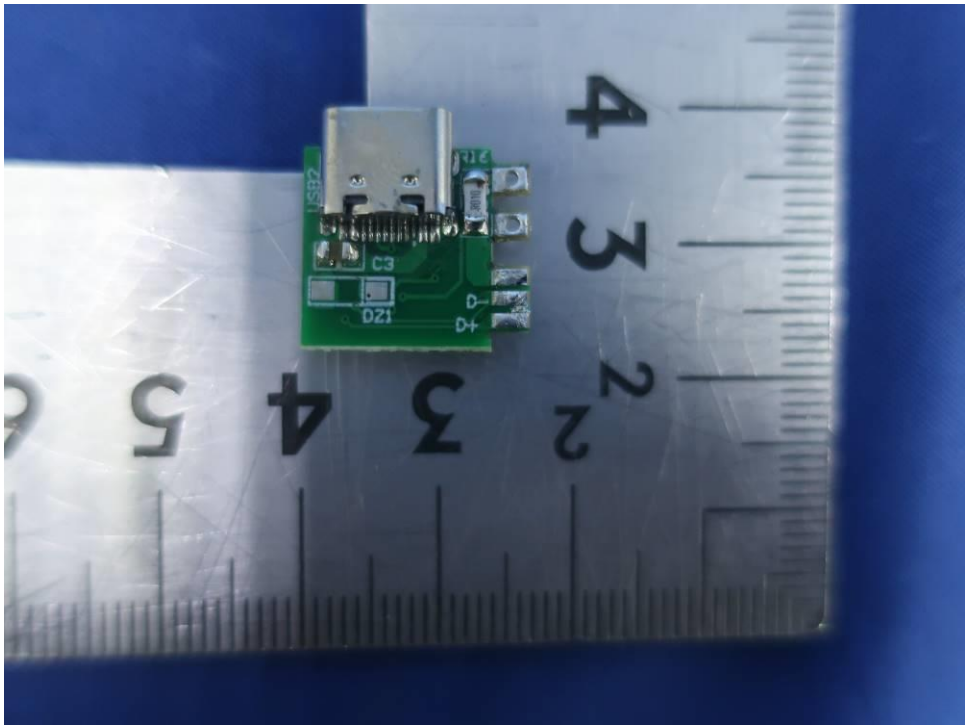
Internal view of EUT



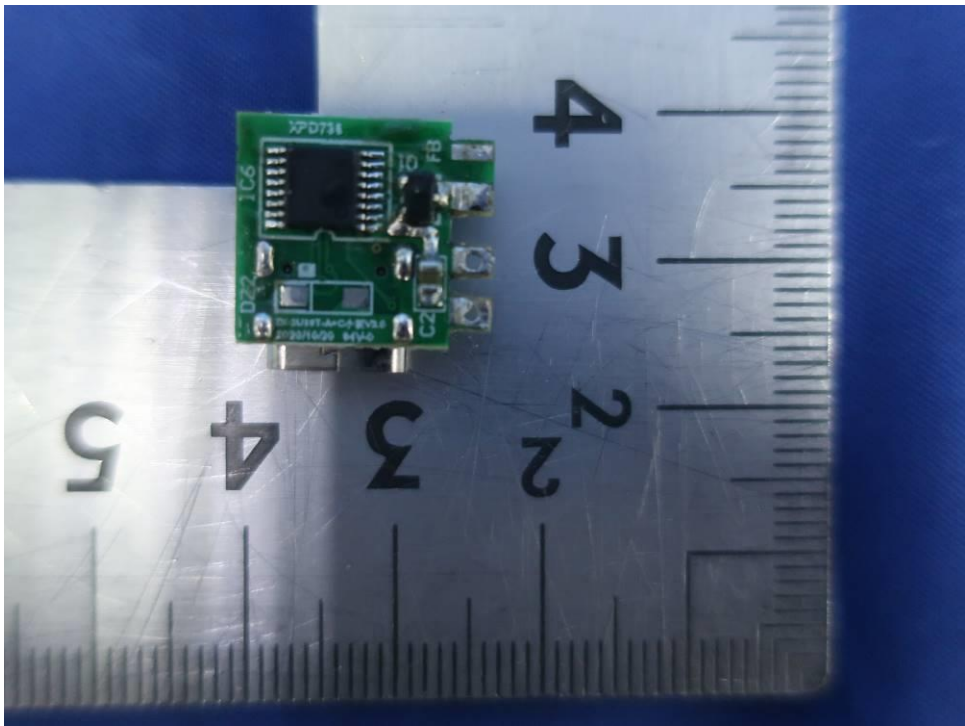
Component side of PCB



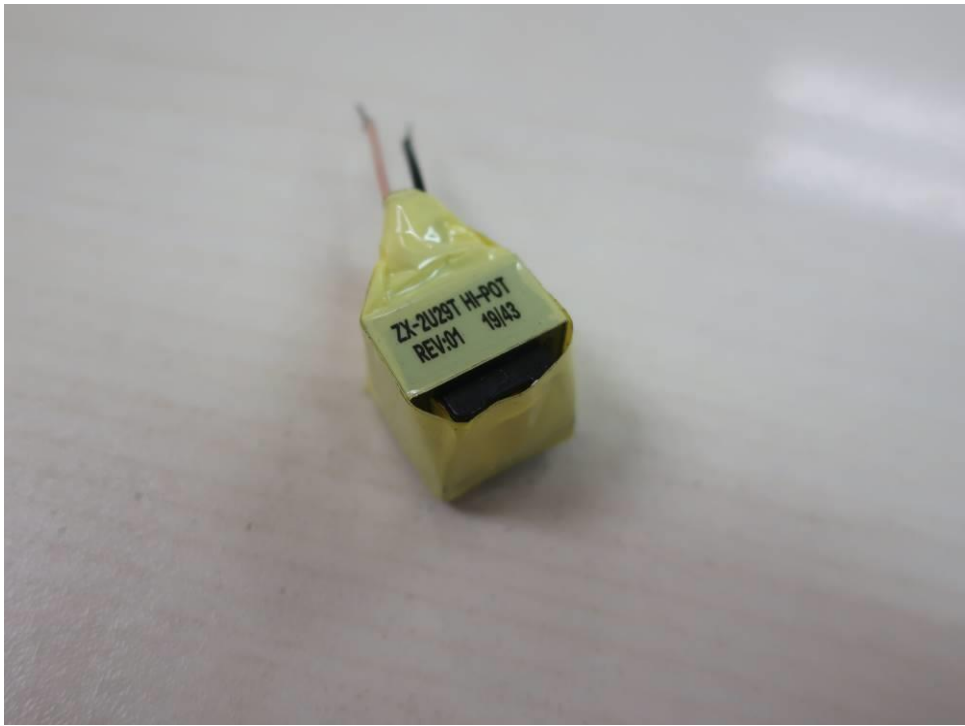
Trace side of PCB



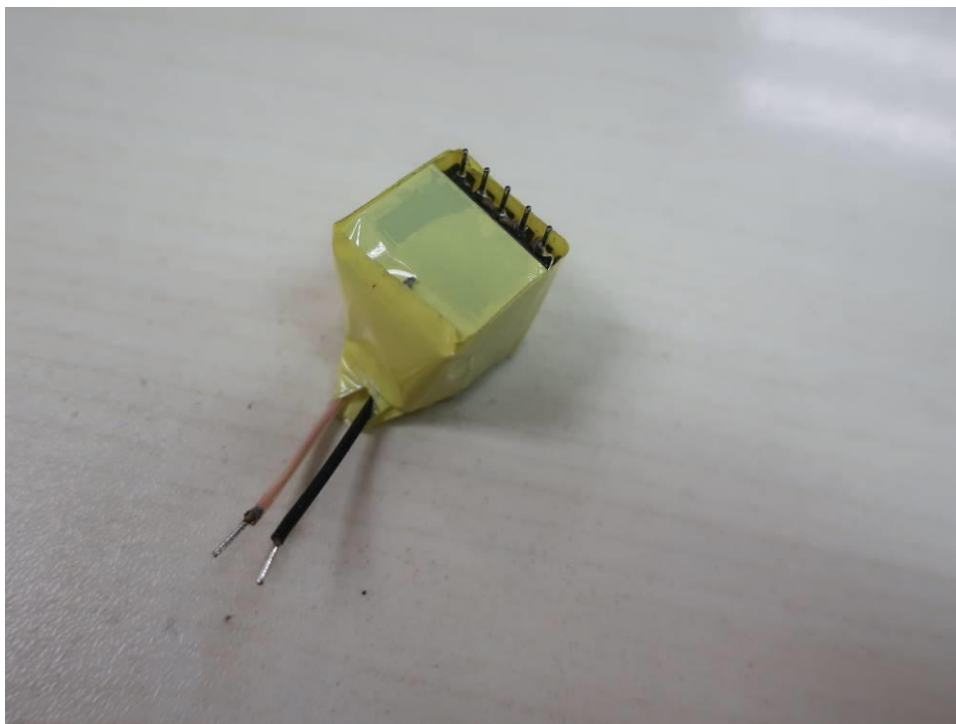
Trace side-1 of PCB for Type C small output



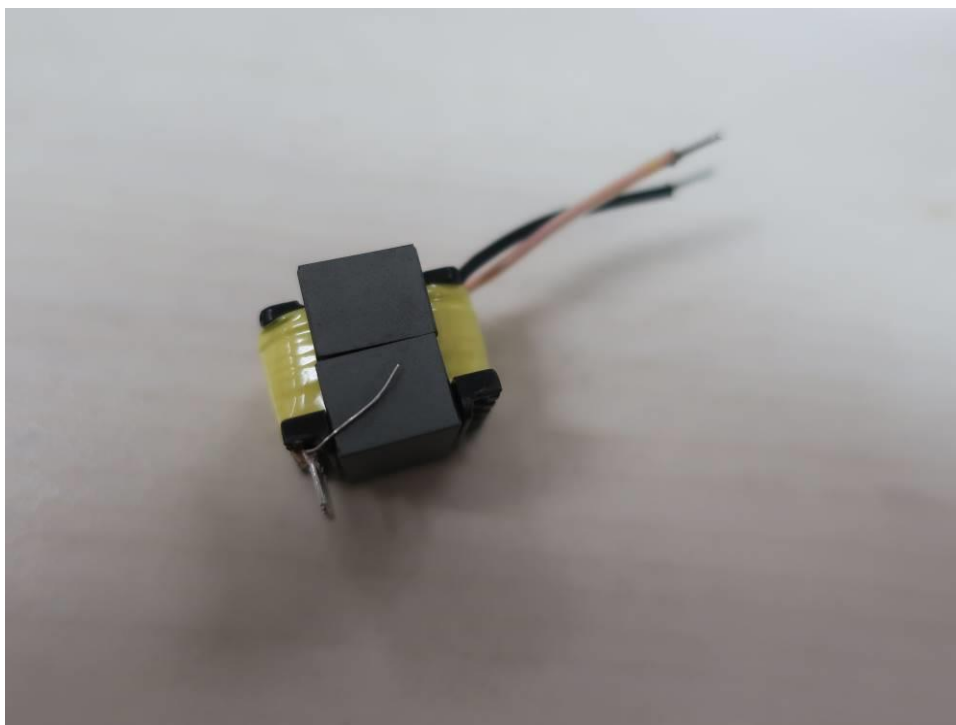
Trace side-2 of PCB for Type C small output



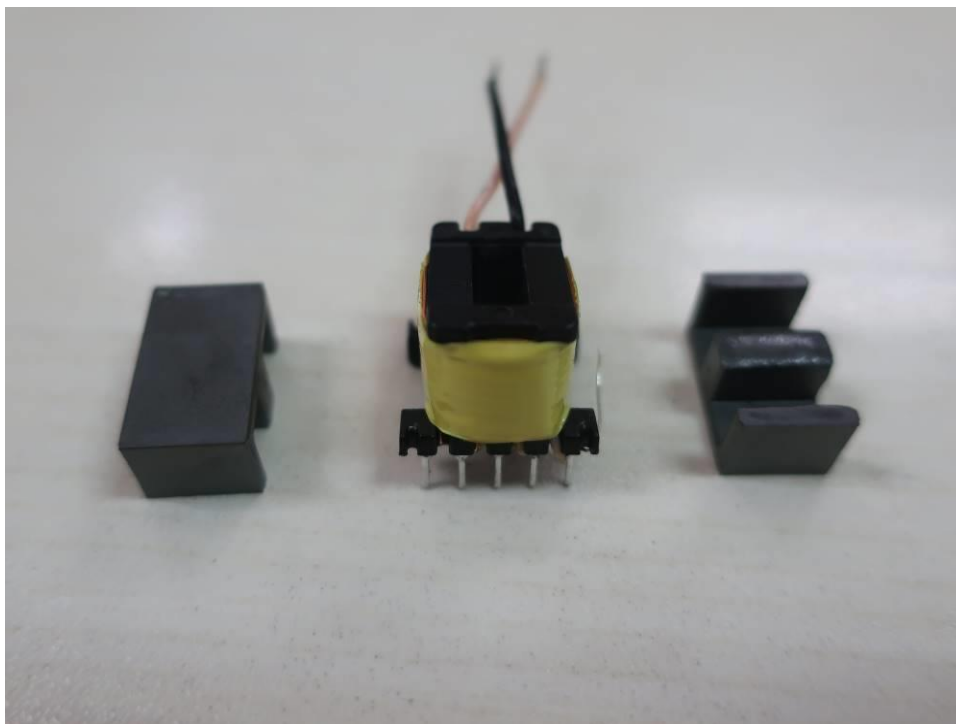
Overview-1 of transformer T1



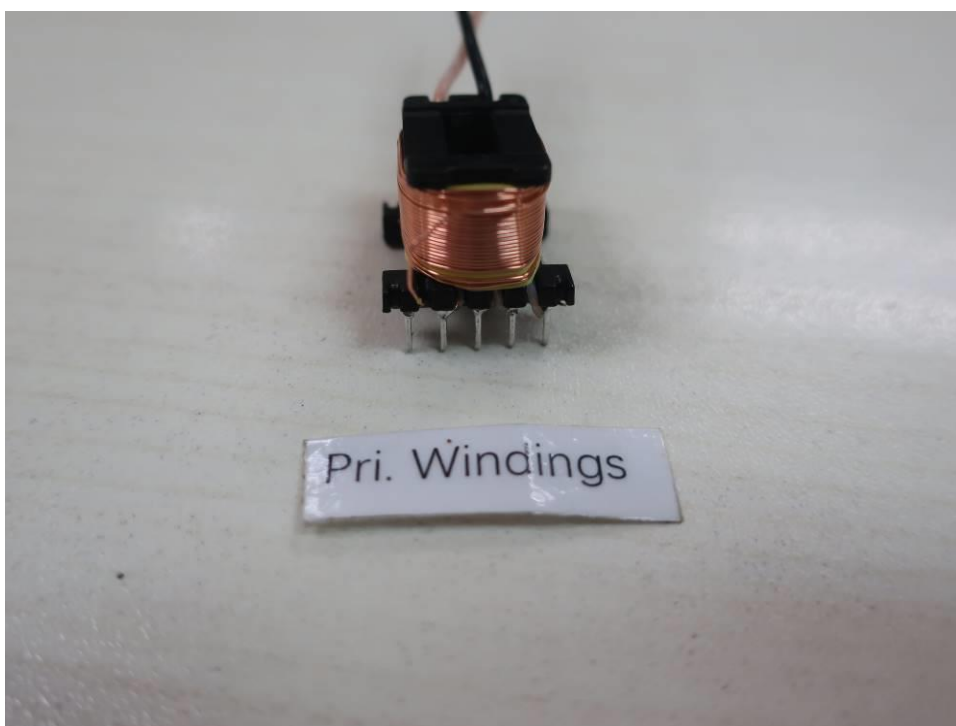
Overview-2 of transformer T1



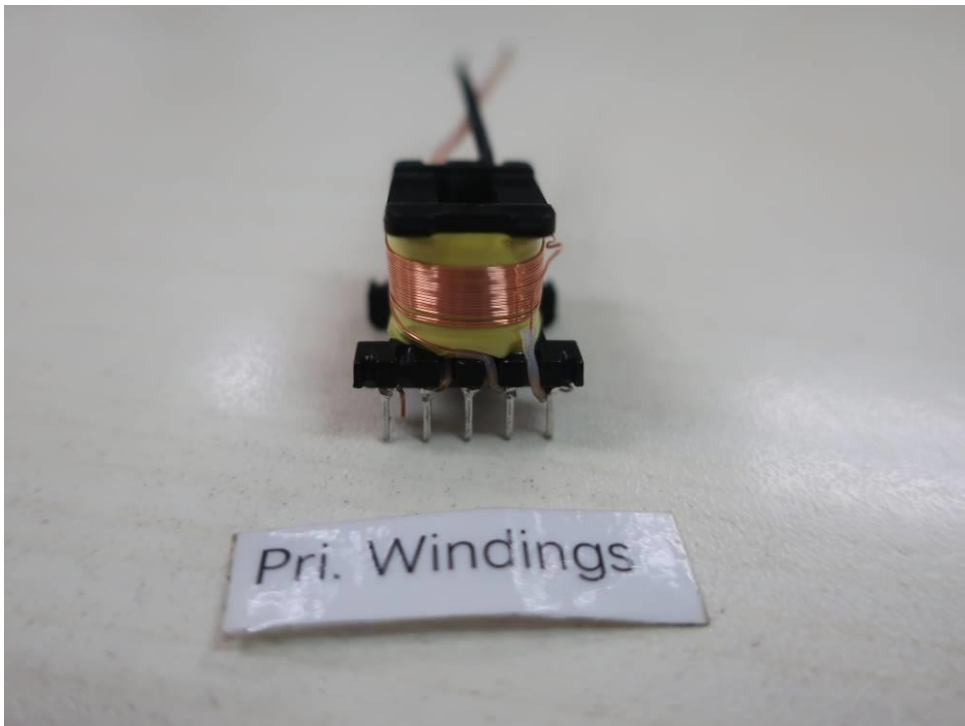
Overview-3 of transformer T1



Internal view-1 of transformer T1



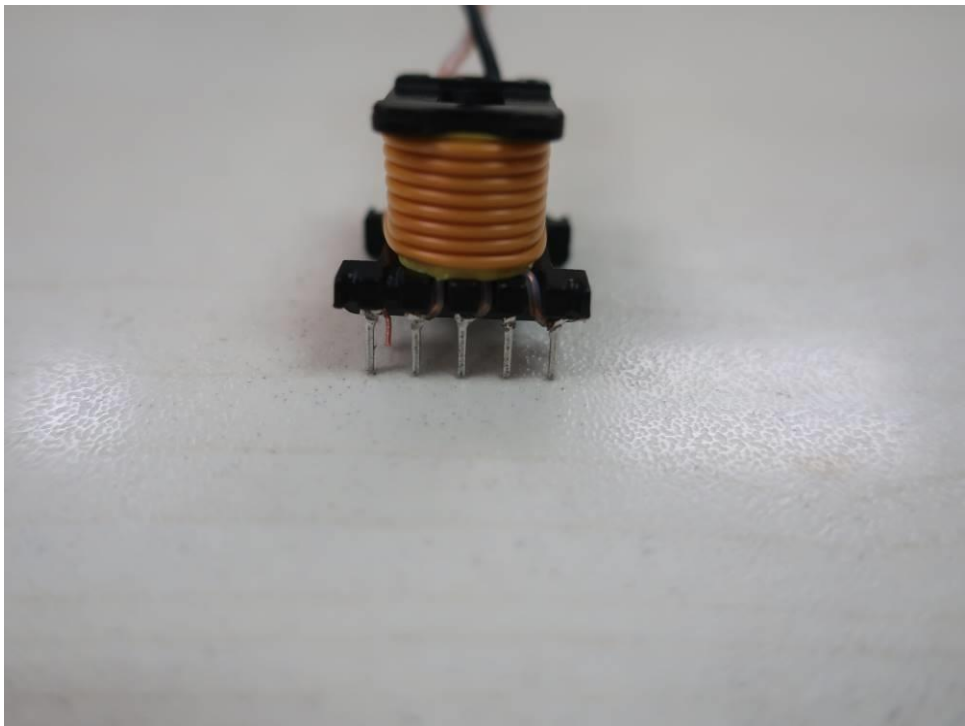
Internal view-2 of transformer T1



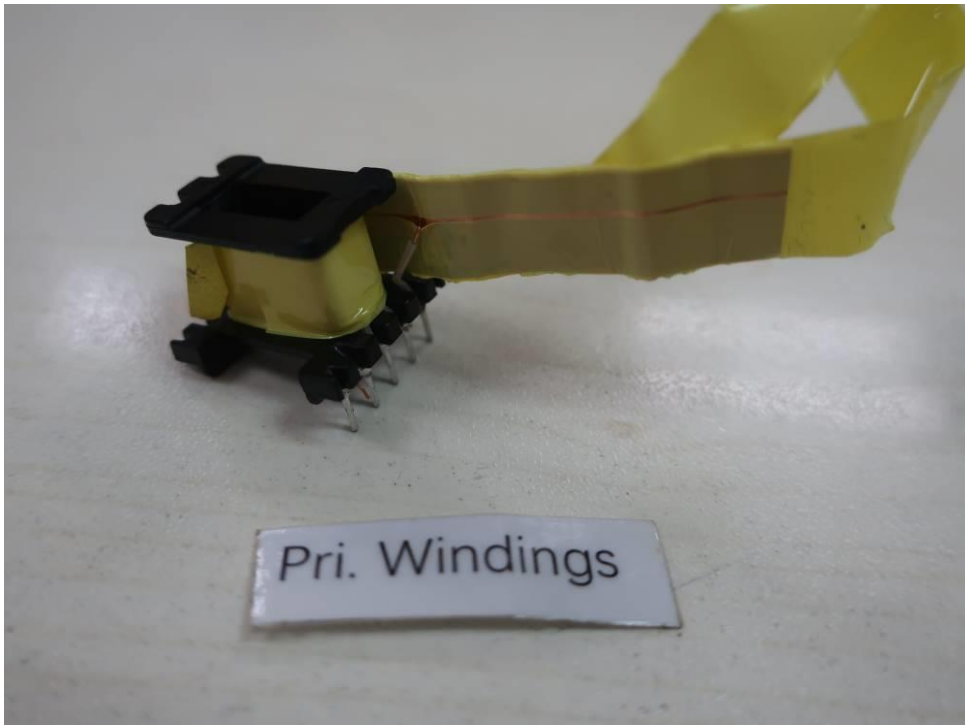
Internal view-3 of transformer T1



Internal view-4 of transformer T1



Internal view-5 of transformer T1



Internal view-6 of transformer T1



Internal view-7 of transformer T1



Internal view-8 of transformer T1

*****End of Repot*****